Engaging Customers Towards Mobile Application Brand Attachment and Advocacy: Multigroup Analysis of Generational Differences

Sheikh Mohammad Fauzul Azim
Independent University Bangladesh

Sawda Mahbuba Rahman
BRAC University

Nabid Alam
Troy University

Tahmina Sultana
Troy University

Mostofa Wahid Soykoth
Louisiana State University

Suranjeet Chowdhury Avik
Textile Engineering Lab

Technology service providers face challenges regarding the varying degrees of customer engagement of app-based services, and this phenomenon warrants an in-depth investigation. This research examines the antecedents and consequences of technology customer engagement and how generational differences play a role in the context of mobile banking applications. This research advances the current understanding by identifying mobile service quality dimensions as key determinants, proposing technology customer engagement as a significant driver of brand attachment and advocacy, and finding the moderating impact of the generational gap. This study guides technology service providers in creating a strategy to engage customers towards app-based services.

Keywords: technology customer engagement, mobile service quality, brand attachment, brand advocacy, mobile banking, generational gap theory

INTRODUCTION

The proliferation of technology has remarkably transformed consumers' lives as they can use their smartphones and mobile applications to receive a wide range of services (Alalwan, Dwivedi, Rana, & Algharabat, 2018; Sardana & Singhania, 2018). Technology services such as mobile banking (m-banking)

applications are a prominent example of breakthrough innovation in the financial sector with substantial benefits (Thusi & Maduku, 2020; Yen & Wu, 2016). M-banking application is a downloadable software that facilitates different financial services such as balance transfer, balance check, payment of utility bills, buying tickets, purchasing insurance, and mobile top-ups and offers enormous advantages over the conventional approach (Johnson, Kiser, Washington, & Torres, 2018; Karjaluoto, Shaikh, Saarijärvi, & Saraniemi, 2019; McLean, 2018). Technology services such as m-banking support a robust business model by achieving financial inclusivity (Hussain, Mollik, Johns, & Rahman, 2018). However, in many instances, these technological services fail to appeal to a larger audience. In 2021, global m-banking revenue was $692.5 million (VantageResearch, 2022), which is still small comparing the market size of the international financial industry. Technology usage has steadily grown in recent years, but customers' attitudes toward these services have fluctuated significantly (Alalwan, Dwivedi, & Rana, 2017; Yuan, Liu, Su, & Zhang, 2020). Therefore, it is critical for both practitioners and scholars to investigate the factors influencing customers' engagement behavior of technology services such as m-banking applications to garner higher growth and business sustainability.

Researchers extensively investigate the factors leading to technology service adoption (Humbani & Wiese, 2019; Hussain et al., 2018; Johnson et al., 2018; Wong, Liu, Meng-Lewis, Sun, & Zhang, 2021). Nevertheless, while initial acceptance is fundamental for advancing a new technology (for instance, an m-banking application), such acceptance does not ensure that customers will be engaged (Ozturk, Bilgihan, Nusair, & Okumus, 2016). Peters, Işık, Tona, and Popovič (2016) mention the importance of engagement for a system's success. Furthermore, Alkhowaiter (2020) suggests that scholars pay more attention to examining engagement behavior in a technology context. In literature, customer engagement has emerged as an exceptionally enthralling idea that has compelled researchers to analyze this concept carefully (Algharabat, Rana, Alalwan, Baabdullah, & Gupta, 2020; France, Merrilees, & Miller, 2016). Organizations are now focusing on building and maintaining a sustained relationship that can be accomplished by engaging customers with them (Rosenbaum, Seger-Guttmann, & Giraldo, 2017; Thakur, 2018). Firms have started considering customer engagement as an essential strategic element to succeed as engaged customers bring enormous benefits for organizations, such as spreading word of mouth, contributing to product development, and depicting purchase intention (Prentice, Wang, & Loureiro, 2019; S. K. Roy, Balaji, Soutar, Lassar, & Roy, 2018; M. Zhang, Hu, Guo, & Liu, 2017). Therefore, our study is inspired by prior researchers who suggested that customer engagement plays a significant role in strategic decisions in different technologies (Algharabat et al., 2020; France et al., 2016; Glavee-Geo, Shaikh, Karjaluoto, & Hinson, 2019), and we conceptualize these relationships in the technology service user context.

Extant research has investigated the notion of customer engagement in an online environment (Hari, Iyer, & Sampat, 2022; Islam, Rahman, & Hollebeek, 2018; Luo, Wang, Jin, Ni, & Zhang, 2019; Thakur, 2018), but there is a shortage of research that examines the role of mobile service quality as the driver of technology service customer engagement (McLean & Wilson, 2019). It is imperative to understand how customers can be engaged with their technology services as customers may assess service in technology and physical environment distinctively (Arcand, PromTep, Brun, & Rajaobelina, 2017).In addition, how technology customer engagement influences consumer-brand relationships in the technology service domain still needs to be explored (S. Kim & Baek, 2018). Both brand attachment and brand advocacy are considered major predictors of customer-brand relationships, and despite their significance, researchers need to pay further attention to understanding how these can emerge from customer engagement with technology (Giovanis, 2016; Sashi, Brynildsen, & Bilgihan, 2019). Moreover, prior literature has acknowledged the importance of customers' personal characteristics, such as age, that can impact customer engagement (Khan, Fatma, Shamim, Joshi, & Rahman, 2020; Rather & Hollebeek, 2021; Ye, Barreda, Okumus, & Nusair, 2019) and behavior (Andalib Touchaei & Hazarina Hashim, 2023). This signifies that customers of different age groups will exhibit different behaviors and relationships with the technology service (Alkire, O'Connor, Myrden, & Köcher, 2020; Ilicic, Baxter, & Kulczynski, 2016). However, little is known about the moderating impact of generational differences on customer engagement behavior in technology service.

Our literature analysis reveals three significant theoretical gaps that this research can address. First, technology customer engagement literature needs to find support regarding whether technology features (usability and interactivity) or non-technology features (privacy and value-added features) of mobile service quality drive customer engagement in a technology service context. Second, technology service literature needs to reveal whether technology customer engagement impacts long-term brand commitment via attachment and brand advocacy. Third, the technology service literature needs to understand further how generational gap theory (the differences between younger and older generations) impacts the relationship between antecedents and consequences of technology customer engagement. Therefore, to understand the significance of technology customer engagement in gaining growth for technology service, we posit mobile service quality dimensions as the determinants and brand attachment and advocacy as the consequences of technology customer engagement. Consequently, our study examines the moderating effect of generational differences on the relationship between mobile service quality, technology customer engagement, brand attachment, and brand advocacy. This research answers the following three research questions:

1. How do mobile service quality dimensions (technology versus non-technology) significantly drive customer engagement for technology service users?
2. How does customer engagement impact brand attachment and advocacy for technology services?
3. How do the younger and older generations differ in engaging with technology services?

Our research makes three significant theoretical contributions to technology service literature via the context of m-banking applications. First, we contribute to technology customer engagement literature by identifying mobile service quality dimensions as critical determinants. Second, we contribute to technology service literature by proposing customer engagement as a major driver of brand attachment and advocacy. Third, we contribute to the technology service literature by finding the moderating impact of the generational gap. Our study also provides important practical implications for technology service providers in terms of creating an engaging user experience. First, organizations can focus on investing their resources to ensure non-technical functions such as privacy and value-added features for the technology application users, such as the m-banking applications. Second, organizations can use brand attachment and advocacy as important strategic considerations for technology service operations. Third, the results can be used by the technology service organizations to devise specific targeting strategies as each age segment evaluates the dimensions of mobile service quality and their engagement behavior differently.

LITERATURE REVIEW

Technology Customer Engagement

Although customer engagement has gained substantial importance in the recent literature (Pansari & Kumar, 2017; Prentice et al., 2019), conceptualization and operationalization of this construct remain unclear (Islam, Hollebeek, Rahman, Khan, & Rasool, 2019; Oh, Roumani, Nwankpa, & Hu, 2017). Some authors consider customer engagement as a unidimensional construct (Beckers, van Doorn, & Verhoef, 2015; Dolan, Conduit, Fahy, & Goodman, 2016) and define it as the customer's behavioral manifestation toward a brand or firm beyond purchase, resulting from motivational drivers (Van Doorn et al., 2010). Jaakkola and Alexander (2014) also explain customer engagement from the behavioral perspective, where customers interact with a focal brand or object and demonstrate action beyond the transactional aspect.

On the contrary, scholars assert customer engagement as a multidimensional construct that incorporates cognitive, affective, and behavioral aspects (Ahn & Back, 2018; Dessart, Veloutsou, & Morgan-Thomas, 2016; Rather, Hollebeek, & Islam, 2019). Hollebeek and Macky (2019) explain customer engagement as a customer's motivationally driven, volitional investment of operant resources (including cognitive, emotional, behavioral, and social knowledge/skills) and operand resources (e.g., equipment) in their brand interactions, hence supporting the view of other scholars (Dessart et al., 2016; Kumar & Nayak, 2019). Proponents of this perspective believe it is essential to have a perennial cognitive and emotional connection with brands and behavioral participation (So, King, Sparks, & Wang, 2016). Therefore, researchers suggest

that a multidimensional perspective of customer engagement can encapsulate the comprehensive nature of this variable (Verhagen, Swen, Feldberg, & Merikivi, 2015).

Prior research examines customer engagement in different technology contexts, such as social media (Harrigan, Evers, Miles, & Daly, 2017; Lee & Kim, 2018), online brand community (Brodie, Ilic, Juric, & Hollebeek, 2013), websites (Demangeot & Broderick, 2016), mobile telecommunication (Hapsari, Hussein, & Handrito, 2020), online music ((Sanchez-Franco & Rondan-Cataluna, 2010), and chatbots (Hari et al., 2022). Alalwan et al. (2020) examine how different dimensions of interactivity can influence customer engagement in the mobile shopping context. Fang, Zhao, Wen, and Wang (2017) investigate the effect of mobile application attributes on customer engagement. However, Fang et al. (2017) only focus on psychological engagement and behavioral engagement intention for a newly developed application. Mclean, Al-Nabhani, and Wilson (2018) adopt the technology acceptance and total-task-fit models to understand mobile application engagement. Although Islam et al. (2020) investigate the impact of website attributes on customer engagement in the physical service context, empirical studies on customer engagement in the technology service application remain nebulous. Glavee-Geo et al. (2019) investigate the effect of customer empowerment, subject norm, and performance expectancy on customer engagement among technology service users. However, these studies do not consider the impact of different utilitarian and hedonic factors on customer engagement. Hollebeek, Sharma, Pandey, Sanyal, and Clark (2022) recommend that scholars investigate the notion of customer engagement more in the technology service context, as a significant gap exists in understanding how user-centric factors affect engagement behavior in technology services such as m-banking applications. The paper fills this gap by identifying the factors that influence customer engagement and offers a notable contribution to technology service literature by conducting an empirical study in the context of m-banking applications.

Mobile Service Quality

Although service quality is one of the most investigated topics by prior researchers in the service literature, studies associated with mobile service quality remain scant (Rajaobelina, Tep, Arcand, & Ricard, 2021; Shankar, Datta, & Jebarajakirthy, 2019). Past studies employ established electronic service quality dimensions to measure mobile service quality (Trabelsi-Zoghlami, Berraies, & Ben Yahia, 2020). However, due to the unique characteristics of mobile services, mobile users' expectations and evaluation of service will vary across different contexts (Shankar et al., 2019). Scholars study mobile service quality as a multidimensional concept and measure it in relation to the unique context of technology service application (Huang, Lin, & Fan, 2015).Huang et al. (2015) define mobile service quality using five dimensions: contact, responsiveness, fulfillment, privacy, and efficiency to measure mobile-based online service. While Kaatz (2020) conceptualizes mobile service quality dimensions as usefulness, ease of use, content, design, security or privacy, and interactivity for m-commerce applications, Wang, Ou, and Chen (2019) divide mobile service quality into three dimensions (usefulness, design, interactivity) for mobile communication.

Moreover, Shankar et al. (2019) mention that constructs such as service quality and electronic service quality are unsuitable for measuring the quality of technology services in a context such as m-banking applications. Thus, the relevant characteristics, namely usability, interactivity, privacy, and value-added features, are derived from the research of Rajaobelina et al. (2021) that are relevant to mobile service quality and the context of the present paper. Usability and interactivity dimensions are created using the usefulness, ease of use, content, and design together, as they are interconnected and explain the user experience (Hoehle & Venkatesh, 2015; McLean, 2018). The technology service applications also need to provide a higher level of privacy functionalities to gain confidence among users (Rajaobelina et al., 2021). In addition, compared to traditional service, technology service application delivers value-added features such as customized location-based data and anticipatory information like notifications (Shankar et al., 2019). Both information quality and service are considered in this study to depict value-added features (Rajaobelina et al., 2021).

Brand Attachment and Advocacy

Attachment theory is the foundation for brand attachment (Kaufmann, Petrovici, Gonçalves Filho, & Ayres, 2016). According to this theory, an individual's emotional investment in an object affects the quality of their relationship with that object (Hemsley-Brown & Alnawas, 2016). Leveraging the founding principles of this theory, Park, Ahn, Thavisay, and Ren (2019) define customers' brand attachment as the strength of the bond connecting the brand with the self. Brand attachment has emerged as a central framework within the study of consumer-brand interaction and is regarded as more crucial to long-term success than either brand attitude or loyalty by researchers (Sciarrino, 2021).

Previous literature has investigated the determinants of brand attachment in different domains. Yu and Yuan (2019) investigate the effect of brand experience on brand attachment for social media brands and find a positive relationship between them. In another study Shimul (2022) examine how brand attachment positively mediates the relationship between engagement and brand loyalty. C. Yang, Yang, and Feng (2021) demonstrate the impact of achievement-related gamification on brand attachment using self-determination theory. Scholars have also identified self-brand connection (Loh, Gaur, & Sharma, 2021), brand trust (S.-B. Yang, Lee, Lee, & Koo, 2019), brand involvement (Tsiotsou, Alexandris, & Bettina Cornwell, 2014), brand engagement (Kumar & Nayak, 2019) as determinants of brand attachment and conduct studies in contexts like tourism (Ahn & Back, 2019; Bose, Pradhan, Bashir, & Roy, 2022; Xue, Wang, Gursoy, & Song, 2021), luxury products (Peng & Chen, 2019; Shimul, Sung, & Phau, 2021), retailing (Loureiro, 2017), and brand community (Chang, Ko, Huang, & Wang, 2019).

Despite the growing significance of brand attachment, understanding how brand attachment relates to technology customer engagement in the technology service context is limited (Shimul, 2022). Tran, Furner, and Albinsson (2020) examine the antecedents and outcomes of brand attachment for branded mobile apps and suggest hedonic motivation as an antecedent of brand attachment and purchase intention as its outcome. In another study, S. Roy, Ponnam, and Mandal (2017) argue that the impact of mobile applications' presentation style and novelty on brand attachment and exhibit a positive association between these constructs. Rajaobelina et al. (2021) analyze the impact of service quality on brand attachment for mobile financial services applications and report a positive relationship between them.

Brand advocacy can be defined as the deliberate endorsement of a brand by its customers, along with the robust protection of the brand against its opponent and their willingness to forgive the brand of any wrongdoing (Wilk, Harrigan, & Soutar, 2018). Scholars have considered brand advocacy comparable to the word of mouth (East, Hammond, & Lomax, 2008; Jones & Taylor, 2007). Researchers also argue that brand advocacy is a more advanced form of customer-brand relation as it includes not only communicating the brand favorably but also defending the brand when someone criticizes it (Bilro, Loureiro, & Ali, 2018). Having brand advocates who promote the brand is a primary goal for businesses. Brand advocacy correlates with self-brand identification, purchase intention, customer satisfaction, and brand trust, indicating its significance (Badrinarayanan & Laverie, 2013; Bagozzi & Dholakia, 2006; Liang & Zhang, 2012; Schepers & Nijssen, 2018).

Several studies attempt to study the notion of brand advocacy in technology contexts. Wilk, Soutar, and Harrigan (2021) demonstrate the importance of brand advocacy in building customer-brand relationships on social media. Shimul and Phau (2018) examine brand advocacy for luxury brands and show the positive effect of brand loyalty and satisfaction on brand attachment. Bilro et al. (2018) investigate how engagement can lead to brand advocacy on a brand's website. However, researchers mention the importance of understanding consumers' brand advocacy in the technology service application context (Tran et al., 2020). In a recent study, Rhee and Lee (2021) investigate the impact of virtual fitting satisfaction on brand advocacy and, eventually, on purchase intention in a mobile application.

Generational Gap Theory and Customer Behaviour

According to generational theory, people who are close in age tend to share similar fundamental ideologies that serve as the driving factor of attitudes, expectations, and determinants of behavior since they have experienced and shared the same events (Schewe & Noble, 2000). However, the generational gap theory argues the opposite, which is that each generation has its own distinctive set of lifestyles,

generational history, experiences, expectations, values, and demographics that impact their purchasing behaviors (Bitterman & Hess, 2021). As a result, customers of different ages vary in product or service involvement. Kasabov and Hain (2014) find that when it comes to service recovery with a call center service, baby boomers have higher expectations for engagement and performance quality than the millennials. A survey of Chinese hotel guests shows that convenience is more important to Generation X, while safety is more important to millennials (F. X. Yang & Lau, 2015). In addition, Obal and Kunz (2013) reveal that the interactions between an e-service vendor and customers (i.e., vendor guidance, navigation, and feedback mechanisms) indicate online trust for millennials more than for baby boomers. Since no two generational cohorts are alike, researchers need to account for the traits and behaviors of each generational group (Djafarova & Bowes, 2021).

During the last decade, scholars have paid significant attention to customer engagement (Hollebeek & Macky, 2019). Customer engagement significantly contributes to firm profitability and growth (Brodie et al., 2013; Kumar & Nayak, 2019). For a long time, market researchers have regarded age to be a critical demographic factor (Ye et al., 2019). Since a generation gap is a divergence in values and attitudes between generations, particularly between youth and their parents, generational gap theory can be closely related to the impact of different age groups on customer engagement. According to recent research (Khan et al., 2020), consumers of varying ages have various wants, requirements, and motivations and act in diverse ways. The elderly customers have higher emotional control and maturity than the younger generations (Carstensen et al., 2011), causing them to show distinct behaviors. On the other hand, young (as opposed to older) customers are more likely to spend a significant amount of time looking for product- or service-related information(Wells & Gubar, 1966). Rather and Hollebeek (2021) finds that cognitive customer engagement strongly affects customer experience for younger users but has little effect on older users. This finding suggests that attracting younger and older customers requires different strategies for boosting engagement with services (e.g., informative brand-related material targeting various audiences.

According to Bailey and Ngwenyama (2010), young people enthusiastically participate in online communities such as MySpace, Facebook, and Hi5. They also find that the elderly community members are concerned about young people's involvement in these online communities. Mainly, they express concern about how much time they spend on social media sites and the risks involved with meeting people online. Moreover, a significant amount of technology is now available to the younger generation when they are growing up (Cheung, Leung, & Chan, 2020; PrakashYadav & Rai, 2017). They have never known a world without the internet; therefore, they are always up to date with the state of the technology (Johnson et al., 2018). Generation Z is said to have a "digital bond" because they are raised in an online world where they have access to the internet whenever they want it (Turner, 2015). Consequently, customers from this generation are more involved in technology services than those from earlier generations. These young people participate actively in online content and express their thoughts on various topics, including the current phenomenon. Therefore, the above literature justifies the investigation of technology customer engagement of different age groups.

Our literature analysis reveals three significant theoretical gaps that this research can address. First, technology customer engagement literature needs to find support regarding whether technology features (usability and interactivity) or non-technology features (privacy and value-added features) of mobile service quality drive customer engagement in a technology service context. This understanding will provide further theoretical guidance about the strategic trade-off decision of implementing technology versus non-technology features in an online service. Second, technology service literature needs to reveal whether technology customer engagement impacts long-term brand commitment via attachment and brand advocacy. The findings will establish the theoretical importance of focusing on increased customer engagement in the context of technology service. Third, the mobile application literature needs to understand further how generational gap theory (the difference between younger and older generations) impacts the relationship between antecedents and consequences of technology customer engagement. This result will provide crucial theoretical insight regarding the perception of people from different age groups in the context of technology services.

THEORETICAL FRAMEWORK

Technology Dimensions of Mobile Service Quality and Technology Customer Engagement

Prior researchers acknowledge a system's attractive interface and design as a powerful element to capture users' attention and create an enthralling experience that impacts psychological engagement (Coursaris & Van Osch, 2016; Oppong-Tawiah et al., 2020). Furthermore, Fang et al. (2017) mention that a visually appealing interface encourages users to devote more time and effort to using an application and consequently get intensely engaged with the application. Moreover, El Said (2015) suggests that users are reluctant to engage with a system that is difficult to use. This has been supported by Peters et al. (2016) who report that technology application users are less likely to engage with a complex system. Based on this rationale, we propose—

H1: Usability of technology service application positively affects technology customer engagement.

Interactivity is a crucial element for a technology application that enables users to communicate with other customers and customer representatives (Hari et al., 2022; Zhao & Balagué, 2015). In the context of m-banking, interactivity provides users the opportunity to talk back with bank representatives and access testimonials from other customers (Arcand et al., 2017).Barreda, Bilgihan, Nusair, and Okumus (2015) mention the importance of interactive features that enhance the users' website duration. Prior studies state that an interactive technology such as a mobile application induces a delightful experience (Pappas, Pateli, Giannakos, & Chrissikopoulos, 2014); still, the effect of interactivity on customer engagement for m-banking applications remains undetermined. An interactive platform enables two-way communication between users and brand representatives that drives users' intention to engage (Islam & Rahman, 2017). Moreover, having the opportunity to interact with the service representatives can enhance the chance of being engaged with the brands' app-based services (Spielmann & Mantonakis, 2018). Consequently, we argue that customers are more likely to engage if they perceive that a suitable platform will facilitate interaction between representatives and customers. Hence, we hypothesize that—

H2: Interactivity of technology service application positively affects technology customer engagement.

Non-Technology Dimensions of Mobile Service Quality and Technology Customer Engagement

Privacy refers to the degree to which customers feel that their information is secured and a system is protected from invasion (Parasuraman, Zeithaml, & Malhotra, 2005). Fang et al. (2017) mention that effective privacy/security design enhances users' interest in engaging with the application, whereas a lack of such design discourages them from engaging in interaction (Morosan & DeFranco, 2015). While taking service from an application, users have to share personal data such as personal details, passwords, and PIN codes with the service providers, creating uncertainty for users (Pentina, Zhang, Bata, & Chen, 2016). Shankar, Jebarajakirthy, and Ashaduzzaman (2020) mention that customers are concerned about privacy before engaging with services such as m-banking. Hence, we propose—

H3: Privacy of technology service application positively affects technology customer engagement.

Technology application users get functional experiences through different value-added features related to the informational attributes such as detailed information, personalized content, and data availability, and utilitarian-based incentives such as various monetary rewards and promotional coupons (C. K. Kim, Jun, Han, Kim, & Kim, 2013; Rajaobelina et al., 2021). Existing literature has recognized the importance of value-added features that create a positive experience and drive engagement behavior (Naqvi, Jiang, & Naqvi, 2020). This finding is also supported by other researchers who report that providing accurate and detailed information about the brand or product features influences satisfaction and customer engagement in an online retail context (Islam & Rahman, 2017; Muhammad, Yi, Naz, & Muhammad, 2014). Similarly, ensuring value-added features is crucial for technology applications because providing adequate and

accurate information about transactions and their history promptly will facilitate a positive user experience (Yuan et al., 2020). Thus, we can posit that—

H4: Value-added features of technology service application positively affect technology customer engagement.

Technology Customer Engagement and Brand Attachment

Brand attachment signifies the strong emotional relationship between the customers and the brands (Park et al., 2019). Brand attachment is considered one of the significant drivers of augmenting customer-brand relationships (Jain, Kamboj, Kumar, & Rahman, 2017). Customers' engagement with a brand facilitates self-brand connection and brand prominence, which have been identified as the two dimensions of brand attachment (Hollebeek, Glynn, & Brodie, 2014; Park et al., 2019; Sprott, Czellar, & Spangenberg, 2009). Previous research mentions brand attachment as a psychological outcome of customer engagement, as engaged customers make the brand a fundamental part of their personality (Brodie et al., 2013). In the service sector, the significance of customer engagement has been acknowledged by Goyal and Srivastava (2015), who explain that customer engagement strengthens the relationship between customers and providers. In addition, when customers receive services through different mobile applications, they can develop a strong connection with the brand, contributing to brand attachment (Fritz, Sohn, & Seegebarth, 2017). Based on these observations, we can argue that—

H5: Technology customer engagement positively affects brand attachment to technology service application.

Technology Customer Engagement and Brand Advocacy

Brand advocacy signifies a consumer's voluntary recommendation of a brand, a defense of the brand against critics, and a readiness to pardon the brand for any misconduct (Wilk et al., 2018). Jaakkola and Alexander (2014) mention that brands get recommended by engaged customers. According to Schepers and Nijssen (2018), engaged consumers build a psychological relationship with brands that act as a catalyst to defend the brand in times of attacks by others. Vivek, Beatty, Dalela, and Morgan (2014) acknowledge that customers engage with the brand's work as brand advocates. In addition, prior literature has highlighted the role of customer engagement in creating a favorable attitude toward the brand and thus helping other customers through the brand defense (Mishra, 2019; Wilk et al., 2018). In the service context, Chakravarty, Liu, and Mazumdar (2010) mention customer engagement may result in brand advocacy due to customers' psychological states. Harrigan, Roy, and Chen (2020) identify customer engagement as a driver of brand-related behavior, such as brand advocacy. We argue that when users are engaged with a technology application to avail services, it influences their perception of the brand, consequently affecting their referral behavior. Hence, we can posit that—

H6: Technology customer engagement positively affects brand advocacy of technology service applications.

Impact of Generational Differences

As customers' preferences are expected to differ across age groups and tend to respond to marketing stimuli uniquely throughout their lifetime, scholars consider age a crucial demographic factor in understanding consumer behavior (Khan et al., 2020; Ye et al., 2019). Existing literature suggests age can influence customers' behavior and their assessment process of service quality (Tarhini, Hone, & Liu, 2014). For instance, older customers have greater maturity and control over their emotions than their younger counterparts, who spend limited time making their buying decisions (Rather & Hollebeek, 2021; Wells & Gubar, 1966). Andalib Touchaei and Hazarina Hashim (2023) identify that senior users' intention to use mobile banking application is impacted by expectancy and hedonic motivation. Prior research also reveals the moderating effect of age on the service quality of mobile application-based services and customer

behavior (Natarajan, Balasubramanian, & Kasilingam, 2018). Younger customers tend to perceive mobile service quality, such as privacy and design differently from older customers because they have been exposed to advanced technology (Natarajan et al., 2018). Based on these arguments, we hypothesize that—

H7a-f: Customers' generational difference moderates the relationships posited in H1-H6.

Figure 1 shows the research model of this study.

FIGURE 1
RESEARCH MODEL WITH HYPOTHESES
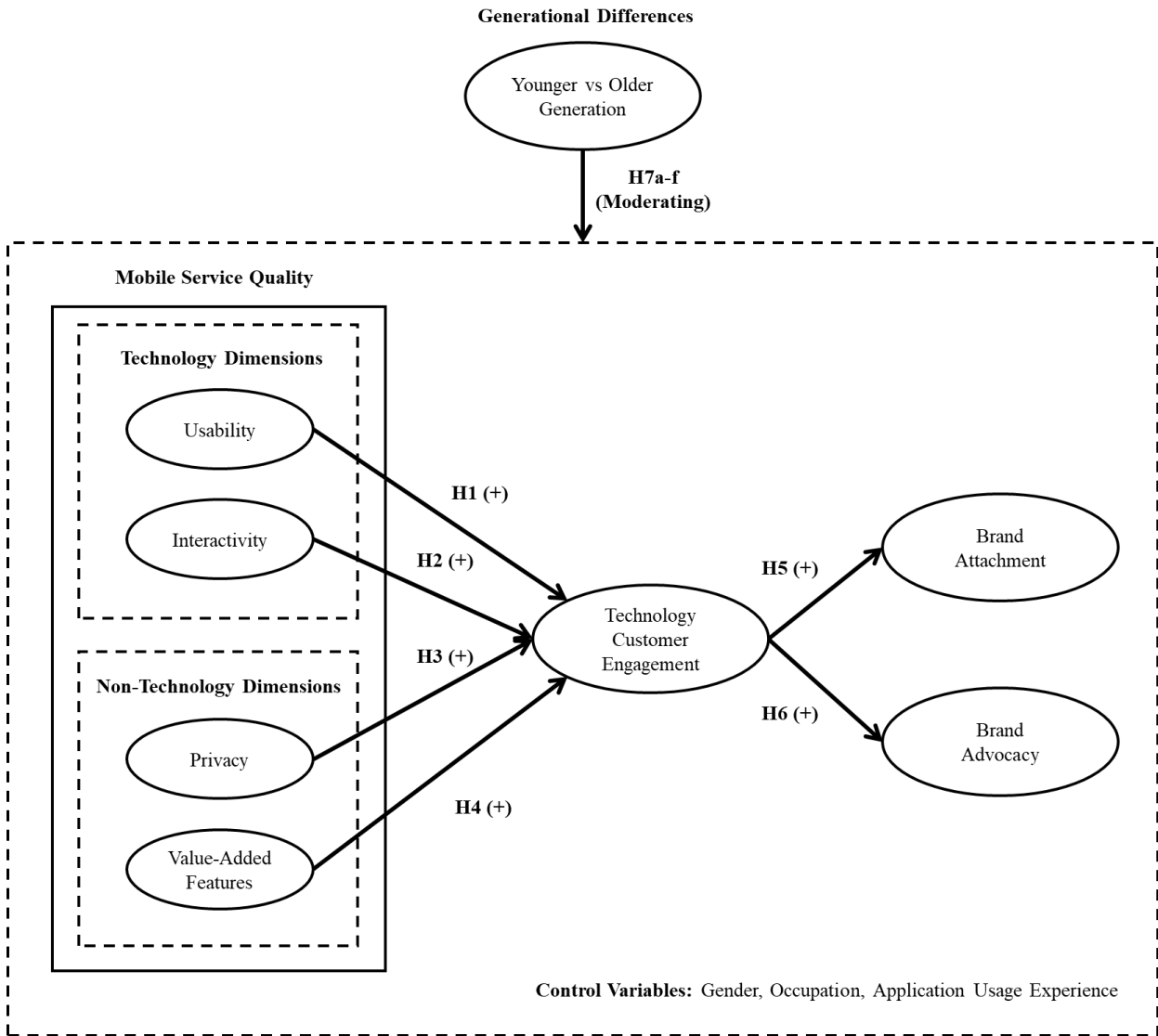
METHODOLOGY AND ANALYSIS

Data Collection and Sampling

This research collects data from m-banking application users from a developing country, Bangladesh. Currently, there are 15 providers of m-banking who are bringing continuous innovation, and the daily average transaction amount is USD 220 million (Bank, 2021). As of March 2021, the total number of

registered clients is 102.8 million, which was 92.5 million in July, 2020 (Bank, 2021). As this is a quantitative study, a structured survey method was selected to collect data because it is considered a time-efficient and cost-efficient method as it can be prepared and distributed online (Y. Zhang, 2000). A non-probability convenience sampling was employed to collect data as it is easier and more convenient for the researcher to access respondents at lower costs (Malhotra, Nunan, & Birks, 2017). A pilot study was conducted on 50 m-baking application users to ensure the questions were appropriate for this research. First, 365 respondents participated in the survey, and 347 passed the filtering question. Finally, 336 complete responses were recorded that fulfilled the survey requirement suggested by Hair et al. (2010). Table 1 represents the overall demographic information.

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS (N = 336)

Characteristics	N	%
Gender		
Male	200	59.52
Female	136	40.48
Age		
18-27	174	51.79
28-38	125	37.20
38 and above	37	11.01
Occupation		
Student	144	42.86
Employee	168	50
Business	24	7.14
Application Usage Experience		
Less than 3 months	45	13.39
3 months- 6 months	97	28.87
6 months- 1 year	125	37.20
More than 1 year	69	20.54

Questionnaire Design and Measures

There were two parts to the questionnaire. In the first section, they answered the questions about the main variables adopted from existing literature (See Appendix A). A five-point- Likert scale was used in the survey question to ensure generalizability, where 1 signifies "Strongly Disagree" and 5 means "Strongly Agree" (Malhotra and Birks, 2006). The second section asked the respondents to provide demographic information such as age, gender, occupation, and m-banking usage experience.

Measurement Model Results

Confirmatory factor analysis is applied in the current study to assess the measurement model. SPSS 20 and AMOS 18 software are used in this regard. All the scales ranging from convergent to discriminant validity and reliability signal satisfactory results. Internal consistency and reliability are also established (see Tables 2 and 3). Cronbach's Alpha coefficients meet the minimum standard of 0.70 (Hooper, Coughlan, & Mullen, 2008). The values range from 0.827 to 0.936. All the values related to factor loading range from 0.525 to 0.931. Hence, these values are above the standard value, showing significant results. The composite reliability of all variables is also above the set value of 0.50 (Garbarino & Johnson, 1999). Moreover, the values of average variance extracted are higher than those of squared multiple correlations. All the indices are the best fits; therefore, the model is also a good fit. The indices of CFI = 0.990, GFI = 0.912, RMSEA = 0.021, TLI = 0.988 and CMIN/DF = 1.150 meet all the standard values (Hooper et al., 2008).

TABLE 2
CONFIRMATORY FACTOR ANALYSIS RESULTS

Item	Mean	SD	Loading	CR	AVE	MSV	Cronbach Alpha
USA1	4.26	0.723	0.841	0.933	0.637	0.044	0.936
USA2	4.18	0.758	0.722				
USA3	4.24	0.722	0.786				
USA4	4.23	0.732	0.809				
USA5	4.19	0.726	0.834				
USA6	4.23	0.745	0.799				
USA7	4.21	0.694	0.783				
USA8	4.21	0.732	0.805				
INT1	4.13	0.652	0.891	0.832	0.567	0.094	0.835
INT2	4.18	0.655	0.931				
INT3	4.17	0.685	0.577				
INT4	4.13	0.62	0.525				
PRI1	4.19	0.724	0.699	0.816	0.528	0.119	0.854
PRI2	4.17	0.753	0.833				
PRI3	4.24	0.786	0.653				
PRI4	4.26	0.758	0.71				
VAF1	4.11	0.71	0.829	0.859	0.67	0.218	0.857
VAF2	4.03	0.718	0.844				
VAF3	4.12	0.707	0.781				
TCE1	4.16	0.819	0.806	0.931	0.629	0.163	0.934
TCE2	4.15	0.826	0.78				
TCE3	4.14	0.841	0.81				
TCE4	4.14	0.841	0.813				
TCE5	4.25	0.785	0.759				
TCE6	4.3	0.8	0.727				
TCE7	4.29	0.791	0.789				
TCE8	4.17	0.762	0.852				
BRT1	4.19	0.729	0.804	0.809	0.523	0.218	0.827
BRT2	4.18	0.714	0.869				
BRT3	4.15	0.681	0.615				
BRT4	4.27	0.679	0.557				
BRD1	4.25	0.787	0.889	0.884	0.72	0.163	0.88
BRD2	4.24	0.777	0.915				
BRD3	4.21	0.781	0.73				

Note:
USA = Usability, INT = Interactivity, PRI = Privacy, VAF = Value-Added Features, TCE = Technology Customer Engagement, BRT = Brand Attachment, BRD = Brand Advocacy, SD = Standard Deviation, CR = Composite Reliability, AVE = Average Variance Extracted, MSV = Maximum Shared Variance

TABLE 3
CORRELATION COEFFICIENTS

| Constructs	USA	INT	PRI	VAF	TCE	BRT	BRD
USA	-						
INT	0.189	-					
PRI	0.171	0.135	-				
VAF	0.154	0.307	0.263	-			
TCE	0.073	0.193	0.298	0.333	-		
BRT	0.209	0.265	0.345	0.467	0.351	-	
BRD	0.026	0.118	0.155	0.159	0.404	0.180	-

Note:
USA = Usability, INT = Interactivity, PRI = Privacy, VAF = Value-Added Features, TCE = Technology Customer Engagement, BRT = Brand Attachment, BRD = Brand Advocacy, SD = Standard Deviation, CR = Composite Reliability, AVE = Average Variance Extracted, MSV = Maximum Shared Variance

Structural Model Results

Covariance-based structural equation modelling is adopted to test the hypothesized model paths. The indices of the structural model demonstrate CFI = 0.985, GFI = 0.910, TLI = 0.983, RMSEA = 0.025, and CMIN/DF = 1.209. These indices are in the good fit range and establish the fitness of the structural model. Figure 2 represents the results of the structural path analysis.

FIGURE 2
STRUCTURAL PATH ANALYSIS RESULTS
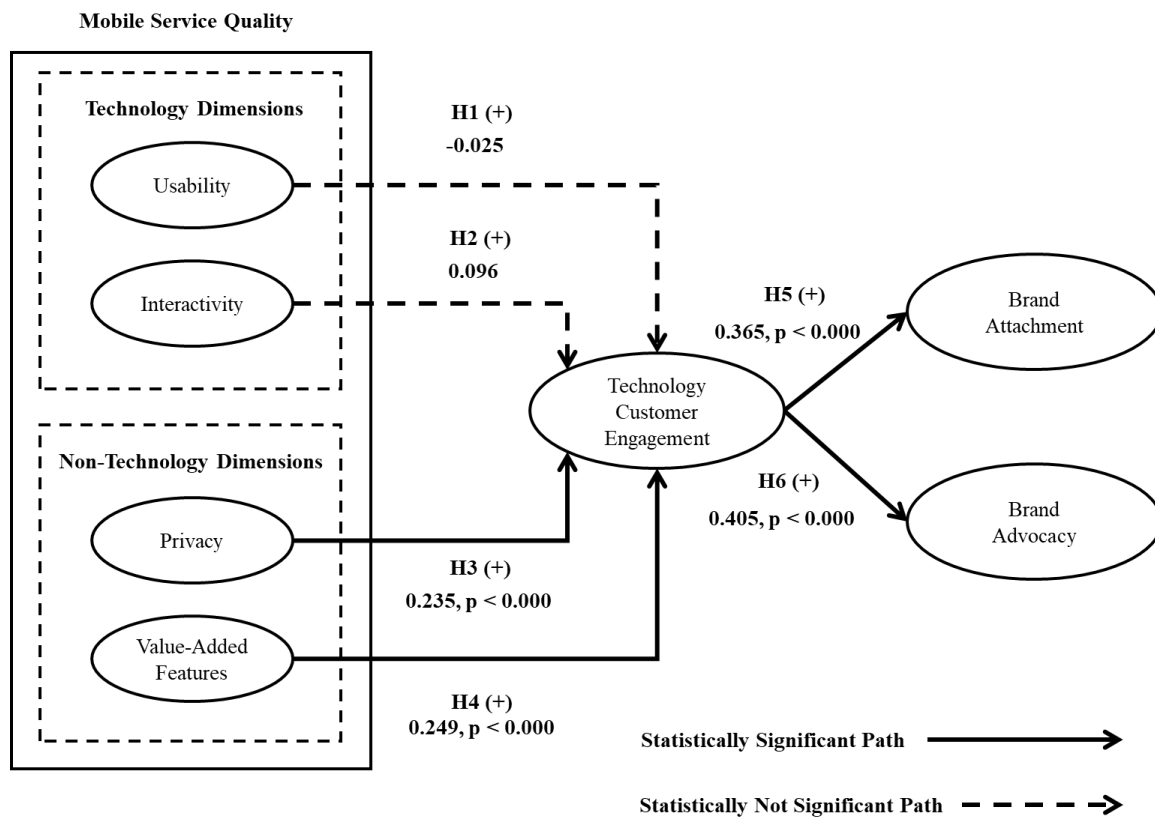
On the antecedent side of technology customer engagement, we notice that the relationship between usability and technology customer engagement ($\hat{\beta}$ = -0.025, p > 0.05) and interactivity and technology customer engagement ($\hat{\beta}$ = 0.096, p > 0.05) have insignificant influence, thus rejecting the H1 and H2 on the positive impact of technology dimensions of mobile service quality on technology customer engagement. Moreover, the results reveal that privacy has a positive effect on technology customer engagement ($\hat{\beta}$ = 0.235, p < 0.000), and the value-added features have a significant positive impact on technology customer engagement ($\hat{\beta}$ = 0.249, p < 0.000); thus, it supports the H3 and H4 on the positive impact of non-technology dimensions of mobile service quality on technology customer engagement. On the consequence side of customer engagement, the results reveal that technology customer engagement has a positive effect on brand attachment ($\hat{\beta}$ = 0.365, p < 0.000) and brand advocacy ($\hat{\beta}$ = 0.405, p < 0.000), thus supporting H5 and H6. The hypothesis testing result summary is given in Table 4.

TABLE 4
STRUCTURAL MODEL RESULT SUMMARY

Hypothesis	Structural paths		model	Standardized Beta	SE	CR	P-value	Decision
H1	USA	→	TCE	-.025	.062	-.434	.664	Not Supported
H2	INT	→	TCE	.096	.068	1.620	.105	Not Supported
H3	PRI	→	TCE	.235	.094	3.259	.000	Supported
H4	VAF	→	TCE	.249	.073	3.821	.000	Supported
H5	TCE	→	BRT	.365	.056	5.844	.000	Supported
H6	TCE	→	BRD	.405	.062	6.887	.000	Supported

Note:
USA = Usability, INT = Interactivity, PRI = Privacy, VAF = Value-Added Features, TCE = Technology Customer Engagement, BRT = Brand Attachment, BRD = Brand Advocacy, SE = Standard Error, CR = Critical Ratio

Multi-Group Analysis Results
This research uses multi-group analysis to analyze the moderating impact of generational differences among customers. The researchers classified the responses into two main groups: younger (27 and below) and older (above 27). As data is collected from Bangladesh, we consider the cutoff age as 27 based on the median age of the country (Worldmeters, 2021). In addition, age 27 is considered a transitional age in the country, supporting its appropriateness for the current study (Khan et al., 2020; Levinson, 1986). Multi-group confirmatory factor analysis is employed to support configural invariance. The significant loadings of the factors indicated the goodness of fit for the model. Afterward, metric invariance is used by contrasting constrained and unconstrained models. The findings prove the presence of metric invariance. Then, path coefficient analysis is conducted. Hence, the analysis further ensures the model fitness in multi-group analysis: p= 0.000, χ2 = 1219.77, df = 998; CFI = 0.969, GFI = 0.835, TLI = 0.966, RMSEA = 0.026 and CMIN/DF = 1.222. The value of GFI is below the recommended level of 0.90, but this value is dependent on the sample size (Lin, Luo, Cai, Ma, & Rong, 2016; Mulaik et al., 1989). Nevertheless, the value of 0.835 is acceptable as it falls within the range of 0.80-0.90, as suggested by Jöreskog and Sörbom (1996). The structural model for the multi-group analysis is represented in Figure 3.

The analysis shows generational differences between younger and older age groups (Δχ2 = 10.577, p < 0.05); however, usability does not significantly impact technology customer engagement for the separate models. The analysis also suggests no generational differences regarding interactivity and technology customer engagement (Δχ2 = 5.058, p > 0.05). The study shows that privacy is positively associated with both younger ($\hat{\beta}_{younger}$ = 0.171, p < 0.05) and older ($\hat{\beta}_{older}$ = 0.160, p < 0.05) groups. The findings indicate significant generational differences concerning privacy and technology customer engagement (Δχ2 = 10.263, p < 0.05). The analysis further reveals that value-added features are positively related to technology customer engagement for both younger ($\hat{\beta}_{younger}$ = 0.233, p < 0.05) and older ($\hat{\beta}_{older}$ = 0.209, p < 0.05)

groups. The multi-group analysis reveals a significant generational difference between the two groups concerning value-added features and technology customer engagement ($\Delta\chi2 = 10.27$, p < 0.05).

FIGURE 3
MULTI-GROUP ANALYSIS OF GENERATIONAL DIFFERENCES
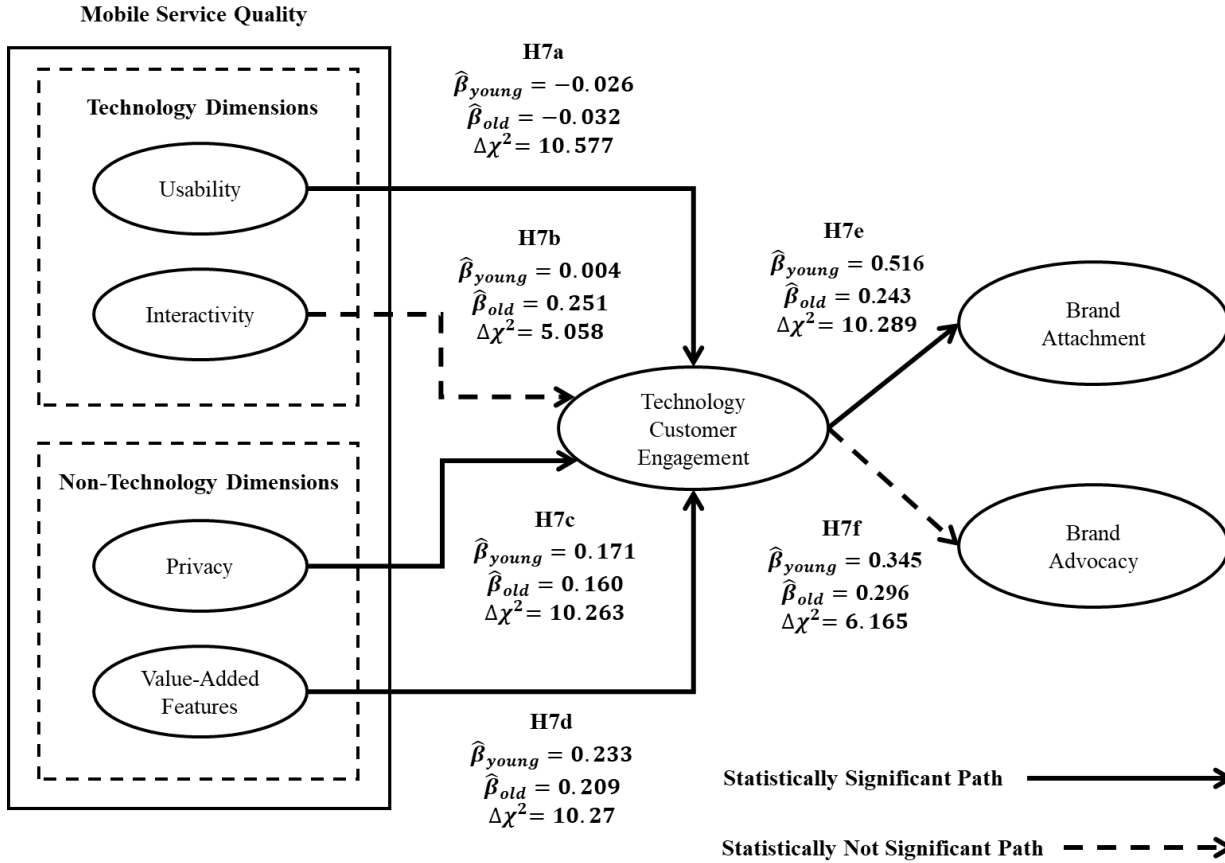
The relationship between technology customer engagement and brand attachment is also affected by generational differences. The analysis reveals that technology customer engagement and brand attachment are positively related for both younger ($\hat{\beta}_{younger} = 0.516$, p < 0.05) and older ($\hat{\beta}_{older} = 0.243$, p < 0.05) respondent groups. This relationship is affected by generational differences ($\Delta\chi2 = 10.289$, p < 0.05). Finally, the findings highlight that technology customer engagement and brand advocacy are positively associated with both younger ($\hat{\beta}_{younger} = 0.345$, p < 0.05) and older ($\hat{\beta}_{older} = 0.296$, p < 0.05) customers. Nevertheless, there is no generational impact on this relationship (($\Delta\chi2 = 6.165$, p > .05). So, all the hypotheses regarding moderation of generational differences are accepted apart from H7b and H7f. The multi-group analysis results are presented in Table 5.

TABLE 5
MULTI-GROUP ANALYSIS OF GENERATIONAL DIFFERENCES

Hypothesis	Path	Younger Beta (t-value)	Older Beta (t-value)	X^2 Difference	Decision
H7a	USA → TCE	-.026 (-0.332)	-.032 (-0.436)	10.577**	Supported
H7b	INT → TCE	.004 (0.053)	.251 (3.396) **	5.058	Not Supported
H7b	PRI → TCE	.171 (2.247) **	.160 (2.190) **	10.263**	Supported
H7d	VAF → TCE	.233 (2.926) **	.209 (2.818) **	10.27**	Supported
H7e	TCE → BRT	.516 (7.921) **	.243 (3.177) **	10.289**	Supported
H7f	TCE → BRD	.345 (4.827) **	.296 (3.932) **	6.165	Not Supported

Note:
** P< .05
USA = Usability, INT = Interactivity, PRI = Privacy, VAF = Value-Added Features, TCE = Technology Customer Engagement, BRT = Brand Attachment, BRD = Brand Advocacy

DISCUSSION

This study explores the drivers of technology customer engagement by employing mobile service quality and the consequences of technology customer engagement on brand attachment and brand advocacy in the context of technology services such as m-banking application. Our research further investigates the moderating role of generational differences that provide necessary insight into technology service customer engagement. This paper reveals that privacy and value-added features are crucial factors for driving customer engagement among m-banking application users that conform to the findings of prior research (Coursaris & Van Osch, 2016; Islam et al., 2020; McLean, 2018; Peters et al., 2016; Wu, 2016). Interestingly, the most significant factor affecting customer engagement among m-banking application users is value-added features. This is in line with prior literature that suggests customers enjoy a platform that provides reliable, personalized, and accurate information that, in turn, encourages customers to engage with the brands' app-based services (Baabdullah, Alalwan, Rana, Kizgin, & Patil, 2019; Naqvi et al., 2020; Yuan et al., 2020). Moreover, customers receive different incentives such as cashback or coupons while using these m-banking applications that can be used for later transactions. These motivate the customers to use m-banking applications. This observation has been supported by Tak and Gupta (2021) highlight how these promotional features can be lucrative for customers who want to engage with app-based services.

In addition to these findings, technology service users consider privacy as a crucial variable, and this finding is coherent with prior research (Arcand et al., 2017; Fang et al., 2017). When customers make transactions, they need to share their personal information, such as contact number, PIN code, and card number. These are sensitive information, and the customers will be involved with the transaction through the application only if the platform is secure enough. Contrary to our expectations, usability and interactivity failed to predict any positive impact on technology customer engagement in this research. This finding is incongruent with a number of prior research (Islam et al., 2020; Tak & Gupta, 2021; Tarute, Nikou, & Gatautis, 2017). One plausible explanation for these non-intuitive results can be attributed to the personal characteristics of the respondents of this study. Participants of this study may have adequate experience with m-banking applications. As a result, whenever they encounter any issue with using m-banking application due to its complexity, they are highly unlikely to depend on others to take any support and can override the problem (Alalwan et al., 2017; Baabdullah et al., 2019; Tarhini, Alalwan, Shammout, & Al-Badi, 2019). Furthermore, due to the increased use of technology-based services, usability is now considered a prerequisite for application users (Rajaobelina et al., 2021). Hence, customers' expectations regarding usability are now viewed as being granted and thus might not influence their engagement behavior.

This study further reveals a positive effect of technology customer engagement on brand attachment and brand advocacy that is consistent with prior literature (Hussain et al., 2018). These positive

relationships explain that when customers are engaged with m-banking applications and use them more frequently, they will learn about the brand more and develop an emotional connection. This, in turn, makes them attached to the brand. Moreover, engaged customers having a delightful experience with m-baking applications are more likely to talk about the brand positively and try a new offering from the brand, thus making them brand advocates.

Regarding the multi-group analysis, the findings reveal interesting results suggesting that, apart from interactivity, generational difference influences the association between technology customer engagement and mobile service quality dimensions. A significant difference exists across generational groups between usability and technology customer engagement, but the interaction was negative for both age groups. Such occurrence is unique and can be explained by the contextual characteristic of customer engagement. Significant differences also exist across the age groups regarding the relationship between value-added features and technology customer engagement. Specifically, value-added features are the most important factor influencing customer engagement for both age groups, and we have observed a more substantial effect for younger customers. This is an exciting result, as previous studies suggest that for younger customers, the application's design and content are more important than value-added features, whereas older customers appreciate value-added features more. This can be explained by the fact that younger customers are now considered "digital natives" as they have been brought up in the context of advanced technology (Trabelsi-Zoghlami et al., 2020). Thus, these young customers consider usability a rudimental factor for m-banking applications that they expect to have built-in and focus more on value-added features. Privacy is the next most influential factor to predict customer engagement for both age groups. Users face cyberattack threats, and thus, they will devote more time to m-banking applications when they feel secure transacting through them. Moreover, only older customers attach considerable importance to interactivity to be engaged with m-banking applications. One plausible explanation can be that older customers pay great attention to how brands interact with them during their experience (Ye et al., 2019).

Moreover, we find generational differences influence the relationship between technology customer engagement and brand attachment. For younger users, customer engagement exerts a more significant impact on brand attachment and advocacy than older users. This can be because older customers have more control over their emotions, and they exhibit greater maturity as opposed to younger customers (Loureiro & Roschk, 2014; Phillips & Sternthal, 1977). The effect of technology customer engagement on brand advocacy is positive and significant for both age groups. However, we have observed insignificant differences between the constrained and unconstrained models, thus, the generational difference does not affect the mentioned relationship. This novel finding might be due to the context-dependent nature of technology customer engagement that warrants further investigation.

Theoretical Contributions

Our research makes three major theoretical contributions to technology service literature via the context of m-banking applications. First, we contribute to technology customer engagement literature by identifying mobile service quality dimensions as key determinants. We find that including privacy and value-added features in mobile banking applications drives customer engagement. Moreover, we find counterintuitive evidence that the usability and interactivity features do not positively affect technology customer engagement. These findings theoretically support focusing more on non-technology features over technology features to drive customer engagement and provide evidence of how customer engagement can be achieved in different dimensions (Rasool, Shah, & Islam, 2020; Tak & Gupta, 2021).Second, we contribute to technology service literature by proposing customer engagement as a major driver of brand attachment and brand advocacy. Our results show technology customer engagement positively impacts brand attachment and brand advocacy. These findings support the argument that customer engagement influences long-term commitment toward technology application use and fill this literature gap (Kosiba, Boateng, Amartey, Boakye, & Hinson, 2018). Third, we contribute to the technology service literature by finding the moderating impact of the generational gap. We have found that the older generation's technology engagement is less impacted by privacy and value-added features than the younger generation's technology engagement is impacted by privacy and value-added features. Moreover, we have identified

that the relationship between technology customer engagement and brand attachment has been significantly lower for the older and younger generations. The result of this current paper will provide important insight into the perception of people from different age groups in the m-banking context, thus extending prior literature (Trabelsi-Zoghlami et al., 2020).

Practical Contributions

Our study also provides important practical implications for technology service providers in terms of creating an engaging user experience. First, technology service organizations can focus on investing their resources to ensure non-technical functions such as privacy and value-added features for the technology application users, such as the m-banking application. Practitioners can implement appropriate strategies that will provide comprehensive and accurate information to users. They can apply artificial intelligence and data mining techniques to provide a personalized experience based on customers' previous transaction history and connect customers with related interests. In addition, organizations can ensure these value-added features to stimulate the engagement behavior of users. Second, technology service organizations can consider brand attachment and advocacy as critical strategic considerations. These are important because of the inseparable characteristic of the technology services where customers are not physically present to avail of the service (Rajaobelina et al., 2021). So, organizations should allocate resources to engage their customers and create an emotional connection with the brand, giving it a competitive advantage. Third, the result can be used by the technology service organizations to devise precise targeting strategies as each segment evaluates the dimensions of mobile service quality and their engagement behavior differently. Managers should focus on creating lucrative value-added features such as accurate information and promotional offers to attract younger and older customers. In addition, they should devise their marketing strategy considering privacy. Moreover, practitioners should consider the emotions of users, especially younger customers, so that they can connect themselves with the brand. This, in turn, will encourage the users to devote more time to these technological services. As a result, they will have a strong attachment to the brand and advocate for it. Establishing this customer-brand relationship is crucial for practitioners in a fiercely competitive technology service industry such as m-banking (Ye et al., 2019).

LIMITATIONS AND CONCLUSION

Our research investigates customer engagement in the context of technology service; however, several limitations need to be acknowledged. This study focuses on usability, privacy, value-added, and interactivity features that are relevant to technology service applications from a cross-sectional snapshot. Future research can try to understand the impact of these variables from a longitudinal point of view. In addition, the current paper seeks to establish the relationships from structural equation modelling analysis, which cannot provide causal inferential support. In the future, researchers can extend this model by investigating the dimensions from an experimental perspective to gain a causal understanding. Finally, researchers should be cautious while generalizing the result of this paper because this paper has collected samples from a developing country. This model can be extended to multi-country and multi-cultural perspectives for higher generalizability.

The widespread use of technology has significantly improved the lives of consumers because they can now access a variety of services using their smartphones and mobile apps. Technology service utilization has increased steadily in recent years, but customer perceptions of these services vary greatly. To achieve more significant growth and business sustainability, it is crucial for both practitioners and academics to carefully examine the factors affecting customers' engagement behavior of technology services like m-banking apps. Therefore, to understand the significance of technology customer engagement in gaining growth for technology service, we posit mobile service quality dimensions as the determinants and brand attachment and advocacy as the consequences of technology customer engagement. Consequently, our study examines the moderating effect of generational differences on the relationship between mobile service quality, technology customer engagement, brand attachment, and brand advocacy. Our research makes three significant theoretical contributions to technology service literature via the context of an m-banking

application by identifying mobile service quality dimensions as key determinants, proposing technology customer engagement as a major driver of brand attachment and brand advocacy, and finding the moderating impact of the generational gap. Our study also provides critical practical implications for technology service providers in creating an engaging user experience via technology customer engagement.

REFERENCES

Ahn, J., & Back, K.-J. (2018). Influence of brand relationship on customer attitude toward integrated resort brands: A cognitive, affective, and conative perspective. *Journal of Travel & Tourism Marketing*, *35*(4), 449–460.

Ahn, J., & Back, K.-J. (2019). The role of autonomy, competence and relatedness: Applying self-determination theory to the integrated resort setting. *International Journal of Contemporary Hospitality Management*, *31*(1), 87–104.

Alalwan, A.A., Algharabat, R.S., Baabdullah, A.M., Rana, N.P., Qasem, Z., & Dwivedi, Y.K. (2020). Examining the impact of mobile interactivity on customer engagement in the context of mobile shopping. *Journal of Enterprise Information Management*.

Alalwan, A.A., Dwivedi, Y.K., & Rana, N.P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management*, *37*(3), 99–110.

Alalwan, A.A., Dwivedi, Y.K., Rana, N.P., & Algharabat, R. (2018). Examining factors influencing Jordanian customers' intentions and adoption of internet banking: Extending UTAUT2 with risk. *Journal of Retailing and Consumer Services*, *40*, 125–138.

Algharabat, R., Rana, N.P., Alalwan, A.A., Baabdullah, A., & Gupta, A. (2020). Investigating the antecedents of customer brand engagement and consumer-based brand equity in social media. *Journal of Retailing and Consumer Services*, *53*, 101767.

Alkhowaiter, W.A. (2020). Digital payment and banking adoption research in Gulf countries: A systematic literature review. *International Journal of Information Management*, *53*, 102102.

Alkire, L., O'Connor, G.E., Myrden, S., & Köcher, S. (2020). Patient experience in the digital age: An investigation into the effect of generational cohorts. *Journal of Retailing and Consumer Services*, *57*, 102221.

Andalib Touchaei, S., & Hazarina Hashim, N. (2023). The antecedents of mobile banking adoption among senior citizens in Malaysia. *International Journal of Human–Computer Interaction*, pp. 1–18.

Arcand, M., PromTep, S., Brun, I., & Rajaobelina, L. (2017). Mobile banking service quality and customer relationships. *International Journal of Bank Marketing*.

Baabdullah, A.M., Alalwan, A.A., Rana, N.P., Kizgin, H., & Patil, P. (2019). Consumer use of mobile banking (M-Banking) in Saudi Arabia: Towards an integrated model. *International Journal of Information Management*, *44*, 38–52.

Badrinarayanan, V., & Laverie, D.A. (2013). The role of manufacturers' salespeople in inducing brand advocacy by retail sales associates. *Journal of Marketing Theory and Practice*, *21*(1), 57–70.

Bagozzi, R.P., & Dholakia, U.M. (2006). Antecedents and purchase consequences of customer participation in small group brand communities. *International Journal of Research in Marketing*, *23*(1), 45–61.

Bailey, A., & Ngwenyama, O. (2010). Bridging the generation gap in ICT use: Interrogating identity, technology and interactions in community telecenters. *Information Technology for Development*, *16*(1), 62–82.

Bangladesh Bank. (2021). *Mobile financial services data*. Retrieved from https://www.bb.org.bd/fnansys/paymentsys/mfsdata.php

Barreda, A.A., Bilgihan, A., Nusair, K., & Okumus, F. (2015). Generating brand awareness in online social networks. *Computers in Human Behavior*, *50*, 600–609.

Beckers, S.F., van Doorn, J., & Verhoef, P.C. (2015). Economic outcomes of customer engagement: Emerging findings, contemporary theoretical perspectives, and future challenges. *Customer Engagement*, pp. 21–52.

Bilro, R.G., Loureiro, S.M.C., & Ali, F. (2018). The role of website stimuli of experience on engagement and brand advocacy. *Journal of Hospitality and Tourism Technology*.

Bitterman, A., & Hess, D.B. (2021). Understanding generation gaps in LGBTQ+ communities: Perspectives about gay neighborhoods among heteronormative and homonormative generational cohorts. In *The Life and Afterlife of Gay Neighborhoods* (pp. 307–338). Cham: Springer.

Bose, S., Pradhan, S., Bashir, M., & Roy, S.K. (2022). Customer-based place brand equity and tourism: A regional identity perspective. *Journal of Travel Research*, *61*(3), 511–527.

Brodie, R.J., Ilic, A., Juric, B., & Hollebeek, L. (2013). Consumer engagement in a virtual brand community: An exploratory analysis. *Journal of Business Research*, *66*(1), 105–114.

Carstensen, L.L., Turan, B., Scheibe, S., Ram, N., Ersner-Hershfield, H., Samanez-Larkin, G.R., . . . Nesselroade, J.R. (2011). Emotional experience improves with age: Evidence based on over 10 years of experience sampling. *Psychology and Aging*, *26*(1), 21.

Chakravarty, A., Liu, Y., & Mazumdar, T. (2010). The differential effects of online word-of-mouth and critics' reviews on pre-release movie evaluation. *Journal of Interactive Marketing*, *24*(3), 185–197.

Chang, C.-W., Ko, C.-H., Huang, H.-C., & Wang, S.-J. (2019). Brand community identification matters: A dual value-creation routes framework. *Journal of Product & Brand Management*.

Cheung, M.L., Leung, W.K., & Chan, H. (2020). Driving healthcare wearable technology adoption for Generation Z consumers in Hong Kong. *Young Consumers*.

Coursaris, C.K., & Van Osch, W. (2016). A cognitive-affective model of perceived user satisfaction (CAMPUS): The complementary effects and interdependence of usability and aesthetics in IS design. *Information & Management*, *53*(2), 252–264.

Demangeot, C., & Broderick, A.J. (2016). Engaging customers during a website visit: A model of website customer engagement. *International Journal of Retail & Distribution Management*.

Dessart, L., Veloutsou, C., & Morgan-Thomas, A. (2016). Capturing consumer engagement: Duality, dimensionality and measurement. *Journal of Marketing Management*, *32*(5–6), 399–426.

Djafarova, E., & Bowes, T. (2021). 'Instagram made Me buy it': Generation Z impulse purchases in fashion industry. *Journal of Retailing and Consumer Services*, *59*, 102345.

Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2016). Social media engagement behaviour: A uses and gratifications perspective. *Journal of Strategic Marketing*, *24*(3–4), 261–277.

East, R., Hammond, K., & Lomax, W. (2008). Measuring the impact of positive and negative word of mouth on brand purchase probability. *International Journal of Research in Marketing*, *25*(3), 215–224.

El Said, G.R. (2015). Understanding Knowledge Management System antecedents of performance impact: Extending the Task-technology Fit Model with intention to share knowledge construct. *Future Business Journal*, *1*(1–2), 75–87.

Fang, J., Zhao, Z., Wen, C., & Wang, R. (2017). Design and performance attributes driving mobile travel application engagement. *International Journal of Information Management*, *37*(4), 269–283.

France, C., Merrilees, B., & Miller, D. (2016). An integrated model of customer-brand engagement: Drivers and consequences. *Journal of Brand Management*, *23*(2), 119–136.

Fritz, W., Sohn, S., & Seegebarth, B. (2017). Broadening the perspective on mobile marketing: An introduction. *Psychology & Marketing*, *34*(2), 113–118.

Garbarino, E., & Johnson, M.S. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, *63*(2), 70–87.

Giovanis, A. (2016). Consumer-brand relationships' development in the mobile internet market: Evidence from an extended relationship commitment paradigm. *Journal of Product & Brand Management*.

Glavee-Geo, R., Shaikh, A.A., Karjaluoto, H., & Hinson, R.E. (2019). Drivers and outcomes of consumer engagement: Insights from mobile money usage in Ghana. *International Journal of Bank Marketing*.

Goyal, E., & Srivastava, S. (2015). Study on customer engagement model-banking sector. *SIES Journal of Management*, *11*(1).

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis*. Pearson Prentice Hall.

Hapsari, R., Hussein, A.S., & Handrito, R.P. (2020). Being fair to customers: A strategy in enhancing customer engagement and loyalty in the Indonesia Mobile Telecommunication Industry. *Services Marketing Quarterly*, *41*(1), 49–67.

Hari, H., Iyer, R., & Sampat, B. (2022). Customer brand engagement through chatbots on bank websites– Examining the antecedents and consequences. *International Journal of Human–Computer Interaction*, *38*(13), 1212–1227.

Harrigan, P., Evers, U., Miles, M., & Daly, T. (2017). Customer engagement with tourism social media brands. *Tourism Management*, *59*, 597–609.

Harrigan, P., Roy, S.K., & Chen, T. (2020). Do value cocreation and engagement drive brand evangelism? *Marketing Intelligence & Planning*.

Hemsley-Brown, J., & Alnawas, I. (2016). Service quality and brand loyalty: The mediation effect of brand passion, brand affection and self-brand connection. *International Journal of Contemporary Hospitality Management*.

Hoehle, H., & Venkatesh, V. (2015). Mobile application usability. *MIS Quarterly*, *39*(2), 435–472.

Hollebeek, L.D., & Macky, K. (2019). Digital content marketing's role in fostering consumer engagement, trust, and value: Framework, fundamental propositions, and implications. *Journal of Interactive Marketing*, *45*, 27–41.

Hollebeek, L.D., Glynn, M.S., & Brodie, R.J. (2014). Consumer brand engagement in social media: Conceptualization, scale development and validation. *Journal of Interactive Marketing*, *28*(2), 149–165.

Hollebeek, L.D., Sharma, T.G., Pandey, R., Sanyal, P., & Clark, M.K. (2022). Fifteen years of customer engagement research: A bibliometric and network analysis. *Journal of Product & Brand Management*, *31*(2), 293–309.

Hooper, D., Coughlan, J., & Mullen, M.R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods*, *6*(1), 53–60.

Huang, E.Y., Lin, S.-W., & Fan, Y.-C. (2015). MS-QUAL: Mobile service quality measurement. *Electronic Commerce Research and Applications*, *14*(2), 126–142.

Humbani, M., & Wiese, M. (2019). An integrated framework for the adoption and continuance intention to use mobile payment apps. *International Journal of Bank Marketing*.

Hussain, M., Mollik, A.T., Johns, R., & Rahman, M.S. (2018). M-payment adoption for bottom of pyramid segment: An empirical investigation. *International Journal of Bank Marketing*.

Ilicic, J., Baxter, S.M., & Kulczynski, A. (2016). The impact of age on consumer attachment to celebrities and endorsed brand attachment. *Journal of Brand Management*, *23*(3), 273–288.

Islam, J.U., & Rahman, Z. (2017). The impact of online brand community characteristics on customer engagement: An application of Stimulus-Organism-Response paradigm. *Telematics and Informatics*, *34*(4), 96–109.

Islam, J.U., Hollebeek, L.D., Rahman, Z., Khan, I., & Rasool, A. (2019). Customer engagement in the service context: An empirical investigation of the construct, its antecedents and consequences. *Journal of Retailing and Consumer Services*, *50*, 277–285.

Islam, J.U., Rahman, Z., & Hollebeek, L.D. (2018). Consumer engagement in online brand communities: A solicitation of congruity theory. *Internet Research*.

Islam, J.U., Shahid, S., Rasool, A., Rahman, Z., Khan, I., & Rather, R.A. (2020). Impact of website attributes on customer engagement in banking: A solicitation of stimulus-organism-response theory. *International Journal of Bank Marketing*.

Jaakkola, E., & Alexander, M. (2014). The role of customer engagement behavior in value co-creation: A service system perspective. *Journal of Service Research*, *17*(3), 247–261.

Jain, N.K., Kamboj, S., Kumar, V., & Rahman, Z. (2017). Examining consumer-brand relationships on social media platforms. *Marketing Intelligence & Planning*.

Johnson, V.L., Kiser, A., Washington, R., & Torres, R. (2018). Limitations to the rapid adoption of M-payment services: Understanding the impact of privacy risk on M-Payment services. *Computers in Human Behavior*, *79*, 111–122.

Jones, T., & Taylor, S.F. (2007). The conceptual domain of service loyalty: how many dimensions? *Journal of Services Marketing*.

Jöreskog, K.G., & Sörbom, D. (1996). *LISREL 8: User's reference guide*. Scientific Software International.

Kaatz, C. (2020). Retail in my pocket–Replicating and extending the construct of service quality into the mobile commerce context. *Journal of Retailing and Consumer Services*, *53*, 101983.

Karjaluoto, H., Shaikh, A.A., Saarijärvi, H., & Saraniemi, S. (2019). How perceived value drives the use of mobile financial services apps. *International Journal of Information Management*, *47*, 252–261.

Kasabov, E., & Hain, T. (2014). Cross-generational perceptions and reactions during service recovery. *The Service Industries Journal*, *34*(1), 71–87.

Kaufmann, H.R., Petrovici, D.A., Gonçalves Filho, C., & Ayres, A. (2016). Identifying moderators of brand attachment for driving customer purchase intention of original vs counterfeits of luxury brands. *Journal of Business Research*, *69*(12), 5735–5747.

Khan, I., Fatma, M., Shamim, A., Joshi, Y., & Rahman, Z. (2020). Gender, loyalty card membership, age, and critical incident recovery: do they moderate experience-loyalty relationship? *International Journal of Hospitality Management*, *89*, 102408.

Kim, C.K., Jun, M., Han, J., Kim, M., & Kim, J.Y. (2013). Antecedents and outcomes of attachment towards smartphone applications. *International Journal of Mobile Communications*, *11*(4), 393–411.

Kim, S., & Baek, T.H. (2018). Examining the antecedents and consequences of mobile app engagement. *Telematics and Informatics*, *35*(1), 148–158.

Kosiba, J.P.B., Boateng, H., Amartey, A.F.O., Boakye, R.O., & Hinson, R. (2018). Examining customer engagement and brand loyalty in retail banking: The trustworthiness influence. *International Journal of Retail & Distribution Management*.

Kumar, J., & Nayak, J.K. (2019). Consumer psychological motivations to customer brand engagement: A case of brand community. *Journal of Consumer Marketing*.

Lee, A.R., & Kim, K.K. (2018). Customer benefits and value co-creation activities in corporate social networking services. *Behaviour & Information Technology*, *37*(7), 675–692.

Levinson, D.J. (1986). A conception of adult development. *American Psychologist*, *41*(1), 3.

Liang, R.D., & Zhang, J.S. (2012). The effect of service interaction orientation on customer satisfaction and behavioral intention: The moderating effect of dining frequency. *Asia Pacific Journal of Marketing and Logistics*.

Lin, Y., Luo, J., Cai, S., Ma, S., & Rong, K. (2016). Exploring the service quality in the e-commerce context: A triadic view. *Industrial Management & Data Systems*.

Loh, H.S., Gaur, S.S., & Sharma, P. (2021). Demystifying the link between emotional loneliness and brand loyalty: Mediating roles of nostalgia, materialism, and self-brand connections. *Psychology & Marketing*, *38*(3), 537–552.

Loureiro, S.M.C. (2017). Exploring the attractiveness of manufacturer brands and retailer own-brands in supermarket context. *International Journal of Retail & Distribution Management*.

Loureiro, S.M.C., & Roschk, H. (2014). Differential effects of atmospheric cues on emotions and loyalty intention with respect to age under online/offline environment. *Journal of Retailing and Consumer Services*, *21*(2), 211–219.

Luo, N., Wang, Y., Jin, C., Ni, Y., & Zhang, M. (2019). Effects of socialization interactions on customer engagement in online travel communities. *Internet Research*.

Malhotra, N., Nunan, D., & Birks, D. (2017). *Marketing research: An applied approach*. Pearson.

McLean, G. (2018). Examining the determinants and outcomes of mobile app engagement-A longitudinal perspective. *Computers in Human Behavior*, *84*, 392–403.

McLean, G., & Wilson, A. (2019). Shopping in the digital world: Examining customer engagement through augmented reality mobile applications. *Computers in Human Behavior*, *101*, 210–224.

Mclean, G., Al-Nabhani, K., & Wilson, A. (2018). Developing a mobile applications customer experience model (MACE)-implications for retailers. *Journal of Business Research*, *85*, 325–336.

Mishra, A.S. (2019). Antecedents of consumers' engagement with brand-related content on social media. *Marketing Intelligence & Planning*.

Morosan, C., & DeFranco, A. (2015). Disclosing personal information via hotel apps: A privacy calculus perspective. *International Journal of Hospitality Management*, *47*, 120–130.

Muhammad, Z., Yi, F., Naz, A.S., & Muhammad, K. (2014). An empirical study on exploring relationship among information quality, e-satisfaction, e-trust and young generation's commitment to Chinese online retailing. *Journal of Competitiveness*, *6*(4), 3–18.

Mulaik, S.A., James, L.R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C.D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, *105*(3), 430.

Naqvi, M.H.A., Jiang, Y., & Naqvi, M. (2020). Generating customer engagement in electronic-brand communities: A stimulus–organism–response perspective. *Asia Pacific Journal of Marketing and Logistics*.

Natarajan, T., Balasubramanian, S.A., & Kasilingam, D.L. (2018). The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society*, *53*, 79–90.

Obal, M., & Kunz, W. (2013). Trust development in e-services: A cohort analysis of millennials and baby boomers. *Journal of Service Management*.

Oh, C., Roumani, Y., Nwankpa, J.K., & Hu, H.-F. (2017). Beyond likes and tweets: Consumer engagement behavior and movie box office in social media. *Information & Management*, *54*(1), 25–37.

Oppong-Tawiah, D., Webster, J., Staples, S., Cameron, A.-F., de Guinea, A.O., & Hung, T.Y. (2020). Developing a gamified mobile application to encourage sustainable energy use in the office. *Journal of Business Research*, *106*, 388–405.

Ozturk, A.B., Bilgihan, A., Nusair, K., & Okumus, F. (2016). What keeps the mobile hotel booking users loyal? Investigating the roles of self-efficacy, compatibility, perceived ease of use, and perceived convenience. *International Journal of Information Management*, *36*(6), 1350–1359.

Pansari, A., & Kumar, V. (2017). Customer engagement: The construct, antecedents, and consequences. *Journal of the Academy of Marketing Science*, *45*(3), 294–311.

Pappas, I.O., Pateli, A.G., Giannakos, M.N., & Chrissikopoulos, V. (2014). Moderating effects of online shopping experience on customer satisfaction and repurchase intentions. *International Journal of Retail & Distribution Management*, *42*(3), 187–204.

Parasuraman, A., Zeithaml, V.A., & Malhotra, A. (2005). ES-QUAL: A multiple-item scale for assessing electronic service quality. *Journal of Service Research*, *7*(3), 213–233.

Park, J., Ahn, J., Thavisay, T., & Ren, T. (2019). Examining the role of anxiety and social influence in multi-benefits of mobile payment service. *Journal of Retailing and Consumer Services*, *47*, 140–149.

Peng, N., & Chen, A. (2019). Examining consumers' luxury hotel stay repurchase intentions-Incorporating a luxury hotel brand attachment variable into a luxury consumption value model. *International Journal of Contemporary Hospitality Management*.

Pentina, I., Zhang, L., Bata, H., & Chen, Y. (2016). Exploring privacy paradox in information-sensitive mobile app adoption: A cross-cultural comparison. *Computers in Human Behavior*, *65*, 409–419.

Peters, T., Işık, Ö., Tona, O., & Popovič, A. (2016). How system quality influences mobile BI use: The mediating role of engagement. *International Journal of Information Management*, *36*(5), 773–783.

Phillips, L.W., & Sternthal, B. (1977). Age differences in information processing: A perspective on the aged consumer. *Journal of Marketing Research*, *14*(4), 444–457.

PrakashYadav, G., & Rai, J. (2017). The Generation Z and their social media usage: A review and a research outline. *Global Journal of Enterprise Information System*, *9*(2), 110–116.

Prentice, C., Wang, X., & Loureiro, S.M.C. (2019). The influence of brand experience and service quality on customer engagement. *Journal of Retailing and Consumer Services*, *50*, 50–59.

Rajaobelina, L., Tep, S.P., Arcand, M., & Ricard, L. (2021). The relationship of brand attachment and mobile banking service quality with positive word-of-mouth. *Journal of Product & Brand Management*.

Rasool, A., Shah, F.A., & Islam, J.U. (2020). Customer engagement in the digital age: A review and research agenda. *Current Opinion in Psychology*, *36*, 96–100.

Rather, R.A., & Hollebeek, L.D. (2021). Customers' service-related engagement, experience, and behavioral intent: Moderating role of age. *Journal of Retailing and Consumer Services*, *60*, 102453.

Rather, R.A., Hollebeek, L.D., & Islam, J.U. (2019). Tourism-based customer engagement: The construct, antecedents, and consequences. *The Service Industries Journal*, *39*(7–8), 519–540.

Rhee, H.-L., & Lee, K.-H. (2021). Enhancing the sneakers shopping experience through virtual fitting using augmented reality. *Sustainability*, *13*(11), 6336.

Rosenbaum, M.S., Seger-Guttmann, T., & Giraldo, M. (2017). Commentary: Vulnerable consumers in service settings. *Journal of Services Marketing*.

Roy, S., Ponnam, A., & Mandal, S. (2017). Comprehending technology attachment in the case of smart phone-applications: An empirical study. *Journal of Electronic Commerce in Organizations*, *15*(1), 23–43.

Roy, S.K., Balaji, M., Soutar, G., Lassar, W.M., & Roy, R. (2018). Customer engagement behavior in individualistic and collectivistic markets. *Journal of Business Research*, *86*, 281–290.

Sanchez-Franco, M., & Rondan-Cataluna, F.J. (2010). Connection between customer emotions and relationship quality in online music services. *Behaviour & Information Technology*, *29*(6), 633–651.

Sardana, V., & Singhania, S. (2018). Digital technology in the realm of banking: A review of literature. *International Journal of Research in Finance and Management*, *1*(2), 28–32.

Sashi, C., Brynildsen, G., & Bilgihan, A. (2019). Social media, customer engagement and advocacy: An empirical investigation using Twitter data for quick service restaurants. *International Journal of Contemporary Hospitality Management*.

Schepers, J., & Nijssen, E.J. (2018). Brand advocacy in the frontline: How does it affect customer satisfaction? *Journal of Service Management*.

Schewe, C.D., & Noble, S.M. (2000). Market segmentation by cohorts: The value and validity of cohorts in America and abroad. *Journal of Marketing Management*, *16*(1–3), 129–142.

Sciarrino, J.A. (2021). *Why brand attachment is more important than brand loyalty or preference: Opinion*. Retrieved from https://adage.com/article/opinion/why-brand-attachment-more-important-brand-loyalty/2353951#:~:text=Brand%20attachment%20is%20the%20key,brand%20preference%20or%20brand%20loyalty

Shankar, A., Datta, B., & Jebarajakirthy, C. (2019). Are the generic scales enough to measure service quality of mobile banking? A comparative analysis of generic service quality measurement scales to mobile banking context. *Services Marketing Quarterly*, *40*(3), 224–244.

Shankar, A., Jebarajakirthy, C., & Ashaduzzaman, M. (2020). How do electronic word of mouth practices contribute to mobile banking adoption? *Journal of Retailing and Consumer Services*, *52*, 101920.

Shimul, A.S. (2022). Brand attachment: A review and future research. *Journal of Brand Management*, pp. 1–20.

Shimul, A.S., & Phau, I. (2018). Consumer advocacy for luxury brands. *Australasian Marketing Journal*, *26*(3), 264–271.

Shimul, A.S., Sung, B., & Phau, I. (2021). Effects of luxury brand attachment and perceived envy on schadenfreude: Does need for uniqueness moderate? *Journal of Consumer Marketing*.

So, K.K.F., King, C., Sparks, B.A., & Wang, Y. (2016). The role of customer engagement in building consumer loyalty to tourism brands. *Journal of Travel Research*, *55*(1), 64–78.

Spielmann, N., & Mantonakis, A. (2018). In virtuo: How user-driven interactivity in virtual tours leads to attitude change. *Journal of Business Research*, *88*, 255–264.

Sprott, D., Czellar, S., & Spangenberg, E. (2009). The importance of a general measure of brand engagement on market behavior: Development and validation of a scale. *Journal of Marketing Research*, *46*(1), 92–104.

Tak, P., & Gupta, M. (2021). Examining travel mobile app attributes and its impact on consumer engagement: An application of SOR framework. *Journal of Internet Commerce*, *20*(3), 293–318.

Tarhini, A., Alalwan, A.A., Shammout, A.B., & Al-Badi, A. (2019). An analysis of the factors affecting mobile commerce adoption in developing countries: Towards an integrated model. *Review of International Business and Strategy*.

Tarhini, A., Hone, K., & Liu, X. (2014). Measuring the moderating effect of gender and age on e-learning acceptance in England: A structural equation modeling approach for an extended technology acceptance model. *Journal of Educational Computing Research*, *51*(2), 163–184.

Tarute, A., Nikou, S., & Gatautis, R. (2017). Mobile application driven consumer engagement. *Telematics and Informatics*, *34*(4), 145–156.

Thakur, R. (2018). Customer engagement and online reviews. *Journal of Retailing and Consumer Services*, *41*, 48–59.

Thusi, P., & Maduku, D.K. (2020). South African millennials' acceptance and use of retail mobile banking apps: An integrated perspective. *Computers in Human Behavior*, *111*, 106405.

Trabelsi-Zoghlami, A., Berraies, S., & Ben Yahia, K. (2020). Service quality in a mobile-banking-applications context: Do users' age and gender matter? *Total Quality Management & Business Excellence*, *31*(15–16), 1639–1668.

Tran, T.P., Furner, C.P., & Albinsson, P.A. (2020). Understanding drivers and outcomes of brand attachment in mobile branded apps. *Journal of Consumer Marketing*.

Tsiotsou, R.H., Alexandris, K., & Bettina Cornwell, T. (2014). Using evaluative conditioning to explain corporate co-branding in the context of sport sponsorship. *International Journal of Advertising*, *33*(2), 295–327.

Turner, A. (2015). Generation Z: Technology and social interest. *The Journal of Individual Psychology*, *71*(2), 103–113.

Van Doorn, J., Lemon, K.N., Mittal, V., Nass, S., Pick, D., Pirner, P., & Verhoef, P.C. (2010). Customer engagement behavior: Theoretical foundations and research directions. *Journal of Service Research*, *13*(3), 253–266.

VantageResearch. (2022). *Mobile Banking Market - Global Industry Assessment Forecast Available*. Retrieved from https://www.vantagemarketresearch.com/industry-report/mobile-banking-market-1521#:~:text=Snapshot&text=Market%20Synopsis%3A,11.9%25%20over%20the%20forecast%20perio

Verhagen, T., Swen, E., Feldberg, F., & Merikivi, J. (2015). Benefitting from virtual customer environments: An empirical study of customer engagement. *Computers in Human Behavior*, *48*, 340–357.

Vivek, S.D., Beatty, S.E., Dalela, V., & Morgan, R.M. (2014). A generalized multidimensional scale for measuring customer engagement. *Journal of Marketing Theory and Practice*, *22*(4), 401–420.

Wang, W.-T., Ou, W.-M., & Chen, W.-Y. (2019). The impact of inertia and user satisfaction on the continuance intentions to use mobile communication applications: A mobile service quality perspective. *International Journal of Information Management*, *44*, 178–193.

Wells, W.D., & Gubar, G. (1966). Life cycle concept in marketing research. *Journal of Marketing Research*, *3*(4), 355–363.

Wilk, V., Harrigan, P., & Soutar, G.N. (2018). Navigating online brand advocacy (OBA): An exploratory analysis. *Journal of Marketing Theory and Practice*, *26*(1–2), 99–116.

Wilk, V., Soutar, G.N., & Harrigan, P. (2021). Online brand advocacy and brand loyalty: A reciprocal relationship? *Asia Pacific Journal of Marketing and Logistics*.

Wong, D., Liu, H., Meng-Lewis, Y., Sun, Y., & Zhang, Y. (2021). Gamified money: Exploring the effectiveness of gamification in mobile payment adoption among the silver generation in China. *Information Technology & People*.

Worldmeters. (2021). *Bangladesh Population*. Retrieved from https://www.worldometers.info/world-population/bangladesh-population/

Wu, L. (2016). Understanding the impact of media engagement on the perceived value and acceptance of advertising within mobile social networks. *Journal of Interactive Advertising*, *16*(1), 59–73.

Xue, K., Wang, L., Gursoy, D., & Song, Z. (2021). Effects of customer-to-customer social interactions in virtual travel communities on brand attachment: The mediating role of social well-being. *Tourism Management Perspectives*, *38*, 100790.

Yang, C., Yang, P., & Feng, Y. (2021). Effect of achievement-related gamification on brand attachment. *Industrial Management & Data Systems*.

Yang, F.X., & Lau, V.M. (2015). "LuXurY" hotel loyalty–A comparison of Chinese Gen X and Y tourists to Macau. *International Journal of Contemporary Hospitality Management*.

Yang, S.-B., Lee, K., Lee, H., & Koo, C. (2019). In Airbnb we trust: Understanding consumers' trust-attachment building mechanisms in the sharing economy. *International Journal of Hospitality Management*, *83*, 198–209.

Ye, B.H., Barreda, A.A., Okumus, F., & Nusair, K. (2019). Website interactivity and brand development of online travel agencies in China: The moderating role of age. *Journal of Business Research*, *99*, 382–389.

Yen, Y.-S., & Wu, F.-S. (2016). Predicting the adoption of mobile financial services: The impacts of perceived mobility and personal habit. *Computers in Human Behavior*, *65*, 31–42.

Yu, X., & Yuan, C. (2019). How consumers' brand experience in social media can improve brand perception and customer equity. *Asia Pacific Journal of Marketing and Logistics*.

Yuan, S., Liu, L., Su, B., & Zhang, H. (2020). Determining the antecedents of mobile payment loyalty: Cognitive and affective perspectives. *Electronic Commerce Research and Applications*, *41*, 100971.

Zhang, M., Hu, M., Guo, L., & Liu, W. (2017). Understanding relationships among customer experience, engagement, and word-of-mouth intention on online brand communities: The perspective of service ecosystem. *Internet Research*.

Zhang, Y. (2000). Using the Internet for survey research: A case study. *Journal of the American Society for Information Science*, *51*(1), 57–68.

Zhao, Z., & Balagué, C. (2015). Designing branded mobile apps: Fundamentals and recommendations. *Business Horizons*, *58*(3), 305–315.

APPENDIX

TABLE 6
MEASUREMENT ITEMS

Variable	Item Code	Authors
Usability (USA)		Hoehle and Venkatesh (2015)
In general, this mobile app allows me to input data easily	USA1	
Overall, the user input mechanisms are designed effectively on this mobile app	USA2	
Overall, this mobile app is easy to use	USA3	
To me, this mobile app is very functional	USA4	
Overall, I think that this mobile app is useful	USA5	
In general, this mobile app is of value to me	USA6	
In general, the content of this mobile app is presented effectively	USA7	
Overall, I believe that this mobile app presents contents very well	USA8	
Interactivity (INT)		Labrecque (2014)
This mobile app facilitates two-way communication	INT1	
This mobile app gives me the opportunity to talk back	INT2	
This mobile app makes me feel it wants to listen to its mobile users	INT3	
This mobile app is effective in gathering mobile users' feedback	INT4	
Privacy (PRI)		Arcand *et al.* (2017)
I think that any personal information provided on this app is well protected	PRI1	
I think that the transactions carried out on this app are secure	PRI2	
I think that the confidentiality and privacy of my personal information are assured on this app	PRI3	
I think that linking my banking accounts and/or credit card accounts to this mobile app is safe	PRI4	
Value-Added Features (VAF)		Rajaobelina *et al.* (2021)
I enjoy the information features of this mobile app (e.g. tips and tricks, reminders, positive feedback messages	VAF1	
I enjoy the promotional features of this mobile app (e.g. extra money for saving activities or % of investment returned and friend referral rewards)	VAF2	
I enjoy the management features of this mobile app (e.g. amount and frequency transfer options, investment or saving account types)	VAF3	

Technology Customer Engagement (TCE)		Hollebeek, Glynn and Brodie (2014)
Using this mobile app gets me to think about the company	TCE1	
I think about this brand when I am using this mobile app	TCE2	
Using this mobile app stimulates my interest to learn about the brand	TCE3	
I feel positive when I use this mobile app	TCE4	
Using the mobile app of this brand makes me happy	TCE5	
I feel good when I use this mobile app	TCE6	
I spend a lot of time using this mobile app compared to other m-banking apps	TCE7	
Whenever I am using mobile banking, I usually use this app	TCE8	
Brand Attachment (BRT)		Park *et al.* (2010)
This [Brand app/financial institution] is part of me and who I am	BRT1	
I feel personally connected to this [brand app/financial institution]	BRT2	
My thoughts and feelings toward this [brand app/financial institution] often automatic, are coming to mind seemingly on their own	BRT3	
My thoughts and feelings toward this [brand app/financial institution] come to my mind naturally and instantly	BRT4	
Brand Advocacy (BRD)		*Kemp et al. (2014)*
I recommend this [Brand app/financial institution] to my friends and family	BRD1	
When the occasion arises, I explain positive aspects of this [Brand app/financial institution]	BRD2	
When I hear people speaking badly about my [Brand app/financial institution], I try to defend it	BRD3	