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To leave or retain? An interplay between quality digital banking services and customer satisfaction

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Abstract

Purpose – In this paper, the authors investigated the impact of quality digital banking services delivered during the COVID-19 pandemic on customers' satisfaction and retention intentions.
Design/methodology/approach – This study combined constructs drawn from the E-S-QUAL and BSQ models to measure the impact of digital banking services on subscribers of digital banking services in Ghana. The study utilized structural equation modeling with partial least squares (PLS-SEM) to analyze 395 responses.
Findings – Results revealed a significant direct effect between digital banking services satisfaction and customer retention decision. The results also revealed that digital banking services quality dimensions such as ease of use, efficiency, privacy/security and reliability impact customers' satisfaction and retention intentions.
Research limitations/implications – Digital banking service portfolios and their quality dimensions vary among banks. This offers an opportunity for banking institutions and other non-bank financial service providers to be wary of the impact of quality service delivery on customers' decisions. This paper makes significant theoretical contributions and practical implications on the relevance of quality digital banking services in customers' retention strategies for competitive advantage.
Originality/value – This study has underlined the significance of quality digital banking services in developing countries. The study underscored the need for banking and non-bank financial institutions to embrace the much-anticipated quality service demanded by customers and the need for continuous service improvement relative to the growing deployment of financial technologies.

Keywords COVID-19, Digital banking services, Customer satisfaction, Customer retention, Service quality
Paper type Research paper

1. Introduction

The raging spread of the novel human Coronavirus disease 2019 (COVID-19) pandemic occasioned restrictions on the movement of people by national authorities to keep the virus at bay. These restrictions consequently impacted the operations of most businesses in several economic sectors including banking and finance, education, tourism and transportation (Goodell, 2020; Seetharaman, 2020). Since the mode of spread of the virus is mainly human-to-human, closed physical contact was discouraged placing an obligation on service-oriented businesses to adopt a safer approach to protect themselves and clients. In the banking sector, activities such as face-to-face customer service were affected culminating in a situation referred to as "positive discontinuity" (KPMG, 2020). Given that the banking operations largely rely on human mobility, the sector especially those in developing economies came to a near-standstill as a result of the restrictions on human movement (Chirisa *et al.*, 2020). As a remedy, banking institutions were required to deploy digitally enabled service platforms

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such as online/Internet banking, mobile and telephone banking in order to reach their customers. A phenomenon known as digital banking (DB) where banks digitalize customary banking services (Cuesta *et al.*, 2015). DB entails the delivery of banking services through technologically mediated channels such as mobile phones, Internet and personal digital assistants (Cuesta *et al.*, 2015). Essentially, DB channels help bring banking services closer to customers to foster a closer relationship between them and the banks (Ozili, 2018).

Although extant literature has highlighted on the impact of the COVID-19 pandemic on the banking industry (Goodell, 2020; Lelissa, 2020), studies on customers' expectations from the digital services being provided are yet to emerge. The emergence of the COVID-19 pandemic gave some impetus to the acceptance and usage of digital platforms for customer interactions. This consequently increased the reliance on digital banking application services (DBSs) such as mobile and online payment particularly during the period of restriction of human mobility (KPMG, 2020). Moreover, the increasing rate of deployment of DBSs by banks in developing countries has not had a corresponding increase in literature (Abualsauod and Othman, 2019). Furthermore, extant studies (Narteh, 2018; YuSheng and Ibrahim, 2019; Ketema and Selassie, 2020; Raza *et al.*, 2020) have explored the impact of DBSs on customer satisfaction but neglected the consequences of the impact on customers retention intentions. Our preliminary search reveals that studies on the impact of quality DBS on customers' retention intentions are still underexplored even though Al-Ghraibah (2020) had established a relationship between online sales services and customer retention. While customer retention remains an important outcome of quality service delivery (Sinha *et al.*, 2019), the onset of the COVID-19 has not attracted research on factors that inherently influence customers decisions. Hence, presenting a stream of lacunas in literature is yet to be addressed.

To fill these gaps, this study seeks to unearth the impact of quality DBS on customers' satisfaction and retention intentions. The study pursues this objective leveraging on constructs drawn from the electronic service quality (E-S-QUAL) model (Parasuraman *et al.*, 2005) and the banking service quality (BSQ) model (Bahia and Nantel, 2000). Specifically, the study focuses on the DBSs offered by banking institutions to customers in Ghana during the COVID-19 pandemic. To achieve the stated purpose, the following research questions would be pursued:

RQ1. What latent factors in digital banking services impact customers' satisfaction and retention decisions?

This paper is arguably positioned as the first to explore quality DBS dimensions and their impact on customers' retention decisions in Ghana through a combination of constructs of the E-S-QUAL and BSQ frameworks. Empirically, relying on a single theory that only considers one component of an artefact will not reveal the complete story since some feature will be prioritized above others, resulting in only partial knowledge of the phenomenon under study (Nilsen, 2015). Therefore, we argue that given the evolving nature of digital banking technologies, combining constructs from the E-S-QUAL and BSQ frameworks will help to provide a more understanding of the phenomenon under study, yet it can also mask contrasting assumptions made in literature.

Unlike other studies, it explored several factors relative to digital banking services and ascertain customers' level of satisfaction and how they impact on their retention decisions during the COVID-19 era in Ghana. A conceptual model was developed and tested against 395 bank customers in Ghana. Though a stark of revelations emerged, it was apparent that quality DBS dimensions have varied consequences on customers' intentions in times of pandemic (Al-Ghraibah, 2020; Ketema and Selassie, 2020; Ul Haq and Awan, 2020). This research makes significant contribution to both research and practice by espousing how customers' retention decision toward a satisfactory relative quality DBS. Furthermore, the study demonstrates how DBS quality dimensions' can be used to predict customer level of

satisfaction and, as a result, influence their retention decisions. The understanding of the primary impacting DBS quality dimensions on customer satisfaction and retention help obtain a better understanding of banking institutions develop marketing strategies, maintain customer intimacy and gain a competitive edge in the current competitive banking industry.

The rest of the paper was structured as follows: research background and theoretical foundation, research model with hypotheses development, research methodology, data analysis presentation and results. The remaining sections were findings, study implications and recommendations for future research directions followed by the conclusion.

2. Background and theoretical foundation

2.1 Digital banking concept

DB involves the transition to technologically based banking where banking services are administered to customers through an array of open and customized channels such as automated teller machine (ATM) and mobile, online/Internet platforms. These channels present a ubiquitous opportunity for banks to deliver to their customers' services such as mobile and online banking, text alerts, electronic statements and bill payments. With DB, customers for instance have the opportunity to perform their banking needs without traveling to their physical branch (Kimenyi and Ndung'u, 2009). Further, DB enables seamless communication between banks and their customers through autonomous channels thereby creating customer intimacy while increasing banks investments by reducing the cost associated with the provision of physical infrastructure (Hoffmann and Birnbrich, 2012).

The onset of the COVID-19 pandemic and the consequent restrictions on human mobility reinforced yet another opportunity for banking institutions to exploit the affordances of digital banking for service delivery (Lelissa, 2020). Following the shift to DB, a corresponding transition from traditional services to innovative services has been observed among banking institutions globally. Fundamentally, these streams of DBSs have only improved on the delivery of traditional tasks during the COVID-19 and also helped introduce new business models for banks (Goodell, 2020). For instance, banking has now become a 24/7 activity which was not the case in most developing countries like Ghana (Boateng and Molla, 2006). Again, the need for paper works such as demand for drafts and cash cheques or pay-in slips have gradually being replaced with DBSs (KPMG, 2020). Earlier, Deloitte's banking and capital markets outlook reports that about 50% of banks are making digital banking their priority in a bid to match consumers' expectations (Srinivas *et al.*, 2019). Recent advances in ATMs such as deposit cash, utility bills payment and mobile wallet have made DBS more exciting (Hasan *et al.*, 2013). Furthermore, mobile banking, through which customers use their mobile phones to check their account balance, make payment and transfer funds from their bank accounts to other mobile wallet accounts, gained prominence during the COVID-19 era due to the convenience it provided to users (Ho *et al.*, 2020). In effect, DBSs during the pandemic have been phenomenal and this paper seeks to investigate the consequences of these services on customers' retention intentions.

2.2 Digital banking and quality service

Given the prevalence of new digital service delivery modes especially in the wake of the pandemic, the need for banks to gain a better understanding of how customers assess the quality of services they obtain through electronic means is significant (Zeithaml *et al.*, 2002). Note that unlike tangible goods which can be objectively assessed for their quality, the same cannot be attributed to intangible customer service (Dhurup *et al.*, 2014). Hence, assessing quality consumer services is elusive and complex. It is in this vein that institutions often evaluate quality consumer services based on their perceptions, trust and satisfaction (Amin, 2016). Further, the

assessment of customers' DBSs quality perceptions has, thus, become increasingly important and strategic for banks (Huei *et al.*, 2018). That notwithstanding, prior studies on DBS have unearthed quality dimensions that drive customers' satisfaction such as include security/trust, design, availability, convenience, reliability and cost (Zavareh *et al.*, 2012; Dhurup *et al.*, 2014; Addai *et al.*, 2015; Chen *et al.*, 2016; Narteh, 2018). Addai *et al.* (2015) for instance aver that a positive relationship exists between DBS convenience and customer satisfaction which results in maintaining customer intimacy and loyalty. Yet, as extant literature suggests, assessment of the impact DBS quality on the customers' intention to retain is still underexplored (Murali *et al.*, 2016). Arguably, research conducted on the affordances of DBS has largely concentrated on the use and customer satisfaction with limited focus on its impact on customers' retention intentions.

Table 1 presents a selection of some recent research on the impact of DBS on customers summarized according to theoretical underpinnings, the context of the study and quality dimensions mostly studied. These studies focused largely on the impact of quality DBS on customer satisfaction (Ketema and Selassie, 2020; Narteh, 2018; Raza *et al.*, 2020; Shahabi *et al.*, 2020) and mostly drawing on SERVQUAL and E-S-QUAL models. Unfortunately, studies on DBS during the COVID-19 (Al-Ghraibah, 2020; Ketema and Selassie, 2020; Shahabi *et al.*, 2020; Ul Haq and Awan, 2020) did not sufficiently explore the consequences on customers' retention intentions. Thus, this study focus on the delivery of quality DBSs during the COVID-19 and its impact on customers' satisfaction and retention intentions.

2.3 Electronic service quality model

According to Parasuraman *et al.* (1988), service quality is the difference between customer expectations of what a firm should provide and perceived service performance. Empirically, the SERVQUAL framework by Parasuraman *et al.* (1988) has been the predominant metric for assessing perceived service quality. The original SERVQUAL framework had ten quality dimensions but was later decomposed into five namely reliability, responsiveness, communication, credibility and tangibles, However, critiques of the SERVQUAL avers that given the exponential rate at which electronic services are deployed, the model could not explicitly measure the quality of digital services (Zeithaml, 2002). This birthed a revised model; E-S-QUAL (Parasuraman *et al.*, 2005) comprising a 22-item scale on four dimensions namely *efficiency, fulfilment, system availability and privacy*. However, Zeithaml (2002) content that the last three attributes are often relevant when online customers are faced with challenges although Zeithaml (2000) avers that efficiency, reliability, fulfilment, privacy, responsiveness, compensation are sufficient attributes to measure e-service quality.

Extant studies have utilized the E-S-QUAL to measure the satisfaction of DBS being delivered to customers (Javed *et al.*, 2018; Ketema and Selassie, 2020; Madavan and Vethirajan, 2020; Mujinga, 2020; Raza *et al.*, 2020). Yet, none attempted to explore the impact on customers' retention intention. Mujinga (2020) for instance noted that since technology drives the competitive strategy of banks, the need for cutting-edge technology to provide customers with the minimum convenience is essential. Further, Ketema and Selassie (2020) argue that in the wake of the COVID-19 pandemic, a great deal of challenges has befallen financial institutions leading to aggressive use of mobile banking services. The latter's study found that in Ethiopia, DBS quality dimensions such as security, reliability and ease of use greatly influence customer satisfaction. Mujinga (2020) however laments that the E-S-QUAL scale needs improvement since electronic services quality has evolved. Hence, in this study, we complement the E-S-QUAL framework with BSQ (Bahia and Nantel, 2000).

2.4 The bank service quality model

The BSQ model Bahia and Nantel (2000) is used to measure the quality of retail banking services (Shayestehfar and Yazdani, 2019). Derived from the SERVQUAL, the BSQ is

References	Theoretical position	Focus and context	Quality DBS service dimension used
Ketema and Selassie (2020)	E-S-QUAL	The study explored the impact of mobile banking quality service on customers in Ethiopia based on 240 bank respondents	Reliability Efficiency Privacy/security Ease of use Responsiveness Empathy
Shahabi *et al.* (2020)	TAM and diffusion of innovation theory (DOI)	The study investigated the effect of COVID-19 on the acceptance of e-banking services in Iran	Ease of use, perceived utility, attitude to use, willingness, awareness, habit, trust and satisfaction, support, regulations
Raza *et al.* (2020)	E-S-QUAL	The study explored the services quality of Internet banking and its impact on customer satisfaction and loyalty in Saudi Arabia	Site organization Reliability Responsiveness User friendliness Personal need Efficiency
YuSheng and Ibrahim (2019)	Conceptual	The paper explored the role of innovative service delivery on customers' satisfaction and customer loyalty in Ghana	Services innovation Service delivery Customer satisfaction Customers loyalty
Narteh (2018)	SERVQUAL and banking service quality (BSQ)	The paper examined the quality of retail banking services on customers' satisfaction in Ghana	Tangibles Reliability Assurance Empathy Price
Pooya *et al.* (2020)	Conceptual	The study examines customers technology readiness and the effect of quality electronic services on their satisfaction in Iran	Technology readiness Perceived quality of self-service Value Trust Satisfaction
Geebren *et al.* (2021)	Conceptual	The paper investigated the mechanism of customer satisfaction in Libya	Assurance Trust Task characteristics
Arcand *et al.* (2017)	Conceptual	The paper investigated the impact of mobile banking service quality on customers' commitment, trust and satisfaction in Canada	Security Privacy Experience Design Sociality Enjoyment
Mujinga (2020)	E-S-QUAL	The paper investigated e-banking service quality among customers in South Africa	Efficiency Fulfilment Privacy System availability
Amin (2016)	Conceptual	The paper examined the implications of Internet banking service quality on customer satisfaction and loyalty in Malaysia	Site organization User friendliness Efficiency
Ul Haq and Awan (2020)	Cognitive-motivational relational theory	Investigated the impact of e-banking service quality on customer loyalty through customer satisfaction	Reliability Privacy and security Site design Service support

Table 1.
Summary of studies on digital banking services

(*continued*)

References	Theoretical position	Focus and context	Quality DBS service dimension used
Al-Ghraibah (2020)	Social exchange theory and TAM	Examine the predictors of online customers retention during the COVID-19 in Saudi Arabia	Attitude Ease of use Responsiveness
Murali *et al.* (2016)	SERVQUAL	The paper investigated the relationship between after-sales service quality and customer satisfaction, retention and loyalty in India	Reliability Responsiveness Assurance Empathy Tangibles

Table 1.

comprised of six key quality dimensions decomposed from the original 31 items namely *effectiveness and assurance, access, price, tangibles, services portfolio and reliability*. The BSQ offers a better assessment of banking services than the SERVQUAL since its scale encompasses different perceptions and expectations (Bahia and Nantel, 2000). Again, the BSQ is considered to be an assessment tool designed specifically to measure diverse services around the banking ambience (Bahia and Nantel, 2000). Shayestehfar and Yazdani (2019) for instance used the BSQ to compare customer service quality between a bank's branches in Iran and found that access, assurance and effectiveness of services influence customers' satisfaction. Similarly, Sumardiningsih *et al.* (2012) found the reliability dimension as key to influencing customers' satisfaction. Narteh (2018) also found that since electronic banking comes with the associated cost, charges on DBSs significantly influence customers' satisfaction.

Extant studies have explored several dimensions of the E-S-QUAL and BSQ models in their assessment of DBSs. Narteh (2018) combined SERVQUAL and BSQ and found that reliability, price, tangibility, assurance significantly influence customers' satisfaction. Given that the BSQ proffers additional dimension to measure banking services, it will complement understanding why customers would want to retain or leave after receiving a service. Hence, this study draws on E-S-QUAL and BSQ models to determine if quality DBS influences customers' retention intentions.

3. Research model and hypothesis development

Based on the review of literature on the evaluation of services quality guided by the adopted E-S-QUAL and BSQ models, this paper argues that a combination of these two models would complement to give a holistic understanding of varied dimensions which influence customers' retention intentions through satisfaction. Hence, this study adopts the following constructs: *Ease of Use, Efficiency, Interoperability, Privacy/Security, Responsiveness* from E-S-QUAL and, *Reliability, Service Portfolios* and *Service Charges*, from the BSQ model. The choice of efficiency, privacy/security, responsiveness drawn from the E-S-QUAL (Parasuraman *et al.*, 2005) and the extension to include ease of use and interoperability was informed by the fact that these features uniquely describe digital platforms and serves as key determinants in electronic banking service quality (Hoehle *et al.*, 2012). Similarly, reliability, service charge and service portfolios dimensions drawn from Bahia and Nantel (2000) have framed the quality of digital banking service quality (Narteh, 2018). Again, not only do these factors influence the quality of services delivered through digital channels, they also have several consequences on customers' perception and expectations (Osei *et al.*, 2016; Rita *et al.*, 2019) such as satisfaction and intention to retain as shown in Figure 1. The current model was necessitated particularly given the varied outcomes that have emerged in DBS literature and the assertion that DBS quality assessment has gone beyond the E-S-QUAL dimensions (Mujinga, 2020).

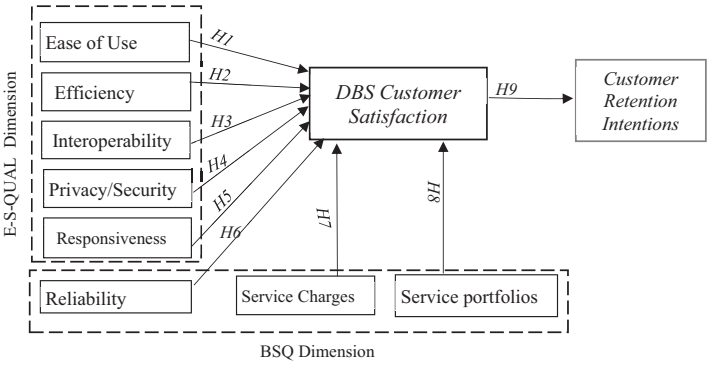


Figure 1.
Research framework

3.1 Ease of use

Ease of use explains how user friendly a digital application is to a user (Parasuraman *et al.*, 2005). Venkatesh *et al.* (2003) note that user friendliness is an essential factor in human-computer interaction and it significantly generates user adoption and continual usage. Moreover, the varying complexities in digital applications make *ease of use* an essential factor in assessing its use. In their assessment of banking application during the COVID-19 pandemic, Ketema and Selassie (2020) found that *ease of use* significantly influences usage and customer satisfaction. Similarly, prior studies (Simon and Senaji, 2016; Zavareh *et al.*, 2012) conclude that user friendliness of e-services affects customers' satisfaction. Given the disparities in user experience and demographics, digital platforms must be designed to meet the expectations of all users especially in times of pandemic. In this regard, Amin (2016) found that e-banking ease of use positively correlates with Customers' Satisfaction. Hence, this study hypothesizes that:

H1. Ease of use of DBS will influence customers' satisfaction and retention intentions.

3.2 Efficiency

A digital service platform is efficient if it synchronizes properly with customers request, and requires the least information to be provided by the users (Parasuraman *et al.*, 2005; Sharma and Malviya, 2011). Efficiency also defines how quickly a platform can offer customers versatile financial help and the convenience with which the digital platform responds to requests for customer services (Ariff *et al.*, 2013). Ankrah (2012) opined that improved service quality based on operational efficiencies in the Ghanaian banking industry has the potential to deliver strategic benefit such as customer retention. Similarly, John and Rotimi (2014) suggest that efficiency remains a key factor in the banking industry in Nigeria which fosters satisfaction among e-customers. Furthermore, previous studies show that efficiency significantly influences e-customers satisfaction and retention intentions (Amin, 2016; Raza *et al.*, 2020). Given these perceptions, we argue that efficiency remains a significant quality dimension in the delivery of DB services and hypothesize that:

H2. The efficiency of DBS will significantly influence customers' satisfaction and retention intentions.

3.3 Interoperability

Interoperability is defined as the ability of a DB technology to link and interact with other electronic banking systems (Gupta *et al.*, 2017). This study adopts this construct given its

relevance in the emergence of interorganizational platforms specifically in the banking sector. Banks are now integrating their digital services into several platforms where customers can seamlessly transact services across disparate services providers. For instance, in Ghana, banks have integrated their digital systems into the national mobile money interoperability infrastructure to enable customers to make a transfer between two disparate mobile or bank accounts (GSMA, 2020). Financial information exchange will remain a proprietary silo without interoperability. Moreover, financial information exchange across disparate digital platforms has become a competitive strategy for banks (Wu *et al.*, 2006). Given the restrictions placed on individuals during the COVID-19 pandemic, bank customers are obliged to leverage on available platforms to perform multiple financial transactions (Kelecic, 2020). Moreover, Bourreau and Valetti (2015) opined that interoperability significantly reduces consumer switchover and associated costs since e-customers no longer have to switch from one digital platform to the other to perform a similar activity. These studies (Bourreau and Valetti, 2015; Kelecic, 2020) found a positive and significant relationship between interoperability and customer satisfaction. Hence, we hypothesize that:

H3. Interoperability of DBS application will significantly influence customers' satisfaction and retention intentions.

3.4 Privacy/security

Privacy/security dimension measure how banks digital platform protects consumers' personal and financial information (Parasuraman *et al.*, 2005). This dimension of DB platform may include attributes such as integrity, nonrepudiation, authenticity and confidentiality (Aboobucker and Bao, 2018; Pooya *et al.*, 2020). According to Ketema and Selassie (2020), security was a key factor in customers' perception of service quality during the COVID-19 era in Ethiopia. This assertion is true since the restrictions imposed on individuals forced them to depend on their DBS applications for their financial transactions inviting a plethora of security issues. Ketema and Selassie (2020) study concluded that the security being offered by mobile banking platforms significantly impacts on customers trust and satisfaction. Note that secured DBSs foster trust which eventually generates consumer confidence satisfaction and loyalty (Mujinga, 2020). Ketema and Selassie's (2020) study shows a significant and proportional relationship between DBS privacy/security, and customer satisfaction and retention. To this end, we hypothesize that:

H4. Privacy/security of DBS application will influences customers' satisfaction and retention intentions.

3.5 Responsiveness

Responsiveness describes the willingness to help customers and to provide prompt service (Akinyemi *et al.*, 2010; Parasuraman *et al.*, 2005). This quality dimension requires that a DBS application provides prompt and expedite services to customers especially in the era of COVID-19 when individuals largely rely on digital platforms. This dimension is significant because promptly resolving customers' complaints positively influence their perception of service quality (Narteh, 2018). Often, when a bank's digital service downtime or failure occurs, the ability to recover quickly and with professionalism can create a very positive perception of quality (Zavareh *et al.*, 2012). Consequently, Narteh (2018) concludes that in Ghana, the responsiveness of a bank's service quality impacts on customer satisfaction. This implies that banks are enjoined to ensure that digital platforms and customer e-services staff provide prompt and expedite response to queries and also willing to help customers. Prior studies found that DBS responsiveness influences customer satisfaction and retention (Narteh, 2018; Al-Ghraibah, 2020). Therefore, in this study, we hypothesize that:

H5. Responsiveness of DBS will influence customers' satisfaction and retention intentions.

3.6 Reliability

Reliability defines the ability of DBS platform to perform its functions based upon correctly defined task characteristics without failure (Bahia and Nantel, 2000; Parasuraman *et al.*, 2005). Reliability according to Parasuraman *et al.* (1988) is one of the most important factors towards quality service because a customer would like to ensure that services subscribed can perform the promised service adequately and accurately (Parasuraman *et al.*, 2005). Given that reliability results in the provision of quality services Raza *et al.* (2020), Narteh (2018) found that the reliability of DBS positively influences customers' satisfaction and loyalty. Note that a satisfied customer would remain loyal and retain (Al-Ghraibah, 2020). Hence, in this study, we hypothesize that:

H6. The reliability of DBS will influence customers' satisfaction and retention intentions.

3.7 Service charges

Service charge is the cost involved in accessing or utilizing a DBS (Bahia and Nantel, 2000). According to Abouraia and Othman (2017), cost involved in utilizing a DBS significantly determines their continual usage. Senyo and Osabutey (2020) observed that mobile banking service users in Ghana are concerned about how much they pay for every transaction they conduct and conclude that reduced service charges significantly improve customer satisfaction. Huei *et al.* (2018) also submit that service charges significantly drives an individual's motivation towards adoption and use of digital banking application. Furthermore, the study carried out by Narteh (2018) shows service charges significantly influence customer satisfaction. Hence in this study, we hypothesize that:

H7. Service charges on DBSs will significantly influence customers' satisfaction and retention intentions.

3.8 Service portfolios

Service portfolio according to Bahia and Nantel (2000) describes a portmanteau of innovative products and services which are consistent with its task characteristics. Following the imposed restrictions amidst the COVID-19 pandemic, banks moved most customarily services onto their digital platforms. Customers on the other hand are anxious in anticipation of bundled services on a convergent platform from which they can access (Mersha and Worku, 2020). The banking industry in Ghana has been competitive mainly due to the constant deployment of newer product and services (Addai *et al.*, 2019). The competition has intensified in the wake of the COVID-19 pandemic heightening the need to offer a convergent of customer-oriented quality services on digital platforms in a bid to satisfy and retain their customers (Agudze-Tordzro *et al.*, 2014). It was evident that service portfolio significantly predicts customer satisfaction and retention intentions (Petridou *et al.*, 2007; Narteh, 2018). Hence, this study hypothesizes that:

H8. Service portfolios of DBS application will significantly influence customer satisfaction and retention intentions.

3.9 Digital banking customer service satisfaction and retention intension

Customer satisfaction is hypothesized as the assessment of opinions about a product or services provided by an organization (Gustafsson *et al.*, 2005). Customer satisfaction is considered as an indicator for predicting customer purchase intention and loyalty (Chang and

Chen, 2009). Chang and Chen (2009) submit that electronic services satisfaction could be as a result of the expression of feelings in response to the features of the service. This impacts on customers' continual use of financial digital services (Wang *et al.*, 2019). That notwithstanding, overall satisfaction of a quality digital service could be as a result of an accumulated impact of the electronic device since service quality impacts on e-service customer satisfaction and loyalty (Raza *et al.*, 2020).

Customer retention implies the commitment to maintain a long-term relationship between the customers and the firm (Weinstein, 2002). Customer retention is increasingly becoming an important dimension especially when economic endeavors are saturated amidst a lower rate of new customers (Kelecic, 2020). Since DBS drives the competitive edge of banks (Oliveira *et al.*, 2002) and enhances customer intimacy and loyalty (Raza *et al.*, 2020), digital customers tend to stay (Al-Ghraibah, 2020). Note that customers' satisfaction has a relationship with their loyalty and subsequent stay onto the product or service (Ankit, 2011). Hasan *et al.* (2013) established that quality ATM services significantly influence customers retention decisions. Similarly, Al-Ghraibah (2020) found that online consumers in Saudi Arabia during the COVID-19 will retain if satisfied with the online services received. Essentially, a reduction in customer churn due to enhanced service delivery most especially when they are satisfied (Ul Haq and Awan, 2020) significantly maximizes returns of businesses investments (Murali *et al.*, 2016). Along this line Mahmoud (2019) and Al-Ghraibah (2020) found a directly proportional relationship between quality DBS customer satisfaction and retention intentions. Hence, we hypothesize that:

H9. Quality DBS satisfaction will significantly influence customers' retention intentions.

4. Research context and methodology

4.1 Research context

Ghana is recorded to have the second largest economy in the West African sub-region with a current population estimated about 30.42 million. The banking and telecommunication sectors over decades now have become major drivers of Ghana's economy. This stems from the Government's resolve to aggressively transition Ghana from the over-reliance on physical cash to a cashless economy driven by digital technologies (Ozyurt and Beck, 2019). As a result, banks are leveraging on the capabilities of the telecom sector to drive this strategy. For instance, mobile banking and Internet banking, a major feature in digital banking have become pervasive and arguably inevitable since all banks in Ghana currently have deployed multiple platforms enabled by mobile or Internet medium (Sarpong and Agbeko, 2020). Though this development is not anew, the rate increased exponentially in the wake of the COVID-19 pandemic. This follows a declaration of a lockdown on some major cities in the country by the government of Ghana on March 28, 2020 intended to curb the spread of the virus. Banks subsequently advised their customers to use their digital platforms for their routine banking needs. Hence, the surge in the deployment of varied digital platforms with a portfolio of services to serve customers during the period.

Presently, there is keen competition among banks in Ghana since the BOG enhanced its reforms to strengthen the sector. This has caused the revocation of some banking licensing and in some cases takeovers from other banks (Obuobi *et al.*, 2020). Hence, banks are making all efforts to improve on their services aimed at attaining operational excellence and retain their customers to increase their market share for a competitive advantage (Agudze-Tordzro *et al.*, 2014). Yet, extant studies relative to the Ghanaian context have remained silent on DBS dimensions which influence customer retention intentions through the satisfaction of the DBSs received.

4.2 Measurements scales

The measurement items for all constructs presented in Table 2 were adopted from literature. These items guided us in the construction of our conceptual framework (Figure 1). Constructs adopted were empirically grounded in literature. Eight constructs were adopted: Four (*ease of use, efficiency security/privacy and responsiveness)* were drawn from the E-S-QUAL (Parasuraman *et al.*, 2005), one (*interoperability)* from (Gupta *et al.*, 2017) and three (*reliability, service charges and service portfolio*) from the BSQ (Bahia and Nantel, 2000). Column 8 of Table 2 indicates the source where each of the constructs was adopted.

4.3 Sampling and data collection

The research questionnaire used in the data collection was structured into three parts: the first section comprises respondent's demographic information and the second part comprised respondents' answers to their assessment of the quality service variables in the model. The third section sought to know customers' satisfaction with the DBS and retention intentions based on the variables in the second section. The second and third sections were structured based on the constructs of the model questions using a five-point Likert scale ranging from 1 to 5 representing strongly disagree to strongly agree. A pilot study was initially conducted among 50 participants to ascertain the validity of the questions for their internal consistency and no issue of multicollinearity was recorded. Due to the prevalence of the COVID-19, we distributed the online survey link to respondents through a snowballing approach between the period May and December 2020. Snowballing technique helps in the recruitment of the respondents through a chain of referral (Allen, 2017). Cognizance of possible duplication in the online self-administration questionnaire, constraint was placed in the Google Forms to prevent multiple responses. All questions were mandatory, and hence, no missing data were recorded. At the end of the survey, 395 responses were received.

4.4 Profile of respondents

The demographic information was analyzed using IBM Statistical Package for Social Science (SPSS version 26). The descriptive characteristics of respondents are shown in Appendix. Out of the 395 responses 56.7% were females and 43.3% males. Age groups between 18 and 29 years were 58.7%, 30 and 39 years were 30.4%, 40 and 49 years were 5.6%, 50 and 58 years were 2.8 and 2.5% were above 60 years. Relative to their education level, high school leavers were 5.8%, Certificate/diploma 8.8%, professional certifications 2.0%, first degree holders were 52.9%, master degree 29.4 and 1% doctorate holders. On the frequently used DB channel during the COVID-19, 53.4% frequently used mobile channels, 31.9% ATM, 10.1% online/Internet and 4.6% telephone banking. Relative to the frequency of access of the DBS during the COVID-19, a few times in a week was 44.6%, daily 26.6%, few times in a month 16.7 and 12.2% accessional users.

5. Results

Further, we evaluated the reliability and validity of the constructs in the conceptual model as recommended by Hair *et al.* (2014) and there was no ambiguity in the questions. The study employed a structural model analysis using partial least square structural equation model (PLS-SEM) to test the structural model. Hair *et al.* (2017) submit that PLS-SEM is appropriate for predicting the structural relationship of latent variables. The SmartPLS software version 3.2.7 was used for the measurement and structural analysis.

5.1 Assessment of the measurement model

A three-stage measurement models namely factor loadings, convergent and discriminant validity was used to examine the relationship between the latent variables. To produce a good

Table 2.
Results of factor loadings, constructs reliability and validity

Constructs	Items	Measures	Loadings	Cronbach's alpha	Composite reliability	AVE	References
Ease of use	EOUS1	May bank's digital service platform is user friendly	0.807	0.922	0.922	0.748	Parasuraman *et al.* (2005)
	EOUS2	I can confidently navigate on my bank's digital service platform	0.864				
	EOUS3	My bank's digital service platform provides me with clear user instructions	0.889				
	EOUS4	I feel comfortable anytime using my bank's digital service platform during	0.896				
Efficiency	EFFI1	My bank's digital platform makes it easier to get any service I want	0.977	0.886	0.892	0.735	Parasuraman *et al.* (2005), Sharma and Malviya, (2011)
	EFFI2	My bank's digital service platform allows me to perform transactions quickly	0.778				
	EFFI3	The digital banking service platform is worked perfectly to my expectations	0.803				
Interoperability	INTE1	I find it easier to navigate outside my bank's digital service platform	0.822	0.939	0.939	0.838	Bourreau and Valetti (2015), Gupta *et al.* (2017)
	INTE2	My bank's digital services can be accessed on other third-party digital platforms	0.995				
	INTE3	Making payments and transfer to other third-party platforms with my bank's digital asset is easy	0.921				
Privacy/Security	SECU1	I trust my bank's digital services	0.750	0.818	0.819	0.602	Parasuraman *et al.* (2005)
	SECU2	I feel secure using my bank's digital services	0.782				
	SECU3	I believe my bank does not share my personal/ financial transaction details with other third-party institutions	0.794				

(*continued*)

Table 2.

Constructs	Items	Measures	Loadings	Cronbach's alpha	Composite reliability	AVE	References
Reliability	RELI1	Digital banking services provided by my bank is timely	0.866	0.924	0.924	0.753	Bahia and Nantel (2000), Parasuraman *et al.* (2005)
	RELI2	My bank provides me with the right digital services as promised	0.811				
	RELI3	Digital banking services expected at any giving time are delivered	0.933				
	RELI4	My bank's digital banking services platform maintains error-free records	0.858				
Responsiveness	RESP1	I receive prompt responses from my bank when using their digital services	0.803	0.821	0.822	0.698	Parasuraman *et al.* (2005)
	RESP2	My bank provides prompt digital services to customers	0.867				
Service charges	SCHA1	Charges on my bank's digital services were moderate	0.804	0.800	0.800	0.667	Bahia and Nantel (2000)
	SCHA2	Cost of using my bank's digital platform is cheaper	Removed				
	SCHA3	Cost of subscription to my bank's digital services is moderate	0.829				
Service portfolios	SEPO1	My bank digital platform provides varied financial services	0.752	0.824	0.824	0.610	Bahia and Nantel (2000)
	SEPO2	My bank provides multiple services available on its digital platform	0.804				
	SEPO3	My bank consistently updates its digital platform with newer services	0.786				

(*continued*)

Table 2.

Constructs	Items	Measures	Loadings	Cronbach's alpha	Composite reliability	AVE	References
DBS satisfaction	DSAT1	I will recommend my bank's digital services to other customers	0.762	0.884	0.884	0.656	Chang and Chen (2009), Gustafsson *et al.* (2005)
	DSAT2	I am satisfied with the way digital banking services is delivered by my bank	0.821				
	DSAT3	I am satisfied with the quality of digital banking services received	0.870				
	DSAT4	Overall, I am satisfied with the quality of digital banking services received from my bank during the COVID-19	0.783				
Customer retention intention	RTNI1	I will recommend to others to continuously use my bank's digital banking services	0.716	0.880	0.880	0.595	Gustafsson *et al.* (2005), Weinstein (2002)
	RTNI2	I intend to continue using my bank's digital services	0.779				
	RTNI3	I intend to stay because my bank provides quality digital services	0.735				
	RTNI4	I intend to stay and recommend my bank's digital services to others	0.818				
	RTNI5	Overall, I am satisfied with the quality of my bank's digital services during the COVID-19 and intend to stay	0.804				

fit, factor loadings were first computed and all factors below the acceptable 0.7 (Hair *et al.*, 2017) were removed from the final measurement. Final factor loadings (shown in Table 2). Second, other reliability measures, internal consistency and convergent reliability were also computed. The internal consistency was computed using the composite reliability (CR) and Cronbach's alpha. The convergent validity of each construct was computed using the average variance extracted (AVE) (Hair *et al.*, 2019). Given the suggested threshold on the accepted reliability value above 0.7 for Cronbach's alpha (Hair *et al.*, 2017), all constructs of the model met this criterion indicating sufficient construct reliability internal consistency. Similarly, the threshold for the accepted convergent validity of 0.5 (Hair *et al.*, 2014) was also achieved which indicates a good convergent validity (Table 2).

Relative to the discriminant validity, we employed the Fornell and Larcker and Heterotrait-Monotrait (HTMT). The Fornell and Larcker (1981) criteria are one of the traditional metrics for measuring discriminant validity. The method compares the square root AVE of each construct with the inter-construct correlation of the same and all other constructs in the structural model. As presented in Table 3, the bivariate correlation between any construct in the model is lesser than the square root of the AVE indicating a strong uniqueness between the constructs. The Fornell and Larcker metric has however been critiqued for not providing adequate discriminant validity assessment. For instance, Henseler *et al.* (2015) content that the metric lacks the ability to establish uniqueness between constructs. Hence, the proposition of the HTMT ratio of the correlations. The HTMT achieves higher specificity and sensitivity rates (Henseler *et al.*, 2015). The HTMT threshold value proposed by Henseler *et al.* (2015) is 0.9. However, in this study, we adopted the 0.85 threshold proposed by Henseler *et al.* (2015) when constructs are conceptually more distinct. Table 4 presents the result of the HTMT values for each pair of the construct is between 0.019 and 0.553. This implies no discriminant validity problem existed between constructs.

5.2 Assessment of the structural model and hypothesis testing

Third, we measured the structural model of the study which entails computing (1) the coefficient of determination (R^2), (2) cross-validation redundancy measure Q^2 and (3) testing of hypotheses (Hair *et al.*, 2019). Before that, we measured the collinearity among the predictor constructs for their variance and the variance inflation factor (VIF) values were between the threshold of 1 and 2.85 indicating the absence of possible biases in the path coefficients consistent with Hair *et al.* (2017) proposition. We proceeded to determine the R^2 and Q^2 values which is a measure of the explanatory power and high predictive ability (Hair *et al.*, 2019). We applied the SmartPLS blindfolding procedure in determining the Q^2. The R^2 values and Q^2 are shown in Table 4.

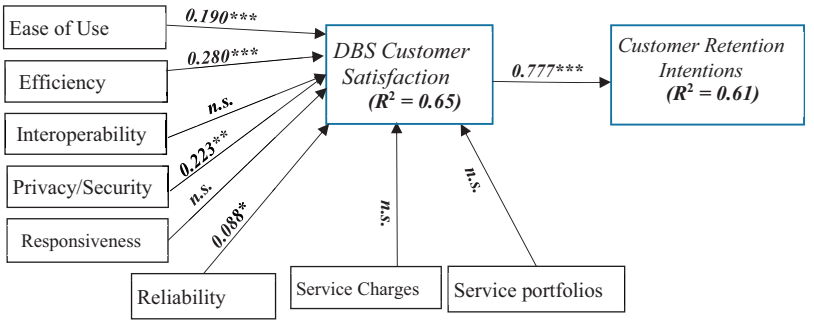
The final data analysis was to test for hypotheses and the result is presented in Table 5. The mediation analysis was to test the indirect effect in the conceptual model by the independent variables on customer retention intention through DBS satisfaction. The result as illustrated in Table 5 shows that ease of use had a positive and statistically significant relationship with DBS satisfaction and customer retention intentions. Hence, hypothesis H1 is supported. Similarly, efficiency, privacy/security and reliability of DBSs had a statistically significant relationship with DBS satisfaction and retention intentions. This implies hypotheses H2, H4 and H6 were supported. On the contrary, interoperability, responsiveness, service charges and services portfolio did not indicate any statistically significant relationship with DBS satisfaction and retention intentions. Hence, hypotheses H3, H5, H7 and H8 were rejected. Furthermore, the final phase of the hypothesis was to ascertain the impact of quality DBSs satisfaction on the customers' retention intentions. The direct effect path analysis shows a statistically significant relationship between quality DBS satisfaction and customers' retention intentions, which indicates the acceptance of hypothesis H9 (See Figure 2).

Constructs	EOU	EFF	INTE	PSEC	RELI	RESP	SCHA	SPOR	DSAT	RTN
Ease of use	0.865									
Efficiency	0.329	0.857								
Interoperability	−0.019	−0.011	0.916							
Privacy/Security	0.330	0.524	0.041	0.776						
Reliability	0.043	0.093	0.257	−0.010	0.868					
Responsiveness	0.009	0.061	0.553	0.044	0.332	0.836				
Service charge	0.291	0.416	0.001	0.531	0.046	0.068	0.817			
Service portfolios	0.197	0.409	−0.003	0.506	0.062	−0.008	0.347	0.781		
DBS satisfaction	0.482	0.624	0.010	0.589	0.132	−0.002	0.448	0.364	0.810	
Retention intention	0.388	0.714	−0.047	0.680	0.084	−0.031	0.499	0.585	0.777	0.772

Table 3.
Result of discriminant validity (Fornell and Larcker criterion)

Table 4.
Result of discriminant validity (HTMT criterion)

Constructs	EOU	EFF	INTE	SECU	RELI	RESP	SCHA	SPOR	DSAT	RTN	R^2	$Q^2 = (1-SSE/SSO)$
Ease of use												
Efficiency	0.328											
Interoperability	0.039	0.019										
Privacy/security	0.331	0.525	0.047									
Reliability	0.072	0.094	0.256	0.056								
Responsiveness	0.049	0.064	0.553	0.048	0.332							
Service charge	0.291	0.418	0.021	0.533	0.046	0.067						
Service portfolio	0.197	0.412	0.049	0.505	0.063	0.040	0.347					
DBS satisfaction	0.485	0.624	0.025	0.589	0.133	0.021	0.448	0.361			0.65	0.40
Customer retention intentions	0.387	0.715	0.057	0.684	0.085	0.045	0.497	0.585	0.775		0.61	0.43



Note(s): ***$p < 0.001$. **$p < 0.01$. *$p < 0.05$

Figure 2.
Structural model result

Hypotheses		Original sample (*O*)	Sample mean (*M*)	SD	*t*-statistics	*p*-values	Interpretation
H1	Ease of use → DBS satisfaction → customer retention intention	0.190	0.190	0.042	4.511	0.000	Accepted
H2	Efficiency → DBS satisfaction → customer retention intention	0.280	0.276	0.062	4.538	0.000	Accepted
H3	Interoperability → DBS satisfaction → customer retention intention	0.026	0.027	0.044	0.603	0.547	Rejected
H4	Privacy/Security → DBS satisfaction → customer retention intention	0.223	0.233	0.074	2.996	0.003	Accepted
H5	Responsiveness → DBS satisfaction → customer retention intention	−0.079	−0.079	0.045	1.770	0.077	Rejected
H6	Reliability → DBS satisfaction → customer retention intention	0.088	0.086	0.036	2.418	0.016	Accepted
H7	Service charge → DBS satisfaction → customer retention intention	0.063	0.061	0.052	1.210	0.227	Rejected
H8	Service portfolio → DB satisfaction → customer retention intention	−0.010	−0.009	0.061	0.163	0.871	Rejected
H9	DBS satisfaction → customer retention intentions	0.777	0.777	0.041	18.844	0.000	Accepted

Note(s): *Significant level at 0.05, **Significant at 0.01 level, ***Significant at 0.001 level

Table 5.
Results of hypotheses testing (specific effect)

6. Discussion

6.1 Key findings

In this study, we explored the impact of digital banking services provided by banks in Ghana during the COVID-19 on customers' satisfaction and retention intentions. This study was motivated by the impetus given to the acceptance and usage of DBS as a result of the unfolding COVID-19 pandemic and the multiplicity of factors that could affect the quality of

services offered during the period. Given that digital banking service has become indispensable toward conforming to the established COVID-19 protocols especially for banks in Ghana, understanding the impact of the services provided was eminent.

The predictive accuracy of the model showed a coefficient of determination R^2 values of 65 and 61% of variations in DBS satisfaction and retention intention respectively. Given that the rule of thumb regarding the acceptable R^2 value are 0.75, 0.50 and 0.25 representing substantial, moderate and weak predictive accuracy respectively (Hair *et al.*, 2014), we argue that a strong exploratory power has been obtained as compared to previous studies by Al-Ghraibah (2020) who obtained 43.5% variations in customer retention.

Eventually, the study result revealed that ease of use, efficiency, privacy/security and reliability of DBSs have a significant impact on customers' retention intentions through satisfaction. As a result, H1, H2, H4 and H6 which indicate that DBSs' ease of use, efficiency, privacy/security and reliability influence customers' satisfaction and retention intentions are supported. This outcome is consistent with earlier studies (Al-Ghraibah, 2020; Ankrah, 2012; Ketema and Selassie, 2020) which hypothesized that quality DBS impacts on customer satisfaction and retention decisions. Additionally, Narteh (2018) found that reliability of retail banking services positively predicts customer satisfaction. Raza *et al.* (2020) further add that quality dimensions such as user friendliness, reliability and efficiency of Internet services will positively impact on customer satisfaction and loyalty. While Ul Haq and Awan (2020) found the privacy and security of digital applications to have an association with consumer satisfaction, it is contingent on the privacy and security the platform provides. More significant about the study findings was that Ketema and Selassie (2020) in a related study found the ease of use of DBS applications to have a positive relationship with customer satisfaction.

Additionally, the study found a direct effect between DBS customers' satisfaction and retention intentions. The test revealed that the customer's decision to retain is directly associated with their level of satisfaction with DBS provided by their banks during the COVID-19. This result is consistent with Murali *et al.* (2016) and Al-Ghraibah (2020) who found a relationship with quality digital services on consumers satisfaction and retention intentions. This in essence proves how sensitive customers were to services delivered during the COVID-19 pandemic.

On the contrary, results of H3, H5, H7 and H8 indicating the influence of DBS quality dimensions, interoperability, responsiveness, service charges and service portfolios on consumer satisfaction and retention intentions had no impact. This result is inconsistent with prior studies which found a significant impact of DB on consumers' decisions (Narteh, 2018; Raza *et al.*, 2020). Relative to service charges, Narteh (2018) found banking services to be a positive and significant influence on customer satisfaction. Again, given that interoperability offered DB customers' unlimited access to make transfers from their account to other account held by another service provider, the feature would have been a significant quality dimension. Be that as it may, from the customers' perspective, service charges and interoperability of the digital banking services will not influence their satisfaction level and retention intentions.

6.2 Theoretical implications

From the theoretical viewpoint, this study added empirical evidence to the existing knowledge on quality digital banking services. Thus, the study confirms DBS dimensions such as ease of use, efficiency, privacy/security and reliability significantly influences customer satisfaction and retention intentions. Although the study confirms the influence of some dimensions of DBSs, other attributes such as interoperability, responsiveness, service charge and service portfolio did not show any significant influence on customer satisfaction and retention. Fundamentally, the study model has a crucial implication to literature particularly with the combination of the two models and the introduction of other unique variables to complements

DBS quality attributes. This unique approach offers a broader understanding of customers' retention decision relative to their assessment of DBS being offered by banks. Essentially, the consequences of DBSs delivered during the COVID-19 era on customer retention dimensions through customer satisfaction is still in their infancy (Al-Ghraibah, 2020; Ketema and Selassie, 2020; Ul Haq and Awan, 2020). Moreover, the impact of the service quality dimensions on the customers' retention intentions has not been extensively explored particularly in sub-Saharan Africa and most especially the Ghanaian context (Narteh, 2018). The study does not only fill the gaps in this context, but also add to the streams of research in the banking industry and setting the stage for further studies in other economic jurisdictions.

6.3 Practical implications

Furthermore, this study goes beyond the impact of digital banking to improving the knowledge on management practices aimed at identifying effective service quality metrics for measuring customer services, especially how to measure improved customers' satisfaction and predict their retention intentions. The deployment, acceptance and usage of DBS have evolved in a developing economy like Ghana. Thus, demand effective and sustainable strategies to pursue quality banking services strategies. While this does not come at a cheaper cost, the most perhaps cost-effective strategy is to provide excellent services. Particularly, when it has been suggested that it cost less retaining existing customers than attracting new ones (Weinstein, 2002). This is important because the profitability of banks is largely dependent on their ability to maximize gains from their share of customers. Given that sustainable quality DBS services increase market share through an increase in the customer base, the focus should be on improving the digital banking platforms reliability and efficiency consistent with the operations of disparate digital financial technologies. Regardless, service portfolios on banks digital platforms should be responsive and accessed at minimal charges to foster customer retention. Along this line, effective customer-retention strategies such as building loyalty through quality service delivery have to be embraced.

Essentially, this study has proven through several electronic banking several quality dimensions that customers will react in diverse ways based on the quality of services received. While it is important to provide services with much usability, reliability and efficiency, the platforms should also be user friendly and offer many assurances in terms of privacy/security for customers of different competency levels to easily navigate on the digital platforms. The result of this study, will serve as a blueprint to banks when developing digital service applications. For instance, emphases should be given to quality attributes such as ease of use, efficiency, reliability and privacy/security since they influence customers' satisfaction and retention intentions. This implies consideration should be given to the security and protection of customers' digital financial asset and information on banks financial technologies platforms. In the light of the result, this implication is important given the rise in cyber threats among mobile and Internet banking users in Ghana (Kolog *et al.*, 2020). Furthermore, the study results serve as a guideline to banks and other allied financial institutions to derive customer-centric service quality criteria to enhance decision making based on customers' preferences. It should also be mention that the findings will ultimately guide financial institutions in the implementation of digital systems aimed at achieving operational excellence. Furthermore, the findings will inform banks of customers' preferences for quality services in order to tailored-made DBS for their competitive advantage.

6.4 Limitations and future research directions

First, even though this study provided an empirical assessment of the impact of quality DBS on customer' retention intentions, it highlighted on the customers' retention through satisfaction. Our study was based on the Ghanaian context which invariably is beset with several challenges relative to its services sector (YuSheng and Ibrahim, 2019). A comparative

study between a developed and developing economy in future will offer more generalized results. Further, digital banking services encompasses several processes. This study meanwhile focused on a combination of DB service quality dimensions. This approach though novel may not be instructive since digital banking services vary based on the bank, delivery channel and application. Other service quality frameworks could also be used by future studies and or extend the existing frameworks to come out with similar profound findings. Again, other moderating factors such as economic status and trust could also be used coupled with other models to determine what informs customers to stay on their banks DBS during the pandemic. A preference elicitation technique could also be used to understand consumers preferred quality dimension in times of pandemic in future studies.

7. Conclusion

This paper investigated the impact of quality DBS on the customers' satisfaction and retention intentions leveraging on the E-S-QUAL and BSQ models. Specifically, the decision was based on DBSs received during the COVID-19 era among customers of Ghanaian Banks. We collected 395 responses and at the end of the result analysis, it emerged that DBS satisfaction directly impacts on customers' retention intentions. Specifically, the study based on eight quality dimensions namely ease of use, efficiency, interoperability, privacy/security, responsibility, reliability, service charges and portfolio. It emerged that ease of use, efficiency, privacy/security and reliability of DBS impacts on customers' retention decision when satisfied. On the contrary, interoperability, responsiveness, service charge and portfolios of DBSs did not influence DBS customers' satisfaction and retention intentions. Moreover, although some portions of the study findings were inconsistent with prior studies, it offers an opportunity for further assessment in contribution to a broader knowledge of quality baking services.

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Appendix

Demographics	Frequency (N = 395)	Percent (%)
Gender		
Female	224	56.7
Male	171	43.3
Age		
18–29	232	58.7
30–39	120	30.4
40–49	22	5.6
50–58	11	2.8
60 and above	10	2.5
Educational		
High school	23	5.8
Certificate/diploma	35	8.9
Professional	8	2.0
First degree	209	52.9
Master's degree	116	29.4
Doctorate degree	4	1.0
Digital banking access channels frequently used		
ATM	126	31.9
Mobile	211	53.4
Internet/online	40	10.1
Telephone	18	4.6
Frequency of digital banking service use		
Rarely	48	12.2
Daily	105	26.6
A few times in a week	176	44.6
A few times in a month	66	16.7

Table A1. Demographic distribution of participants

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