

# The Impact of Electronic Banking Service Quality on Customer Satisfaction (Applied Study on Public Commercial Banks in Egypt)

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### Abstract

Our research investigates Electronic Banking Service Quality impact on Customer Satisfaction in public commercial banks in Egypt. Further, it aims to identify whether there is variation in the awareness of customers with electronic banking services quality, and customer satisfaction according to demographic factors.

The study relied on the descriptive analytical approach, where the survey list was used for collecting data from the target population which represented customers in public commercial banks (Banque Misr - National Bank of Egypt - Cairo Bank) in Benha in the Qalyubia Governorate. The researcher selected a sample of 500 consumers representing the study population and then distributed surveys to the study sample using a questionnaire. There were (449) completed questionnaires, accounting for 89.8% of the study's statistical analysis. The obtained responses from respondents were analyzed statistically using SPSS to investigate the research hypotheses.

Based on empirical results, this research showed that electronic banking service quality has a significant positive impact on customer satisfaction in public commercial banks in Egypt. Furthermore, the results indicated that the second and third main hypotheses were partially validated, which states that there are statistically significant differences in customers' awareness of electronic banking services quality and customer satisfaction respectively, according to demographic factors (gender, age, education level, and region) in public commercial banks in Egypt.

**KEYWORDS:** Electronic Banking services quality; Reliability; Responsiveness; Privacy and security; Website design; Perceived usefulness; Perceived ease of use; Customer satisfaction.

## 1- Introduction

Following globalization, the banking industry's operating environment has become more dynamic and competitive (Chao, 2014), with rapid technological progress and deregulation (Al Hila et al., 2017; Ali & Naeem, 2019), resulting in increased rivalry between banks and non-banking entities (Al Hila et al., 2017; Strandberg et al., 2012,). Thus, in the competitive banking sector, it is difficult to attain product differentiation, so service quality is the most effective means for distinguishing a bank from its rivals (Al Hila et al., 2017; Shayestehfar & Yazdani, 2018; Moghavvemi & Lee, 2017; Fauzi & Suryani, 2018; Ejigu, 2016; Shayestehfar & Yazdani 2018). Given the importance of service quality in attracting and retaining consumers, it has been identified as a strategic requirement in highly competitive corporate environments (Islam et al, 2015). Thus, providing high-quality service is the most important factor in ensuring the banking industry's outstanding success and longevity (Fauzi & Suryani, 2018).

Service quality assessments may differ depending on the circumstances and may differ between actual banking and e-banking (Shankar & Jebarajakirthy, 2019). Banking services have evolved through several stages, from typical paper-based businesses to virtual and technical banks that utilize different communication networks (El Talla et al., 2019). Banking represents a domain within the electronic service sector where the adoption of information technology (IT) diffusion is more popular, quick, and crucial due to the distinctive qualities (financial and personalized) of banking services (Arora & Sandhu, 2018., Ryu, 2017). As a result, it has significantly revolutionized all aspects of contemporary human existence and the global economic environment (Gayan et al., 2019). It has built several distribution channels to attract tech-savvy customers, increase business opportunities, and maintain consumer loyalty. Because of the integration of Internet services, electronic financial services have emerged (Raza et al., 2020).

Nowadays, all banks provide e-banking services since delivering higher quality in this service delivery structure is a core approach for gaining a competitive advantage (Shankar & Jebarajakirthy, 2019; Ejigu, 2016; Mahfouz & Khourshed, 2016; Moghavvemi & Lee, 2017). Whereas E-banking allows bank customers to access a variety of financial services through banks' official websites (Gayan et al., 2019). As a result, numerous dynamic organizations, top managers, and consultants feel obligated to employ electronic banking service quality to improve bank performance. Banks are focused on constantly updating and innovating technology to provide reliable, affordable, and beneficial services to their valuable customers (Ali & Naeem, 2019). Thus, the most important criterion and resource for analyzing and satisfying clients is the quality of electronic banking services.

In the same vein, consumer satisfaction is commonly acknowledged as a major effect in the shaping of consumers' future purchasing intentions. Where it

is used to connect processes that culminate in purchase and consumption with post-purchase phenomena such as frequent purchases, loyalty to brands, and attitude modification (Asnawi et al., 2019; Haron et al., 2020; Ali & Naeem, 2019; Famiyeh et al., 2017). Customers who are satisfied with a specific service offering after using it are more inclined to make repeat purchases and try queue extensions.

Thus, customer satisfaction is often described as a customer's feeling or judgment of a product or service after using it, whereas service quality is an entire assessment of the services, and satisfaction is obtained from an overall evaluation of the experience with those services. As a result, as more banks aim for quality in their products and services, customer satisfaction is rapidly becoming the bank's goal (Famiyeh et al., 2017). Thus, organizations that may enhance sales, earnings, and cost efficiency are those whose operations revolve around providing quality services to customers (Asnawi et al., 2019).

After the previous arguments, a detailed analysis of the literature reveals a large vacuum due to a lack of study on the quality of E-banking services in Egypt. Furthermore, the issue of the Coronavirus's spread has provided an opportunity for banks to begin working on expanding the usage of electronic banking services. Customers' needs and wishes are expanding, and they want to utilize them anywhere, at any time, without any cost-effective time or location limits. As a result, banks are no longer able to depend on traditional methods of client satisfaction. As a result, the significance of this research is growing. Thus, the purpose of this study is to explore the impact of E-banking service quality dimensions on customer satisfaction.

## 2- Literature review

To achieve the research objectives and construct a proposed framework, the literature review is divided into two main parts according to the nature of the study. Finally, the researcher's comment on the Literature review is added:

### A) A literature review of E-Banking services quality.

No.	Author & year	Objectives	Results
1	Mir et al., 2022	To practically construct a reliable and valid tool for measuring online service quality in India's banking sector.	The digital banking service quality scale (DBSQual) has 24 criteria divided into seven dimensions: (1) online architecture, (2) user-friendliness, (3) website efficiency, (4) reliability, (5) responsiveness, (6) security, and (7) personalization. In this study, the relationship between digital banking service quality and e-customer satisfaction was also discovered to be substantial.
2	Aduba, 2021	To investigate the	Approximately three-quarters of

No.	Author & year	Objectives	Results
		benefits, constraints, and factors influencing electronic banking adoption in Nigeria.	respondents used at least one type of electronic banking. However, just a tenth of users utilized e-banking to purchase goods or services, indicating a low level of electronic payment usage. The limited adoption of electronic payments was caused by a lack of digital security infrastructure, which exposed users to widespread electronic fraud. The data also revealed that users' socioeconomic position influenced their use of e-banking platforms or services.
3	Leem & Eum, 2021	To offer a method for measuring service quality and detecting customer complaints by analyzing customer online evaluations of mobile banks.	It was feasible to understand from the customer's perspective which factors are significant among the numerous dimensions of service quality and which factors should be managed well in a mobile banking scenario. By detecting client complaints regularly, service failures can be avoided and service quality and consumer satisfaction can be enhanced.

Source: Prepared by the researcher

#### B) A literature review of customer satisfaction.

No.	Author & year	Objectives	Results
1	Biswas et al., 2022	To shed light on the factors that influence customer satisfaction (CS) and customer trust (CT) in Indian retail banking.	bank reputation (BR) and Perceived service innovation (PSI) significantly boost CS and CT. The study also claims that CT mediates the relationship between PSI and BR on one side and CS on the other. Furthermore, perceived risk modifies the relationship between CS and loyalty.
2	Uysal & Okumus,	To investigate how consumer-based brand	Quality commitment and heritage sincerity, both of

No.	Author & year	Objectives	Results
	2021	authenticity (CBBA) affected customer satisfaction and brand loyalty (BL). Further investigation was conducted on the moderating impact of the variable "alternative attractiveness" in the relationship between CS and BL.	which are CBBA subdimensions, had a strong beneficial effect on CS. Furthermore, when comparing global brands to domestic brands, both had a different effect on CS. CS also exhibited a significant beneficial influence on BL, but AA had a negative effect on BL.
3	Wu et al., 2021	To investigate the effects of service personal values (SPVs) and customer participation (CP) on cruise customer satisfaction (CS) and customer loyalty (CL) using an empirical research technique	Customer participation has a good impact on SPVs, customer loyalty, and customer satisfaction. service Personal values also have a significant and positive influence on how satisfied customers are.

**Source:** Prepared by the researcher

### C) Researcher's comment on the Literature review

#### Research Gap

1. Previous research ignores the investigation of the impact of TAM theory (perceived ease of use - perceived usefulness) impact on customer satisfaction.
2. Although there are 5 dimensions of EBSQ (Reliability – Responsiveness - Privacy and security - Website design - Ease of use) that are the most frequent in previous studies, the last dimension (Usefulness) is rarely used.
3. Previous research ignores investigation of the impact of EBSQ dimensions (Reliability – Responsiveness - Privacy and security - Website design - Ease of use - Usefulness) on customer satisfaction in the Egyptian Environment.

#### What distinguishes the current search?

1. Current research will enhance research about EBSQ in Egypt. Although there are many studies discussing this topic, this area of research needs to be enriched as, it is difficult to achieve product differentiation where rapid technology evolution, and changing customer preferences as they want to use service anywhere, at any time, without any cost-effective time or place constraints.
2. We use TAM theory to investigate the impact of perceived ease of use and perceived Usefulness on customer satisfaction when they use new technology.

3. The study will use 6 dimensions of E-Banking services quality (Reliability – Responsiveness - Privacy and security - Website design - ease of use - and usefulness), which combined for the first time to measure EBSQ.
4. The current research will investigate the impact of EBSQ (Reliability – Responsiveness - Privacy and security - Website design - ease of use - usefulness) on customer satisfaction in commercial public banks in Egypt.

### 3- Research problem

The crisis caused by the spread of the Coronavirus has provided an opportunity for banks to work on increasing the use of electronic banking services and activation rates, particularly following the state's ban on movement decisions, reducing the number of working hours in banks, and setting withdrawal and deposit limits to reduce overcrowding. As a result, the banking industry has undergone the most significant transformation in financial history, with information technology playing a key part in this evolution. This transition, however, poses a significant challenge to the old banking system and has the potential to replace traditional banking operations.

Furthermore, product differentiation is difficult to attain; changing client preferences and rapid technological evolution, customer demand and wishes are increasing, and they want to use service anywhere, at any time, without any cost-effective time or place limits. As a result, banks can no longer rely on traditional methods of customer satisfaction. As a result, providing high-quality electronic banking services boosts consumer satisfaction.

**The research problem can be summarized by the following questions:**

1. To what extent are electronic banking services quality available in public commercial banks in Egypt?
2. To what extent are customers satisfied with the services of public commercial banks in Egypt?
3. What is the impact of electronic banking services quality on customer satisfaction in public commercial banks in Egypt?

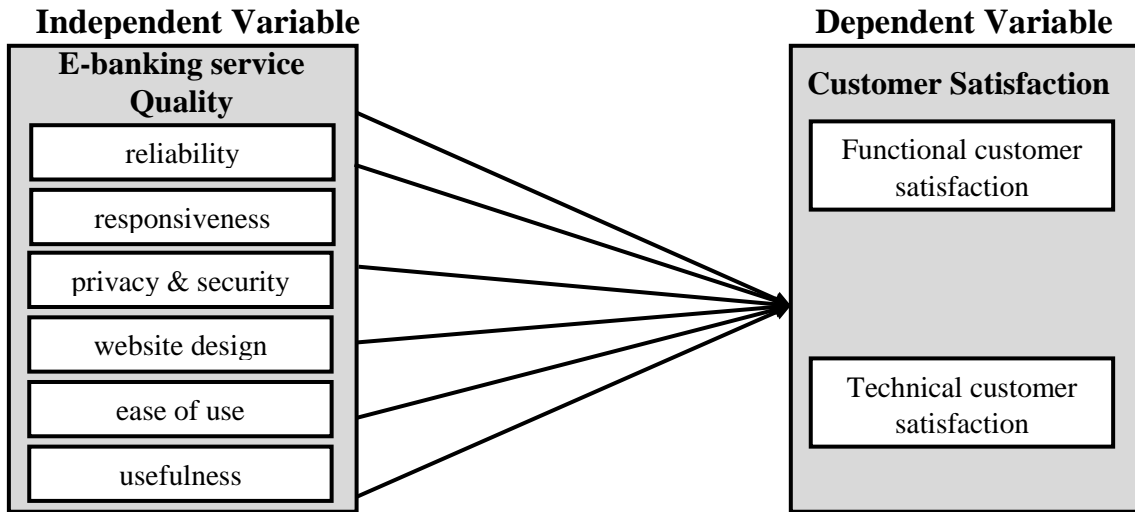
### 4- Research objectives

The study aims to answer the research problem questions; hence the research objectives are:

- 1- Identifying whether electronic banking services quality is available in public commercial banks in Egypt.
- 2- Identifying whether customers are satisfied with the services of public commercial banks in Egypt.
- 3- To identify the impact of electronic banking services quality on customer satisfaction in public commercial banks in Egypt.

### 5- Research model

Based on the previous literature review, research problem, and research objectives the researcher constructed a model to determine the impact of electronic banking services quality dimensions on customer satisfaction.



Source: Prepared by the researcher

Figure (1) Research model

## 6- Research Hypothesis

The study seeks to test the following hypothesis:

### The First major hypothesis:

**H1:** Electronic banking service quality has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

### The sub-hypotheses:

**H1a:** Reliability has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

**H1b:** Responsiveness has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

**H1c:** Privacy and security have a significant positive impact on customer satisfaction in public commercial banks in Egypt.

**H1d:** Website design has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

**H1e:** Perceived ease of use has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

**H1f:** Perceived usefulness has a significant positive impact on customer satisfaction in public commercial banks in Egypt.

## 7- Research Importance

### A) Theoretical contributions

- 1- The study is the first attempt to explore the impact of TAM theory which has both ease of use and Usefulness dimensions of using new technology on Customer satisfaction in Egypt within researcher knowledge.
- 2- The study model is the first attempt to link these 6 dimensions of e-banking services quality dimensions which are (reliability, privacy & security, website design, ease of use, and usefulness) and Customer satisfaction within researcher knowledge in commercial public banks in Egypt.



- 3- Presenting a conceptual framework of the impact of e-banking services quality on customer satisfaction, which enriches the Arab and Egyptian libraries. As there are very few existing researches linking e-banking service quality with Customer satisfaction in Egypt. Although many researchers have made theoretical and applied contributions linking EBSQ and customer satisfaction in foreign environments. Therefore, the place of application of the study and the culture of the study community differs from previous studies, especially after Covid 19 within researcher knowledge which reflects the importance of addressing this topic. Thus, this research is trying to fill the gap in the literature and enhance the studies made in this field.

#### **B) Practical importance**

- 1- This study encourages banks to differentiate themselves as most banks provide comparable services and goods to enhance customer satisfaction and help banks ensure continuity and existence.
- 2- Through the empirical and theoretical framework of this thesis, the study encourages and assists banks to have a relationship with IT companies and highlights the necessity of e-banking financial transactions.
- 3- The research contributes to highlighting the e-banking services that clients need and identifying the various beneficiary segments and their banking service preferences in the Egyptian market.
- 4- The research can assist banks in adaption to and responding to severe environmental changes and developments, as well as strong rivalry, by utilizing e-banking services, and it gives insight into the extent to which Egyptian banks stay ahead of banks.

#### **8- Research Methodology**

The research will rely on the descriptive-analytical method and will include the following three items:

**A) Sources and tools of data collection:** data collection can rely on two sources of evidence which are secondary data and primary data.

##### **(1) Secondary data**

Secondary data is information that is not directly descending from the source but has been taken from another researcher. Data are those that contribute to the information of the intellectual framework of the research topic, which covers topics related to E-banking service quality and customer satisfaction. It is the descriptive approach through which the researcher can obtain from multiple sources, including:

- Thesis related to the field of scientific research.
- Research, articles, and scientific studies published in foreign periodicals.
- Seminars and conferences related to the research topic.
- International information network.

## (2) Primary data

Primary data is information that the researcher will collect by having direct contact with the sources of information such as questionnaires. The questionnaire was designed using the five-point Likert scale, which is one of the most common and used scales to identify the attitudes and opinions of the respondents toward E-banking services quality. It is basic information that is necessary to fulfill the purpose of this thesis (measuring the impact of E-banking service quality on customer satisfaction). It is considered as an analytical approach through the field visit to the banks under study, collecting data from research sample, and analyzing it. These data complement the secondary data to achieve the objectives of the study.

### B) Research population and sample

The target population includes the customers of the main branches of public commercial banks in the city of Benha, which are the National Bank of Egypt, Cairo Banque, and Banque Misr, which include (2) a branch of the National Bank of Egypt, (1) a branch of Cairo Banque, (1) a branch of Banque Misr Egypt. The sample is a part of the population as a whole which allows researchers to derive findings that may be applied to the entire population. As a result, a sample accurately represents the population and allows a researcher to generalize the sample's properties and characteristics to the overall population.

However, sampling is challenging in our case since it is impossible to track the actual number of consumers in the banking sector. Thus, a convenience sampling technique based on non-probability sampling is appropriate (Saleemm, 2020). The researcher selected a sample of 500 consumers representing the study population and then distributed surveys to the study sample using a questionnaire. There were 473 survey questionnaires returned in all. Following a review of the questionnaire, it was discovered that there are (24) that are statistically unsuited for analysis. In sum, 449 completed questionnaires were submitted, accounting for 89.8% of the study's statistical analysis.

### C) Statistical techniques for analyzing data

The research used different statistical methods through SPSS which are related to the model and hypotheses testing such as:

- Cronbach's Alpha Coefficient.
- Descriptive statistics.
- Pearson Correlation Matrix
- Multiple Linear Regression Model.
- Mann-Whitney Test.
- Kruskal-Wallis Test

## 9- Theoretical foundation

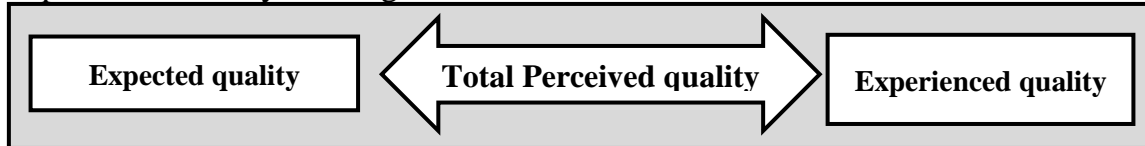
### 9.1 Electronic Banking Service Quality

#### A. E-banking service quality definition

In the industry of banking, the most significant criterion and resource for evaluating and satisfying clients is service quality, which promotes customer

loyalty and sets the standard for client dependability. Thus, banking service is a significant part of the service industry since they help customers meet their various needs (Pasha & Razashah, 2018). Unlike some other manufacturing organizations, service firms, particularly banks, have direct contact with consumers, thus the quality of their service can be judged promptly and, on the spot (Zameer et al., 2014). Thus, SQ is now a crucial component of the banking sector (Dosen & Zizak, 2014).

From the above arguments, we discovered that most researchers agree that BSQ is the extent to which the delivered service meets or surpasses customer expectations. Thus, the researcher defines BSQ as consumers' cognitive assessment of the gap between the real performance of service and the prior expectations of key banking service features.



Sources: Kenova & Jonasson, (2006)

### Figure (2) The total perceived quality

Traditional banking services are being replaced by e-banking, credit cards, and phone banking services including ATMs, online payments, and receipts (Shankar & Jebarajakirthy, 2019; Mahfouz & Khourshed, 2016). Modern technology may therefore help with service delivery, serve the diverse financial needs of consumers, and retain long-term customer interest, all of which are essential considerations when choosing a bank (Shayestehfar & Yazdani, 2018; Vedapradha & Hariharan, 2021).

Nowadays, all banks offer e-banking services as a basic strategy to gain a competitive advantage is providing superior quality in this service delivery platform (Shankar & Jebarajakirthy, 2019; Ejigu, 2016; Mahfouz & Khourshed, 2016; Moghavvemi & Lee, 2017). Where E-banking facilitates bank customers to engage in an array of banking services via banks' official websites (Gayan et al., 2019). EBSQ is therefore described as being consumers' assessments of the caliber of banking services provided online (Shankar & Jebarajakirthy, 2019). Customers' views and expectations of service quality can differ between traditional banking and online banking because consumer-perceived service quality evaluations can vary from context to context. Thus, the researcher emphasized that EBSQ is the degree to which E-banking services offered via the Internet, mobile devices, or any other technology meet or exceed consumer expectations.

### B. A Conceptual Model of EBSQ

Researchers have been interested in measuring bank service quality since the 1990s because improving SQ has a major impact on a bank's financial achievement (Chakrabarti & Trehan, 2017). So, a large percentage of research has been recently conducted to develop a specific instrument for evaluating bank

service quality, as well as some models, are provided. SERVQUAL, for example, measures observed quality across five components based on the assumption and performance difference (Tangibles, Responsiveness, Empathy, Assurance, and Reliability) (Shayestehfar & Yazdani, 2018).

Despite the SERVQUAL model's widespread application in the banking industry recently (Famiyeh et al., 2017; Chao, 2014), the results appear to be inconsistent (Famiyeh et al., 2017). As SERVQUAL is not broad enough (Shayestehfar & Yazdani, 2018). As a result, the researchers have developed the e-banking service quality (EBSQ) scale to measure the quality of e-banking services. Since all banks offer e-banking services nowadays, a basic strategy to gain a competitive advantage is providing superior quality in this service delivery platform (Shankar & Jebarajakirthy, 2019; Ejigu, 2016; Mahfouz & Khourshed, 2016; Moghavvemi & Lee, 2017). Thus, when good service quality is perceived; customers will be happier and more loyal to the bank provider (Moghavvemi & Lee, 2017).

Table (1): Electronic Banking Services Quality dimensions from Literature review

	Mir et al., 2022	Yau et al., 2021	Leem & Eum, 2021	Alarifi & Husain, 2021	Harahap et al., 2020	Raza et al., 2020	Mostafa, 2020	Haq & Awan, 2020	Shankar & Jebarajakirthy, 2019	Ejigu, 2016	Amin, 2015	Hussain, 2014	Narteh, 2013	Total
Security/ Privacy	√	√	√		√		√	√	√			√		8
Responsiveness	√	√		√	√	√				√		√	√	8
Reliability	√			√		√		√	√	√		√	√	8
Practicality			√											1
Contact		√			√									2
Website Design	√	√	√	√	√	√		√	√		√	√		10
Sociality			√											1
Enjoyment			√				√							2
Efficiency	√	√			√	√					√			5
Fulfillment		√			√								√	3
System Availability		√			√									2
personal needs				√		√					√			3
ease of use	√			√		√	√				√	√	√	7
Usefulness							√							1
customer service and support								√	√					2
Tangibles										√				1
Assurance		√								√				2
Empathy										√				1
Personalization / Customization	√											√		2
Convenience													√	1

Source: Prepared by the researcher based on the literature review

### 2.1.7.1 Technology Acceptance Model (TAM)

TAM is among the greatest frameworks for understanding customers' perceptions of technology as it can reflect user acceptance of numerous technologies to a large extent (Belanche et al., 2019, p1415). According to TAM, individuals' perceptions of technology affect their acceptance of it. Hence, TAM seeks to figure out how users' beliefs and attitudes drive their rejection or acceptance of technology (Elkaseh et al., 2016, p193). TAM is divided into perceived ease of use and perceived usefulness. which are the fundamental factors of attitudes regarding new technology (Kaur & Malik, 2019, p45; Min et al., 2018, p3; Akgül, 2018, p158).

Based on a comprehensive review and synthesis of the extant literature, the conceptual model for measuring EBSQ was formulated. This study combines many common dimensions used by other researchers under the following dimensions: Reliability, Responsiveness, Privacy and security, Website design, and Perceived ease of use. However, Perceived usefulness is rarely used, we will add it as it is a second component of TAM theory with Perceived Ease of Use. Thus, it is deemed to be a primary factor affecting attitude toward new technology usage (Mostafa, 2020, p1111; Deb & Lomo-David, 2014, p479).

**Table (2) EBSQ Dimensions**

Dimensions	Definitions
<b>Reliability</b>	Refers to the service provider's capacity to deliver the promised services precisely and consistently (Hussain, 2014; Al-Habil et al., 2017; Raza et al., 2020; Ejigu, 2016), including the frequency of website updates, promptness in responding to customer inquiries, and accuracy of online billing and purchasing (Hussain, 2014). Customers are more likely to stick with service providers when they receive consistently high-quality services, error-free services are available, and services are delivered exactly as promised in the context of e-services (Shankar & Jebarajakirthy, 2019). where a working, 24-hour-a-day online provider is used (Loonam & O'Loughlin, 2008). Thus, the researcher described it as the real ability to deliver the requested service in a dependable and precise manner.
<b>Responsiveness</b>	Responsiveness is an eagerness to assist clients and render timely service (Hussien & Abd El Aziz, 2013; Ejigu, 2016). This relates to the responsiveness, promptness, consistency, and accuracy of the services offered (Harahap et al., 2020; Hussain, 2014). This may refer to the assistance customers receive when they file E-banking complaints (Ejigu, 2016; Kenova & Jonasson, 2006), including those about accounts being debited at the same time money hasn't been disbursed, cards being captured with insufficient funds, the absence of specific currency denominations, the issuance of no receipts,

Dimensions	Definitions
	and instances where the e-banking is unavailable for a significant amount of time, sometimes days (Ejigu, 2016). Further, responsiveness refers to how quickly cyber-banking operators respond to consumers of the service (Raza et al., 2020). Hence, we can define it as the enthusiasm of a bank to help customers and provide prompt service.
<b>Privacy &amp; Security</b>	Refers to the extent to which users believe that the platform is secure and that personal information disclosed on it is secured (Hussien & Abd El Aziz, 2013; Kenova & Jonasson, 2006). In addition, privacy and security demonstrate how comfortable an e-banking customer is disclosing personal information on a platform (Haq & Awan, 2020; Shankar & Jebarajakirthy, 2019). Due to the lack of in-person connection, electronic banking poses severe privacy concerns for users (Shankar & Jebarajakirthy, 2019). However, employing security measures at banks will provide a secure environment where clients may access electronic services without worry or concern regarding the leak of their personal and financial information (Harahap et al., 2020). Therefore, the researcher is referring to the degree to which customers believe that the site is safe from intrusion and that personal information shared over the platform is protected
<b>Website Design</b>	The structure of the transaction can be provided to customers through the website's design, which includes a variety of interactive e-banking elements (Haq & Awan, 2020; Shankar & Jebarajakirthy, 2019). A good website should focus on usability by offering users convenience, product choice, price options, system accessibility, aesthetic design, reflecting a powerful and associated image of the business, and being able to draw customers (Rita et al., 2019; Shankar & Jebarajakirthy, 2019). Thus, the researcher highlighted that website design includes various elements of the e-banking website that consumers use to interact with the website including navigation, detailed information, and transaction processing.
<b>Perceived Ease of Use (PEOU)</b>	It shows how simple it is for everyone to understand what it takes to learn and use new technology (Min et al., 2018; Stewart & Jürjens, 2018; Ghani et al., 2017; Akgül, 2018). Furthermore, Wilson et al. (2021) noted that customers judge new technologies positively when they think they would be easy to understand and grasp, suggesting that it won't take much time. Consumers' opinions can also be negative, in which case they assert that a company's technology is

Dimensions	Definitions
	extremely complex, challenging to understand, and will take them a long time to learn about. Therefore, to promote acceptance, the technology shouldn't be unduly difficult (Narteh et al., 2017). Therefore, the researcher notices that PEOU indicates how easily any person will perceive the entail of learning and applying new technology.
<b>Perceived Usefulness (PU)</b>	The way people believe that using a specific technology or system would improve their overall performance is symbolized as PU (Akgül, 2018; Stewart & Jürjens, 2018; Min et al., 2018). While Hu et al. (2019) contend that PU is a widely used factor in the adoption of IS and is defined as the degree to which a user would boost their work efficiency by using this contemporary technology. Additionally, PU has been viewed as facilitating transactions, online requests for checks and draughts, monthly statement checking, and online payments in the context of fintech. These benefits are anticipated to get better with time as a result of technical development (Ghani et al., 2017; Fonchamnyo, 2013). Thus, we can define it as how individuals assume that employing a certain technology or system would enhance their overall performance.

**Source:** Prepared by the researcher based on literature review.

## 9.2 Customer Satisfaction

### 9.2.1 Customer Satisfaction Definition

One of the most crucial ideas in today's world of marketing research is customer satisfaction (Ahmed, 2022; Uysal & Okumus, 2021; Hammoud et al., 2018). where it has been regarded as one of the most effective business tools (Khadka & Maharjan, 2017). because attracting clients is primarily based on satisfaction (Zafar et al., 2012). Customers are more likely to make repeat purchases and refer other customers to the company's goods and services when they are satisfied with them. A company cannot develop if it disregards or ignores the needs of its clients. Therefore, satisfying customers' wants and expectations by going above and beyond their expectations is essential to achieving objectives in the service industry (Palani, 2020). Customer satisfaction is, however, viewed as an abstract and ambiguous concept. The real expression of the state of contentment differs from product to product, person to person, and service to service. The degree of satisfaction is influenced by some variables that combine to form psychological, economic, and physical elements (Kumbhar, 2011).

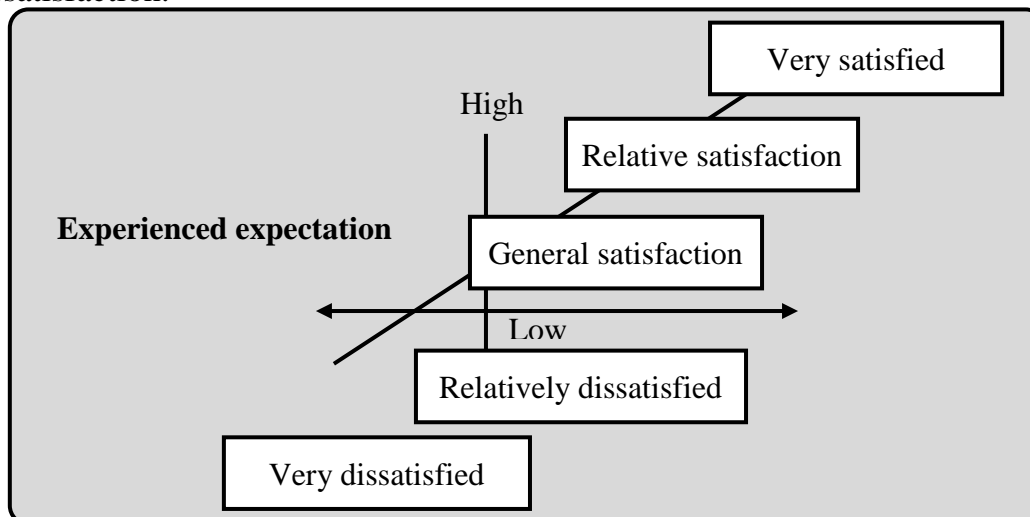
According to Ahmed (2022), Oliver (1999), and Hoseini & Dangoliani (2015), customers experience satisfaction when they compare their perception of actual product/service performance to expectations. The consumer will be unsatisfied if the performance falls short of his expectations, and he will be satisfied if it meets them (Hoseini & Dangoliani, 2015). Therefore, CS is a self-



evaluation by a customer to determine whether his or her expectations in terms of the pre- and post-purchase experience have been fulfilled or surpassed (Uysal & Okumus, 2021).

As a result, Chao (2014) highlights that Customer Satisfaction is a person's feeling of happiness or disappointment as a result of evaluating how well a product performed or what happened in comparison to the person's expectations. Therefore, satisfaction depends on how well something performed compared to what was expected. According to this definition, customer satisfaction refers to the way a consumer feels about utilizing any type of online banking service (Hammoud et al., 2018). Moreover, customer satisfaction is the degree of utility that a client receives as a result of various product features. It is the basis for profitability and the reason why an organization should continue its operations (Hoseini & Dangoliani, 2015).

Oliver (1981) defined satisfaction as an emotional post-consumption evaluation of a good or service. In other words, the consumer perceives that consumption satisfies some need, desire, goal, or other demand and that this satisfaction is enjoyable (Oliver, 1999; Wadud, 2012). This concept highlights the perceptual, evaluative, and psychological processes that lead to satisfaction. The first approach views satisfaction as the outcome or end-state of the consumer experience (Wadud, 2012). Further, a general assessment based on the entire buying and using of the product or service experience throughout time is referred to as customer satisfaction (Khadka & Maharjan, 2017). Accordingly, the researcher describes customer satisfaction as an emotional assessment made both before and after a purchase of a good or service to determine whether one's expectations were fulfilled or surpassed and led to a feeling of happiness or dissatisfaction.



Source: Tao 2014

**Figure (3)** Customer satisfaction analysis model

The figure has five divisions (very dissatisfied, relatively dissatisfied, general satisfaction, relatively satisfied, and very satisfied) that are used to categorize a very distinct difference between the customer experience and the customer expectations (positive or negative). If the customer experience flats

with customer expectations, it falls under the general category of customer satisfaction. Customer satisfaction increases as customer experience exceeds expectations. Contrarily, a poorer customer experience results in lower customer satisfaction as compared to expectations. Organizations can increase customer happiness in two ways. First, by enhancing the levels of the service to provide a better customer experience, and second, by skillfully handling the expectations of the clientele (Tao, 2014; Palani, 2020).

### **9.2.2 Customer satisfaction dimensions**

According to the CS literature, most researchers treat CS as a single-dimensional construct across many industries (Lau et al., 2019; Davis & Gomez, 2022; Uysal Okumus & 2021; Alharthi et al., 2021; Biswas et al., 2021). While, Olsen & Johnson (2003), Abu-ELSamen et al. (2012), and Akroush & Mahadin (2018) have defined and measured CS as a multidimensional construct made up of transaction-specific (functional satisfaction) and cumulative satisfaction (technical satisfaction) factors.

- Functional customer satisfaction, also known as transaction-specific satisfaction, is the level of happiness with a service encounter that represents how happy a client is with the functional capacities of the service provider to provide the service (Akroush & Mahadin, 2018). Up until the early 1990s, this dimension dominated research on marketing and consumer behavior. According to this method, customer satisfaction is defined as an individual's assessment of his or her interactions with and responses to a specific product transaction, episode, or service encounter (Olsen & Johnson, 2003).
- Technical customer satisfaction (TCS), also known as cumulative satisfaction, is the measure of how satisfied customers are with the technical ability of service providers to meet their needs (Akroush & Mahadin, 2018, p776). Since the early 1990s, there has been an increased focus on cumulative satisfaction in service and satisfaction research, which is characterized as a customer's overall assessment of a product or service provider to date (Olsen & Johnson, 2003).

Given that they each serve a particular purpose, these many conceptualizations work better together than in competition. Transaction-specific metrics have the benefit of capturing the nuanced psychological responses clients have to the performance of a good or service on a certain occasion or over a specified time frame. Their ability to help businesses better track performance changes brought on by internal adjustments and/or quality enhancements is another benefit. On the other hand, it takes time for quality adjustments to have a larger cumulative impact (Olsen & Johnson, 2003).

### **9.2.3 The relation between E-banking service quality and customer satisfaction**

Customer satisfaction is strongly influenced by service quality because customers are the ones who use the items or services (Famiyeh et al., 2017; Islam et al., 2015). As a result, there is a correlation between customer satisfaction and service quality (Chakrabarti & Trehan, 2017; Choudhury, 2015; Fauzi & Suryani, 2018; Garepasha, 2020; Islam et al., 2015). Therefore, businesses that want to expand while maintaining their competitive edge must comprehend these important ideas (Aghdaie & Faghani, 2012). Additionally, Quality was just one

of several factors that went into determining satisfaction; while satisfaction could have an impact on future quality (Shanka, 2012). Increased customer satisfaction results from higher levels of perceived service quality. Customers will become dissatisfied if the service quality is perceived to be lower than expected (Kumbhar, 2011). Customers will be more likely to be satisfied with the company if they are happy with the perceived level of service, which will also improve their attitude toward it (Fauzi & Suryani, 2018).

#### **9.2.3.1 Reliability and customer satisfaction**

In the context of e-services, consistency in providing quality services, availability of error-free services, and accuracy in delivering promised services influence customers to stay with service providers (Shankar & Jebarajakirthy, 2018). Hence, an online provider is considered reliable if it performs the service as promised, the website is available 24/7, and is in working condition (Loonam & O'Loughlin, 2008). Shankar & Jebarajakirthy, (2018), highlighted that reliability is also a crucial aspect of EBSQ which influences customers' satisfaction with e-banking services. As reliability makes banks more efficient and positively reflects on the level of customer satisfaction model (Fauzi & Suryani, 2018). As a result, reliability in e-banking holds great importance to customer satisfaction (Haq & Awan, 2020).

#### **9.2.3.2 Responsiveness and customer satisfaction.**

Responsiveness refers to the willingness to help customers and provide prompt service (Hussien & Abd El Aziz, 2013; Ejigu, 2016). This relates to flexibility, fast delivery, consistency, and accuracy of services delivered (Harahap et al., 2020; Loonam & O'Loughlin, 2008; Hussain, 2014). Through EBS, service can be requested at any time and from anywhere by customers (Salem et al., 2019; Raza et al., 2020), and merely by a single "click" on digital devices (Aduba, 2021). The results can retain the interest of users and prompt responses can help enhance customer satisfaction and faithfulness (Raza et al., 2020).

#### **9.2.3.3 Privacy & Security and Customer Satisfaction**

E-banking creates serious privacy issues for the users because there is no in-person interaction (Kim et al., 2009; Shankar & Jebarajakirthy, 2018). However, using security tools at banks will provide a safe environment for customers to use electronic services without fear and concern about the disclosure of customers' personal and financial information (Harahap et al., 2020). Customers are always concerned about whether the website will protect them against fraud after a transaction. Thus, security and privacy are important to assess the service quality of online stores (Rita et al., 2019).

#### **9.2.3.4 Website design and customer satisfaction**

A higher level of satisfaction can be achieved through an updated website and enhanced interactive experience toward the e-banking results (Haq & Awan, 2020; Shankar & Jebarajakirthy, 2018). Website design includes various elements of the e-banking website that consumers use to interact with the website including navigation, detailed information, and transaction processing (Wolfenbarger & Gilly, 2003; Shankar & Jebarajakirthy, 2018), information

quality, website aesthetics, purchase process, website convenience, product selection, price offerings, website personalization, and system availability (Rita et al., 2019), which lead to customer satisfaction.

### 9.2.3.5 Perceived Ease of use and Customer satisfaction

If users feel that online banking is easy to use and hassle-free, then the chances of them using the system will be greater (Narteh, 2013). As site contains functions that help customers find what they need without difficulty, has good search functionality, and allows the customer to maneuver easily and quickly back and forth through the pages (Hussain, 2014). As a result, PEOU can improve customer satisfaction.

### 9.2.3.6 Perceived usefulness and Customer satisfaction

PU in the context of EBS has been seen as facilitating transactions, online requests for cheques/drafts, monthly statement checking, and online payments (Ghani et al., 2017; Fonchamnyo, 2013). This enhances accessibility and increases the convenience of banking services (Chen et al., 2021). Hence, customers who don't choose to go to a local bank or engage with bank personnel will find electronic services to be extremely useful (Chen et al., 2021). Because it allows consumers to conduct financial transactions 7 days / a week (24 h/day), anywhere, without the necessity for a bank teller or a human clerk (Vengatesan et al., 2020; El Talla et al., 2019; Mostafa, 2020). As a result, PU influences customer satisfaction positively.

## 10- Field study and Hypothesis test

### 10.1 Research Tools

We used a questionnaire to gather data from the research population to support the research conceptual model and to test the research hypotheses. The questionnaire was designed using a Likert scale (five-point) ranging from strongly agree to strongly disagree. The obtained responses from respondents were analyzed and processed statistically using SPSS to test the research hypotheses.

**Table (3)** The detailed measurement of variables

Variables	Items	Source
Reliability	1-4	Haq & Awan, 2020; Shankar & Jebarajakirthy, 2019
Responsiveness	5-8	Mir et al., 2022.
Privacy- Security	9-11	Haq & Awan, 2020; Mir et al., 2022; Shankar & Jebarajakirthy, 2019; Sisay, 2019; Kenova & Jonasson, 2006.
Website design	12-14	Shankar & Jebarajakirthy, 2019; Haq & Awan, 2020.
Ease of use	15-18	Amin, 2015; Mir et al., 2022; Raza et al., 2020.
Usefulness	19-22	Lien et al., 2020; Hu et al., 2019.
Customer Satisfaction	23-29	Hammoud et al., 2018; Darzi & Bhat, 2017.

Source: prepared by the researcher based on literature review

## 10.2 Sample and Data Collection

Before gathering the final data, a pilot test with 50 respondents was selected to evaluate the validity and reliability of the questionnaires. The preliminary findings suggested that the survey tested the conceptual framework with excellent internal validity and reliability. The questionnaires were completed between May and Jun 2023.

The target population included Public commercial bank customers (Banque Misr - National Bank of Egypt - Cairo Bank) in Benha in the Qalyubia Governorate. The sample is a part of the population as a whole which allows researchers to derive findings that may be applied to the entire population. As a result, a sample accurately represents the population and allows a researcher to generalize the sample's properties and characteristics to the overall population. However, sampling is challenging in our case since it is impossible to track the actual number of consumers in the banking sector. As a result, a convenience sampling technique based on non-probability sampling is appropriate (Saleem, 2020).

Customers of Egypt's Public commercial banks were randomly sampled for convenience. This research was conducted in the main branches of Public commercial banks in Benha (National Bank of Egypt, Cairo Banque, and Banque Misr), which are 4 branches (2 branches for the National Bank of Egypt, and 1 branch for both Caire Banque and Banque Misr). So, we collect 50% of observations from the National Bank of Egypt which represent 250 observations while we collect 25% of observations from Cairo Banque and Banque Misr which represent 125 observations from each bank. We spent around 20 days collecting data from the National Bank of Egypt while we spent 10 days for each of the other 2 banks. In sum, we spent about 40 days collecting 500 observations from all banks.

**Table (4) Sample of public commercial bank customer**

	% of observations	Number of observations	Number of days
National Bank of Egypt	50%	250	20
Cairo Banque	25%	125	10
Banque Misr	25%	125	10
<b>Total</b>	<b>100%</b>	<b>250</b>	<b>40</b>

Source: prepared by the researcher

The researcher selected a sample of 500 consumers representing the study population and then distributed surveys to the study sample using a questionnaire. There were 473 survey questionnaires returned in all. Following a review of the questionnaire, it was discovered that there are (24) that are statistically unsuited for analysis. In sum, 449 completed questionnaires were submitted, accounting for 89.8% of the study's statistical analysis.

**Table (5) Number and percentage of the questionnaires**

Distributed questionnaires	Retrieved questionnaires	Missed questionnaires	Unsuited questionnaires	Completed questionnaires
500	473	27	24	449
100%	.....	5.4%	4.8%	89.8%

Source: prepared by the researcher

In this study, it was necessary to collect sufficient data that was representative of the population to accomplish generalization, as well as select an approach that was appropriate for the study methodology. We chose convenience sampling as a method to meet these conditions. This method was chosen for two reasons. For starters, convenience sampling works well when a large sample size is needed for generalization. Second, convenience sampling allows for quick and easy evaluation of items in a population via point of contact (Senyo & Osabutey, 2017).

### 10.3 Statistical analysis of the data

#### 10.3.1 Examination of the reliability of the Questionnaire

Cronbach's alpha determines the consistency of the measured constructs. This measure shows how consistent a multiple-scale item is. It is a tool for determining the fitness of study instruments; ideally, the result should be greater than 0.60, indicating that the analysis is fit. More than 0.70 indicates a highly fit measurement, whereas more than 0.80 indicates a perfect fit measurement. According to the reliability analysis in Table (4/5), all of the instruments i.e. EBSQ, Reliability, Responsiveness, Privacy and security, Website Design, Ease of Use, Usefulness, and Customer Satisfaction are suitable for data analysis as the majority of values are ranging from 0.759 and 0.947.

Table (7) Reliability Analysis

No.	Construct	Number of items	Cronbach's Alpha
1	Reliability	4	.836
2	Responsiveness	4	.759
3	Privacy & Security	3	.906
4	Website design	3	.858
5	Ease of use	4	.848
6	Usefulness	4	.881
7	<b>EBSQ</b>	<b>22</b>	<b>0.947</b>
8	<b>Customer Satisfaction</b>	<b>7</b>	<b>.896</b>

Source: prepared by the researcher based on the results of the statistical analysis

#### 10.3.2 Descriptive analysis of Electronic Banking Service Quality dimensions and Customer satisfaction

A statistical overview of all the variables examined in this research can be found in Table (12). The average of Reliability is 4.07, with the minimum and highest being 1.3 and 5 respectively, as shown in the table below. Further, the mean of Responsiveness is 3.79. Moreover, the maximum and minimum were 5 and 1. Similarly, the mean Privacy- Security is 4.20. Further, the maximum and minimum are 5 and 1. Also, the minimum and maximum of Website design were 1.7 and 5 respectively with an average of 3.99. While the maximum of both Ease

of Use and Usefulness was 5, the minimum was 1.5 and 2, the mean was 3.92 and 4.17 respectively. Standard deviation, being one of the most significant statistical measures shows the closeness of a data item with the center value or mean value of that dataset.

As seen in the following table standard deviation of reliability, responsiveness, Privacy- Security, Website design, ease of use, and Usefulness which are EBSQ dimensions are around 0.6. which means they are not highly spread out; they are rather close to their mean value. Which were 0.619, 0.699, 0.636, 0.664, 0.674 and 0.570 respectively. On the other hand, the average of Customer Satisfaction was 4, and the standard deviation was 0.615 whereas the maximum and minimum were 5 and 2.0.

**Table (12) Descriptive Statistics**

Questionnaire questions	N	Min	Max	Mean	S.D
The bank offers e-banking services as I desire.	449	1.0	5.0	4.04	0.772
The bank provides e-banking services when I need them.	449	1.0	5.0	4.03	0.754
My transaction details can be retrieved from my bank account when using e-banking services.	449	1.0	5.0	4.14	0.725
The information provided by the bank on its website about e-banking services is accurate.	449	1.0	5.0	4.07	0.770
<b>Reliability</b>	<b>449</b>	<b>1.3</b>	<b>5.0</b>	<b>4.07</b>	<b>0.619</b>
My bank handles issues with e-banking quickly.	449	1.0	5.0	3.71	0.914
My bank tells me what to do if my transaction does not go through	449	1.0	5.0	3.92	0.763
The bank improves dealing with the problems that may arise during the provision of electronic banking services well	449	1.0	5.0	3.87	0.770
The debited amount is transferred to my bank account immediately if the transaction fails	449	1.0	5.0	3.25	1.168
<b>Responsiveness</b>	<b>449</b>	<b>1.0</b>	<b>5.0</b>	<b>3.69</b>	<b>0.699</b>
My personal information via the bank's website is highly secured	449	1.0	5.0	4.18	0.697
My financial information via the bank's website is highly secured.	449	1.0	5.0	4.23	0.689
My transactions via the bank's website are highly secured.	449	1.0	5.0	4.20	0.695
<b>Privacy- Security</b>	<b>449</b>	<b>1.0</b>	<b>5.0</b>	<b>4.20</b>	<b>0.636</b>
The bank's website is updated regularly	449	1.0	5.0	3.98	0.767
The e-banking website is well organized	449	2.0	5.0	4.02	0.724
The e-banking website includes interactive features	449	1.0	5.0	3.95	0.765
<b>Website design</b>	<b>449</b>	<b>1.7</b>	<b>5.0</b>	<b>3.99</b>	<b>0.664</b>

Questionnaire questions	N	Min	Max	Mean	S.D
I can easily obtain electronic banking services through the bank's website.	449	1.0	5.0	3.98	0.774
The bank's website is activated immediately.	449	1.0	5.0	3.86	0.841
Pages on the bank's website rarely freeze	449	1.0	5.0	3.72	0.900
I recommend using the e-banking services provided by the bank	449	1.0	5.0	4.14	0.725
<b>Ease of use</b>	<b>449</b>	<b>1.5</b>	<b>5.0</b>	<b>3.92</b>	<b>0.674</b>
E-banking services meet my needs.	449	1.0	5.0	4.06	0.689
E-banking services save my time.	449	2.0	5.0	4.27	0.690
E-banking services increase the efficiency of my transactions.	449	2.0	5.0	4.14	0.657
In general, e-banking services are useful to me.	449	1.0	5.0	4.22	0.616
<b>Usefulness</b>	<b>449</b>	<b>2.0</b>	<b>5.0</b>	<b>4.17</b>	<b>0.570</b>
I believe that my decision to use e-banking services is correct	449	2.0	5.0	4.25	0.593
I am highly satisfied with the e-banking services provided by the bank	449	1.0	5.0	4.03	0.748
In general, the e-banking services provided by the bank exceeded my expectations	449	1.0	5.0	3.90	0.835
I prefer the electronic way to obtain banking services compared to the traditional way (visiting the branch)	449	1.0	5.0	4.21	0.805
The bank cares about my complaint to a great extent	449	1.0	5.0	3.91	0.788
The bank is interested in knowing my opinion after processing my complaint	449	1.0	5.0	3.85	0.821
My experience with the bank is always good	449	1.0	5.0	3.88	0.863
<b>Customer Satisfaction</b>	<b>449</b>	<b>2.0</b>	<b>5.0</b>	<b>4.00</b>	<b>0.615</b>

Source: prepared by the researcher based on the results of the statistical analysis

## 10.4 The results of the study hypotheses test

### 10.4.1 Correlation Analysis

Correlation determines to what extent the variable pairs are related. The extent of association between the independent variable which is EBSQ has six dimensions (Reliability, Responsiveness, Privacy- Security, Website Design, Ease of Use, and Usefulness) that are represented in the following table via correlation analysis and dependent variables which is Customer Satisfaction. The correlation coefficient (r) can be used to quantify the relationship's strength. Its numerical value is between +1.0 and -1.0. A positive linear relationship is



represented by  $r > 0$ , a negative linear relation by  $r < 0$ , and the lack of a linear relationship by  $r = 0$ .

It is also observed that there is a strong and significant correlation between EBSQ dimensions and Customer Satisfaction (Reliability, Responsiveness, Privacy- Security, Website Design, Ease of Use, and Usefulness) as it represents 0.704, 0.663, 0.559, 0.713, 0.797, and 0.778 respectively where ( $p < .01$ ) which means EBSQ dimensions are a considerable factor in influencing Customer Satisfaction. The correlation results among the factors studied are shown in the following table:

**Table (13) Correlation Analysis**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Reliability	1						
(2) Responsiveness	.591**	1					
(3) Privacy- Security	.500**	.503**	1				
(4) Website design	.614**	.667**	.608**	1			
(5) ease of use	.645**	.665**	.501**	.783**	1		
(6) Usefulness	.679**	.584**	.587**	.673**	.734**	1	
(7) Customer Satisfaction	.704**	.663**	.559**	.713**	.797**	.778**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Source:** prepared by the researcher based on the results of the statistical analysis

#### 10.4.2 Regression Analysis

Table (16) summarizes the regression outputs used to test the hypothesis; the study model concentrates on the EBSQ dimension's impact on customer satisfaction.

**Table (16) Regression**

Variables	Customer satisfaction			
	Coef.	t-value	Sig.	Sig. or not
Constant	0.066	0.557	0.578	Not sig.
Reliability	0.168	4.807	0.000	Sig.
Responsiveness	0.101	3.310	0.001	Sig.
Privacy & Security	0.052	1.673	0.095	Sig.
Website design	0.032	0.809	0.419	Not sig.
PEOU	0.317	7.754	0.000	sig.
PU	0.310	7.176	0.000	sig.
R-square	0.750			
F-value	220.757			
Sig.	0.000			

**Source:** prepared by the researcher based on the results of the statistical analysis

**Regression Equations:**

Customer satisfaction = 0.066 + 0.168 Reliability + 0.101 Responsiveness + 0.052 Privacy & Security + 0.032 Website design + 0.317 PEOU + 0.310 PU

It is clear from the previous table that the regression model is significant at 1% as the value of (F =220.757) and the sig. (0.000). We also note that the R-square is 0.750 which means that the independent variable (EBSQ) explains 75% of the changes that occur in the dependent variable (customer satisfaction). The rest of the changes may be due to random changes or to the presence of other variables that affect the dependent variable that is not within the limits of the study.

As shown in the Model, the results refer to there is a positive and significant impact of Reliability on Customer satisfaction ( $\beta_1=0.168$ ,  $p<0.01$ ). Also, Responsiveness has a positive and significant impact on Customer satisfaction ( $\beta_2=0.101$ ,  $p<0.01$ ). Moreover, Privacy and security have a positive and significant impact on Customer satisfaction ( $\beta_3=0.052$ ,  $p<0.10$ ). On the other hand, Website design has no significant impact on Customer satisfaction ( $\beta_4=0.032$ ,  $p>0.10$ ). However, there is a positive and significant impact of PEOU on Customer satisfaction ( $\beta_5=0.317$ ,  $p<0.01$ ). Further, PU has a positive and significant impact on Customer satisfaction ( $\beta_6=0.310$ ,  $p<0.01$ ).

**From the foregoing, we conclude that the first main hypothesis of the study was partially confirmed which states that “Electronic banking service quality has a significant positive impact on customer satisfaction in public commercial banks in Egypt”**

## 11- Results

### 11.1 General results

1. Banks are encouraged to rely on EBSQ, especially after COVID-19. As the banking 1. Banks are encouraged to rely entirely on EBSQ, particularly after COVID-19. As the banking industry's operating environment has become more dynamic and aggressive.
2. EBS provides consumers with several options to improve access to financial services, including people who previously had no access to financial services.
3. EBS are critical in improving the quality of services given to customers since they can ensure survival, increase satisfaction and trust, and eventually contribute to competitive success for businesses.
4. The advantages of e-banking enable banks to address customer worries and, as a consequence, modify their e-banking services and products to meet their needs.
5. The Internet offers a speedy delivery path for consumers to acquire financial services more conveniently and cost-effectively.
6. Banks are encouraged to work with Fintech companies and to emphasize the importance of e-banking transactions.
7. Emphasizing the financial services that consumers demand and identifying different beneficiary categories and their chosen banking services.
8. EBSQ has a substantial impact on customer satisfaction. Customers may compare different service offerings much more easily online than they can using conventional techniques.

9. EBSQ improves customer retention.

### 11.2 Results of Hypothesis Test

It is shown in the result section that most hypotheses were supported by statistical analysis, indicating that the study's primary objectives have been met. As it sheds light on the significant positive impact of EBSQ dimensions (Reliability, Responsiveness, Privacy- Security, Website design, PEOU, and PU) on customer satisfaction.

The first main Hypothesis has been partially confirmed which stated that electronic banking service quality has a significant positive impact on customer satisfaction in public commercial banks in Egypt. This result is consistent with the study of Rita et al., (2019), Hussien & Abd El Aziz, (2013), Ahmed et al., (2021), Moghavvemi & Lee, (2017), Sleimi et al., (2018), Adejoke & Charles, (2019), Singh, (2019), Raza et al., (2020), Ahmed, (2022), and Abdirad & Krishnan, (2022), Which stated that e-service quality has a positive impact on customer satisfaction. This is particularly important because customers are becoming more powerful and can easily shift from one service provider to another if their needs are not well addressed (Hussien & Abd El Aziz, 2013). Hence, service quality is considered as one of the key factors for the success of a bank in the banking industry. As it helps the banks to retain customers and obtain a competitive advantage (Ahmed et al., 2021).

The significance of the estimated regression model as a whole was found to be significant, with a value of ( $F = 218.179$ ), and the value of the significance level was less than 1%, which indicates the significance of the regression model. We also note that the R-square is 0.865 which means that the independent variable (EBSQ) explains 86.5% of the changes that occur in the dependent variable (customer satisfaction). The rest of the changes may be due to random changes or to the presence of other variables that affect the dependent variable that is not within the limits of the study.

**Thus, the first main hypothesis of the study was partially confirmed, and the detailed results of this Hypothesis can be explained as follows:**

**Table (25) Summary of first Hypotheses**

No.	Hypotheses	Results
H1a	Reliability has a significant positive impact on customer satisfaction in public commercial banks in Egypt.	Accepted
H1b	Responsiveness has a significant positive impact on customer satisfaction in public commercial banks in Egypt.	Accepted
H1c	Privacy and security have a significant positive impact on customer satisfaction in public commercial banks in Egypt.	Accepted
H1d	Website design has a significant positive impact on customer satisfaction in public commercial banks in Egypt.	Rejected
H1e	Perceived ease of use has a significant positive impact on	Accepted

No.	Hypotheses	Results
	customer satisfaction in public commercial banks in Egypt.	
H1f	Perceived usefulness has a significant positive impact on customer satisfaction in public commercial banks in Egypt.	Accepted

**Source:** prepared by the researcher

Particularly, according to **H1a**, the result was similar to the study of Fauzi & Suryani, (2018), which argued that Reliability becomes a key driver of customer satisfaction in Indonesian Islamic banking. It is also consistent with the results of the study of Famiyeh et al., (2017), Haq & Awan, (2020), Ejigu, (2016), Hammoud et al., (2018), Sameena & Saroja, (2019), Hoseini & Dangoliani, (2015), Hadid et al., (2020), Ahmed, (2022), Omofowa et al., (2021), and Ganguli & Roy, (2010), which stated that Reliability, has a significant positive impact on the satisfaction of customers in banks. Where in the context of e-services, consistency in providing quality services, availability of error-free services, and accuracy in delivering promised services influence customers to stay with service providers (Shankar & Jebarajakirthy, 2018). As reliability makes banks more efficient and positively reflects on the level of customer satisfaction model (Fauzi & Suryani, 2018). As a result, reliability in e-banking holds great importance to customer satisfaction (Haq & Awan, 2020).

Moreover, the result of **H1b** is similar to the result of Beshir & Zelalem, (2020), Ejigu, (2016), Sameena & Saroja, (2019), Hadid et al., (2020), Rajeshwaran, (2020), Hammoud et al., (2018), and Ahmed, (2022) which stated that there is a significant impact of responsiveness on Satisfaction. However, this is inconsistent with the study of Famiyeh et al., (2017), which discovered that the responsiveness of the employees seems to have no significant relationship with the satisfaction of customers. Through EBS, service can be requested at any time and from anywhere by customers (Salem et al., 2019; Raza et al., 2020). As a consequence, their banking transactions would be faster (Aduba, 2021). As it will be accessible 24 hours/day, 7 days/week (Ejigu, 2016; Kenova & Jonasson, 2006.), and merely by a single "click" on digital devices (Aduba, 2021). The results can retain the interest of users and prompt responsiveness can help enhance customer satisfaction and faithfulness (Raza et al., 2020).

Further, the result of **H1c** is consistent with the results of Beshir & Zelalem, (2020), Haq & Awan, (2020), Sameena & Saroja, (2019), Hoseini & Dangoliani, (2015), Abdelghani, (2020), Hammoud et al., (2018), Rajeshwaran, (2020), and Ahmed, (2022), which stated that there is a significant impact of privacy on Satisfaction. E-banking creates serious privacy issues for the users because there is no in-person interaction (Kim et al., 2009; Shankar & Jebarajakirthy, 2019). However, using security tools at banks will provide a safe environment for customers to use electronic services without fear and concern about the disclosure of customers' personal and financial information (Harahap et al., 2020). Customers are always concerned about whether the website will

protect them against fraud after a transaction. Thus, security has a significant impact on Customer Satisfaction.

However, the result of **H1d** is not similar to the result of Hoseini & Dangoliani, (2015), which state that the attractiveness of the site has a significant impact on customer satisfaction, and the result of Haq & Awan, (2020), which state that Website design in e-banking services positively influences e-banking satisfaction. That may be due to other features of electronic service the customers are searching for such as low cost of service or the website design may be complicated for them when the bank makes updates.

Furthermore, the result of **H1e** is similar to the result of Beshir & Zelalem, (2020), Hammoud et al., (2018), Abdelghani, (2020), and Ganguli & Roy, (2010) who found state that ease of use has a positive and significant impact on customer satisfaction. If users feel that online banking is easy to use and hassle-free, then the chances of them using the system will be greater (Narteh, 2013), and finally will be satisfied. As site contains functions that help customers find what they need without difficulty, has good search functionality, and allows the customer to maneuver easily and quickly back and forth through the pages (Hussain, 2014). As a result, PEOU can improve customer satisfaction.

Finally, the result of **H1f** is consistent with the result of Rajeshwaran, (2020), which states that Usefulness is highly contributed to a higher degree of customer satisfaction. PU in the context of EBS has been seen as facilitating transactions, online requests for cheques/drafts, monthly statement checking, and online payments (Ghani et al., 2017; Fonchamnyo, 2013). This enhances accessibility and increases the convenience of banking services to customers (Chen et al., 2021). As a result, PU influences customer satisfaction positively.

## 12- Recommendations

1. Paying attention to the bank's security procedures (protection from viruses and preventing intrusions) by IT management though educating the customer about the security procedures followed by the bank, which keeps the data confidential and does not disclose their data through social media and SMS.
2. Banks must engage in market research to ensure that the type of e-banking services they offer are up-to-date and, in a position, to fulfill customers' requirements or needs top management by Providing funds and rewards to them.
3. Banks should respond to the fast-paced changes in the environment, as well as fierce competition by top management and marketing department through utilizing and keeping up with Fintech.
4. Increase investment in mobile and internet infrastructure by top management through Collaborating with internet and mobile service providers to gain high-quality infrastructure to enable the banks to offer better quality services and at the same time enhance internet accessibility.
5. Recognizing the various segments of beneficiaries and their banking service preferences by top management and marketing department through

- transactions on the bank website and surveys on social media to study the market.
6. The website of the bank should contain relevant information explained in an easy-to-understand language and should be visually attractive and regularly updated by top management, IT department, and training management
  7. Working on the maintenance of ATMs and updating them with the latest technology, which facilitates their use and speeds up their performance by IT department, technical department, and Training management through training technician employees to be qualified and up-to-date.
  8. Promoting and developing the skills of bank employees, preparing banking competencies on a global level, and developing their performance in the field of assimilation of developments and the development of the banking industry by training management through determining the needed training programs efficiently to raise their technological skills and keep up with the new trends in E-banking services.

### 13- Limitations and future research

The research represents an extension of the scientific efforts that have been made in this field, and in light of the researcher's knowledge of the literature related to the study variables, the researcher highlights some of the limitations and suggests some future studies:

1. The research is limited to E-Banking Services which offer regular and routine customer banking services. The application of future studies can be generalized to all financial services.
2. The sample data may not truly represent the entire population for generalization, as the sample data did not follow any proportionate law of data segmentation that can simulate the representation of the entire population. Working with a large population sample may help to get improved results.
3. This study adopted survey questionnaires and single-time response collection, researchers can try to modify the methodology by implementing interviewers or archival data.
4. This study is based on six variables: The independent variables were BSQ (reliability – responsiveness - privacy & security - website design - ease of use - usefulness), while Customer satisfaction is the only dependent variable. Future research can be conducted by adding other dimensions of EBSQ such as efficiency or adding some dependent variables or some moderating variables.
5. This study uses TAM theory, future studies can use other theories.

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