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**Northumbria  
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**Developing systems trust (ST) to  
promote customer engagement in  
online banking in Bangladesh: A non-  
resident Bangladeshi (NRB) Consumer  
perspective**

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**DBA**

**2021**

**Developing systems trust (ST) to  
promote customer engagement in  
online banking in Bangladesh: A non-  
resident Bangladeshi (NRB) Consumer  
perspective**

**Mohammad Shafiqul Islam**

**A thesis submitted in partial fulfilment  
of the requirements of the  
The University of Northumbria at Newcastle  
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Research undertaken in  
Newcastle Business School**

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## **Abstract**

Online banking services have changed dramatically since the 1990s, which has resulted in a loss of personal engagement between customers and banking staff. Scholars have recognised that the loss of these personal relationships has damaged trust and other constructs around the relationship atmosphere. The Bangladeshi banking system is moving to expand online customer banking activity to increase flexibility and build a surrogate relationship between customers and banks that will boost profits and strengthen the banking system as a competitor in the global market. However, the existing system is untrustworthy and has a damaged reputation, and customers have little interest in investing their savings with Bangladeshi banks.

The aim of this thesis is to explore how increased customer engagement with online banking systems can enhance societal wealth and national gross domestic product (GDP). The first section introduces the existing literature related to systems trust in marketing. Inspection of the extant literature reveals multiple definitions of “trust”; this thesis acknowledges that trust is a context-specific, dynamic, and culturally loaded term. A strong interplay exists between trust, business performance, and national GDP. The Bangladesh Central Bank is motivated to develop systems trust in online banking services to boost customer engagement and promote participation, even though the bank’s information technology (IT) infrastructure is in its infancy.

Next, an appropriate methodological tool is identified to better understand Bangladeshi banking systems. Expatriates living in the UK were invited to take part in this research project. In total, 20 repertory grid interviews were conducted using exploratory statistical methods to interrogate participants’ personal construal systems to identify the nature of trust and other related constructs. Study findings reveal 13 robust themes that support the development of an online banking system that incorporates human-centric features. This thesis makes a significant managerial contribution to knowledge and practice through the construction of a conceptual framework and managerial blueprint to boost the national GDP in Bangladesh.

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### List of abbreviations

<b>Acronyms used in this DBA study</b>	<b>Abbreviated</b>
Automated Teller Machine	ATM
Bangladesh Telecommunication Regulatory Commission	BTRC
Doctor of Business Administration	DBA
Gross Domestic Product	GDP
Information and Communication Technology	ICT
Information Technology	IT
Inter Rater reliability	IRR
Non-resident Bangladeshi	NRB
Overall Inter Rater Reliability	OIRR
Prevalence Adjusted Bias Adjusted Kappa	PABAK
Personal Construct Psychology	PCP
Personal Construct Theory	PCT
Partial Inter Rater Reliability	PIRR
System Trust	ST
Society for Worldwide Interbank Financial Telecommunication	SWIFT
Technology Acceptance Model	TAM
Theory of Planned Behaviour	TPB
Theory of Reasoned Action	TRA

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## Declaration

I declare that I have submitted this DBA thesis which is my contained work, and I haven't abandoned this work for any other award. I also fully acknowledge, this DBA study is opinions, ideas, contributions of the work of others.

All ethical clearance for the study presented in this thesis has been approved in terms of ethical consideration. Northumbria University Newcastle of faculty ethics committee has granted the ethical approval.

I declare that the total word count of this DBA thesis is 57,252

Name: Mohammad shafiqul Islam

Signature:

Date: 30<sup>th</sup> October 2021

# Chapter 1

## Background and introduction

### 1.0 Introduction

Chapter 1 introduces this DBA thesis. First, the background to the study is outlined: the ongoing challenges in online banking systems within Bangladesh's banking sector are described from a non-resident Bangladeshi (NRB) consumer's perspective. This is followed by the rationale for the study. Then, the overall research questions, research aim, and objectives are presented. Finally, the chapter concludes by highlighting the practical significance of this DBA.

### 1.1 Background to the study

This section sets the context of Bangladesh's banking sector and highlights the introduction of online banking facilities to its (non-business) customers.

Compared to the UK, Bangladesh is a small country with a vast population of approximately 166 million (World Bank, 2021). The country struggles with economic and social poverty and has a poverty rate of 14% as of 2021 (World Bank, 2021) – many members of the Bangladeshi population are unable to satisfy their basic needs (Rahman, Ali, Kejing, Taru, & Mamoon, 2020). The government of Bangladesh is aware of this problem and has been working on strategies to minimise poverty in the country and boost the economy. However, many of these interventions have had the opposite effect, and new techniques have in fact caused disruption to businesses, affecting transport links, the goods and services industry, production activities, banking systems, and cash flow in the economy and causing unemployment (Hossain, Bao, Hasan, & Islam, 2020; Rahman, Farooq, & Selim, 2021). The significance of this economic failure is highlighted by the World Bank (2019), which claims that more than 63% of the population in Bangladesh lives in rural and suburban areas with limited access to the internet, smartphones, or personal computers to access online banking services. This claim implies that any deterministic approach to intervention and boosting of the economy must cater for members of the population living in rural and

underdeveloped areas of the country. For example, the internet provides Bangladeshis with an opportunity to access additional resources and services, but many members of the population are unable to consume these resources. Indeed, closer inspection of Bangladesh's business and IT trade press reveals several challenges that customers still face in using the internet in Bangladesh, such as low speed, high cost, and inadequate network coverage in rural areas (Iman, 2018; Karim, 2016). Therefore, online banking systems pose an issue in terms of remote access.

In the early 1990s, as part of a pilot scheme, Bangladeshi banks began to offer their customers limited access to online banking, evidencing an appetite for internet banking services (Shamsuddoha, 2008). In 2009, the Bangladeshi government established a roadmap called 'Digital Bangladesh – Vision 2021' (Mazumdar & Alharahsheh, 2020). The central goals of this roadmap are to eliminate poverty and secure sustainable development goals by introducing advanced technology into every sector, particularly the finance industry, and directly improving provision for online banking (Mazumdar & Alharahsheh, 2020). In addition, the roadmap aims at establishing vital country-wide information and communication technology (ICT) infrastructure to provide a technology-based education system, e-government services, and high-speed internet services for every citizen and to widen usage and engagement with banking services through the use of online services. The major strength associated with this activity is that it would allow banks to provide a dedicated online banking service that will enable customers to have remote access to their bank accounts through new technology-based banking platforms. This in turn would create a trusted service that provides convenience and new access to those living in predominantly rural areas.

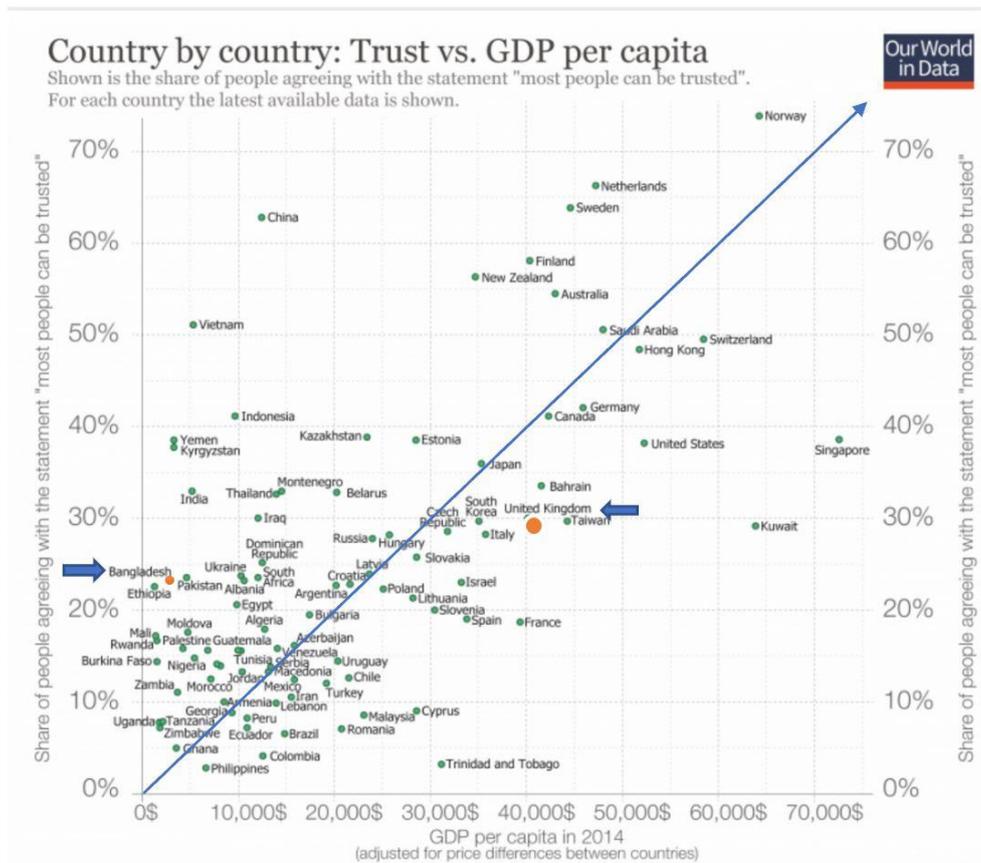
Anam (2020, para. 2) acknowledges this issue and argues that "Transferring cash takes a lot of trust in the system. Many people in the country do not seem to truly trust the digital money transfers."

Trust enhancement is seen as a vehicle for significantly boosting economic growth, with online banking having the potential to strengthen the country's economy. Trust is perhaps the most significant issue when considering an online banking service (Khan, 2019). Yet, developing countries such as Bangladesh cannot accelerate economic growth due to a significant lack of trust. Financial performance is mainly measured

through the gross domestic product (GDP). Zakharov, Bezruchuk, Poplavska, Laichuk, and Khomenko (2020) make strong claims that trust has a causal relationship with the value of economic activities, or GDP, in an economy. The seminal writers argue that building trust results in an increase in a country's GDP (Ortiz-Ospina & Roser, 2016). For example, if Bangladesh raised its trust level to that of Ukraine, its GDP would increase by 1%. Therefore, in a study on the dependence of the level of trust on GDP per capita, the Nobel-winning economist Arrow (1972, p. 357) stated, "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time."

The performance of the banking sector in developing nations is particularly significant for economic growth. In 1980, the banking industry expanded substantially with the entrance of private banks into Bangladesh. Nevertheless, in 2020, 52% of the adult population in Bangladesh was still unbanked (Khan, 2020).

Today, online banking services are limited, though technology infrastructure is growing; therefore, a few banks offer online banking, mobile banking, and telebanking facilities in a closed network environment (Siddik, Sun, Kabiraj, Shanmugan, & Yanjuan, 2016). However, consumers' primary concerns are systems trust (ST), security, risk, and credibility (Khan, & Chaipoopirutana, 2020).



**Figure 1. 1 Trust vs. gross domestic product (GDP) per capita in the world in 2014**

In further comparisons of trust vs GDP per capita, underpinned by the 2014 World Values Survey, findings show that [Share of people agreeing with the statement “most people can be trusted”] Bangladesh has lower trust than the UK (Ortiz-Ospina & Roser, 2016). The survey has identified that people’s trust helps to grow the GDP per capita significantly. As a result, businesses seeking economic growth and development pay attention to improving social capital (Zakharov et al., 2020).

According to the findings from the World Value Survey in 2014, trust has a significant positive impact on the growth of GDP and economic development and the building of interpersonal relationships (Ortiz-Ospina & Roser, 2016). Trust directly underpins economic development performance and inflows of foreign direct investment (FDI) (Benedict, Tutu, & Salase, 2021). Recently, Bangladesh’s FDI declined by 11% to \$1.5 billion in 2020 (The Daily Star, 2021). Therefore, trust is the most crucial factor for attracting foreign investors.

In 2019, Bangladesh's FDI was the lowest in Asia at \$2.9 billion, whereas China and India had inflows of \$142 billion and \$50.6 billion, respectively. Therefore, FDI has contributed only 1% of GDP growth in Bangladesh (Haider, 2021). Despite this, findings reveal that although Bangladesh has a population three times that of the UK, its population occupies a smaller surface area than the UK. As a result, in terms of economic growth, Bangladesh performs poorer than the UK and neighbouring countries China and India. Nevertheless, Bangladesh has been featured on the list of the fastest-growing economies for the last 10 years. Bangladesh's ready-made garment industry has massive potential and employs approximately 3.4 million women workers, but 81% were unbanked in 2018 (World Bank, 2018). Therefore, Bangladesh has enormous potential in terms of attracting foreign investors and developing an economy. To create an advanced business economy, many mechanisms affect international growth, including FDI, the solving of unemployment, financial inclusion, and infrastructure development.

Trust can be interpreted as the relationship between different people depending on acquaintance between individuals in their previous interactions. In a network of businesses, trust can be defined as the trusting relationships between people or groups. Several factors affect location decisions for multi-national companies (Popova et al., 2019). Society's level of trust is one of the main cultural features affecting the decision regarding the location of companies (Popova et al., 2019). Trust can be built within an industry between shareholders, managers, and employees or between different companies such as suppliers, investors, creditors, customers, and society. Therefore, Zakharov et al. (2020, p. 312) state that "Trust can be viewed from different levels, such as interpersonal, organisational, inter-firm, and international levels in the field of cross-border co-operation". Trust is a multi-faceted and complex construct, and its effective management is critical to the alleviation of poverty and broader economic development. Zak and Knack (2001) illustrate that trust affects economic growth and considerable enhancement of investment. Thus, even though interpersonal trust stems from individual interaction, it is "a powerful economic stimulant" (Zak & Knack, 2003, p. 92) in the growing economy. Buriak et al. (2019) demonstrate the interaction between banks, which are formal institutions, trust, and interpersonal trust, by combining domestic and international approaches.

### **1.1.1 The impact of foreign direct investment and the associated uncertainties**

Indeed, robust foreign remittances have become a significant net source of national income in Bangladesh's economy (World Bank, 2021) through over 20 million NRBs who live outside the country. Thus, expatriate Bangladeshis in the UK and other countries make a considerable contribution to developing the economy of Bangladesh. For example, in 2020, foreign personal remittances contributed 6.6% (approximately \$21.75 billion) of the total GDP in Bangladesh (World Bank, 2021). Therefore, NRBs in the UK have direct engagement with the banking relationship and help to enhance the growth of the economy in Bangladesh.

Bangladesh is working to improve its technology and provide secure online banking services (Sadekin, Mukta, & Shaikh, 2019). If this endeavour is successful, many of Bangladesh's NRBs will use online services to transfer remittances and monitor their bank accounts. According to the Office for National Statistics report (2021), 92% of people from Bangladesh who live in the UK have access to the internet, but only 73% of them use online banking services (Office for National Statistics, 2021). This is still a high percentage, implying that many NRBs and local consumers would use online services if trust were developed within the banking sector.

The abovementioned statistics indicate an acceptance and trust in the use of online banking facilities. In addition, according to a Financial Conduct Authority (2016) report, 96% of UK adults hold current or saving accounts with financial institutions, and 53% of all payments are made electronically, showing that behaviourally, the majority of the UK population is confident in using the internet to access and manage their finances. According to Country Economy (2021), in 2020, the GDP of Bangladesh was \$329,120 million, and the GDP of the UK was approximately \$2,710,970 million, indicating that the UK's economy was 823.7% larger. Although Bangladesh is a populous country compared to the UK, the UK's GDP is 2080% larger than Bangladesh. According to Bangladesh Bureau of Statistics (2020), GDP contribution from the financial sector decreased from 3.42% in 2019 to 3.39% in 2020. The economic sub-sectors consequently dipped from 7.38% in 2019 to 4.46% in 2020.

As of 2020, even though 48% of adults hold accounts with banks, and over 67% of the population has facilities to access the internet, only 3% of adult internet users utilise

online banking services in Bangladesh (Khan, 2020; World Bank, 2020). This lack of customer engagement in the banking system is a significant roadblock when set against the vision strategy 'Digital Bangladesh – 2021'.

The banking system in the UK has grown significantly over the past 10 years, with the banking sector contributed 6.9% to the UK's total GDP in 2019 (House of commons, 2021). In comparison, closer inspection of the data in Bangladesh is quite different, revealing that the banking sector has only contributed 3.39% to the country's GDP (Khan, 2020). This study focuses on NRB consumers who live in the UK and have full access to high-speed internet with many technical facilities. Therefore, it is necessary to establish technology-based and reliable banking systems for local and NRB consumers.

It is clear that the ICT infrastructure in Bangladesh is still in its infancy, and Bangladeshi customers have been affected by many significant technical threats, which have placed their accounts at risk (Joveda, Khan, Pathak, & Chattogram, 2019; Rahman, 2019). For example, in February 2016, cyber attackers targeted the Central Bank of Bangladesh and stole \$81 (£56) million from its customer reserves (BBC, 2016) at the Federal Reserve Bank in New York. Due to this cyberattack, local customers and NRBs do not feel safe (BBC, 2016; Irani, 2021) holding money in any banks in Bangladesh. In addition, such cyber threats remain prevalent in the country; in April 2018, several retail and commercial banks were affected by credit card fraud in which hackers intercepted customers' online payments (Sakib, 2018). Most recently, the rapidly growing e-commerce sector in Bangladesh has seen many companies experience over \$100 million in fraud (The Financial Express, 2021). Customers are also unable to obtain their refunds and products due to a lack of transparency and monitoring by the Central Bank of Bangladesh and the Bangladeshi government. The senior director of Visa Inc, Soumya Basu, said to The Daily Star (2021) that "Key areas of focus for expanding digital payments include infrastructure, trust and security, and legal and policy framework."

Furthermore, customers and other stakeholders do not feel secure about saving their money with banks in Bangladesh because of the numerous scams on banks and the lack of management of those issues, ongoing fraud, and corruption. For example, Sonali Bank and Hall-Mark Group lending scandal approximately \$454 million,

Farmers Bank massive irregularities in borrowing, and Bangladeshi consumers have recently been cheated by e-valy.com, e-orange, and other e-commerce companies (Uddin, 2018; Abdullah, 2020; Mirdha, 2021). As a result, customers' perceptions of online banking facilities in Bangladesh have been adversely affected, with many developing a lack of trust in the country's core systems (Omonedo & Bocij, 2017; Rossi, Hohemberger, Konzen, & Temp, 2021; Wang, Wang, & Liu, 2016). Thus, online banking in Bangladesh has remained stagnant.

This study focuses on trust from a customer to business (B2C) perspective. Service trust involves consumers' freedom of choice and confidence in online services, while system trust represents the trustworthiness of new technology. More precisely, online banking in Bangladesh has remained at the stage of offering limited services due to a lack of systems trust (Hossain, Irin, Islam, & Saha, 2015). The Central Bank of Bangladesh and the government have introduced initiatives to improve the online banking security infrastructure to gain credibility and system trust between consumers and banks within the marketplace (Sarker et al., 2019). For instance, the government has introduced its National Cyber Security Strategy, established a four-tier national data centre, provided a stable and reliable fibre optic internet, and built a number of high-technology parks (Ahmad, 2021). Nevertheless, system trust plays a vital role in securing consumers' acceptance of internet banking and increasing their trust in technical systems.

According to a report by the International Finance Corporation, a member of the World Bank Group (2013), consumers' inadequate level of awareness and lack of trust in banks and technology obstruct their acceptance of the services offered by the online banking industry in Bangladesh. Rahman, Al-Amin, and Lipy (2020) argue in their study that security has become crucial in making mobile [online] banking payments. Commercial banks should invest in safe, reliable, and comprehensive security systems to influence customers in adopting mobile banking. Additionally, a Central Bank of Bangladesh report (2019) stated major barriers to consumers accessing their bank accounts and financial transactions, such as low income, bank staff attitudes, lack of physical access to the banks, and the minimum balance required to open a bank account.

Despite this, the Bangladesh Bank (2018) has implemented numerous innovative initiatives to build a country-wide, modern, technology-based, efficient, and secure banking system, including automated payment systems, an online banking system, online Credit Information Bureau services, mobile banking, e-commerce, and new services in the IT sector, especially with regard to outsourcing facilities. The installation of national payment switch software has also opened new opportunities for e-commerce in Bangladesh. The country's banking system has responded well to the initiatives of the Central Bank (Bangladesh Bank, 2018). A combination of online banking technologies fused with conventional and web technology enhances patronage by banking industries worldwide. According to the Bangladesh Bank (2018), 40 of 59 scheduled commercial banks thus currently offer online banking facilities.

Furthermore, approximately 1.7 million online banking users performed over 700,000 transactions through the online banking platform in January 2018, and 19 scheduled banks are allowed to offer Internet Banking Fund Transfer facilities outside of their bank accounts. Recent studies have also noted that online banking services are becoming increasingly popular in developing countries in Asia (Garepasha, Aali, Zende, & Iranzadeh, 2020a; Raza, Umer, Qureshi, & Dahri, 2020; Sardana & Bajpai, 2020). Moreover, consumers are switching comfortably to online banking for their financial transactions. Branch banking usage has consequently decreased by 27%, while online banking services have increased by 35% in the past five years (Padmaavathy & Adalarasu, 2015), which represents a paradigm shift from conventional branch banking to digital banking. The current study suggests that developing countries, including Bangladesh, are also increasingly tending to adopt online banking services.

In recent years, mobile financial services (MFSs) have rapidly grown in Bangladesh for both bank account holders and non-bank account holders, and bKash, which is an MFS, holds 65% of the market share of mobile banking services (bKash, 2018; Khan, Mahmud, & Lima, 2020). In February 2020, Bangladesh's MFSs had reached 80.9 million accounts with 33.3 million active users, whereby consumers do not need a bank account to make a transaction (Hasan, 2020). Thuseri, BRAC Bank, Nagad Digital Banking, and Dutch-Bangla banks have introduced agent banking and mobile money

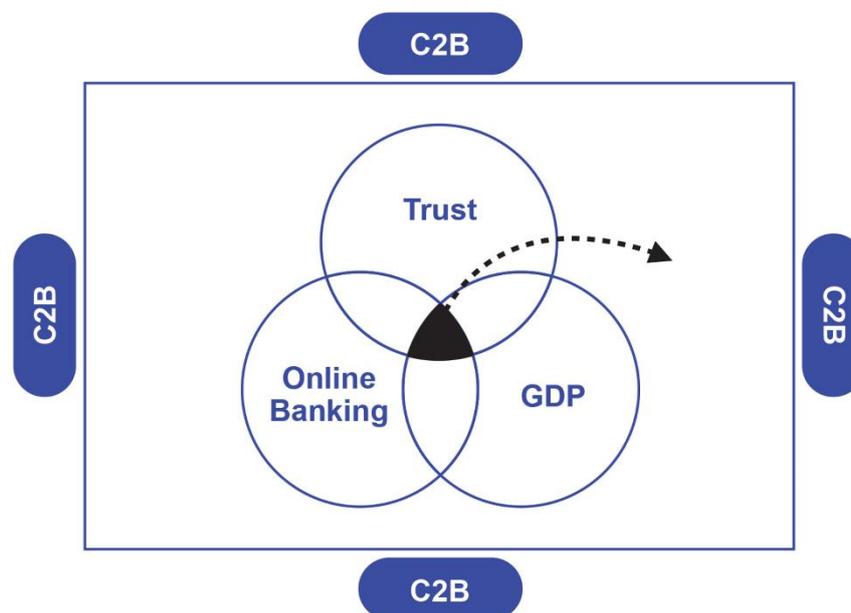
accounts for non-bank users. Agent banking is an authorised third party appointed by banks that can help non-bank users.

There are many administrative barriers to online banking and MFSs in Bangladesh. For example, the consumer does not have proper access to banking services, and there is a lack of consumer satisfaction, low service quality, a high risk of fraud and security breaches, and a relatively high cost of using online services (Shetu et al., 2021). According to a Daily Star report by Rahman (2014), Uttam Nayak, country manager of Visa, stated that only 1% of transactions are conducted electronically in Bangladesh, while in India and Sri Lanka, 3% of purchases are made online, and the global average of transactions done electronically is 16%. Consumers in Bangladesh place their confidence in cash transactions because of low levels of trust in online transactions and the administration thereof.

Digital banking system models cannot be effectively implemented in Bangladesh because of the poor security infrastructure, a lack of trust in banks and online systems, poor consumer satisfaction, and high levels of banking fraud. The country's new technology-based banking system must thus be founded on ST to support customer engagement. The present study aims to introduce a theoretical contribution offering a framework for practitioners, managers, and consumers regarding ST based on online banking in Bangladesh. To implement a successful online banking platform in the country, banks need a deeper understanding of how ST develops and how it impacts user behaviour intention towards online platforms. Moreover, several trends drive the evolution of the Central Bank's role from leading financial policy and system stability to a more significant role in generating and sustaining inclusive economic growth in Bangladesh. Therefore, this research focuses on the factors that will enhance users' trust in Bangladesh's new technology-based banking system (van Esterik-Plasmeijer & van Raaij, 2017).

### 1.1.2 The role of trust

Trust formation and development enable both an increase in efficiency and international competitiveness among businesses and the growth of a whole country's economy (Buriak, Vozňáková, Sułkowska, & Kryvych, 2019). A positive correlation exists between interpersonal trust and the performance of banks (Buriak et al., 2019). Trust from consumers is essential because it attracts many potential customers and sustains existing ones (Buriak et al., 2019). With trust, these customers become increasingly dependent on particular institutions and always purchase any new products or services offered by them. If banks earn more trust from consumers, they will hence experience economic growth and development. In contrast, if a culture is based on distrust or low levels of trust, then society's engagement will be insufficient for economic growth; therefore, Zak and Knack (2001, p. 3) state that 'a low-trust poverty trap exists.' That is, many countries are trapped in relative poverty due to their people's unwillingness to engage in relationships based on the need for trust – such as banking, particularly in the online context.



**Figure 1. 2 Customer-to-business relationships with trust**

The present study identified that from a customer-to-business perspective, trust is interconnected with GDP growth and online banking systems. Many trust factors impact customers' engagement with such systems, and it has a direct relationship with developing economic growth. Therefore, this study focuses on developing ST around online banking systems. The Chief Economist at the Bank of England, Haldane (2013), argues that "Finance is built on trust. It is based on promises about tomorrow, often paper promises backed by nothing other than words on a page. When trust in those promises breaks down, so too does the financial system."

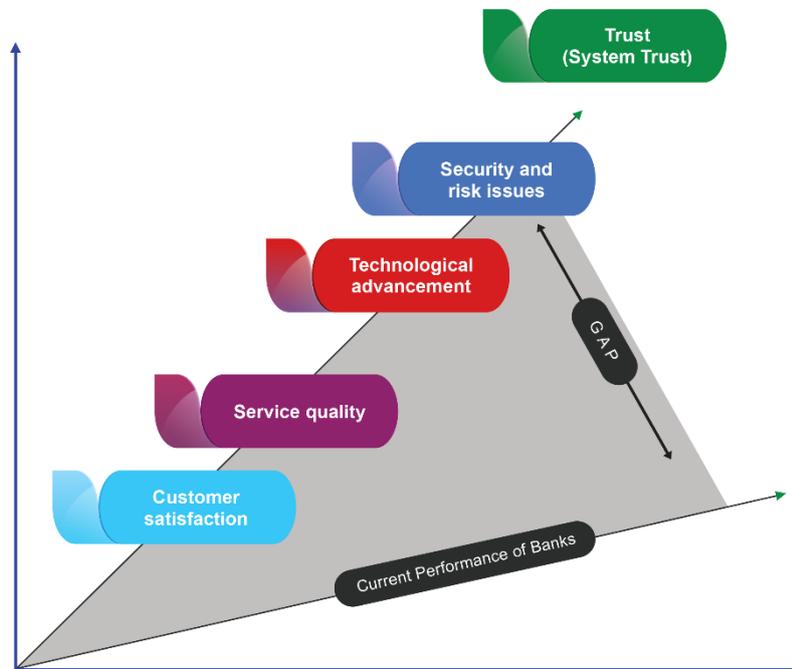
There is a general need to develop ST from an NRB consumer point of view through examination of the factors that encourage individuals' intentions to use online banking.

Consumer trust is an essential factor defining the levels of uncertainty alongside information asymmetry that foreign investors are exposed to when landing in the host country. For instance, in the absence of trust, foreign investors have difficulty evaluating the host firms. In such cases, minimal consumer trust becomes a critical barrier for FDI.

The Financial Express (2021) agrees and goes on to consider the true impact of FDI on a country's GDP, demonstrating that to attract FDI and build on the country's economy, the government of Bangladesh and the Central Bank of Bangladesh must emphasise local and foreign investment and infrastructure development, establish a strong policy and regulatory frameworks, reduce corruption, and establish transparency to ensure consumer satisfaction.

Over recent decades, the banking industry in Bangladesh, which is different from the UK banking system, has struggled to establish robust and credible online banking systems for consumers, and several academic papers have focused on the acceptance of online banking from the consumers' perspective (Jahan, Ali, & Al Asheq, 2020; Siddika & Sarker, 2019; Steinhoff, Arli, Weaven, & Kozlenkova, 2019). However, Bangladeshi banks face significant unwillingness among consumers to engage, given the online and broader banking environment from a consumer perspective. This customer unwillingness and theoretical deficiencies represent the research gap that the present study intends to address. Figure 1.3 illustrates the

conceptual and theoretical framework derived from a gap analysis. These concepts are detailed next.



**Figure 1. 3 Gap analysis (Banking industry in Bangladesh)**

First, the existing online banking platforms supplied by Bangladeshi banks are not attractive to users. Consumers rely on particular services, and there are substantial impediments for users in employing the expected benefits. Recent empirical research suggests that many factors affect consumers' confidence level in internet banking services, including trust, security, risk, and an unreliable online banking system (Aboobucker & Bao, 2018; Hossin, Sarker, Xiaohua, & Frimpong, 2018). Thus, broader trust theories identify several critical areas that require attention to develop and maintain trust within the online banking systems in Bangladesh.

Second, today's consumers no longer compare banks; instead, they evaluate financial institutions based on their service experiences. Consumers' observations are hence more proficient than ever with real-time experience of how online-based services are delivered by technology and institutions. In this regard, the present study suggests that users perceive the following to be lacking: service quality, intention regarding the

use of online banking, ST, reliability, security against banking fraud, and user-friendly online banking systems (Hasan, 2020; Sarker et al., 2019) . Particularly in Bangladesh, many previous studies suggest that technology adoption, trust, customer satisfaction, loyalty, and security are key to keeping the consumer attention on online banking services (Bappy & Chowdhury, 2020; Sarker & Jie, 2017; Sarker et al., 2019).

Third, financial institutions face daunting challenges in terms of cyberattacks, credit card fraud, non-performing loans, online banking fraud, and corruption in the banking sector in Bangladesh. Retail and commercial banks are lagging in availing themselves of the maximum opportunities offered by online banking and safeguarding their customers from cyberattacks. Therefore, the significant priorities of financial institutions should be cybersecurity, internet protocol (IP) protection, and real-time payment services (Sikdar, Kumar, & Makkad, 2015). Additionally, managerial skills to provide technical support are severely lacking.

Nevertheless, banks are already operating in an entirely new technology-based financial service industry, and they must transform their business models to respond and remain relevant today (Habib, 2015). Banks, as essential institutions, have a special responsibility to ensure user satisfaction, provide financial security with their services, and serve as engines of economic growth. The developing economies share this vision and have already pioneered methods to support new technologies, increase financial literacy, and boost financial inclusion (Bultum, 2014; Evans, 2018).

### **1.1.3 Research gap in the current context and the need for practical reform**

In summary, there are several barriers and challenges to developing online banking platforms in the Bangladeshi banking sector because of weak IT systems in the banks as well as poor performance and a lack of effectiveness of bank employees. Therefore, bank officials are still unable to handle the new technology-based banking services due to their weak IT and computing skills, lack of managerial supervision, and trust in conventional banking systems aligned with low confidence in new technology-based banking platforms. Banks must overcome these significant challenges to implement a new technology-based banking system in the online banking context. Online banking services provided by Bangladesh currently do not attract users. Customers expect a certain level of quality of the services offered in the banking sector, and banks in

Bangladesh have failed to meet such quality, thus keeping many consumers away. The lack of trust in the banks can be attributed to insecurity, unreliable services, and fraud (Alif, 2020). Together with the government of Bangladesh, the banking sector should address these issues to make their online services user friendly. Therefore, Datta, Tanwar, Panda, and Rana (2020b, p. 1115 ) state that “Banks are seeking for prevention system that can minimise the huge amount of losses due to fraud.”

This DBA thesis focuses on how Bangladeshi retail and commercial banks contribute to developing consumer trust and satisfaction related to online banking systems from the consumers’ perspective. Banks are crucial for improving economic growth and development. Most banks have already shifted to online banking systems, thereby attracting a pool of consumers. However, in Bangladesh, the banking sector has not offered reliable online banking services due to technological threats such as the hacking of customers’ accounts and the stealing of money. Therefore, Bangladesh must improve technology to provide secure and reliable online banking services and ultimately enjoy economic growth and development.

Despite the Bangladeshi government’s previously mentioned measures to enhance online banking and gain credibility (Mazumdar & Alharahsheh, 2020), it has not fully gained consumers’ trust to increase their use of online banking services. Consumers’ engagement with the banking system will help to bring more financial activity and boost the economy. In addition, it will allow consumers to build trust in the banking relationship.

At present, no practical research has been conducted on (1) trust, including ST, (2) consumer satisfaction, and (3) security and risk issues in the online banking context in Bangladesh. No previous studies have investigated online banking trust, including ST from an NRB consumer perspective. Therefore, the question of precisely how practical research within the emerging Bangladeshi online banking sector should be conducted remains unanswered.

## **1.2 Research aim, questions, and objectives**

The research aim of this DBA thesis is to “explore and identify the constructs that will establish systems trust and promote customer engagement with Bangladeshi online banking systems, which directly and indirectly contribute to boosting the country’s GDP.”

### **Research questions**

Several questions must be answered to fulfil the overall research aim. They are as follows:

- How do trust factors impact customers’ engagement with online banking systems in Bangladesh?
- What are the critical success factors affecting the development of ST in the Bangladeshi banking industry?
- What are the key enablers and barriers that affect customer satisfaction in the Bangladeshi online banking sector?
- How can the findings from this study be applied to the industry and build customers trust to engage with the Bangladeshi banking system?

### **Research objectives of the study**

To answer the research questions, this DBA thesis aims to achieve the following objectives:

- ❖ Critically review the extant literature relevant to ST and its related constructs (in particular, trust, customer engagement with respect to satisfaction, and security) in the context of the Bangladeshi banking sector [Chapter 2 – Literature review]
- ❖ Develop a rigorous methodological tool to explore barriers relating to Bangladeshi expatriate engagement with Bangladeshi banking systems, particularly its online features [Chapter 3 – Research Methodology and Methods]

- ❖ Report the findings from the study and then synthesise the data collected using the above tool with the extant academic literature in order to develop and present contributions from the study [Chapter 4 – Discussion]
- ❖ Draw conclusions on how to encourage Bangladeshi citizens to engage with their online banking systems through the enhancement of consumer trust [Chapter 5 – Conclusion].

### **1.3 Practical significance of the research**

Over the past few decades, banks have changed traditional banking models and introduced non-traditional models to maximise profit and increase customer satisfaction. A broader trust theory identifies several critical areas that require attention in order to build a robust and credible online banking platform in Bangladesh. Accordingly, this DBA research contributes to practice in the following ways:

- ❖ Trust, including ST, is a significant concern in the online banking system in Bangladesh. This study develops a new understanding of the virtual relationships between Bangladeshi retail banks and consumers. Hence, this thesis introduces a theoretical contribution framework focused on the concept of ST that can be used by practitioners working in the Bangladeshi banking sector. Furthermore, the theoretical contribution framework will allow banks to introduce a marketing toolkit for practitioners and consumers to identify and understand new opportunities and provide better communication across the marketing function, thereby enabling users to feel secure in the use of online banking platforms.
- ❖ Security and risk issues are the primary determiner of whether consumers accept or reject new online banking services, including how the security factors impact consumers' satisfaction and ST. This study helps to identify and understand authentication mechanisms, security certification, integrity, confidentiality, authorisation, availability, and privacy to reduce the risk to consumers. Commercial and retail banks must ensure that the consumer training programme covers ways in which to lower the risk of fraud, in addition to knowledge about how to use online banking safely and efficiently.

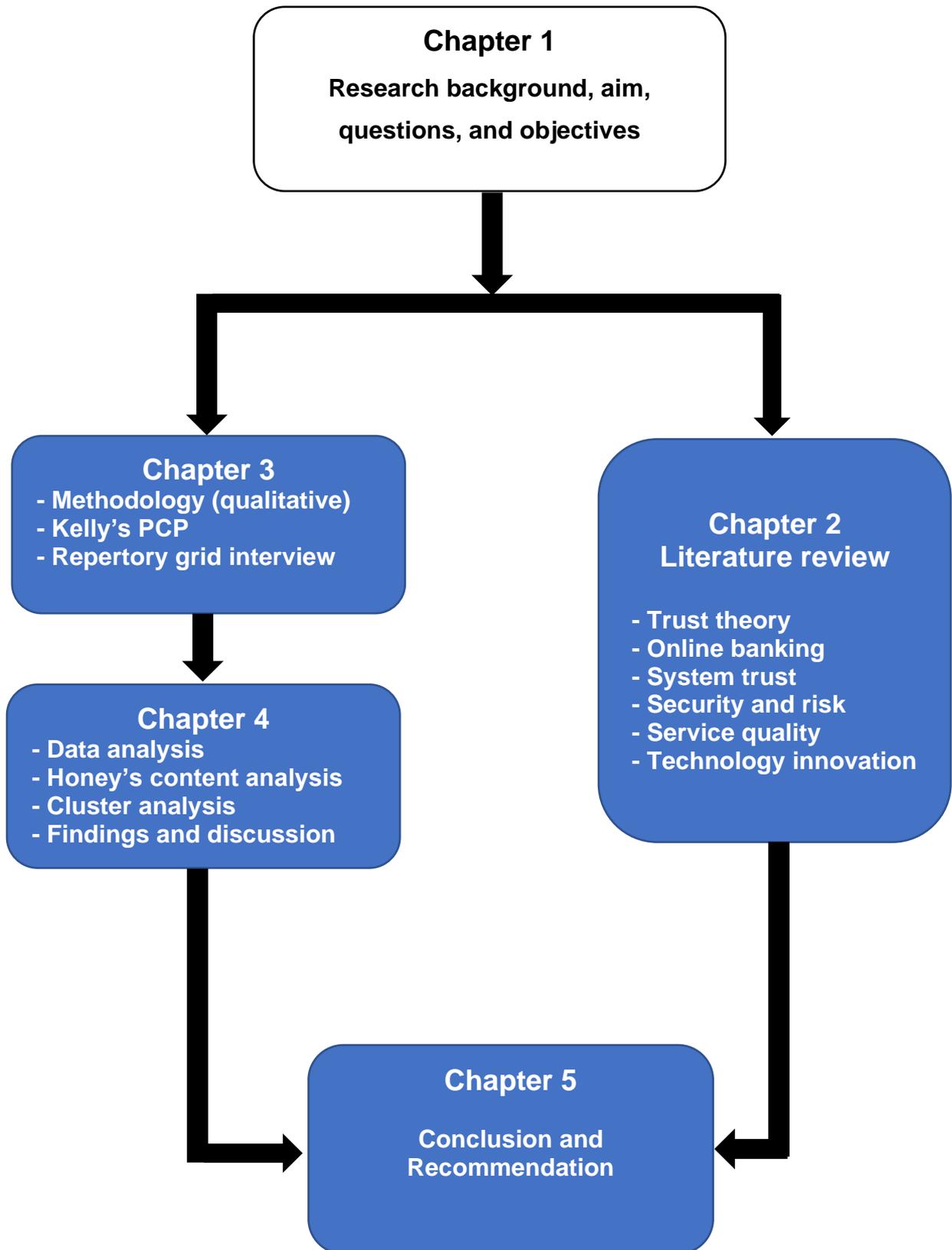
- ❖ The development of the theoretical contribution framework emphasises consumers' satisfaction, attention, ability, integrity, credibility, and the performance of the technology. It contributes to knowledge and practice in the field by training people who either dislike technology or do not know how to use computers. Therefore, the study's findings are relevant to the government, regulators, policymakers, consumers, and commercial and retail banks; they enable these entities to understand and trust the credibility of technology infrastructure development.
- ❖ The ST theoretical contribution framework helps banks and other FinTech institutions to establish a secure and reliable online banking platform for their customers. In doing so, banks, FinTech institutions, and the government will ensure that consumers feel confident to use credible and reliable online systems; if anything goes wrong, consumers will not lose their money or assets.
- ❖ The theoretical contribution framework allows practitioners to gain a deeper understanding of the present and prospective factors that consumers consider essential to building ST amongst their online products and services. The theoretical contribution framework can be used to drive innovation and new service offerings in the Bangladeshi banking sector.

This DBA study also provides insights into the importance of ST and factors concerning e-service trust and customer expectations that may be appropriate functions for practitioners in the Bangladeshi banking sector. As stated by Arun Parasuraman, Berry, and Zeithaml (1991, p. 39), 'understanding customer expectations is a prerequisite for delivering superior service; customers compare perceptions with expectations when judging a firm's service'

## **1.4 Chapter summary**

This chapter began by providing a brief background of the study and an overview of Bangladesh and the recent key barriers and challenges it has experienced that impact consumers' perception of banking systems. Thereafter, the research aim, research questions, and objectives were presented, and the practical significance of this research was highlighted. The chapter concluded by providing an outline of the remainder of the thesis. The next chapter introduces the context of human behaviour intention of banking relationships, providing the theoretical basis for this thesis.

# DBA Thesis



# Chapter 2

## Literature Review

### 2.0 Introduction

The purpose of this chapter is to address objective 1 **“Critically review the extant literature relevant to ST and its related constructs (in particular, trust, customer engagement with respect to satisfaction, and security) in the context of the Bangladeshi banking sector” [Chapter 2 – Literature review]**

Given the complex, nuanced, and multi-faceted nature of trust, an overview of trust theory is also included to provide a theoretical basis. This chapter explores ST, service quality, customer satisfaction, customer relationship, security, and managerial issues, including the definitions, benefits, history, risks, and types. Furthermore, this chapter presents an in-depth overview of the existing literature to establish current problems with ST, service quality, satisfaction, and security from the consumers' perspective.

For this DBA study, ST is defined as a set of services that banks must offer to enhance consumers' ability to access their bank accounts. In addition, ST boosts consumers' trust in IT systems and financial institutions to complete all their banking transactions through the online delivery channels without consumers' physical presence. Furthermore, online banking technology is the newest banking channel in Bangladesh for retail and commercial banking services (Hasan, 2020).

This study focuses on NRB consumers' perspectives, acceptance of new technology-based banking, and engagement with existing and potential online banking users. For banks, technology has emerged as a strategic source of superior efficiency, operations control, profitability, and productivity (Shou, Shao, & Wang, 2021; Tanriverdi & Du, 2020).

## 2.1 Overview of trust theory

Trust is a significant concept studied by academic researchers, business experts, and consultants in the practice of marketing for establishing, developing, and maintaining successful relationships between consumers and institutions (Liebowitz, Paliszkievicz, & Gołuchowski, 2017; Tarokh & Sheykhan, 2015). Trust can be defined as ‘A psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviours of another’ (Rousseau, Sitkin, Burt, & Camerer, 1998, p. 395).

The Oxford English Dictionary (1971, p. 3423) defines trust as “confidence in or reliance on some quality or attribute of a person or thing, or the truth of a statement.” McKnight, Cummings, and Chervany (1998, p. 479) argue that trust is “the belief that another is benevolent, competent, honest, or predictable in a given situation and trusting intention, meaning one’s willingness to depend on another in a situation”, which exists within individual beliefs to establish a successful relationship.

In the context of management and online banking, Sitkin and Roth (1993, p. 371) define trust as ‘an individual’s beliefs and expectations about the likelihood of having a desirable action performed by the trustee’.

In the context of relational exchanges, the extant literature highlights the vital role of trust in building a successful and long-term customer relationship (Achrol, 1991; Dwyer, Schurr, & Oh, 1987; Morgan & Hunt, 1994). The existing literature explores people’s trust in areas including philosophy (Rotter, Chance, & Phares, 1972), psychology (Deutsch, 1958), sociology (Lewis & Weigert, 1985), economics, management, and marketing (Morgan & Hunt, 1994). In the late 1980s and 1990s, trust theory developed in computer technology, management, human resources, and marketing. Trust theory has shifted from other disciplines, such as sociology and psychology, to marketing and other business-related fields for a better understanding of the nature of dyadic relationships between businesses and their consumers (Sharifi & Esfidani, 2014).

Customer relationship mediators have several antecedents: commitment, trust, relationship satisfaction, and relationship quality. Regarding relationship exchange, Morgan and Hunt (1994, p. 22) state that “relationship marketing refers to all marketing

activities directed toward establishing, developing and maintaining successful relational exchanges.”

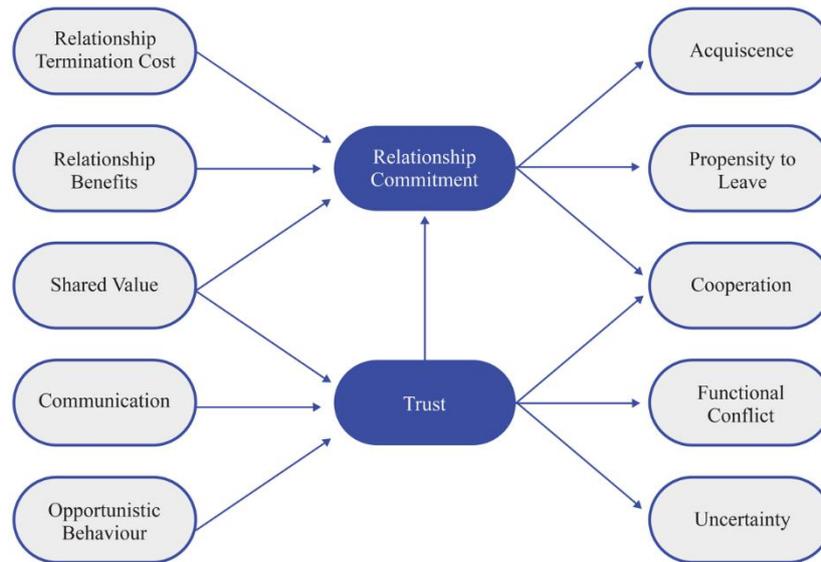
The definition of “relationship marketing is to identify and establish, maintain and enhance and when necessary also to terminate relationships with customers and other stakeholders, at a profit, so that the objectives of all parties are met, and that a mutual exchange does this and fulfilment of promises” (Gronroos, 1994, p. 11), which acknowledged by Morgan and Hunt (1994) to trust influence relationship outcome.

According to Leonidou, Palihawadana, and Theodosiou (2006, p. 150), relationship marketing is “the formal and informal exchange of information and meaning between the parties of a working relationship, concerning day-to-day, tactical or strategic issues of the relationship.”

Relationship marketing research focuses on the effects of relationship bonding strategies on customer satisfaction (Balci, Caliskan, & Yuen, 2019), and it has fragmented into the areas of relationship communication, relationship dynamics, service interactions, and service recovery (Balaji, Roy, & Wei, 2016; Gummerus, von Koskull, & Kowalkowski, 2017).

From a socio-psychological perspective, trust is the confident expectation of behaviours in the contextual factors of authority during transactions, which develops, maintains, and enhances confidence (Ross, Fielding, & Louis, 2014). Indeed, marketers insist on creating long-term relationships, and trust plays a pivotal role in developing marketing theory and practice (Dwyer, Schurr, & Oh, 1987; Morgan & Hunt, 1994).

The trust-commitment theory was developed by Morgan and Hunt (1994) to understand business trust. Both practitioners and academics are interested in better understanding trust as a catalyst for business exchange with customers. Figure 2.1 illustrates the trust–commitment relationship.



**Figure 2. 1 The trust-commitment theory (Morgan & Hunt, 1994, p. 22)**

However, customers insight and knowledge are limited regarding the rules, regulations, and design measures of Bangladeshi banking platforms and online services (Siddik et al., 2016). These gaps are essential in building trust because, without authority on the services offered, consumer confidence reduces significantly (Borowik, Chaczko, Jacak, & Łuba, 2015).

Regarding the role of trust in online retailing, Mukherjee and Nath (2007, p. 1174) state that “the success factors in e-business involve more than technology that can address security and to some degree, privacy: IT executives need to work with their customers to evaluate the value of trust in their business relationship.”

## 2.2 Trust

Recent studies have revealed that trust is a unique concept for many scholars, and it plays a vital role in consumer relationships (Fichnová et al., 2017; Ross et al., 2014; Wu, Chen, Chen, & Cheng, 2014). Other disciplines employ numerous definitions of trust, as outlined below.

According to Deutsch (1958, p. 266), regarding psychological trust, “an individual may be said to have trust in the occurrence of an event if he expects its occurrence and [his] expectation leads to behaviour which [he] perceives to have greater negative motivational consequences.”

In the context of sociology, Lewis and Weigert (1985, p. 456) define trust as “a reciprocal orientation and interpretive assumption that is shared the social relationship itself as the object and is symbolised through intention action.”

Trust is an essential construct in all human exchanges and consequently applies in banking relationships, where every customer interaction and service evaluation is predicated on trust and its related constructs (Masrek, Mohamed, Daud, & Omar, 2014; van Esterik-Plasmeijer & van Raaij, 2017). Although Al-Somali, Gholami, and Clegg (2009) claim that consumer trust is related to banking experiences, observing rules and regulations, social influence, awareness of banking services, resistance to change, reliability, a general interest in computers, technical trust, and self-efficiency levels. Therefore, trust is a significant factor between persons and institutions when building relationships. Järvinen (2014) and Yu, Balaji, and Khong (2015) identified the common factors underlying trust and implemented strategies to provide consistent services to develop confidence in internet banking.

According to Mayer, Davis, and Schoorman (1995), trust in the online banking context translates to customers wishing and being willing to make online transactions and expecting the bank to fulfil its responsibilities and monitor its activities regardless of the customer’s level of control. Furthermore, Urban et al. (2009) and McKnight et al. (1998) state that trust is more important in the online banking environment than in the traditional banking environment because trust-building and development will become critical when uncertainty and risk spread. In the context of online business environments, trust is defined as “the subjective assessment of one party that another party will perform a particular transaction according to his or her expectation, in an environment characterised by uncertainty” (Ba & Pavlou, 2002, p.245), which is the expectation of a mutually beneficial outcome rather than an adverse effect.

According to Mayer et al. (1995, p. 712), in the management context, “trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular operation relevant to the trustor, irrespective of the ability to monitor and control the other party.”

Indeed, in marketing theory, it was not until the 1980s that trust theory was first studied by marketing academics, who were keen to understand how businesses could create

long-term relationships with existing and prospective consumers (Ang, Cheng, & Wu, 2015; Caceres & Paparoidamis, 2007; Huang & Wilkinson, 2014; Watson, 1991).

Despite this, trust does not have an official academic definition in research. However, on closer inspection of the critical marketing literature, many key writers have acknowledged the significance of trust theory across the marketing discipline (Fichnová et al., 2017; Kesharwani, Roy, & Singh Bisht, 2012; Massey & Kyriazis, 2007).

When a bank needs to expand its business through the internet, its main task is to promote trust in its online banking services. Therefore, trust is central to the promotion of online banking services and positive engagement with banking customers.

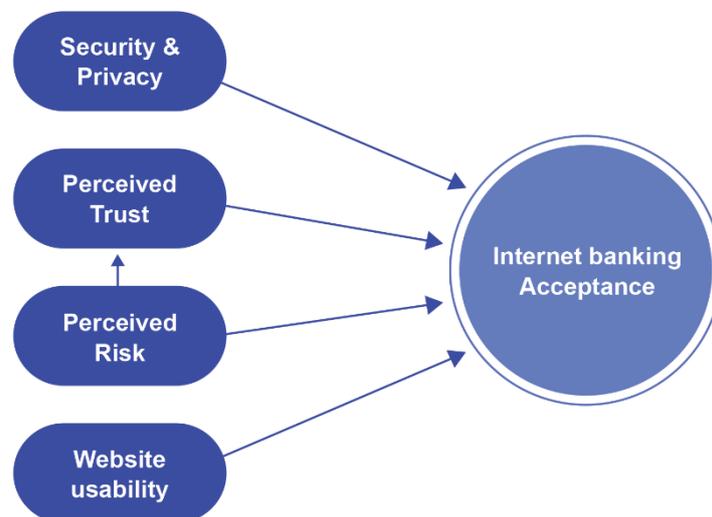
### **2.2.1 Managerial implications of online trust**

Recent studies have shown that online banking – also known as electronic banking and internet banking – has achieved tremendous growth in emerging markets (Loureiro, Kaufmann, & Rabino, 2014; Montazemi & Qahri-Saremi, 2015). New online banking technology is designed to increase both business efficiency and convenience for banking customers through reduced labour costs, faster banking services, and the provision of effective banking services without a physical branch and hence no need for consideration of bank opening hours (Grossman, 2018; Martins, Oliveira, & Popovič, 2014). Senior banking staff must consequently develop a sustainable virtual relationship with consumers across internal channels. Many barriers might affect users' trust in the online banking platform: lack of direct human supervision, lack of managerial commitment, resistance to cultural change, lack of resources, weak communication, and lack of understanding of different types of users. In addition, some organisational marketing tools (for example, website design, security system, privacy, and authentication) directly influence consumers' trust in online banking platforms.

The desire for technology-enabled improvements and income sustainability has led many banks to enter new markets globally, thereby increasing competition for local needs by adopting new technology-based banking services (Grossman, 2018). Moreover, today users increasingly rely on a virtual platform for accurate information and purchases, and they can be loyal to online banking. A virtual platform is hence an essential element in building a consumer's trust. In addition, the marketing strategies

of different online categories emphasise other characteristics, such as security, privacy, navigation, e-service trust, and advice to build trust (Karim, 2016). ST is entirely different from offline trust; ST pertains to the web platform, technology, mobile apps, internet, and e-services.

Furthermore, performance expectancy is one of the vital factors for building trust in online banking services. The experience and usability of a service enhance ST in a long-term relationship. In addition, consumers have positive impressions of online elements, accept vulnerability, and develop ST on an internet-based platform. Thus, in online banking, there is a direct relationship between trust and perceived security. Figure 2.2 depicts the four critical dimensions of internet banking acceptance.



**Figure 2. 2 Internet banking acceptance model (Aboobucker & Bao, 2018, p. 9)**

Although online banking is expected to maximise profit with a lower operating cost and develop competitiveness in the market. Online delivery channels are a powerful medium because of the retention of existing web-based consumers who can use banking services from anywhere. Thus, many researchers have identified the various dimensions of trust in online banking systems, namely security, privacy, infrastructure development, e-relationships, and e-service trust (Martin, 2018; Priya, Gandhi, & Shaikh, 2018; Safeena, Kammani, & Date, 2018; Sharif & Raza, 2017). Online banking seems to be the new distribution channel in the banking sector, providing banks with several business opportunities and barriers.

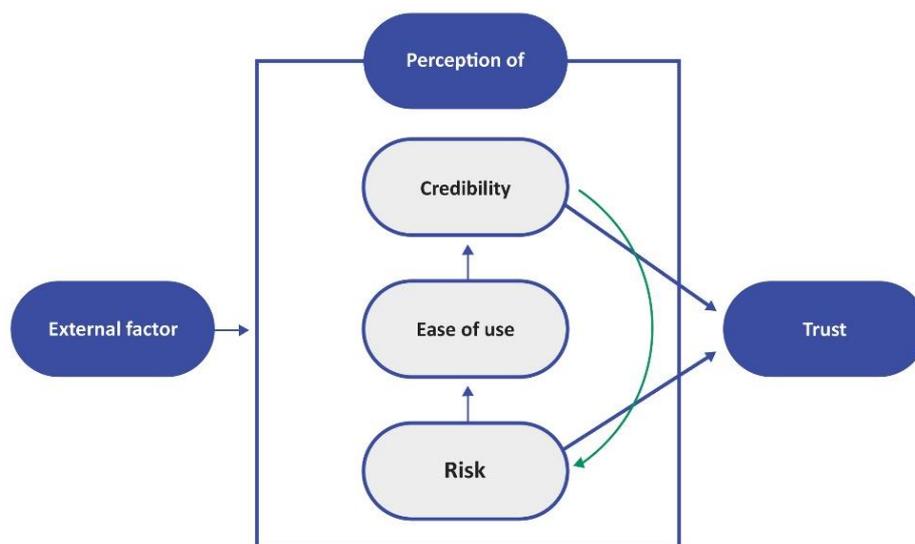
### **2.2.2 Trust in online banking from consumers' point of view**

From a consumer perspective, there are many benefits to using online banking, such as convenience, reduced cost, easy access, and greater control over services (Agwu & Carter, 2018). Consumers engage with banks or e-commerce daily in the electronic world, and online banking or other banking services are required in this regard (Chandio, Irani, Zeki, Shah, & Shah, 2017). Online banking allows banks to offer a variety of services to their customers, such as stock brokerage and insurance, in an attempt to improve their public relations in the market, enable strategic expansion, and ensure quicker and better responses to cater for the fluctuating and ever-changing needs of the markets and consumers (Priya et al., 2018; Siddik et al., 2016; Uddin & Akhi, 2014).

Chandio et al. (2017) state that online retail banking fails mainly because of trust issues with entirely new banking channels. Additionally, online banking has become an essential phenomenon in the banking industry, and it continues to be an advanced and innovative information technology-enabled channel. However, consumers are unsure about the security and confidentiality of their personal and financial information. The fundamental problems that customers encounter when buying online are security and security-related issues. Moreover, they are concerned about sending credit card data via the internet. In this regard, trust is a vital element in developing marketing relationships, and it is perceived as a willingness to participate in risky behaviours that can fulfil one's future liabilities (van Esterik-Plasmeijer & van Raaij, 2017). Distrust stems from internet-based transactions, for example a lack of physical contact with bankers and online payment before delivery of goods, compared to transactions conducted through conventional channels (Chaimaa, Najib, & Rachid, 2020). Thus, customers realise even more uncertainty when transacting over the internet than via traditional means. In virtual relationships between consumers and banks, face-to-face interaction is also lacking. From a consumer's point of view, brand reputation and systems usability are significant precursors of consumer trust in the online banking context. Many studies have been conducted on consumers' acceptance of online banking platforms, consumers' perceptions of new technology-based banking, perceived security, and consumer relationships (Bappy & Chowdhury, 2020; Habib, 2015). Several dimensions and antecedents are identified to understand the meaning

of trust that is important for developing customer trust in online banking in Bangladesh. Therefore, this study focuses on exploring ST from an expatriate Bangladeshi perspective to understand the factors of trust, as well as the enablers of and barriers to online banking systems.

There are several online banking tools ‘enabling the transfer of funds from the payer to the payee. There are a variety of different payment instruments, each with its own characteristics depending on the type of relationship and transaction between the payer and the payee’ (Kokkola, 2010, p. 28).



**Figure 2. 3 Online trust dimension (Corritore, Kracher, & Wiedenbeck, 2003, p. 749)**

This is a sub-dimension of trust that is benevolence vs credibility-related trust, Raza et al. (2020) found that security and privacy are the critical factors for adopting online banking. On the subject of credibility-related trust, Deutsch (1958) and Mayer et al. (1995) focused on risk in their definition of trust (Deutsch, 1958; Lewis & Weigert, 1985). Figure 2.3 illustrates that risk is a form of credibility-related trust.

Consumers’ trust in Bangladesh’s banking system has been a rarity, with most hurdles stemming from the sector’s volatility. Existing structures do not sufficiently shield the customer’s investments against threats associated with online banking. Therefore, while the internet has brought immense gains and benefits for businesses and

industries such as banking (Kekeya, 2016), consumers are exposed to various threats with little defence afforded by the institutions or government. Bangladesh's weak information technology infrastructure has been a core concern to all clients who believe their money is not safe (Siddik et al., 2016). The lack of security regarding consumer information is compounded as ethical analysts continue to flag commercial data mining without consumer consent across numerous sectors.

### **2.3 Online banking**

Online banking involves transactions taking place via a personal computer, a web portal, or other devices on which customers can easily access different kinds of banking services. One definition of online banking is "a banking channel that allows consumers to do a wide range of financial and non-finical activities by using a bank website " (Lee & Kim, 2020, p. 848).

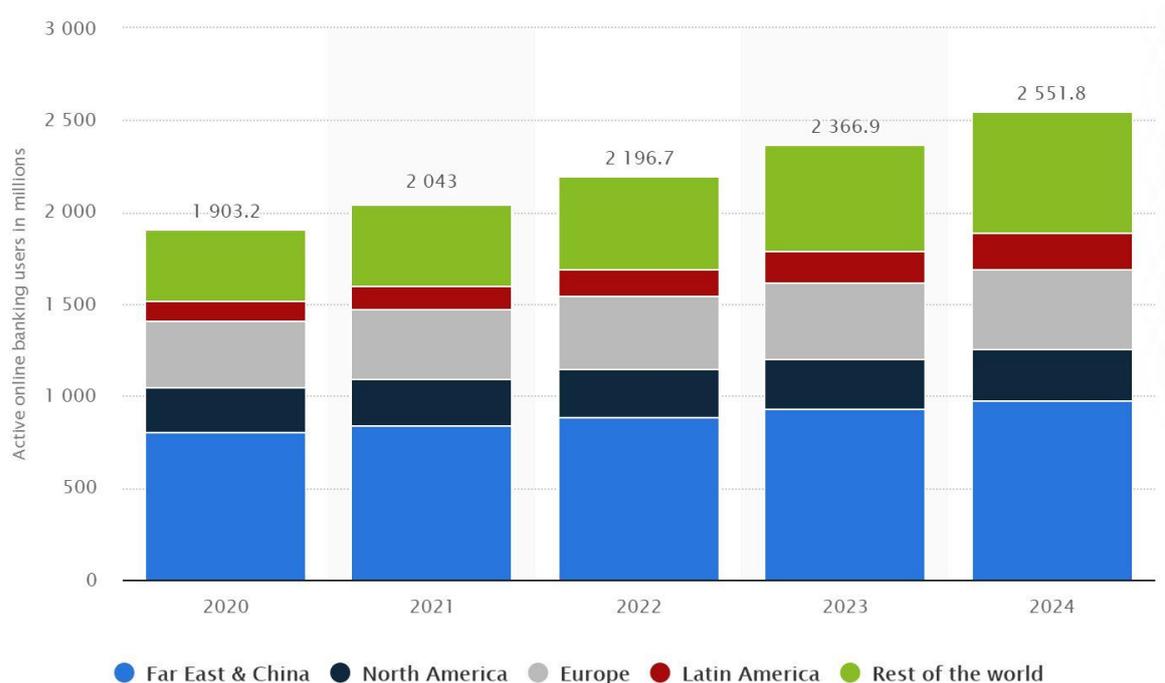
Similarly, Madumanthi and Nawaz (2016, p. 10) state that "online banking refers to several types of service through which bank customers can request information and carry out most retail banking services via computer, telephone or mobile phone."

According to Grabner-Krauter and Faullant (2008, p. 483), "internet banking allows customers to conduct a wide range of banking transactions electronically via the bank's website – anytime and anywhere, faster, and with lower fees compared to using traditional, real-world bank branches."

Introduced in the USA in 1981, the process of online banking was first developed by the four central banks, namely Chemical Bank, Chase Manhattan, Citibank, and Manufacturers Hanover, in New York City, where consumers could access their bank accounts remotely (Sharma, 2017). Then, in 1983, online banking became available in the UK and was first introduced by the Royal Bank of Scotland (Adom, Yeboah, & Ankrah, 2016). Online banking was only introduced in Bangladesh in 1994, and it remains in its infancy due to the lack of service trust and lack of credibility of ST (Hossain et al., 2015; Islam, 2020). Nevertheless, internet banking is gaining popularity in many developing countries, including Bangladesh, India, Pakistan, Malaysia, China, Nigeria, and Vietnam (Khan, Hameed, & Khan, 2017; Roy, Balaji, Kesharwani, & Sekhon, 2017).

Online banking offers benefits to the public, such as direct billing, convenience, reduced bank charges, fund transfers, and internet transactions (Chakravarty, Kumar, & Grewal, 2014; Mallat, 2007). The framework of online banking allows customers to connect to a large group of banking administrations from their PC or apps and interact with the bank via a mobile phone or website. In addition, banks are using web applications that allow budget organisations to transfer data and recognise claims from their customers anywhere in the world.

According to Agwu and Carter (2018); Yang, Li, Ma, and Chen (2018), and Yu et al. (2015), recent studies have shown that online banking has achieved tremendous growth in recent years in the emerging market. According to Trading Economics (2021), there are 1.9 billion online banking users worldwide, and this number is expected to reach 2.5 billion by 2024. The Asian market is the largest and is increasing steadily. Figure 2.4 illustrates the estimated growth of online and mobile banking around the world.



**Figure 2. 4 Estimated online and mobile banking users from 2020–2024**

Online banking has morphed into one of the world’s most-used technologies by consumers. In the past, online banking adoption was driven by the promise of improved operational efficiency and the enhancement of financial services (Kekeya,

2016). Online banking eventually allows banks to consolidate and expand their associations with customers by introducing money administrations directly to one's home or office (Chandio et al., 2017). Furthermore, the internet, the World Wide Web, and internet banking are evolving to bring the world's banking systems closer together. Online banking affects how customers receive banking services, which can significantly affect the structure of the banking sector. This offers banking organisations another set of opportunities and difficulties, thereby further increasing competition in the global banking market.

For millions of consumers not residing in Bangladesh, internet banking has been a solution allowing them to perform financial transactions from the comfort of their locations at any time. However, these positive results have not led to the expected outcome, as the sector only boasts a low range adoption of the innovation due to poor relationship marketing (Siddik et al., 2016).

If online banking trust is crucial, then developing ST is even more vital. According to Moorman, Deshpande, and Zaltman (1993); Morgan and Hunt (1994), the key dimensions of trust are integrity, risk, security, and privacy. In the context of research on the banking relationship, Heffernan et al. (2008) identified three dimensions of trust: credibility, integrity, and benevolence. Yousafzai et al. (2003) studied trust, risk, and e-trust related to online banking that can be considered as preliminary insights into the role of perceived competence, security, privacy, benevolence, and integrity.

### **2.3.1 Trust in online banking**

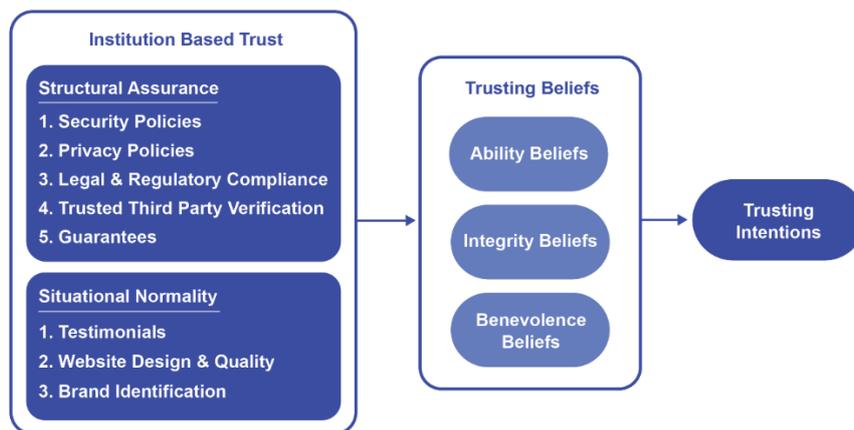
Much research has been conducted to define the nature of online trust and identify factors that affect its development. The first question that arises is whether online trust exists and how it is different from general trust. Mayer defines online trust as

“the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor irrespective of the ability to monitor or control that other party” (Mayer et al., 1995, p. 712).

In contrast, Beldad et al. (2010, p. 860) define online trust as “an attitude of confident expectation in an online situation of risk that one's vulnerabilities will not be exploited”, where trust is seen as belonging to emotional and cognitive dimensions.

According to Buriak et al. (2019), commitment trust theory shows the positive impact of users' continuous intent to use online banking and increases users' confidence. Trust is the foundation of any online banking system. Thus, trust in an online banking system processing a transaction is necessary, and institution is responsible for the online banking tools (Holst, Kjeldsen, Hedman, & Tan, 2015). Therefore, Kokkola (2010, p. 28) argued that "A tool [for] enabling the transfer of funds from the payer to the payee. There are a variety of different payment instruments, each with its own characteristics depending on the type of relationship and transaction between the payer and the payee"

Trust affects a banking system's functioning in the internet banking context and is an essential issue within broader society (van Esterik-Plasmeijer & van Raaij, 2017). From a consumer's perspective, trust in banking is defined as a psychological state that leads to the willingness of consumers to perform banking transactions over the internet, and the bank expects to fulfil its obligations, irrespective of its ability to monitor or control its action (Dimitriadis, Mandilas, & Maditinos, 2013; Mayer et al., 1995). According to Yousafzai et al. (2005), institution-based trust is within the structural assurance and situations normality. Figure 2.5 illustrates the critical elements of institution-based trust and how it affects consumers' trust intention.



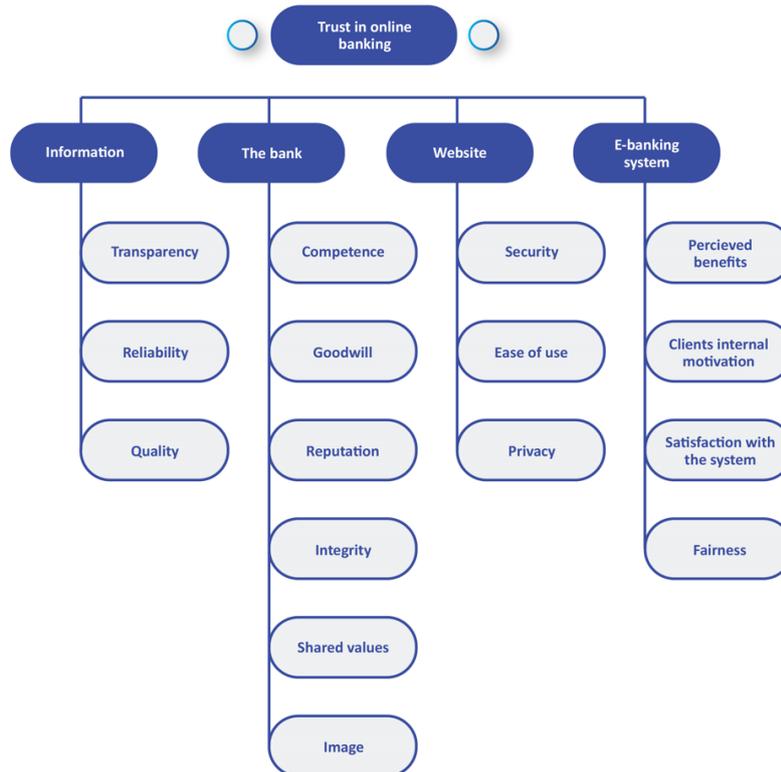
**Figure 2. 5 Trusting intention in online banking (Yousafzai, Pallister, & Foxal, p. 856)**

The escalation of internet fraud incidents has raised privacy and security risks for internet banking customers. Therefore, security issues raise concerns among both new and existing online banking users. For example, approximately 700 million people

were estimated to have experienced cyberattacks in 2018, and cyber attackers generate about \$1.5 trillion annually (Darko, 2019). The damage caused by global cybercrime is estimated to reach \$10.5 trillion per year by 2025. Moreover, rapid change and individuals' lack of knowledge encourages the continued expansion of cybercrime (Calderaro & Craig, 2020).

Some standard online banking authentication processes currently exist to establish trust, including fingerprint-, iris-, appearance-, voice-, and face-recognition technology (Normalini & Ramayah, 2017). This technology has been applied in different industries, such as airports, banks, and government buildings, among others. In addition, biometric technology is one of the top 10 techniques to establish trust in an online banking system.

A lack of information and communication about the services offered and how clients can use them constitutes one of the most commonly identified obstacles preventing trust in online banking systems and services (Skvarciany & Jurevičienė, 2018). As a result, many consumers refuse to use online banking services in Bangladesh due to a lack of trust. This study investigates the factors involved in consumers rejecting online banking and how trust leads to their willingness to engage. Figure 2.6 illustrates the characteristics and sub-factors that affect trust in online banking.



**Figure 2. 6 Trust factors and sub-factors in online banking (Skvarciany & Jurevičienė, 2018, p. 4)**

The above (Figure 2.6), the natural understanding of online trust factors perceive to be essential in developing or reducing trust of online services.

- ❖ Information and the bank (the staff, competence, reputation, the integrity of their services, and shared value)
- ❖ Website and online platform (ease of use, security, and consumer privacy protection)
- ❖ The system (including aspects such as consumer satisfaction and perceived benefits of adoption).

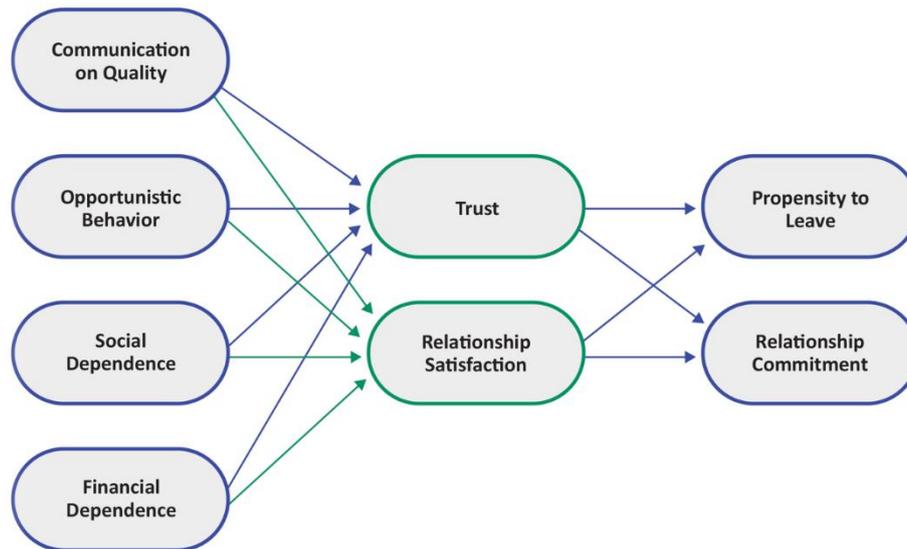
Moreover, when the client recognises the administration, they will likely remain loyal to the bank. In any case, a significant factor for determining one's level of interest in online banking is the number of people connected to the internet. Giovanis and Athanasopoulou (2014) and Mou, Shin, and Cohen (2017) identified many service trust dimensions: web design, ease of use, privacy, security, and efficiency. Similarly, Yu et al. (2015) stated that service trust is a significant issue in developing confidence in online banking.

In addition, trust is required for online banking at the stages before the trade and exchange and at the post-trade stage as security and repayment. Confidence in online banking pertains to several parts , including technical safety, data quality, and online connections. That a relationship fostered through constant communication builds trust between banks and their consumers, encouraging the latter's use of online platforms and services (Mawlawi, 2016).

Many techniques have been used to build trust between consumers and vendors (Wang et al., 2016). For example, on eBay and Amazon, which are the most prominent e-commerce marketplaces, buyers and sellers can present service and product overviews. A seller can hence use eBay to sell an item with a product description and pictures, but the buyer must trust eBay to purchase the item. In addition, a two-way rating system or review system helps consumers decide whether to buy and builds trust (Etzioni, 2017). Thus, ST has been a critical issue for the e-commerce and online environment, and it impacts relationship marketing aspects. It is also context-specific, as it refers to a customer's opinion regarding the control of an action method.

In the aforementioned cases, relationship marketing is essential to build a communication channel between customers and banks; therefore, it provides clarity and in-depth insights into their core strengths and weaknesses impeding (Skvarciany & Jurevičienė, 2018). Therefore, Berry and Parasuraman (1991, p.139) argue that "Relationships are built on the foundation of mutual commitment."

In social relationships, trust and relationship satisfaction are influenced by communication about quality, opportunistic behaviour, social dependence, and financial dependence on social exchange theory (Morgan & Hunt, 1994). Therefore, the establishment of a relationship between consumers and organisations can be mutually beneficial. Figure 2.7 depicts the social exchange theory.



**Figure 2. 7 Social exchange theory and an extension (Jeon & Jeong, 2017, p. 118)**

Without long-term relationships, where clients are empowered and educated about online services and their benefits and kept in the loop about progress made to resolve concerns such as security and privacy, it is impossible to build a robust relationship (Damghanian, Zarei, & Kojuri, 2016). Loyalty would then be lost, leading to the festering of doubts and suspicion about the services and platforms and hence eliminating trust, as these barriers prevent clients from focusing on the potential or existing benefits of internet banking. Furthermore, in online banking, there is little interaction between clients and the bank (staff). Therefore, there is no one to soothe and alleviate the customer’s concerns when an error occurs.

### 2.3.2 Electronic trust

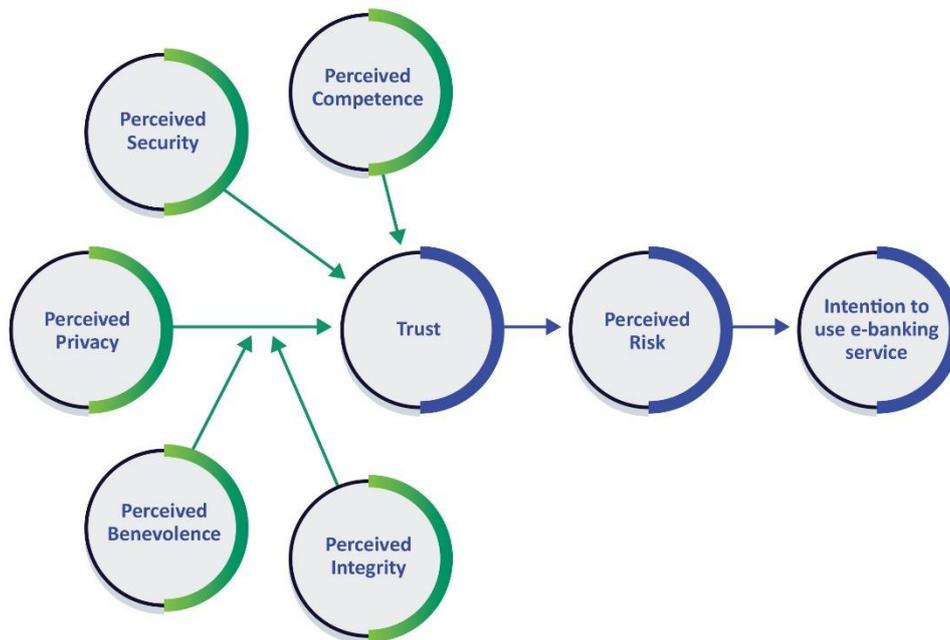
Trust in an electronic medium or the virtual world is called e-trust, and it is believed to increase customer e-loyalty; however, empirical evidence is insufficient. Here, trust is defined as the customer’s degree of confidence or certainty in the exchange option.

According to Moorman et al. (1993, p. 82), e-trust refers to one’s “willingness to rely on an exchange partner in whom one has confidence.”

Thus, e-trust is defined as consumers’ trust in online exchanges or online exchange channels. Consumers are less likely to transact through websites if there is a lack of trust and fear of data being stolen (Sharma, 2017). Indeed, trust relates to responsiveness, system availability, and communication. However, loyalty, trust, and

word of mouth affect the quality of online banking e-services, and corporate reputation related to e-trust (Salehnia, Saki, Eshaghi, & Salehnia, 2014). Similarly, e-trust relies on cybersecurity, brand reputation, web search, perfection, presentation, technology, and assurance of interaction. Ghane, Fathian, and Gholamian (2011) argue that privacy is the driver of e-trust, which provides e-satisfaction to service users. Confidence in e-services relates to purchasing and payment processes, website reliability, privacy and security issues, order fulfilment, service delivery, and ongoing support.

According to Alshurideh, Al Kurdi, Vij, Obiedat, and Naser (2016), online environmental privacy has a high impact on customer trust and may even help businesses establish long-term relationships with customers. Therefore, enhancing customer e-loyalty and positive word of mouth are two of the main goals of online marketing managers. On the one hand, e-service trust directly impacts e-loyalty; on the other hand, it indirectly influences e-loyalty through e-satisfaction (Ghane et al., 2011; Hasan, 2020).



**Figure 2. 8 Intention to use e-banking services (Yousafzai, Pallister and Foxall, 2003, p. 856)**

As seen in Figure 2.8, e-banking services are critical determinants of online banking adoption. If the service offered is complicated to access and use, consumers hesitate to use the platform. In addition, the majority of consumers are not inclined to spend much time researching or understanding how a system works. Therefore, the easier it is to use, the faster its adoption and acceptance. More importantly, trust is associated with competence, security, privacy, benevolence, and integrity (Yousafzai et al., 2003).

Furthermore, Lin, Wang, and Hung (2020) reported that the establishment of consumers' e-trust is a process of central and peripheral decision-making to evaluate the credibility of online banking technology. The concept of interpersonal e-trust stems from social psychology where consumers trust the skills, abilities, benevolence, integrity, and competencies of a particular business. In contrast, institutional e-trust relates to ST mechanisms and the entire internet infrastructure (Pennanen, 2011). For example, in online banking regarding online payments, the quality of e-services has a direct and indirect impact on e-trust. Moreover, with uncertainty in e-services, consumer trust is considered to be one of the most critical psychological conditions affecting online behaviour (Chen, Tsai, Hsu, & Lee, 2013; Zeglat, Shrafat, & Al-Smadi, 2016).

In this study, a significant relationship exists between technology and users to develop ST. Therefore, consumers must understand the usability and efficiency of online services. Furthermore, online customers cannot physically be present in branches to interact with employees; in this case, trust must be established alternatively. Bauer, Falk, and Hammerschmidt (2006); Beldad et al. (2010); and Cheung and Lee (2006) mention that the most remarkable issues are the lack of trust and insecurity of making financial transactions through online channels. Thus, there is a lack of an ST model that can encompass the most important aspects of trust that play an essential role in a consumer's trust in online banking platforms and the relationship between users and risk.

#### **2.4 Systems trust (ST)**

ST is defined as a 'belief that the proper impersonal structures have been put into place enabling one party to anticipate successful transactions with another party' (Pennington, Wilcox, & Grover, 2003, p. 201). In other words, ST refers to the established confidence and beliefs of a consumer during internet transactions, while

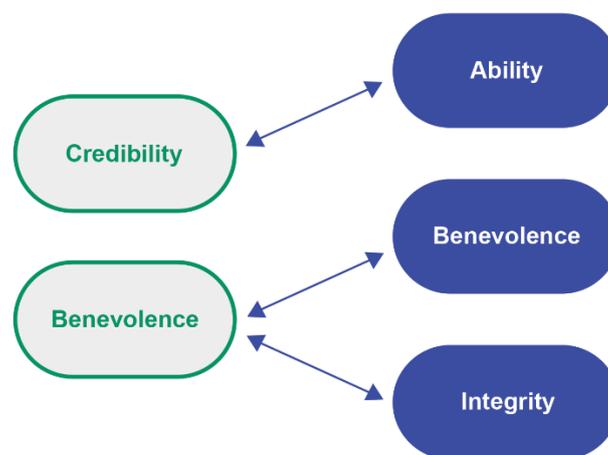
institutional trust is perceived as the foundation of a financial organisation. In a particular situation, the role of trustee and trustor belongs to situations normality as McKnight and Chervany (1998) argued that ST might also be seen as a belief relied upon by the trustor.

ST is a nomological network of constructs, including specific mechanisms and foundations that can affect this form of trust (Pennington, Wilcox, & Grover, 2014). In addition, ST relates to possible antecedents and consequences of security, privacy, brand reputation, navigation, an user-friendly platform, community features, an error-free website, and e-service trust (Bart et al., 2018). ST has been a critical issue for the e-commerce and online banking environment and has impacted many aspects of relationship marketing (Kharouf, Lund, & Sekhon, 2014; Sleiman, Cai, Lan, Lei, & Liu, 2021). For example, consumers are afraid to use vulnerable websites and mobile apps, as well as cyber threats. Due to the lack of ST, the relationship between banks and users might pose a challenge for completing a transaction in a reliable and discrete manner. Introducing new features in response to third-party certifications, guarantees, and feedback from existing users can be one of the essential developments in online platforms because such mechanisms engender trust in banks and systems.

ST concerns the level of confidence consumers have in a banking system and banks in general, either within a specific country or internationally (van Esterik-Plasmeijer & van Raaij, 2017). Pennington et al. (2003) identified the various constructs of ST: structural assurance rules, regulations, laws, guarantees, and contracts.

Pennington et al. (2014) found that ST is based on three elements: seals, ratings, and guarantees. A seal uses individual verification by third parties, while ratings use consumer feedback, and a guarantee is comprised of a seller's commitment, policies, and procedures. These elements make the consumer feel secure, and trust can hence be established. In addition, situational normality is an essential factor; this is when situations appear to be normal, and uncertainty over the transaction decreases. Indeed, a plethora of literature has identified the crucial aspects of ST, for example perceived risk, security, privacy, guarantees, trustworthiness, and trust in modern technology (Martins et al., 2014).

A website's security, privacy, and ICT mechanisms are noted as among the most important features that influence consumer ST in online banking (Hossain et al., 2015; Redwanuzzaman & Islam, 2015). This study focuses on understanding the factors and constructs of ST to develop users' confidence and faith, from an NRB consumer perspective, and developing a platform for users that should consider high-standard mechanisms. These mechanisms ensure that end-users make safe and secure transactions. The absence of an explicit trust connection applied to any new technology-based service, such as implicit expressions of trust, is considered a lack of users' recommendation and ranking (Eirinaki et al., 2014). Therefore, new online service technology or applications are willing to reveal clients' feedback, ratings, and brand accreditation. Indeed, those expressions not only aid in redesigning the platform but also influence new users' decision to accept or reject the platform. Masrek, Halim, Khan, and Ramli, (2018) argued that perceived credibility highlights the importance and significance of security and privacy, ensuring the success of online banking. Figure 2.9 presents the dimensions of trust.



**Figure 2. 9 The dimensions of trust (Mayer et al.,1995 vs Ganesan, 1994)**

Regarding credibility, trust can relate to security, risk, authentication, confidentiality, and privacy in the context of ST in online banking services (Yu et al., 2015). Credibility-related trust can be defined as follows: “confidence is what you have when you know what to expect in a situation: trust is what you need to maintain interactions if you do not” (Seligman, 1998, p. 391). The ability is to enhance competence in the technological area. Masrek et al. (2018) argued that perceived credibility could develop consumer trust and satisfaction. In terms of benevolence, trust is the

perception of the positive image and emotions of an organisation. Mayer, Davis, and Schoorman (1995) stated three trust dimensions: ability, benevolence, and integrity.

#### **2.4.1 System quality**

System quality is an important factor affecting user satisfaction in the online banking context, and trust is an emergent element that affects customer satisfaction (Mumba, 2018). A website's quality, customers' perceived service quality, satisfaction, retention, and loyalty establish a system of trust and satisfaction in the context of online banking services (Chu, Lee, & Chao, 2012).

In general, system quality factors reflect the access of speed, web navigation and usability, user-friendliness, and the appearance of online or mobile banking. System quality impacts trust in, engagement with, and satisfaction with online banking services. Due to the limitations of mobile interfaces, such as small screens and inconvenient inputs, searching for mobile banking information can seem challenging for users (Ahmed, Rayhan, Islam, & Mahjabin, 2012; Arcand, PromTep, Brun, & Rajaobelina, 2017). Therefore, an interface with robust navigation, a clean layout, and prompt responses can be necessary for mobile banking. In addition, due to the weak system, users may feel that banks have not invested enough money and effort in mobile banking technology.

Furthermore, modern smart banking technology introduces a model as a filter between the two quality dimensions, namely the functional dimension (how the service process functions) and the technical dimension, which influences one's quality perception either favourably, neutrally, or unfavourably, depending on whether the customer considers the service excellent or neutral (Arcand et al., 2017). According to Damghanian et al. (2016), a system that is easy to use is undoubtedly more acceptable and trustworthy than one that is difficult to use, and this ease of use stimulates rapid adoption, commitment, and loyalty. Moreover, the ease of use speaks to the integrity of a business, as clients perceive the transparency and convenience as a sign that the institution has nothing to hide. In contrast, a system with extensive jargon and complex procedures often hides hidden costs, which frustrate clients into abandoning the process. Therefore, system quality is essential in determining customer satisfaction, and trust is a moderate factor influencing customer satisfaction (Li, Lu, Hou, Cui, &

Darbandi, 2021). The quality of the system can also affect its perceived usability (Li, Lu, Hou, Cui, & Darbandi, 2021). A weak system will reduce a user's expectation to achieve positive results in the future. For example, if users often experience service interruptions or unavailability, they will not engage in services. These fears and anxieties are validated in numerous studies that have found that a lack of trust is a leading obstacle to the widespread acceptance of online banking services in Bangladesh and the world (Boateng, Adam, Okoe, & Anning-Dorson, 2016; Szopiński, 2016; Siddik et al., 2016; Montazemi & Qahri-Saremi, 2015). In response, the majority of consumers are dissuaded from engaging in online services, as they do not trust that the banks will protect their interests and investments.

This study focuses on customers' satisfaction and understanding of the online banking channels and ST mechanism and their linkage to repeated use of online banking services.

#### **2.4.2 Institutional reputation**

Institutional reputation is an invaluable asset that is difficult to quantify; however, it plays an essential role in social, professional, and commercial interaction. Earlier research suggests that financial industry reputation is an inanimate influencing the relationship between banks and consumers. Therefore, the bank is ready to incur the cost to maintain that relationship (Ruiz, García, & Revilla, 2016). The effects of institutional reputation on customer attitudes and behaviour are considered to be significant risk, as making a mistake when choosing service providers may have a higher potential negative impact because consumers rely on the reputation (Walsh, Bartikowski, & Beatty, 2014).

Therefore, financial institutions care about their customers' satisfaction and expectations that the organisation cannot meet. Trust in online banking institutions and trust in the system (related to security systems) are crucial in encouraging an individual to adopt online banking (Sathiyavany & Shivany, 2018). In the banking context, institutional reputation depends on a few dimensions: products and services, corporate branding, reliability, ICT infrastructure, compliance and financial strength, and corporate social responsibility (Ruiz et al., 2016). Trust and satisfaction are the most crucial antecedents of institutional reputation in the banking sector.

Furthermore, a positive corporate reputation is considered to be a bank's protector during an ongoing financial crisis. Still, no study has explained whether bank reputation affects customers positively even after a financial crisis. The present study thus investigates the effectiveness of trust, including ST, rather than an organisation's sole belief. It considers the physical, technical, acceptability, and continuous barriers that affect online banking adoption among current and potential users (Alhabash et al., 2015; Pennanen, 2011). Institutional trustworthiness is built on consumers' e-trust in the banking system. Indeed, clients' trust in physical banking can shift into online banking, thereby impacting their adoption of online banking services.

The evaluations of services are institutional reputation mechanisms that build the institutional e-trust to accept online banking services. Pennanen (2011) argues that users may test a vendor's benefits before making any transactions online or test technological solutions before any actual usage. For example, customers believe that a financial institution follows a professional code of conduct (integrity), listens to genuine customer concerns, and values commitment (benevolence). Moreover, institutional trust can be established by assuring the appropriate interpersonal structure to enable a successful online transaction. Therefore, ST arises from a wide range of institutional reputations and can impact perceived trust. Financial institutions are enabling new online services and systems that motivate users to shift from conventional banking to new online banking channels. Thus, consumer participation is required to assess the eligibility, benevolence, and integrity of online services' institutional aspects (institutional reliability) (interpersonal credibility; Pennanen, 2011).

### **2.4.3 Structural assurance**

Structural assurance is the primary ST factor that helps users to trust an online banking platform. The quality of information and the quality of the system significantly affect the usability of online services (Yuan, Liu, Su, & Zhang, 2020). This trust can be created through guarantees, confirmations, and interest in significant articles and administrations (Zhou, 2011). Users' expect the bank authority to keep their personal information secure and protected. Therefore, initial ST impacts perceived usefulness, and those factors predict consumers' usage intention regarding the new-technology banking system. In the banking context,

initial trust is determined based on organisational structural assurance and trust propensity.

In particular, “structural assurance belief will be more influential in the initial relationship that it will later because information about the other person is incomplete information when the relationship quite salient” (McKnight et al., 1998, p. 479).

Structural assurance means that there are legal and technical structures to ensure payment security. Online banking platforms are built to enable banking services, and users can utilise them through a mobile network. Therefore, a hacker can attack and disrupt the online banking system. In addition, a mobile terminal may contain viruses and Trojan horses. These issues concern the security of users’ accounts and payments. Structural assurance as an institution-based trust mechanism has been found to affect the initial trust of users (McCole, Ramsey, Kincaid, Fang & Huifang, 2019). In the absence of direct experience, users might trust this structural assurance to increase their reliance on mobile or online banking. According to Alhabash et al. (2015), in the trust transfer process, users transfer their trust to third-party mobile banking networks or internet networks.

This information technology application appeals to financial institutions because it aids in systematic service delivery, reduces labour and service expenses, extends services, and reaches inaccessible consumers through modern technology. For example, a part of the theory behind insight-based belief relies on structural assurance and commitment.

#### **2.4.4 Institutional trust**

Institutional trust involves upholding the norms of exchange trust; it impacts institutional trust in terms of online exchanges such as those on Twitter, Facebook, eBay, Amazon, Airbnb, and Uber (Martin, 2019). McKnight et al. (1998) argued that the customer relationship impacts institutional trust and interpersonal trust, which leads to customers’ perceived credibility of institutions. Institutional controls are necessary for a consumer to trust an institution and hence for a successful transaction that reflects ST. Moreover, the institutional structure emphasises fundamental factors, but customers are more concerned with institutional structures and systems (McKnight et al., 1998). Therefore, institutional factors broadly help to

enhance trust, reduce risks, and sustain trust behaviour. Institutional-based trust encompasses a commitment that builds individuals' trust in industries.

The present study focuses on overall ST and institutional factors in users' engagement with online transacting. Bultum (2014) stated that a commitment to online banking positively mediated customers' satisfaction with online services. The consequences of this movement are vital for the implementation of online banking, as the trust factor influences the pace and nature of the development of online banking. Furthermore, online banking has long been in operation but has not yet become widespread as a feature of the standard administration process associated with money. There are many dimensions of trustworthiness in banking, such as values, beliefs, or identity; aligned interests; benevolent intentions; predictability and integrity; and credibility, benevolence, and integrity (Järvinen, 2014; McKnight et al., 1998; Mou, Shin, & Cohen, 2017).

Institutional trust can be developed by ensuring that there are appropriate impersonal structures to enable a successful transaction (McKnight et al., 1998; Spadaro, Gangl, van Prooijen, van Lange, & Mosso, 2020). If so, the situation seems normal to the trading party and strengthens their trust in the system. ST therefore derives from a broader stream of institutional trust, the only direct mechanism that may influence perceived trust. The banks keep the promise of their consumers' expectations as the word or written statement that is called credibility. As a result, institutional and ST affect online banking adoption and intentions to use online banking systems. Despite this, studies focus on the concept of trust, including ST, and illustrate aspects of confidence concerning institutional trust and security systems.

#### **2.4.5 Privacy and confidentiality**

In general, privacy refers to the protection of personal information. To be precise, Zhang et al. (2017) define privacy as a person's right to keep their data secure. The authors identify several dimensions, such as privacy, behaviour, communication, and personal information. In past research, security and privacy were considered two important prerequisites for online trust (Zaabi & Tubaishat, 2015). There are also several perceptions of consumers' privacy risk and policy that influence privacy concerns, trust, and self-disclosure behaviour (Mutimukwe, Kolkowska, & Grönlund,

2020). Organisational privacy refers to beliefs and practices of non-disclosure, and the implementation of privacy policies affects strategies, reflecting how effective they are in protecting personal information (Normalini & Ramayah, 2017). For example, negative user perceptions challenge a financial institution's reputation and affect service delivery processes, which in turn affect users' trust and interest in disclosing personal information. As mentioned earlier, trust in online banking pertains to several parts of the data structure, including technical security, unshakeable quality, data quality, and online connections (Kang, Dabbish, Fruchter, & Kiesler, 2015). In the context of data protection, the data is in the other party's hands; that person must exercise sufficient control of the data and its use. Data privacy refers to individuals' claims that personal data information should not be generally available to other persons or entities. In a banking context, website security and privacy, usability, and reputation directly affect consumers' trust in a financial services website.

When discussing online trade, trust can be divided into two categories: trust in technology and trust in individuals. Trust is an idea that encompasses an assortment of compounds and the pooling of a variety of items. As a result, trust (distrust) is related to individuals, institutions, governments, data and technologies.

Consumers send personal data to different places, including social media platforms and several e-commerce sites, with or without concern, which might have a massive impact on their daily activities. Furthermore, personal data should be safe as part of innovation and business development for new product and service opportunities in a banking context. Therefore, consumers face significant uncertainty when transacting through internet channels. Therefore, confidentiality is necessary to protect personal data through important actions, such as blocking records and authorising reports (Martins et al., 2014). The minimum technical data requirements underlying the work should be determined and clearly distinguished from the business drivers. In addition, new technologies' growing potential for data processing and privacy has created an increasingly important issue.

Finally, it has been observed that trust is an essential mediating factor in developing relationship commitment in the online banking context. Furthermore, consumer confidence is associated with the promise of a relationship between the user and the

financial institution. Therefore, data protection and handling must be in place to establish initial trust in the financial organisation.

## **2.5 Security and risk**

According to the Institute of Electrical and Electronics Engineers Symposium's report on security and privacy, Bonneau (2012) has revealed that 86% of users have an extremely weak password. Additionally, 61% of users are reusing a single password for multiple online accounts. According to an Insights report by Doffman (2019), cited from Forbes, more than 25% of malware attacks target banks, in addition to compromised credit cards (212%), credential leaks (129%), and malicious apps (102%), and this cybercrime hits banks and other financial industry more than any other sector. As a result, customers are unwilling to adopt online banking due to security and privacy issues. Perceived risk is defined as "the subjectively determined expectation of loss by an online bank user in contemplating a particular online transaction" (Lee, 2009, p. 131).

Mayer et al. (1995, p. 726) argue that "the perception of risk involves the trustor's belief about likelihoods of gains or losses outside of considerations that involve the relationship with the particular trustee."

According to the International Monetary Fund report by Kopp, Kaffenberger, and Jenkinson (2017), Bangladesh is one of the countries at highest cyber risk in the world (see Table 2.1). In the context of online banking acceptance, security and privacy are defined as 'a potential loss due to fraud or a hacker compromising the security of an online bank user' (Lee 2009, p. 130). Moreover, security perception influences consumers' trust in online banking services (Susanto, Chang, & Ha, 2016). In recent years, banking institutions have faced multi-channel cyberattacks, from sophisticated phishing schemes to malicious malware (Rossi et al., 2021). In addition, cybercrime is prevalent, for example cracking passwords, compromising websites, and sending emails to hack personal information. Recent studies have shown that security is a significant issue in the use of modern technologies, particularly in online banking (Chandio et al., 2017; Tan & Samsudin, 2018). With this in mind, establishing consumers' trust in conducting transactions using internet banking has become a significant challenge for banks (Saxena & Patel, 2017). Trust and security are closely related in the banking context. The most critical administrations are necessary to

ensure legitimate safety in the online banking context. Indeed, customers' perceptions play a decisive role in their subjective decision-making process to use online banking services. Consumers' perception of security issues is one of the characteristics of online banking ST. However, despite many organisations' provision of security on the internet, there is virtually no research devoted to specific factors that influence customers' perceptions of the security issues (Li, Pan Wang, Tryfonas, & Li, 2016). Table 2.1 lists recent cyberattacks on central banks.

**Recent cyber-attacks on central banks**

Institution	Year	Type of attack	Details
Federal Reserve Bank of Cleveland	2010	Data breach	Theft of 122,000 credit cards
Federal Reserve Bank of New York	2012	Data breach	Theft of proprietary software code worth USD 9.5 Million
Sveriges Riksbank	2012	Business Disruption	Distributed Denial of Service (DDoS) attack left the website offline for 5 hours
Banco Central del Ecuador	2013	Fraud	USD 13.3 Million stolen from the account of the city of Riobamba at the central bank
Federal Reserve Bank of Saint Louis	2013	Data breach	Publication of credentials of 4,000 US bank executives by Anonymous
Central Bank of Swaziland	2014	Fraud	Theft of USD 688,000
ECB	2014	Data breach	20,000 email addresses and contact information compromised
Norges Bank	2014	Business Disruption	DDoS attack on seven large financial institutions, resulting in suspended services during a day.
Central Bank of Azerbaijan	2015	Data breach	Theft of thousands of bank customers' information
Bangladesh Bank	2016	Fraud	The SWIFT credentials of the Bangladesh central bank were used to transfer USD 81 Million from its account at the FRBNY. Hackers tried to steal USD 951 Million.
Bank of Russia	2016	Fraud	21 Cyber-attacks aimed at stealing USD 50 Million from correspondent bank accounts at the central bank, resulted in a loss of USD 22 Million.
Bank of Italy	2017	Data Breach	Hack of email accounts of two former executives.

Source: ORX News

**Table 2. 1 Recent cyberattacks on central banks**

The enhanced perception of security has been shown to play a positive role in developing trust and relationships (Tan & Samsudin, 2018). Thus, gaps in the computers infrastructure can be inherently dangerous, and malicious meetings can abuse them. For instance, consumers might still use Windows 7, for which Microsoft no longer supports security patches. The most central issue of online security is a serious matter of online trust and relationships. Customers should be able to trust the framework for meaningful communication to progress fully. Therefore, online banking systems must develop messages that encourage customers to use and believe in them.

Furthermore, the components of ST are security certification, technology usefulness, privacy policies, guarantees, and legal and regulatory compliance, which enhance consumers' trust in and acceptance of online banking (Montazemi & Qahri-Saremi, 2015). However, insecurities surrounding these components have diminished consumers' adoption of online banking services, undermining their trust in the system's structures and policies. Therefore, this study presents a conceptual framework of ST between trust, customer satisfaction, relationships, technology, and security. The study examines trust relationships, security mechanisms, and multi-dimensional factors of customer satisfaction.

### **2.5.1 Authentication**

The online banking system needs a credible authentication process that will enable users to trust the system. Regarding the technical aspect, authentication is a process of virtual relationships between, for example, integrity, non-recognition, and confidentiality. Software integrity and internet protocol protection have been verified by various software and authentication technologies that are indicated as trustworthy authentication techniques (Luo, Li, Zhang, & Shim, 2010). However, the privacy and confidentiality of the information has remained the primary concern of organisations. Indeed, creating a trustworthy internet of things (IoT) requires high-security analysis and robust security policy frameworks. Therefore, data protection and confidentiality interests are significant in the context of online banking. The potential risks associated with the internet (the IoT) will likely reach new heights, as they include the complexities of interoperability, mashups and autonomous decision-making, security gaps, and potential vulnerabilities. In addition, trust may build based on different aspects and features of a reliable system. In this regard, data security is a challenging aspect that must ensure the security associated with the entire data set.

In addition, lower levels of IoT sensing technology have minimal computing power and cannot provide strong security protection. Here, privacy refers to a set of legal requirements, and it is an excellent practice regarding personal data handling in the online banking context. In contrast, security technology refers to guarantees that ensure that legal requirements and reasonable procedures meet privacy requirements adequately. In addition, the authenticity of confidential information is

protected through basic actions, such as blocking records and binders, using credit cards, authorising reports, and marking credit cards, among other monetary exchanges. Therefore, in the context of online banking, a robust technical authentication process increases the level of ST to consumers.

### **2.5.2 Efficiency**

Banks play an essential role in growing a country's economy. Efficiency and productivity lead the banking system to significant innovation, improved profitability, and greater security and accuracy while improving the country's economic outlook (Baten & Mat, 2015). In addition, customers probably examine banking performance, commitment, rules, and legislation in a banking context and common interests (Raija, 2014).

Furthermore, according to Agwu and Carter (2018), an established ICT infrastructure not only enhances the efficiency of markets, online banking performance, and usability but also contributes to empowerment. However, with the right branding, skilled personnel, and efficient technologies, a brand's superiority is guaranteed, drawing commitment from all stakeholders (Komulainen & Saraniemi, 2019). Commitment and brand recognition speak to the trust an organisation has amassed, reinforcing attitudinal and behavioural loyalty. Furthermore, the awareness that a bank's online service is reliable also fosters love and positive perception among customers due to enhanced trust.

Indeed, due to fierce competition, the performance valuation of financial institutions is particularly significant today. Moreover, financial institutions have undergone a considerable transformation over the past two decades. As a result, banks must cope with stress developing from both internal and external factors.

## **2.6 Information and communication**

Electronic communication technology has undergone significant changes in terms of communication and the establishment of relationships with customers. It includes all aspects of information and communication, as well as interactions with customers. However, one of the most commonly identified obstacles preventing the optimal use of and trust in electronic and online banking systems and services is the lack of

information and communication about the services offered and how clients can use them (Skvarciany & Jurevičienė 2018).

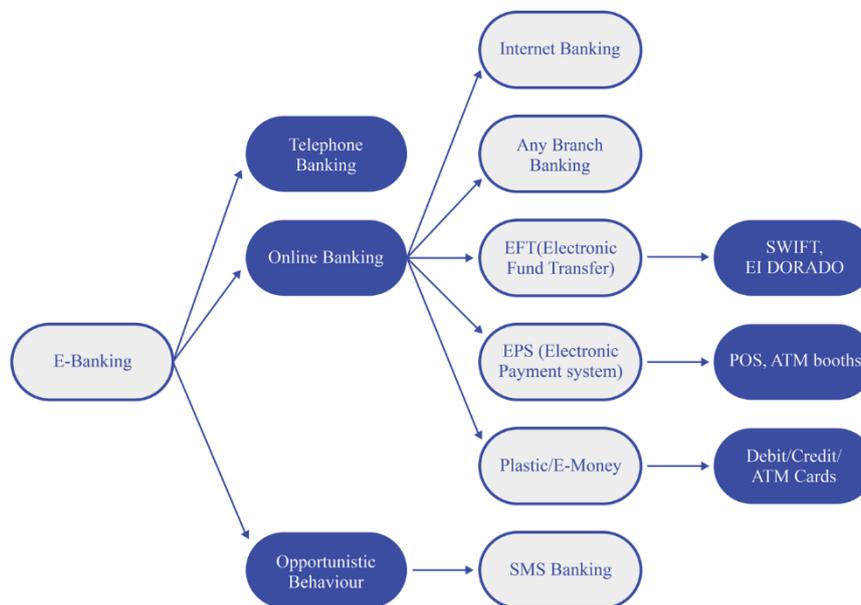
Consumers in Bangladesh, especially NRBs, have a wealth of information and easy access to communicate with financial institutions (Mawlawi, 2016). Therefore, insights into alternative measures to access clients while making the service equally accessible through numerous popular platforms, such as mobile banking apps, would increase adoption. The ample information would be beneficial, and real-time communication on matters pertaining to security advancements of privacy protocols alleviate tensions. Customers would hence perceive banks as prioritising them and recognising their needs and expectations. The resulting satisfaction and relationship building through constant communication would build trust between the banks and their consumers, therefore; Mohiuddin (2014, p. 1) argue that “The banking sector is based on sharing of information, which itself heavily relies on information and communication technology (ICT) in order to acquire, analyse and deliver data to all relevant users”, thereby encouraging the latter’s use of online platforms and services. The communication tools that satisfy consumers include websites with extensive information, internet and web interfaces, and mobile applications. In addition, consumers’ satisfaction impacts the establishment of effective relationships in the context of online banking. Thus, Arora and Sandhu (2018) argue that a mature information and communication system can significantly facilitate more efficient banking services.

The advancement of new technology and the availability of the internet has made it possible for consumers to carry out most remote banking operations without physical presence in a bank branch. Therefore, integrating online banking is becoming important to provide exceptionally interactive services to customers.

## **2.7 Online banking services offered by banks**

Financial organisations have transformed the nature of banking relationships by offering innovative banking services since the early 90s – globalisation measures ushered in an entirely new self-operating banking environment. Regarding making the tech financial innovation system more robust and effective, financial institutions have shown interest in technologies such as electronic funds transfer, interbank financial telecommunications, online and mobile banking, and cryptocurrency

(Wonglimpiyarat, 2014). Several electronic banking services (presented in Figure 2.10) are currently catching consumers' attention.



**Figure 2. 10 E-banking services (Mohiuddin, 2014, p. 17)**

Modern retail banks offer many convenient facilities, such as online deposits, bill payments, and money transfers, without the accountholder's physical presence at a local branch (Lenka & Barik, 2018). Customer engagements gain through the quality of services offered by financial institutions that is easy to use, friendly, attractive, and convenient. As a result, a bank can identify the experience of various services compared to consumer confidence building (Komulainen & Saraniemi, 2019). The growing trend of internet access and smartphones has changed the ultimate consumer choice to communicate digitally in sharing information, shopping, and transacting online (Kaygin, Topcuoglu, & Ozkes, 2019). Moreover, mobile banking creates new opportunities for non-bankers to participate and involves direct banking services.

## 2.8 Technology innovation

Over the past decade, there have been numerous advancements in technology, core amongst them being the development of the internet. The internet is one of the most dynamic innovation tools for individuals in the business and global economy. Moreover, globalisation, financial liberalisation, and the technology revolution have

opened new and more efficient distribution and processing channels and introduced more innovative products and services than ever before within the banking sector. The internet has had a significant impact on business and personal lifestyles. Using the internet and IT means users can obtain enhanced information according to their needs. The internet can connect not only computers but also individuals, families, communities, businesses, and nations through the growth of the web that has transformed lives over the past two decades (Winters, 2017).

It has consequently become imperative for banks to integrate technologies into their operation to satisfy their clients and to reinforce their competitiveness in the sector. Internet banking affects how customers receive banking services, which could also significantly alter the structure of the banking sector. Internet banking offers banking organisations another source of both opportunities and difficulties, thus further increasing competition in the global banking market.

Businesses currently operate on quality services offered at competitive prices to woo their clients. However, the introduction of online innovations and services has developed that erodes clients' trust in banking sectors and players. According to McNeish (2015), trust is one of the most pivotal conditions in any business, one that safeguards a business against economic and sector contractions and promotes consumer loyalty in a highly competitive industry such as banking. Trust caused by banks and clients' imminent exposure to new threats has made a significant number of clients in the Bangladeshi market reluctant to use online services (Siddik, Sun, Kabira, Shanmugan, & Yanjuan, 2016). There has also been a massive shift in e-commerce from traditional banking to digital banking. However, with this transformation comes new, unprecedented threats, such as cyberattacks, which clients feel potentially expose their investments to risk.

The lack of accountability from institutions is another essential obstacle to online banking that amplifies trust deficits. For example, technological advancements are lacking in Bangladesh, leaving many financial institutions exposed to cyberthreats (Siddik et al., 2016). More importantly, despite technological developments, the country is yet to support these innovations with intentional and strategic policies and laws, for example on data privacy and security. Many clients are thus wary that their data and information are not secure, which prevents them from trusting online banking

services. However, technological innovations can also help a firm gain insights into communication, consumer data privacy, and the security of client investments and transactions across online platforms.

There has been a recent surge in banking trends, with more institutions adopting technology in their day-to-day operations. As a result, the Bangladeshi banking industry has embraced information technology, which has permeated different facets of the industry, from communication improvements to data collection and analysis, service differentiation, and marketing innovation developments that improve consumer privacy and confidentiality (Mohiuddin, 2014). However, in the Bangladeshi banking sector, the significant gaps in technological infrastructure make the technology unavailable to a considerable number of people, and banks' neglect of customer expectations on security, integrity, transparency, and privacy are hurdles to the adoption of internet banking (Siddik et al., 2016). Moreover, contrary information depicting the sector as insecure or the staff as incompetent attests to failed satisfaction, which diminishes consumers' trust and hence their willingness to continue using the offered services.

## **2.9 Commitment and brand recognition**

In banking, loyalty to a brand is mainly dependent on consumers' trust. Skvarciany and Jurevičienė (2018) suggest that numerous factors build brand commitment and recognition, such as competence, integrity, goodwill, shared values, reputation, image, ease of use, perceived benefits, satisfaction with the system, and internal customer motivation. One key factor is the competence of the employees in dealing with and detecting fraud and addressing their customers' concerns on issues such as privacy. Another is the integrity of the system to do what it says it will do, delivering on all expected and perceived benefits. Finally, an institution's image and reputation are also significant factors determining consumers' trust in the institution to provide the shared values.

However, as the infrastructural shortcomings and other deficits, such as privacy and security, impact commitment, most brands have low customer adoption of their online banking services (Mawlawi, 2016). These factors effectively build a client's confidence

in a brand, and this confidence is a necessity for developing trust, which insulates firms against competition while maintaining a value-based relationship.

Although banks must improve their organisations to generate and retain customers' commitment to their services, that refers to decision-making where the businesses must know their client's values. First, banks forge a bond with consumers by enshrining practices that appeal to them, either ethically, legally, or socially (Damghanian et al., 2016). Second, the brand emphasises integrity, consumer satisfaction, transparency, goodwill, and competence.

## 2.10 Service quality

According to Parasuraman, Zeithaml, and Berry (1985), service quality is a function of consumers' general perception of a particular service firm, which compares the company's performance with customers' expectations of how companies should perform. Grönroos (1984) defines service quality as the outcome of the quality evaluation process, where the customer evaluates expectations with services' performance.

Parasuraman et al. (1988, p. 16) define service quality as "global judgment, or attitude, relating to the superiority of the service."

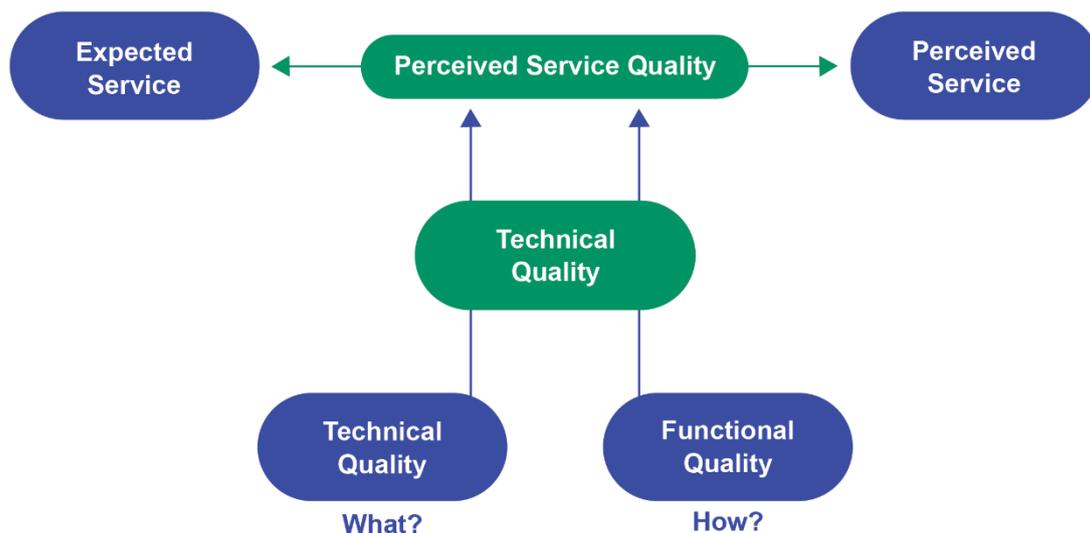


Figure 2. 11 Service quality model (Grönroos, 1984, p. 40)

Figure 2.11 presents the service quality model developed by Gronroos (1982). Service quality identified by Grönroos (1982): technical quality and functional quality, which are involved in customer service-related gains and expectations. Delivering excellent quality service is consistently meant to confirm satisfaction to consumers consistently.

Furthermore, Parasuraman et al. (1985, p. 42) define service quality as “a measure of how well the service level delivered matches customer expectations; delivering quality service means confirming to customer expectations on a consistent basis.”

Kandampully (2002) state that satisfaction can only be attained when one’s experience of something meets their expectation. In contrast, disconfirmation (either negative or positive) occurs when one’s experience of something fails to match their expectations. Satisfaction is consequently expressed as follows (Rust & Oliver, 2000):

$$\textbf{Satisfaction/dissatisfaction = Experience – Expectations}$$

Service quality is eroded when there is a difference between words (expectations) and actions (experiences) between banks and clients. Furthermore, this difference leads to an administrative and managerial gap in service quality.

According to Chu, Lee, and Chao (2012, p. 1272), “to ensure customer satisfaction, trust, and loyalty, the business must focus on service quality, and in an online banking context, e-service quality is the focus.”

In this regard, electronic media provides efficient and effective services (Firdous & Farooqi, 2019). Parasuraman et al. (2005, p. 231) state that there are “four dimensions of customer satisfaction in the context of e-service quality such as system availability, fulfilment, privacy, and efficiency.”

System functionality and quality are also significant for a business to be customer centric. Consumers’ empowerment increases their knowledge and awareness of services rendered via online banking, the bank’s security measures, value addition, and vital benefits that are non-existent in traditional banking (Komulainen & Saraniemi, 2019). Online banking service is the primary factor in building trust among customers, and it benefits consumers through time optimisation, instant connectivity, immediate information, interactivity, and convenience. In addition, technology-based banking services depend on specific service quality, such as responsiveness, competence, access, communications, privacy, security, website attributes, reliability, fulfilment,

efficiency, understanding, and knowledge about the customers (Chu et al., 2012; George & Kumar, 2014). Therefore; Zeithaml, Parauraman, and Malhotra (2002) argue that “e-service quality as the efficiency and effectiveness purchased by the customer of electronic services.”

Moreover, in online banking, the following service quality dimensions of customer satisfaction are necessary to build trust: reliability, responsiveness, assurance and security, accuracy, usefulness, speed, position advantages, and efficiency (Jun & Palacios, 2016; Sagib & Zapan, 2014).

This study focuses on online banking trust, including ST in existing and potential consumers, that enriches the aforementioned service quality dimensions. Primary sources of user satisfaction in online banking are as follows: mobile convenience, accuracy, user-friendly mobile apps, security, and a well-structured website (Jun & Palacios, 2016). There is also general confidence in the soundness of the financial basis for the exchange relationship between banks and service users. Furthermore, banks must have highly responsive and skilled employees who respond quickly and professionally to all customers' complaints.

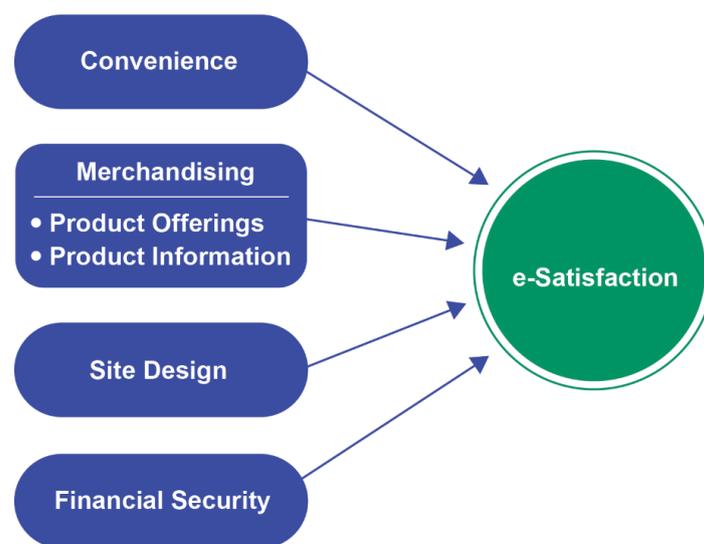
### **2.10.1 Electronic satisfaction**

Electronic satisfaction enables customers to depend on the reliability, integrity, usability, and trustworthiness of e-service providers, e-commerce, and banks (Mou et al., 2017). E-satisfaction occurs when clients' expectations are met, and they feel confident in the service. This type of satisfaction leads to opportunities, benefits, and value-added online banking offers.

According to Li et al. (2015, p. 589), e-satisfaction is “more related with attitudinal dimensions of e-loyalty and has been found to be the single most important factor determining the loyalty in both online and offline settings.”

E-satisfaction entails a customer's evaluation of the products or services and whether these have met their needs and expectations (Ahangar, 2011). It also refers to a customer's satisfaction with a given virtual service experience by the provider. Furthermore, e-satisfaction is described as a customer's contentment concerning prior usage experience with a given technology-based platform. Although definitions of satisfaction vary across industries, customer satisfaction would be an unimportant goal for a purely profit-oriented firm, and consumers' satisfaction is stronger within e-businesses and financial institutions than in any other service industry.

Several studies indicate that the effect of e-satisfaction on loyalty is more vital online than offline (Hasan, 2020; Sharma, 2017). In the banking context, e-satisfaction depends on several facts to fulfil a consumer's expectation, such as a well-performing website, features, user-friendliness, functionality, and a secure online platform. However, consumers also expect value from their relationship with a bank offering personal and business services, and this value enhances their confidence and trust. Figure 2.12 illustrates the dimensions of the e-satisfaction model.



**Figure 2. 12 An e-satisfaction model (Szymanski & Hise 2000, p. 311)**

The key dimensions of e-satisfaction, namely accessibility, retailing (product offering and information), site design, and financial security, affect customers' service experience and expectations. Several service quality dimensions, such as website, usability, functionality, and navigation, have confirmed the impact of e-satisfaction (Alshurideh et al., 2016; Hasan, 2020; Jeon & Jeong, 2017). Each service element of online channels offers businesses the opportunity to distinguish these dimensions for users.

Furthermore, trust can reduce uncertainty and lead to a satisfactory transaction experience between provider and beneficiary (Hasan, 2020). For example, consumers rely on apps, tablets, and PC-based service providers such as Azimo online money transfer and Monzo, which is a UK-operated online bank. In addition, the client

interacts with enthusiasm because they recognise accurate data. The operator's real-life experience also improves consumers' perceptions of service effectiveness and affects the anticipation of their initial expectations.

### **2.10.2 Electronic loyalty**

Oliver (2014, p. 432) defines customer loyalty as "a deeply held commitment to rebuy or patronise a preferred product or service in the future despite situational influences and marketing efforts having the potential to cause switching behaviour."

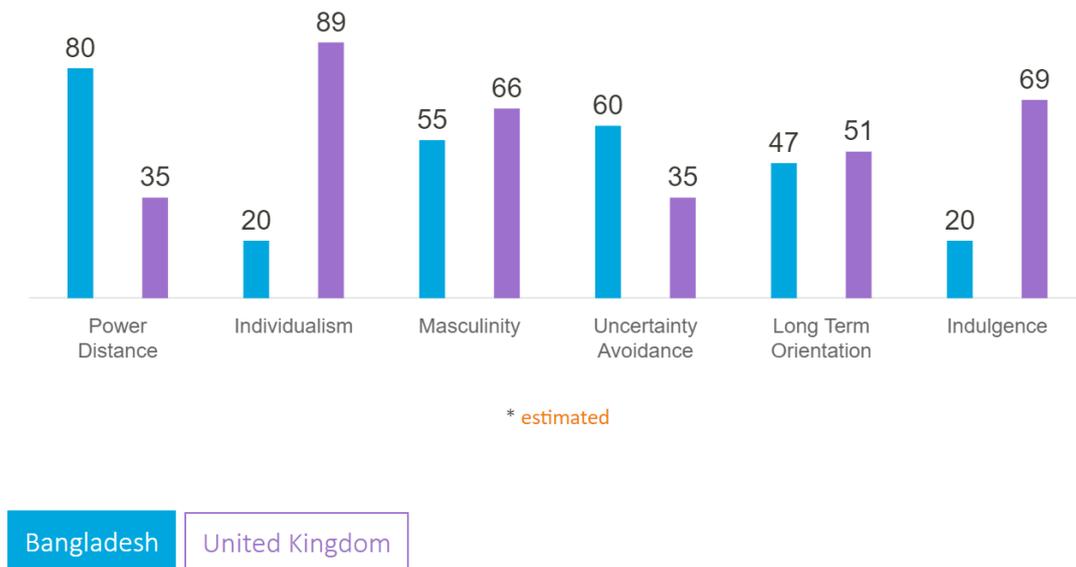
Therefore, various loyalty elements were recommended as critical elements for consumer loyalty and brand awareness. Customer loyalty has been widely studied; however, there are few discussions about consumer loyalty within the service industry because of standardised products and the difficulty of measuring service.

Furthermore, according to Anderson and Srinivasan (2003, p. 125), e-loyalty is defined as "the customer's favourable attitude toward an e-business resulting in repeat buying behaviour."

Similarly, Jeon and Jeong (2017) and Malhotra, Sahadev, and Purani (2017) claim that e-loyalty indicates customers' intention to visit and revisit a specific website and transact comfortably and securely. Moreover, the customer's loyalty shows an understanding of practices that involves an inspiration to maintain an exchange relationship with banks. (Chakravarty, Kumar, & Grewal, 2014). This suggests that a platform must meet the needs of both the bank and its users. In this thesis, reliability is characterised as clients' goal to return to online banking services based on their knowledge and wishes. In particular, since the competition is only a mouse click away, e-loyalty appears to be vital for online banks both in an economic and a competitive sense (Prameela, Azeem, & Devi, 2012).

Trust-based promotion is the way forward; therefore, trust must be placed at the centre of online banking procedures.

Figure 2.13 illustrates Hofstede's six dimensions in the Bangladesh and UK cultural context.



**Figure 2. 13 Hofstede six dimension (Bangladesh and UK)**

The culture in Bangladesh can be described as collectivist; people live ‘in groups, a family, extended family, or extended relationships that take care of them in exchange for trustworthiness (Hofstede insights, 2021), whereas the UK has an individualist culture. Trust involves a variety of factors between the online environment and human operations. Therefore, Chien, Sycara, Liu, and Kumru (2016, p. 841) argue that “trust is dynamic and influenced by both endogenous (personality or culture) and exogenous (system reliability or task complexity) variables.”

In individualist versus collectivist societies (Hallikainen & Laukkanen, 2018), the relationship between trust and customer behaviour intention differs. Shiu, Walsh, Hassan, and Parry (2015) and Hallikainen and Laukkanen (2018) found that a collectivist society has less trust in website information, but trust is generally higher in collectivist than in individualist cultures. According to the World Values Survey (2004–2014; Figure 1.1, Chapter 1 and section 1.1), interpersonal trust differs between countries; therefore, trust is different within the national cultures.

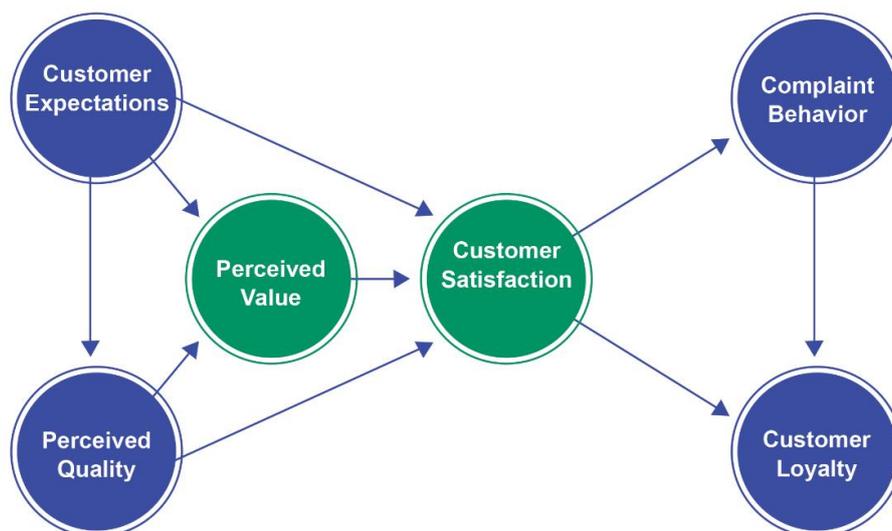
## 2.11 Customer satisfaction

According to Oliver (2014), satisfaction is defined as a psychological fact resulting when it implies the feelings surrounding the distorted expectations in conjunction with the customer's previous experience. Indeed, satisfaction may be best understood as an ongoing evaluation of the inherent in-service acquisition and user experience. Furthermore, satisfaction is positively related to loyalty, and this effect also occurs in an online environment. Customer satisfaction is considered when two concepts mediate that the customers will not commit if service quality is unsatisfactory.

Furthermore, Kotler and Keller (2014b, p. 128) state that "satisfaction is a person's feelings of pleasure or disappointment that result from comparing a product's perceived performance (or outcome) to expectations."

Lewis and Soureli (2006) define satisfaction as 'security that at first means that behaviour is guided from the goal of one person to another one and second it is based on the qualification of a business to keep its commitments'.

The confirmation/disconfirmation paradigm offer explicit connections between expectations and satisfaction, providing the baseline against which one's satisfaction from experience is assessed.



**Figure 2. 14 Customer satisfaction model (Fornell, Johnson, Anderson, Cha, & Bryant, 1996, p. 8)**

In recent years, users' satisfaction has become a significant element in the success of online information and e-commerce systems. Without satisfaction, there can be no loyalty or retention of clients (Lin et al., 2020). According to research by Damghanian et al. (2016), consumers generate expectations regarding a given service of goods before engaging with it. Online banking is critical in developing the perceived performance outcomes essential to a consumer's commitment and trust in an organisation. Businesses must also ensure that they provide value in their services, including thematic value such as security and privacy. NRBs already have experience from their host countries and satisfying to comprehend their complex and multi-faceted experience phenomenon that must be delivered in online banking services.

Customers could perform their tasks securely and with the utmost privacy of their data, without errors or incidents of fraud and cyberattacks on the institution. As a result, if ST is to be built, acceptance by customers and can be achieved only through satisfaction attained . This would increase satisfaction, trust, and ultimately adoption and loyalty.

The present study focuses on developing ST as the most important form of electronic satisfaction with online banking platforms. Customer satisfaction has become a crucial factor for businesses to compete with competitors and succeed in building trust among consumers (Zeglal et al., 2016; Zeithaml et al., 2002). However, consumer satisfaction depends on several constructs in technology-based services. In particular, efficiency is found to be an essential factor in e-satisfaction.

## **2.12 Relationships**

According to Grönroos (1999), relationship marketing is the process of identifying, establishing, maintaining, enhancing and, when necessary, terminating relationships with customers. Relationship marketing can be implemented where mutual exchange and commitment are fulfilled. In general, a relationship is a process of satisfaction and loyalty. Therefore, the relationship builds by customer expected service and loyalty.

Zolkiewski (2004, p. 26) argues that "relationships always exist between a service organization and its customers and that the critical factor is whether or not firms want to make use of these relationships in the way that they manage their customers."

Skvarciany and Jurevičienė (2018) argue that the relationship between banks and consumers regarding online services is flawed and lacking because clients are wary about the risk of using the internet. Therefore, relationship marketing is vital to help potential clients understand what the service quality attributes are; what the bank guarantees concerning security, privacy, and efficiency; and what regulations govern internet banking (Keskar & Pandey, 2018). Furthermore, consumers' lack of awareness and use of online services constitutes a significant gap that has undermined the building of ST, which is crucial for the adoption of a bank's services (Lin et al., 2020).

There is no official definition of relationship quality for a service-related business. However, the relationship is directly linked to a consumer's loyalty. Therefore, relationship marketing is conceptualised as a structure composed of several components, including satisfaction, trust, commitment, and overall quality. In previous studies, satisfaction is the most tested aspect of trust in relationship quality.

Relationship marketing is essential in these cases to build a communication channel such that customers can relate to the institution and technology in a context where the bank is engaged and provides clarity and in-depth insights into its core strengths and the weaknesses impeding the adoption of new technology. A lack of relationship marketing can cause irreversible problems.

Factors such as transparency, quality of service, reliability, integrity, ease of use, privacy, and security are crucial incentives within the loyalty model; they encourage the target user to trust and thus embrace a new technology (Skvarciany & Jurevičienė, 2018). These are essential factors relevant to customer relationships, and each factor is crucial in building consumer satisfaction, loyalty, and trust. Furthermore, the confidence gained through building relationships in marketing strategies is crucial for satisfaction, brand loyalty, and the commitment to promoting transactions despite sector uncertainties or volatility. Clients must trust banks to meet expectations, otherwise they will be hostile to online banking services.

### **2.12.1 Electronic relationships**

An e-relationship is considered the impact of e-satisfaction and online commitments towards e-services (Brun, Durif, & Ricard, 2014). Shankar et al., (2003) suggest that

establishing an e-relationship in a virtual environment is more complex and expensive than in the offline world. In the banking context, relationship marketing is considerably different from any other industry. Clients want to build trust by personalising long-term relationships with a bank (Madan, Agarwal, & Matta, 2015). Furthermore, banks must have an enhanced database with specific financial needs to focus on gaining clients' trust during long-term win-win relationships. Therefore, clients' satisfaction is related to economic, behavioural, emotional, and ethical filters and relationships and their real needs (Arcand et al., 2017; Madan et al., 2015). Indeed, relationship marketing has become a necessity in the banking sector. As a result, banks have increased efficiency and enhanced their services to be transparent through relationship marketing tools, for example ATMs, mobile banking, and internet banking.

Furthermore, a positive relationship between satisfaction and loyalty is demonstrated through the e-service quality scale to measure service quality. Creating and establishing a virtual relationship between institutions and clients requires an understanding of the online banking service experience journey. It is a process of relationship marketing activities that include attracting, developing, maintaining, and enhancing the customer relationships utilised in the online banking sector. In addition, relationships between consumers and service providers are built on past experiences, expectations, predictions, goals, and desires.

### **2.12.2 Knowledge**

In Bangladesh, internet use may be limited due to national infrastructural impediments; many banking users, especially NRBs, have mobile services. Consumer knowledge is pivotal, as it promotes consumer satisfaction and trust through transparency, reliability, integrity, goodwill, security, and convenience. Relationship marketing primarily focuses on building awareness through public education and training, demonstrating the benefits of this system, and encouraging adoption.

Moreover, lack the human resources and infrastructure to effectively engage, educate, and convince NRB consumers to trust their services. McNeish (2015) acknowledges a significant separation between banks and consumers, which increases perceived risks. Without insight and understanding of what online services are and how to use them, the majority of banks have lost potential clients who perceive their lack of knowledge as a risk to their investment.

## **2.13 Power**

In the business context, power is commonly defined as the ability to change the behaviour of others, such as convincing others to do things they would not otherwise do (Emerson 1962). Huang and Wilkinson (2006, p. 3) state that “power is directly related to the degree of dependence of other firms on it, which is reflected in its ability to influence the behaviour of others”. Power and trust have been widely studied in previous research, which has brought attention to the dynamic and development of trust (Dwyer et al., 1987; Morgan & Hunt, 1994). Agwu and Carter (2018) state that it is crucial for scholars and managers to understand trust development processes in the online business context because of the uncertainty and complexity of new business models.

## **2.14 Review of technology acceptance models**

Numerous technology acceptance models have addressed specific consumer behaviour, such as trust, acceptance, and modern technology usage. These models have been used for a long time to build ST to promote online banking. Various scholars acknowledge them as effective models for understanding users’ technology adoption behaviours.

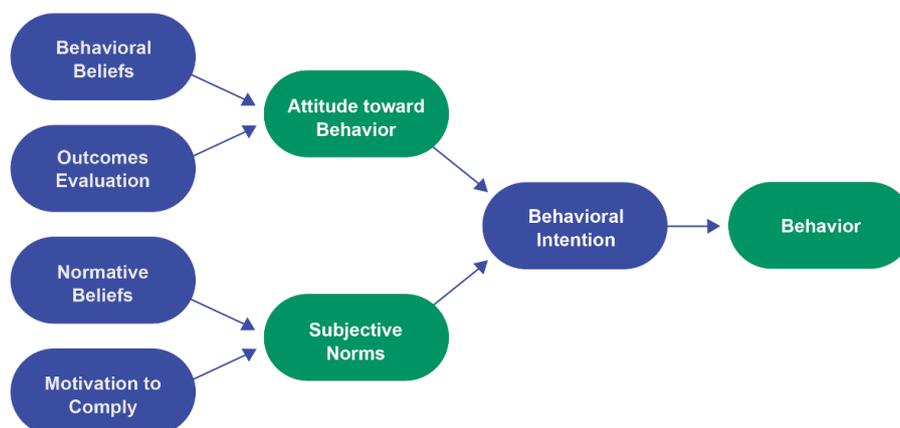
### **2.14.1 Theory of reasoned action (TRA)**

The theory of reasoned action (TRA) was first discovered in sociological and psychological research. However, in recent times, it has become the foundation for investigating the behaviour of individuals who use IT and computing. Based on analyses of the model, human behaviour is predicted and explained through three key cognitive factors: attitude, social norms, and intentions (Fishbein & Ajzen, 1975; Vallerand, Deshaies, Cuerrier, Pelletier, & Mongeau, 1992).

In the TRA model, attitude factors favour a person’s feeling about action, whereas social norms relate to the social influence (Ajzen, 1991). According to Rossmann (2019), the theory was established for guiding information systems. In terms of ST, the theory effectively deals with the adoption of new technological innovations within the context of modern innovation system studies. The acceptance and usage of information systems are vital in creating ST with the assistance of IT. Rossmann

(2020) found that in the IT literature, the theory is only used to identify users' behaviour and attitudes towards internet use, online purchases, computer use and online privacy, trust, and security. Furthermore, a study conducted by Hennessy (2012) explores the reasoned action theory's posit that behaviour intention is a function of two determinants: 1) one's attitude towards behaviour (personal factor) and 2) subjective norms, which are described as an individual's idea of social pressure. On the one hand, the scholar describes attitude as the outcome of a person's performance rather than personal performance in general. On the other hand, a subjective norm is described as a function of normative beliefs.

According to Ajzen and Madden (1986, p. 455), normative beliefs "are concerned with the likelihood that important referent individuals or groups would approve or disapprove of performing the behaviour."



**Figure 2. 15 Theory of reasoned action - TRA (Fishbein & Ajzen, 1975)**

The boundaries entailed in the theory have been identified for the testing and evaluation of the theory. According to Hennessy (2012), the theory's many limitations include stability over time, voluntary control, measurement of intention in terms of target, time, context, actions, and specificity.

According to Fishbein and Fishbein (1980, p. 41), the TRA suggests that 'most behaviours of social relevance are under volitional control and are thus predictable from intention'.

Moreover, voluntary use is an essential factor in obtaining the validity of the theory. In addition, according to Hennessy (2012), perceived behavioural control accounts for external factors that are out of a person's control and which may affect intentions and behaviours. This is based on the perspective that the theory is a general model and lacks specifications on the beliefs regarding a particular behaviour.

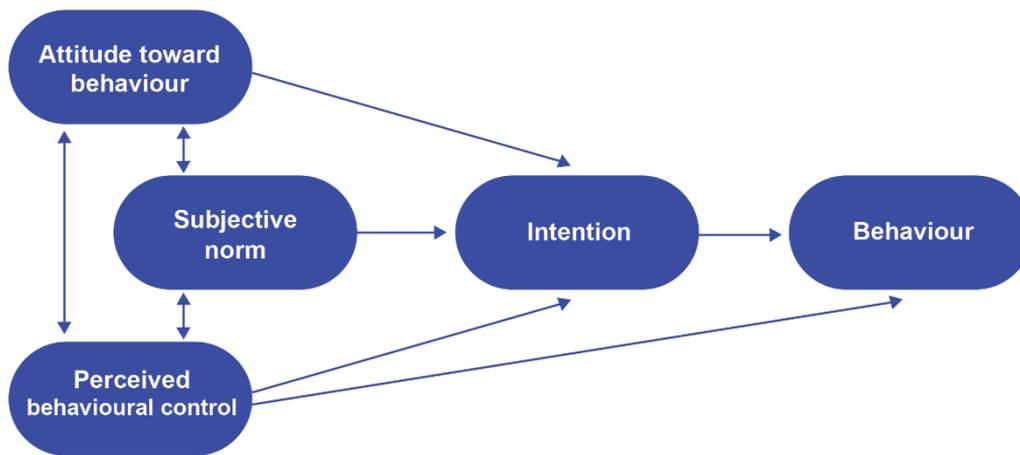
Furthermore, in the context of technology acceptance and usage, Otieno, Liyala, Odongo, and Abeka (2016, p. 4) state that 'The TRA has not extensively been utilized in evaluating studies such as technology adoption and diffusion in the field of Information Systems and ICT in general'.

Moreover, the theory has not been utilised in evaluating studies on, for example, technology adoption and diffusion in information systems and ICT. Therefore, the theory is considered to be a general framework, which explains a person's behaviour. Thus, the theory's concern is identifying the factors underlying the formation and change in behavioural intent.

#### **2.14.2 Theory of planned behaviour (TPB)**

The theory of planned behaviour (TPB) is an extended model of reasoned action that was purposely developed considering the model's unique limitations in addressing people's performances with imperfect volitional control. As a result, the TPB has become the most influential and popular conceptual framework for identifying human behaviour through its development (Fishbein & Ajzen, 1975).

This is acknowledged from the research by Armitage and Christian (2017), who found that both the TPB and the TRA are influential theories with useful intention models. Both theories have proven to be effective in predicting and explaining behaviour across a wide range of domains, including online banking from a management perspective.



**Figure 2. 16 Theory of planned behaviour -TPB (Ajzen, 1991)**

Three independent intention determinants are found in TPB theory: attitude towards behaviour, perceived behavioural control, and subjective norms. Ajzen (1991, p. 185) states, “The addition of perceived behavioural control should become increasingly useful as volitional control over behaviour decreases”. According to Armitage and Christian (2017), perceived behavioural control pertains to a person’s opinion on the ease or difficulty of performing specific actions. It references past experiences as a predictor of challenges and obstacles. In situations where people have incomplete control over their behaviour, the perceived behavioural control construct is useful.

Aside from the advantages of the theory, it is also problematic in numerous contexts. One problem is that the theory assumes proximity between intention and behaviour. According to Sussman (2015), a person who engages in a causal link between perceived behavioural control and interventions decides to participate in the behaviour because they can achieve it. In addition to problems involved in the theory, new variables are introduced based on evidence of other components that add predictive power over the formally included measures in the TPB.

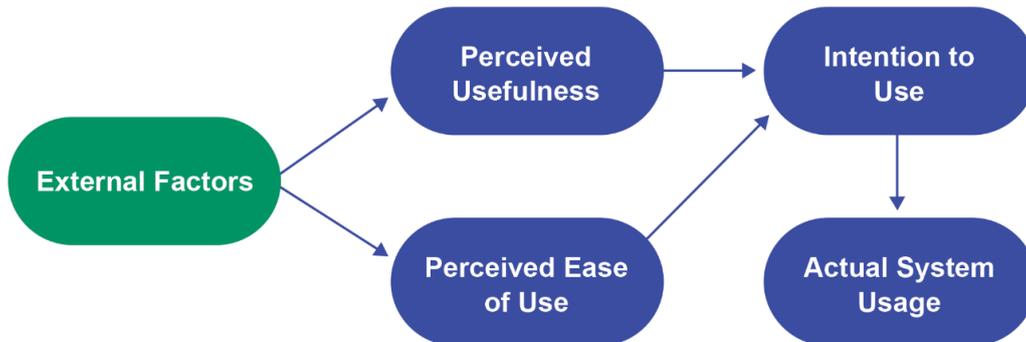
In studies of online banking acceptance, three variables have been added to the TPB model to address behavioural intentions: perceived trust, enjoyment, and self-efficacy. Perceived self-efficacy refers to “people’s beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives” (Bandura, 1991, p. 257). However, an important area of interest that has not been

tested in the research domain relates to the central question of whether the TRA and TPB can be universally applied.

### 2.14.3 Technology acceptance model (TAM)

Many studies have cited numerous technology acceptance model (TAM) theories. However, the research associated with general ICT in the field of information systems and the acceptance of new innovative technology has highly used the TAM model. The theory has received consideration and validation in many applications employed to recognise the end-user's purpose for using new technologies and systems (Venkatesh & Davis, 2000).

This is noted in Al-Emran and Shaalan's (2021) work where the authors explain the behaviour underlying the use of computing technology. Their study shows that the theory helps to define the general determinants of computer acceptance across a broad range of computing technology users and user populations. Figure 2.17 illustrates the TAM model.



**Figure 2. 17 Technology acceptance model -TAM (Davis, 1989)**

Two theoretical constructs, namely perceived usefulness and perceived ease of use are included in the theory to predict the fundamental determinants of the use of systems and the attitude to system usage based on the individuals. Davis (1989, p. 320) defines perceived usefulness as 'the degree to which a person believes that using a particular system would enhance his or her job performance', and perceived ease of use as 'the degree to which a person believes that using a particular system would be free of effort'.

In the study conducted by Al-Emran and Shaalan (2021), perceived usefulness, credibility, normative pressure, and ease of use are essential factors in explaining the acceptability of online banking channels. They found that perceived usefulness influences a person's attitude to using a new system in theory. Therefore, compared to other multi-attribute models, TAM can best explain one's attitude towards the use of information systems. Furthermore, Venkatesh and Davis (2000, p. 186) state that 'TAM consistently explains a substantial proportion of the variance in usage intentions and behaviour and that TAM compares favourably with alternative models such as the Theory of Reasoned Action and the Theory of Planned Behaviour'.

Subjective norms are also involved in behavioural control. However, based on the study conducted by Al-Emran and Shaalan (2021), the idea has no significant effect on intentions, but rather a substantial impact on behaviour intention. Moreover, the main factors that influence one's initial trust, which affects perceived usefulness, are structural assurance and the quality of information. Employing a trust-based TAM, both elements forecast one's choice to use online banking technology and online banking or mobile banking. In terms of ST in online banking in developing countries, there are several challenges in the early stages of introducing new technology, including limited fixed broadband access, perceptions of trust, perceived ease of use, perceived usefulness, consumer awareness, and perceived risk (Al-Emran & Shaalan, 2021).

## **2.15 Chapter summary**

Online banking represents a radical shift in the banking sector, and it significantly improves services, trust, and customer satisfaction (Maduku, 2014). Nevertheless, some obstacles have prevented widespread acceptance of these services, especially in Bangladesh. These obstacles include a lack of awareness and use of technological advancements (Siddik, Sun, Kabira, Shanmugan, & Yanjuan, 2016). More importantly, poor communication and the improper storage and use of information within the sector have obscured the benefits of online banking, as consumers face the potential loss of their data and money. Since internet banking is a new technology-based service, and many people are yet to experience its positives fully, more investment is needed to increase awareness and build robust relationships between financial institutions and customers.

Consumer mistrust (that is, banks' failure to meet consumers' expectations that the banks will not take improper advantage of their customer's dependence) has eroded commitment, satisfaction, brand power, and loyalty. As a result, the banking sector in Bangladesh has a negative reputation for being unreliable and inaccessible (Siddik et al., 2016). As such, banks must implement new measures to build ST, such as knowledge empowerment, usability promotion, functionally and aesthetically convenient use, security against risks, and an ethical focus on clients' privacy.

As global economies shift and the banking industry becomes more dynamic and invaluable due to the massive daily transactions from different corners of the world, ST can only be accomplished through reliability, awareness, and knowledge empowerment. In the absence of practical guarantees, consumers will not be assured that banks' services and systems are safe or trustworthy (McNeish, 2015).

## Chapter 3

### Research design and methodology

#### 3.0 Introduction

Chapter 4 will explain the research methodology and the data collection method in detail. The research methodology is designed to answer the research questions of this study. This chapter addresses Objective 2, Section 1.2, to explore and generate knowledge regarding online banking in Bangladesh.

**“Develop a rigorous methodological tool to explore barriers relating to Bangladeshi expatriate engagement with Bangladeshi banking systems, particularly its online features” [Chapter 3 – Research Methodology and Methods]**

Accordingly, the first section of Chapter 3 briefly discusses the research philosophy underpinning this DBA study. It also describes personal construct theory (PCT) using the repertory grids (RG) technique to collect and analyse data to explore the research aims and objectives. The core stages used to construct repertory grid interviews will then be explained in detail. Finally, this chapter will review the ethical issues considered for this study before concluding with its limitations.

This study takes a constructivist perspective, applying a qualitative research method empirically. This DBA thesis aims to discover and understand the factors that create system trust and has adopted theories such as “trust” and “system trust” in the Bangladeshi online banking sector. Qualitative research uses a naturalistic approach with details of, and insights into the ways that the individual participants experience the world. The qualitative study therefore is more meaningful and richer.

“Naturalistic inquiry is an approach to understanding the social world in which the researcher observes, describes, and interprets the experiences and action of

specific people and group in societal and cultural context” (Armstrong, 2010, p. 883).

Qualitative research emphasises detailed information about the execution and nuances of subjective understanding, motivating various participants, and understanding change over time (Erickson, 2012). Quantitative research is largely numerical in nature, containing specific, precise information, and is the mainstay of the research. The quantitative research approach focuses on calculating factors, numbers and measures, and thus, it is related to positivity (Creswell, 2003). Quantitative studies involve a large representative sample of the population. The aggregation and format of the collected data follows a streamlined methodology, the data is mainly numerical, and the data formats are well defined.

Although the prominent characteristics of qualitative research are its “empathic neutrality” (Patton, 1990, p. 55) and using a “human instrument” to collect data for interpretation by the researcher, Eisner (1991, p. 169) claims there is a “paucity of methodological prescriptions”, and indeed, such an investigation relies on the strength of the researcher rather than on standardisation. In this regard, qualitative researchers have eminent freedom to choose a suitable research approach, however, they need to justify their research design rigorously at every stage.

Lincoln and Guba (1985, p. 110) claimed that “the only generalisation is: there is no generalisation.” In this regard, the nature of truth assumption is not absolute truth, and qualitative inquiries are not generalisable. The purpose of qualitative enquiry is to develop idiographic knowledge (Krefting, 1991). This study is considered dependability, credibility, transferability, and confirmability (Guba, 1981; Schwandt, Lincoln, & Guba, 2007). According to Lincoln and Guba (1985) which includes the following typical steps:

1. Determine a focus for the enquiry. This should establish a boundary for the study and provide inclusion/exclusion criteria for new information. Boundaries, however, can be altered and typically are.
2. Determine the fit of the research paradigm to the research focus. The researcher must compare the characteristics of the qualitative paradigm with the goals of the research.

3. Determine where and from whom data will be collected.
4. Determine what the successive phases of the enquiry will be. Phase One, for example, might feature open-ended data collection, while successive phases will be more focused.
5. Determine additional instrumentation may be used beyond the researcher as the human instrument.
6. Plan data collection and recording modes. This must include how detailed and specific research questions will be and how faithfully data will be reproduced.
7. Plan which data analysis procedures will be used.
8. Plan the logistics of data collection, including scheduling and budgeting.
9. Plan the techniques that will be used to determine trustworthiness.

(Hoepfl, 1997, p. 51)

Hence, Patton (1990, p. 172) stated “This strategy aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant’s or program variation. For small samples, a great deal of heterogeneity can be a problem because individual cases are so different from each other”.

In this study, the concept of trust and system trust is justified based on psychology and Kelly’s personal construct theory (PCT), complicated constructs described in the literature review in Chapter Three. For example, Rousseau et al. (1998, p. 315) suggested that “Trust is a psychological state comprising the intention to accept vulnerability based on positive expectations of the intentions or behaviours of another”. In this regard, Lewis and Weigert (1985, p. 456) suggested “trust is conceptualised as a reciprocal orientation and interpretive assumption that is shared the social relationship itself as the object and is symbolised through intention action.” In the context of online banking, the antecedent of trust is benevolence, ability, integrity and good reputation (Folake, 2014).

Trust is seen as having emotional and cognitive dimensions as well as assuming social order; for example, family exchange, monetary attitudes, relationships, and litigation illustrates the centrality of trust as a sociological reality (Kleinig, 2018; Punyatoya, 2019). Personal construct theory (PCT) provides fundamental evidence for cognitive psychology, especially in understanding how the mind recognises and

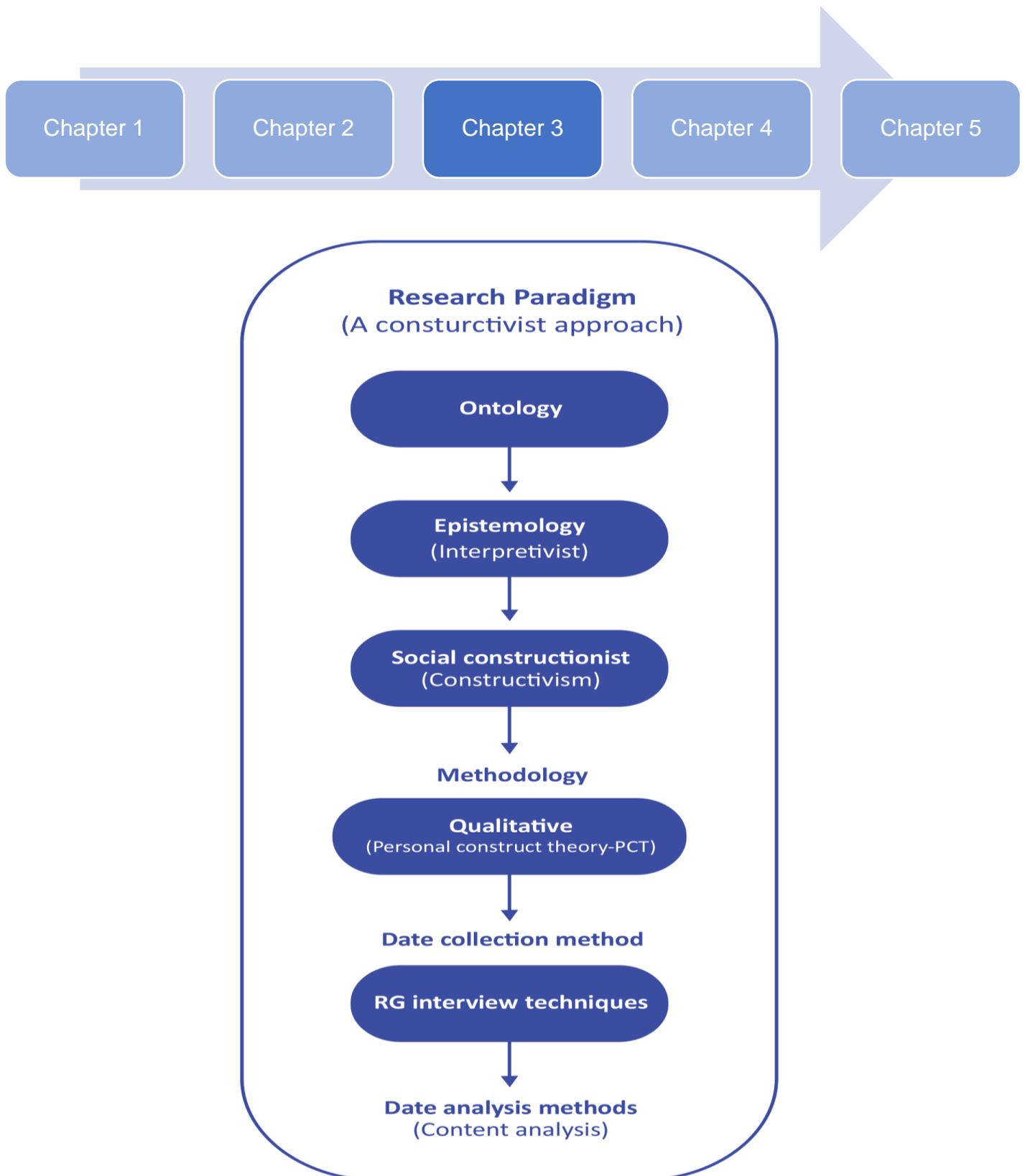
categorises phenomena according to experience and distinguishes them. In this context, Kelly (1955, p. 84) defines a personal construct as “a property attributed to several events by means of which they [the events] can be differentiated into homogeneous groups.”

Personal construct psychology (PCP) was initially developed in 1955 by Kelly (Kelly, 1955). Kelly's (1963) personal construct theory is that the world is 'perceived' by an individual in terms of whatever 'meaning' applies to specific phenomena; The way a person views the world is thus similar to something but compares it to something different from others. Personal construct psychology (PCP) has been discussed in detail (Section 3.2). The application of Kelly's PCP to the very meaning of things, including activities, is ultimately determined by the fact that it moves closer to the extent to which central idealist states, known as personal experience, expectations and satisfaction (Babin, James, Camp, Jones, & Parker, 2019).

Kelly's (1963) personal construct theory is used to explain how online consumers build their perceptions of online financial provider trustworthiness, particularly in regard to technology research on consumer trust, risk and insecurity in online banking. This study focuses on a specific social context with regard to system trust in online banking in Bangladesh, which is “increasingly shifting their customers toward an online interface” (Dean, 2017, p. 772). Although consumers have individual perceptions of the online banking system's trustworthiness, customers understand how financial institutions interpret online banking elements. Kelly's (1963) theory therefore focused on how individuals construct meaning from the world around them. Everyone creates their perception of the world by actively comparing and contrasting the different objects in that world.

The repertory grid interview technique was initially developed as a methodological tool in clinical psychology by Kelly (1955), based on PCT. Recently, however, the repertory grid technique (see Section 3.3) has been widely used in banking and technology research (Hedman, Tan, Holst, & Kjeldsen, 2017) regarding consumer perceptions and behaviour (Kawaf & Tagg, 2017). According to Hofstede (1984), cultural dimensions have been approached in the online banking sector through cross-domain constructs and distinct cultural value. Indeed, the repertory grid strategy provides a way to identify human constructs: personal meaning, which

combines personal attitudes, beliefs, and values (Odusanya, Winter, Nolte, & Shah, 2018), and a person can be thought of as a mental map developed for a particular subject. It is an open-end structured interview method that allows participants to raise the most relevant system trust issues and attributes from financial institutions (Hedman et al., 2017).



**Figure 3. 1 Methodology designed adapted from Crotty (1998, p. 4)**

### **3.1 Methodological approach**

The research philosophy is related to the contemporary nature of knowledge and practice relevant to the study. It is based on significant assumptions from the researcher's point of view.

The representation of data will be separated from the interpretation of its meanings. The truth is to be found by following general rules of method, primarily independent of the content and context of the investigation (Patton, 2014). In practice, the participatory research approach is considered to offer deeper insights into the context of the study.

Kelly's personal construct theory involves key characteristics of the underlying concept that individuals perceive events and anticipate future events through individualised systems of bipolar constructs (Kelly 1991). Kelly's PCT method is therefore a technique with which to conduct research and provide understanding. The research design of this study is based on the highlighted philosophical assumptions of strategic enquiry, detailed data collection, and analysis and writing. In this study, the PCT research methodology uses the repertory grid through grid-based technique, infrequently conducted with reference to the personal construct theory (Hardison & Neimeyer, 2012).

Although this study is focused on developing systems trust (ST) to promote online banking in Bangladesh, it acknowledges that there is a substantial administrative gap between banks and consumers; there are many vital enablers and barriers to building system trust. There is an interest in determining how users think about developing innovation and different processes (Hunter & Beck, 2000; Nelson, Nadkarni, Narayanan, & Ghods, 2000; Otieno et al., 2016). Using personal construct theory creates an internally coherent theoretical basis for the study of cognition on the "cutting edge of psychological constructivism" within this research (Chiari, 2016). It thus remains crucial to adopt a methodology that reflects the purpose of this study and the considerations of the specific situation.

The methodological research approach is based on philosophical assumptions that determine which method best suits the study. The philosophical paradigm of constructivism involves qualitative research because the paradigm seeks to

understand from participant experiences and to use different data collection tools (Adom, Yeboah, & Ankrah, 2016). Researchers construct meanings from the events through the participants' individual experiences in the study. According to Myers (2019, p. 45) "interpretive researchers assume that access to reality (given or socially constructed) is only through social constructions such as language, consciousness, shared meanings, and instruments".

The researcher accepts the social constructionist view that fundamental differences between the nature of knowledge and reality. The truth can be found in the enquiry of the context by the following general principle of methodological approach "interpretivism advocates that the researchers must understand the differences between humans as social actors and the key issue of human agency" (Thornhill et al., 2009, p. 115). Interpretative focus on the conceptions of social actors and implies that understanding builds on the experience of those who work in the organisation. However, the reality can be independent of the researcher as a descriptive study eliminates the notion. Therefore, researchers can bring own beliefs and value into the research which can impact of their interpretation.

Table 3.1 shows fundamental differences between positivist and interpretive epistemological assumptions illustrated by Bernstein (2011).

Differences between positivist and interpretive epistemological assumptions	
Assumptions of Interpretivism	Assumptions of Positivism
Since data is determined in light of theoretical explanation, it cannot be separated from theory, and facts must be reconstructed in the light of interpretation.	Experience is taken as objective, testable and independent of theoretical interpretation
In human science, theories themselves are imitative reconstructions of truth, and the criterion for a good theory is understanding meaning and purpose rather than deductive interpretation.	Theories are considered artificial constructs or models that explain the logic of hypothetical deduction (if T is true, phenomenon X follows).
“The generalizations derived from experiences depend upon the researcher's methods and interactions with the subject of study. The validity of generalisations does not depend upon statistical inference but on the plausibility and cogency of the logical reasoning used in describing the results from the cases and drawing conclusions from them”(Walsham, 1993, p. 15).	A generalisation (law like relationship) arises from experience, and the investigators are independent of their methods and the object of study.
Languages are uncommonly unequivocal (multiple, due to evolving meanings and adapting to constantly changing situations).	The language of science can be exact formulaic and literal

<p>Meaning in human science consists of documents, intentional behaviours, social rules, human artefacts, and these are inseparable from the meaning of agents.</p>	<p>Meaning is separate from facts</p>
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**Table 3. 1 Adopted differences between positivist and interpretive epistemological assumptions (Bernstein, 2011; Myers, 2019)**

In this position, the qualitative study enables participants to listen and rely on their voices and interpretations of this reality (Creswell, 1994).

### 3.1.1 Ontology

Ontology refers to a philosophical discipline which deals with the nature and structure of “reality”. Bunge (1977) argued that ontology was the ‘furniture of the world’—a method with which the world can be orderly organised. This is consistent with Kelly’s construal system organisation corollary, which is (see section 3.2- table 3.3): “we organise our personal constructs in a hierarchical system, with some constructs in a superordinate position and others subordinate to them. This organisation allows us to minimise constructs.”

Although Crotty (1998, p. 10) claims that "things in the world existing independently of our consciousness does not imply that meaning exists independently of consciousness".

Ontology refers to what genuinely and non-redundantly exists in social phenomena as a social reality. Social reality is a discursive product, constructing and maintaining an understanding in everyday conversations (Stokowski, 2002), and which influences its members. By taking a phenomenological stance, this research can potentially dig deeper to explore the accepted assumptions of the social world versus the natural world. Heidegger (2008) stated that ontology is 'hermeneutics of facticity'—interpreting the real world. Ontological realism that realities exist outside the mind, Lincoln and Guba (1994, p. 108) claims that "real" reality is assumed, "how things really are" and "How things really work" regarding the construction of meaningful reality.

Ontology is a broad field that is divided into two distinct perspectives: objectivism and subjectivism (constructivism). In objectivism, “people are separated from the world because the environment is considered to consist of distinct objects that exist independently from human agency” (Huizing, 2007 p. 102). This means that it exists independently of the individuals who created them or observed them. The nature of reality is thus seen as a complex association of functional relationships between events that can be described as relationships between variables and causes of human behaviour as external to the individual (Freeman & Cameron, 2008). On the other hand, in subjectivism, “people are part of the world, immersed as they are in mutually constitutive social practices. Objects and subjects dynamically interact and make each other possible” (Huizing, 2007 p. 102). This means that understanding and truth come from ongoing interaction with individuals.

The economist Nobel Prize winner in 1993, Douglass (1990, p. 3), believed that; “Institutions are the rules of the game of society or, more formally, the humanly devised constraints that shape human interactions. They are a guide to human interaction so that when we wish to greet friends on the street, drive an automobile, buy oranges, borrow money, form a business, bury our dead, or whatever we know (or can learn easily) how to perform these tasks”.

The ontological relativism stance suggests that “a discoverable reality exists independently of the researcher” (Pring, 2000a, p. 59). Crotty (1998, p. 8) explains:

“A tree in the forest is a tree, regardless of whether anyone is aware of whether anyone is aware of its existence or not. As an object of that kind, it carries the intrinsic meaning of treeness. When human beings recognise it as a tree, they are simply discovering a meaning that has been lying in wait for them all along.”

Gruber (1993, p. 199) stated that “an ontology is a formal, explicit specification of a shared conceptualisation”, which is expressed in the shared view between several parties rather than an individual.

A conceptualisation is a simplified world view committed to explicitly or implicitly a knowledge-based system or every knowledge base. Genesereth and Nilsson (1987) therefore claimed that “a body of formally represented knowledge is based on a

conceptualisation: the objects, concepts, and other entities that are assumed to exist in some area of interest and the relationships that hold among them”.

Although ontology concerns the form and nature of reality, and therefore what we know about it and how we know this, these questions discuss matters of aesthetic and moral significance, and valid scientific investigation. Ontology is related to the nature of social phenomena because it's a branch of philosophy. Ontology is the reality that a researcher wants to study, whereas epistemology is reality (Erickson, 2012). Realities can be understood in diverse, intangible psychological constructions, socially, locally and specifically. The fundamental issue is whether natural and social sciences should share the same methods (Bryman, 2003). According to Thornhill et al. (2009) the answer to that question points the way to the acceptability of knowledge developed from the research process.

This study adopts ontology realist theory and constructivist epistemology to explore the lack of trust in both the virtual banking system and the relationship between financial institutions and consumers. The chief aim of the research is to evaluate the essence of bank and customer value creation. The study highlights the underrating of the social factors associated with online banking; therefore, it explores the factors that interfere with the social construction of ontology. Objectivism assumes that knowledge cannot be obtained unless there is physical contact or someone is exposed to an item.

### **3.1.2 Epistemology**

In social research, epistemology refers to the nature of knowledge, which provides a philosophical foundation for the methodology (Crotty, 1998). Maynard (1994, p. 10) argued that “epistemology is concerned with providing a philosophical grounding for deciding what kinds of knowledge are possible and how we can ensure that they are both adequate and legitimate.”

“The aim of knowledge in a social world is to articulate a more systematic and wide-ranging conception of social epistemology, a conception that forges links with both empirical and policy-oriented disciplines that study the place of knowledge in society” (Goldman, 2002, p. 1).

Epistemology concerns the nature of relationships and limitations of knowledge in the area of study (Bryman & Bell, 2015; Erickson, 2012). Epistemology deals with “the nature of knowledge, it’s possibility, scope and general basis” (Hamlyn, 1995, p. 242). The epistemology of subjectivism is acknowledged as being dependent on social actors (Crotty, 1998); it is defined as the independent activities of the object. Individuals are exposed to knowledge from other actors who have experience within a particular social environment. In other words, meaning can express a world view, not separated from human values Elcheroth, Doise, and Reicher, (2011).; acknowledged knowledge is developed by understanding the social reality (Cunliffe, 2008). On the other hand, ‘objective’ meaning assumes that knowledge is independent of social actors, suggesting individuals only discover knowledge when they are physically exposed to the social and physical environment (Crotty, 1998). Objectivism is defined as the fact that things exist independently of consciousness and experience as meaningful entities with meaning in truths and objects.

Constructivism is based on human experience and understanding; truth and knowledge are subjective, and culturally and traditionally established (Ryan, 2018). According to Clark (2018), constructivism is an idea about research where knowledge is constructed based upon individual experiences. Constructivism is therefore based on the belief that researchers socially construct scientific knowledge through interactions with the researched (Lynch, 2016; Mumba, 2018; Pfadenhauer & Knoblauch, 2018). To support this view, Cohen, Manion, and Morrison (2002) stated that subjective methodology is not a precise scientific method, unlike the objective approach.

Epistemology refers to philosophical constructions by asking what kinds of knowledge is possible and how it can be made legitimate and adequate (Crotty, 1998). It is commonly argued that there is no absolute truth to be found, only truths that compete for understanding. Consequently, this research follows an interpretivist style approach, involving the knowledge that objects and situations are partners in the process of eliciting meaning. There is therefore no single truth to be discovered, only multiple realities constructed by people who co-construct sense and knowledge.

Constructivism's epistemological stance focuses on “how we know and, in essence, by inference, what meaning we place on this knowledge” (Kelly, Dowling, & Millar,

2018). The distinctions between constructivism and constructionism, Crotty (1998, p 58) constructivism is a "unique experience of each of us" while constructionism "emphasises the culture has on us: it shapes the way in which is quite different view of the world."

Raskin and Debany (2018) argued that "the experience of a shared discourse emerges from sociality and the establishment of an intersubjective reality" where "people are active meaning-makers"—and perhaps this is the fundamental attribute of "human nature." According to Halldorsdottir (2000), however, a constructivist approach is a way of revealing individuals' lived experiences in their context, as well as realising how each person perceives the world as unique to them, and that their perceptions are formed by previous experience and their interpretation of this experience. Constructivism concentrates on the constructs (rather than discoveries) created through individuals and societies; its followers often distinguish levels of scepticism about whether the individual has direct and accurate access to an external world. Neimeyer (1995, p. 3) supports this:

"Most ambitious theories, whether personal or scientific, forever denying us as human beings the security of justifying our beliefs, faiths, and ideologies by simple recourse to 'objective circumstances' outside ourselves."

According to Amineh, and Asl, (2015) social constructivism emphasises building knowledge based on culture and the context of understanding what happens in society. The social constructivist position seems to give the discourses all the constructive power, leaving an individual as a product rather than a human agent. Raskin and Dabani (2018) state that personal constructs psychologically create the notion of social constructionism as a free-standing entity that produces the shared meanings or "truths".

Von Glaserfeld, (1995, p. 137) stated that "there is no doubt that these subjective meanings get modified, honed, and adapted throughout their use in the course of social interactions. But this adaptation does not and cannot change the fact that the material an individual's meanings are composed of can be taken only from that individual's own subjective experiences."

Although Burr (2018, p. 376) argued that “the individual in social constructionism, and social constructionist thinkers have more recently felt the need to theorise human subjectivity within a social constructionist framework.”

Constructivist philosophy suggests that researchers discover knowledge through their spirit of experimentation and doing (Adom, Yeboah, & Ankrah, 2016). Charmaz (2006, p. 132) stated that “the constructivist view assumes an obdurate, yet ever-changing world but recognises diverse local worlds and multiple realities, and addresses how people’s actions affect their local and larger worlds.”

Epistemological constructivists believe in the existence of external reality because they are not pure idealists, and that it is independent of the observer. In this view, epistemological constructivism is the purpose of knowledge, which can be classified as more or less effective and more or less accurate. According to Bada, and Olusegun, (2015) the constructivism philosophical paradigm involves how people construct their knowledge and understanding of the world through experiences and reflecting those experiences. It is based on many constructs of what people learn through real-life experience (Neimeyer, 1995).

According to Patton (1990), researchers have been arguing how quantitative and qualitative evaluations relate to each other. For instance, qualitative studies apply a method for investigating events in a particular setting or context. In contrast, quantitative research represents a fundamentally different research paradigm, and the actions of researchers are based on the basic assumptions of each paradigm. To analyse and test hypotheses, quantitative research applies experimental methods and quantitative tools.

Qualitative research is broadly defined as “any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification” (Strauss & Corbin, 1990, p. 17).

“There is a kind of continuum that moves from the fictional that is “true” the novel for example—to the highly controlled and quantitatively described scientific experiment. Work at either end of this continuum has the capacity to inform significantly. Qualitative research and evaluation are located toward the fictive end of the continuum without being fictional in the narrow sense of the term” (Eisner, 1991, p. 3).

In the context of the technology-based study, Johnson (1995, p. 4) suggests that we “engage in research that probes for deeper understanding rather than examining surface features”. However, qualitative methodologies are potent tools for enhancing understanding of learning, and have gained increasing acceptance in recent years. Constructs are defined as “a way in which two or more things are alike and at the same time different from one or more things” (Kelly, 1955), whereas a social construct is a construction of reality, and a theory of knowledge in sociology.

Kelly argued that “constructs are used for predictions of things to come, and the world keeps on rolling on and revealing these predictions to be either correct or misleading. This fact provides the basis for the revision of constructs and, eventually, of whole construct systems” (Kelly, 1955, p. 14).

Although constructionism, the researcher needs to understand the differences between social roles as a human actor (Chambliss & Schutt, 2018). The constructivist position thus defines the subjectivity of the research and focuses on an essential factor in any study process. Constructionism is subordinate to subjectivism, in that reality is an individual perception, experiences and feelings (Ryan, 2018). Kelly has developed repertory grid techniques to minimise observer bias, as discussed below (Section 3.7).

Positivism refers to a manner of thought where a specific plan is developed prior to study. Kincheloe and Tobin (2015, p. 516) stated that positivism “is a form of empiricism, embraced verifiability, a premise that something is meaningful if and only if it is verifiable empirically.” This idea is commonly applied in the scientific and objective approaches (Gliner, Morgan, & Leech, 2017). Positivists also believe that the researcher and the world are separate (Bryman 2003), and that what we observe precisely reflects the world as it exists.

Although the positivist position is that knowledge exists independently of the researcher as “social facts”, it is seen as independent of the research object, and it does not influence the research object (Gilbert, 1992). Indeed, according to Easterby-Smith and Thorpe (1991, p. 24) “the job of social scientists should not be to gather facts and measure how often certain patterns occur, but to appreciate the different constructions and meanings that people place upon their experience. The focus should be on what people, individually and collectively are thinking and feeling, and

attention should be paid to the ways they communicate with each other, whether verbally or non-verbally.”

Epistemology is considered positivist if it regulates its conception of preferred knowledge to the extent that data is valid and accepted. In the sense of agnosticism about the real world, positivism has become infamous with the development of the natural sciences (Mackenzie, 2011). The social world is complex, and it cannot be investigated by applying a positivist method (Adom, Yeboah, & Ankrah, 2016). Instead, as Raskin (2002, p. 1) stated, "Constructivist psychologies theorise about and investigate how human beings create systems for meaningfully understanding their worlds and experiences." Social constructionism problematises the claim that what we call knowledge, current understandings of the nature of the world and its phenomena, is derived from objective, unbiased observation of events; what exists is what we perceive to exist (Burr, 2015). If theory corresponds with a researcher's views, then "observations of these facts that truthfulness is taken to be established. If it fails to correspond, it is discarded as fallacious" (Gill & Johnson, 2002, p. 139).

### **3.1.3 Theoretical underpinning**

Social reality is not a fixed or universally shared understanding of experience but how people focus on responsive dialogue and conversation (Cunliffe, 2008b). Shotter and Katz (1999) supported this position and argued that "social realities are relational and experienced in interaction and dialogue between people."

In developing system trust to promote a new technology-based banking system, the concept that it is not limited to the human social world but is part of a continuous process of experience and interpretation between the natural world and social world is established. Cunliffe (2008a, p. 48) argued that "technology is something that determines organisation structure and human actions": in other words the technological imperative and "use of old and new forms of technology continually emerge in the interaction and interpretations of people using the technology."

von Glaserfeld (1995, p. 137) stated that "there is no doubt that these subjective meanings get modified, honed, and adapted throughout their use in the course of social interactions. But this adaptation does not and cannot change the fact that the material an individual's meanings are composed of can be taken only from that

individual's own subjective experiences; social interaction allows for interpersonal communication but never permit an individual to escape from encased isolation knowledge."

In this contention, the key terms of philosophical enquiry are "reality" and "knowledge." In the sociology of knowledge, "the reality is socially constructed" (Berger & Luckmann, 1991, p. 13), where "reality" is defined as a quality appertaining to phenomena, and "knowledge" as the certainty of phenomena. The nature of reality assumptions is that there is no single reality; reality consists of interconnected parts and does not necessarily affect other parts of the enquiry.

Although "the sociology of knowledge has been concerned with the analysis of the social construction of reality" (Berger & Luckmann, 1991, p. 15), any sociology of knowledge today considers the background of technology infrastructure and innovation in what counts as "reality". This relates to the interplay of the natural world (science, technology) with the social world of human interactions,

Positivists might therefore argue that the "social world exists externally and that its properties should be measured through objective methods" (Easterby-Smith & Thorpe, 2002, p. 28), however, the researcher believes that the social world is created from repeating construals and negotiations between social actors. Although the construction of reality involves sense-making as a relational process, the social world "entirely consists of physical particles in fields of force" (Searle 1995, p. 7); and thus it is independent of individual behaviour and attitudes. The research design of this study focuses on theory building rather than theory testing based on the inductive approach.

Crotty (1998, p. 8) rejects this view that "there is no objective truth but waiting for us to discover it." Truth or meaning comes into existence in and out of engagement with the realities in the natural world. "Meaning is not discovered but constructed", and there is no meaning without mind. Guala and Hindriks (2015, p. 1) claimed that "the social world is populated by entities such as norms, conventions, customs, laws, organisations, groups, identities, and roles."

Indeed, human beings are part of the social world, and social reality is based on individual experience, the focus of social facts, organisational practices, and symbolic

products (Jun, 2012; Sandu, 2016), which exist due to the interactions and actions between others. Berger and Luckmann (1991, p. 104) argued that "the social reality is created and maintained in social interaction and conversation with others, rather than structures".

The central themes of social constructionism are that "social objects are not given in the world but constructed, negotiated, reformed, fashioned, and organised by human beings in their efforts to make sense of happenings in the world" (Sarbin & Kitsuse, 1994, p. 4).

Hosking and McNamee (2006) argued that social construction and relational practices do not constructionist premises and value differences. Social constructionism is based on the idea that social realities are not separate from us, but that social reality is intimately built into each other's shape and shaped in everyday interactions. Personal constructs theory, however, is a humanistic method of investigation that considers a person's role. For example, it sees that the individual can learn from their individual experiences and constructions of the world. Although relationship marketing widely studied in the marketing literature, it remains in infancy in the context of the online banking trust relationship (Aboobucker & Bao, 2018; Ramos, Ferreira, Freitas, & Rodrigues, 2018). Kim and Peterson (2017, p. 44) argued that online trust-related relationships and "its antecedents and consequences do not have simple or direct relationships; instead, direct or straightforward, that are moderated by other variables". In the banking context, relationship marketing is called relationship banking, where it is in the interest of the banks to establish and retain long-term bonds with customers (Ritter, 1993). Relationship banking is an even more significant challenge when it comes to online banking transactions by using a virtual medium (Chedrawi, Harb, & Saleh, 2019).

The central themes of social constructionism, "social objects are not given in the world but constructed, negotiated, reformed, fashioned, and organised by human beings in their efforts to make sense of happenings in the World" (Sarbin & Kitsuse, 1994, p. 4). Despite this lingered, Hosking & McNamee (2006) argued that social construction and relational practices do not keep with constructionist premises and value differences.

In this study, trust is one of the significant constructs investigated in relationship marketing as regards developing system trust in the adoption of new technology. The present study therefore employed the repertory grid interview technique with a qualitative method approach to identify the factors that affect developing system trust to promote online banking in Bangladesh.

### **3.1.4 Research methodology**

It is considered a necessary step for an investigation to determine an appropriate research methodology to find adequate solutions for any problem (Hoepfl, 1997). The research methodology design, like PCT, is a set of steps taken by the researcher to achieve their goal (Pike, 2018); its significant advantage lies in designing an appropriate methodology that provides a systematic plan which includes a set of decisions or applicable guidelines that lead to achieving reliable and accurate research results (Symon & Cassell, 2012). Johnson (1995, p. 4) stated that in the context of technology adoption, it is necessary to “engage in research that probes for deeper understanding rather than examining surface features” and that qualitative methodology has “gained increasing acceptance in recent years”.

The purpose of this study is to explore the underlying constructs (trust and system trust) in the context of the online banking sector in Bangladesh. The practical research methodology focuses on individuals and applies a constructivist approach. The qualitative research method focuses on perception, observation, characteristics, comprehensive description of the process, mechanisms, and symbols of images (Patton, 2015). A qualitative research approach has been combined with social constructionism. Qualitative research involves collecting, analysing, and interpreting data by observing what people do and say. Research evaluation means the collection, organisation and evaluation of data, and it is conducted to generalise and verify true knowledge about a specific topic. A research methodology is a systematic way to solve a research problem through various study methods.

A research design is defined as the overall plan of the study, and it's a general research framework adopted to guide the study, the philosophical thoughts behind the enquiry of the comprehensive data collection and analysis procedures (Creswell & Creswell, 2017). Social constructionist approaches have been used in this study via a

qualitative research method to achieve the highest level of investigation and understanding of the research problem (Lincoln & Guba, 1985). Qualitative research is meant to document social life in detail, and emphasises discovering the kinds of things that make a difference in social consciousness (Lune & Berg, 2017).

The qualitative data from “observations consist[s] of detailed descriptions of people activities, behaviours, actions, and a full range of interpersonal interactions and organisational processes that are observable human experience” (Patton, 2014, p. 14). Interpretivism argues that comprehension is enhanced by exploring people’s perspectives on the subject matter as implied within the social world. Qualitative data emphasises discovering meanings as a “participant-observer” who is part of the phenomena being explored (Patton, 2014). Social constructivism is associated with mutual interaction; however, procuring meaning from participants facilitates the revelation of truth and knowledge.

This DBA study focuses on the qualitative approach. A methodology has been developed to identify implicit theories and belief systems in qualitative social research methods. The examination procedure and techniques for eliciting knowledge differ mainly in the degree of standardisation. Qualitative approaches based on Kelly's PCT is considering as repertory grid methods to collect data and formal concept analysis for data analysis.

Constructivism is the process by which the observer makes reality. A social constructionist enquiry is primarily concerned with describing the functions that come to describe and explain people (Adom et al., 2016). Although social constructionism is an understanding of knowledge, people can construct it differently, even for the same phenomenon (Crotty, 1998). Social constructionism follows the interpretivist philosophy that in order for a researcher to understand the actions of social actors, they need to explore the subjective meaning of motivation. Social actors such as users or consumers may place many different interpretations on situations.

According to Gergen (1995, p. 24), “social constructionism seeks to replace the individualistic ideology of the traditional conceptions of knowledge with a communal concern”. Constructivist psychology did not develop as a single coherent and theoretically consistent orientation, and it involves a myriad of theoretical differences:

there is no consensus among constructivist psychologists (Morris & Fu, 2001). The constructivist theory explains individual beliefs and worldviews through individual "personal constructs" - cognitive dimensions formed by two opposite poles (Jankowicz, 2005). In this regard, Sexton (1997, p. 8) stated that "the perspective of the observer and the object of observation are inseparable; the nature of meaning is relative; phenomena are context-based; and the process of knowledge and understanding is social, inductive, hermeneutical, and qualitative"

While constructivism focuses on the fact that individuals and societies create constructions of reality (rather than discover), its adherents often demonstrate different levels of doubt about whether individuals have direct and accurate access to an external world. Social constructionism is therefore about social relationships; Gergen (1995, p. 25) stated that it is "centrally concerned with negotiation, cooperation, conflict, rhetoric, ritual, roles, social scenarios, and the like". Indeed, psychological explanations are problematic; a fully developed constructivism can provide material for understanding the process of science and may lead to the development of alternative criteria for evaluating psychological investigations. Gergen (1992) contends that there are many realities such as cultures, contexts, and ways of communicating. Social constructivism is applied both in clinical practice and in the study of psychology. According to Anderson (2012), social constructivism is applied in clinical practice; a client's description is understood as a result of social relationships and must be consistent with the expectations and demands of society.

### **3.1.5 Research methods**

Qualitative research methods have been employed in this exploratory study to critically identify the internal and external factors of system trust, and trust within online banking on consumers perspective (Cunliffe & Locke, 2016; Houjeir & Brennan, 2017). The method to this study takes into consideration those aspects indicated previously regarding the qualitative research methods.

"Qualitative researchers are typically far less concerned about objectivity as this term is understood within traditional research approach than with intersubjectivity", which is the "process by which humans share common

experiences and subscribe to shared understandings of reality" (Armstrong, 2010, p. 883).

Kelly's(1963) personal constructs psychology introduced repertory grids as a methodological application of broader theory, which posits that people make sense of their worlds by attributing constructs or descriptors to differentiate the experience. The repertory grids method has been applied to gain in-depth information from participants on a particular topic (Bryman & Bell, 2015; Jankowicz, 2005). A semi-structured interview is conducted as part of the repertory grid technique to observe the perceptions of the individual participants and elements to be compared (Holst et al., 2015). A repertory grid is "a form of structured interviewing, with ratings or without, which arrives at a precise description uncontaminated by the interviewer's own viewpoint" to minimise observer bias where the observer uses their subjective opinion (Jankowicz, 2005, p. 14). An individual may use the evidence to support a decision about similarity or difference in the context of developing trust and system trust in online banking.

Qualitative research looks to gain insights through opinions and words. This research draws upon a qualitative research methodology in line with the epistemology and theoretical perspective mentioned above. There are significant strengths associated with qualitative research. Firstly, it provides knowledge gained from a natural setting, observing participant meanings, especially when discussing complex issues (Ormston et al., 2014; Patton, 2014). The researcher is a critical instrument in facilitating the research and eliciting meaning.

Lincoln and Guba (1985, p. 290) suggests addressing trustworthiness using a qualitative research approach: "how can an inquirer persuade their audiences that the research findings of an enquiry are worth paying attention to?" In order to justify the trustworthiness of qualitative research work, (Strauss, & Corbin 1990, p. 250) believe that the "usual canons of 'good science' require redefinition to fit the realities of qualitative research."

Lincoln and Guba (1985, p. 300) have identified an alternative set of criteria that correspond to those typically employed to judge quantitative work (Table 3.2). There are some fundamental comparison criteria for evaluating quantitative versus qualitative research.

Quantitative terms	Qualitative terms
internal validity	credibility
external validity	transferability
reliability	dependability
objectivity	confirmability

**Table 3. 2 Quantitative versus qualitative research; adopted from Hoepfl (1997, p. 58)**

The qualitative approach to data collection and analysis is the strategy used for assessing the application of words. The quantitative approach explains social phenomena by giving meaning to the data and events, norms, actions, and values drawn from the research participants. Therefore, the qualitative approach helps enhance the researcher’s understanding of the study (Creswell & Creswell, 2017). Interviews and focus groups are examples of qualitative research methods which help with data interpretation and analysis. This study seeks a richness of data on a specific phenomenon, and the sample is conducted purposefully rather than randomly (Ezzy, 2002; Patton 2014). It therefore collects data from adults aged above eighteen (18) who are Bangladeshi citizens residing in the UK, consistent with Northumbria University ethical guidance.

The sample comprises twenty (20) individual Bangladeshi citizens, 50% males and 50% females, since trust, including the concept of system trust, may be different

between male and female groups in online banking. Schneider, Benetos, Pernin, and Emin (2009, p. 739) argued that "a sample of 15-25 persons should generate constructs that are representative of the universe of meaning". Although "there are no rules for sample size in qualitative inquiries" (Patton, 2014, p. 311), qualitative research usually relies on small numbers, intending to study an issue in-depth and detail.

According to Mason (2010, p. 139), in qualitative analysis, "sample size is a matter of intellectual judgement based on the logic of making meaningful comparisons developing and testing your explanations." The participants of this study are non-resident Bangladeshi (NRB) in the UK who have an active banking relationship in Bangladesh; small samples that are truly in-depth coverage of this study have provided the most significant breakthroughs. Qualitative sampling designs specify minimum samples (Patton, 2014) and is not concerned about issues of objectivity and generalisability.

Semi-structured interviews will be conducted with those who hold a bank account in Bangladesh, are non-resident Bangladeshi in the UK and are familiar with the UK banking system. Jankowicz (2005), described "exhaustion" in a study as when no new knowledge is being found through interviewing further participants. A researcher will typically use a combination of audio recordings, mobile recordings and handwritten notes to gather their data; and participant consent will be obtained prior to the interviews (Bryman & Bell, 2015). The advantages of qualitative research methods are being able to obtain an extensive range of data, access to in-depth information, elasticity, a richness and fullness of information, and being able to investigate data from different perspectives. Qualitative data is a combination of words and images that may have numerous meanings; careful clarification and exploration are essential.

On the other hand, the disadvantages of qualitative research include the long process of arranging the interviews, variation in the quality of the data, and its complexity and generalisability. Transcribing a recorded interview is an extremely time-consuming and challenging process. The one-to-one interview process is also expensive and lengthy, because the interviewer needs to travel to different locations to carry out the interviews (Bryman & Bell, 2015).

In summary, a methodological decision has been made and adopted within this study to address research questions. Crotty (1998, p. 3) argued that “the strategy, plan of action”, and research design plays a vital role in a study. The methodological choice was made within the research design by considering the nature of reality (ontology), knowledge (epistemology), theoretical underpinning and research approach.

### **3.2 Personal constructs psychology (PCP)**

Kelly's personal construct psychology is a "theory of human personality, a therapeutic approach and a research methodology" (Brown & Chiesa, 1990, p. 411) that aims to help individuals develop an understanding of their perception and experience (Bannister, Fransella, & Agnew, 1971).

Personal construct psychology provides "a framework that is simultaneously compassionate and accepting of alternative constructions of reality, and dispassionate in providing a set of methods for mapping and analysing interpersonal problems and group polarisations" (Procter & Procter, 2008, p. 353).

Kelly believed that the requirement to control reality propelled human activity. People acquire a feeling of control when they comprehend something that is happening to them and can predict from experience what is possibly going to take place in the future. Côté (1996) states that one of the fundamental and most inspiring requirements is the desire to anticipate occurrences and control the surrounding. In Kelly's (1955) theory, a person is an active investigator who continuously examines the immediate reality, witnesses and identifies patterns, creates hypotheses concerning the causality of events, develops ideas, and designs conclusions based on gained experience.

PCT is a principle based on Kelly's belief that individuals cannot and should not be “boxes” for others' values or belief systems (Kelly, 1963). Personal construct

psychology (Chiari, 2016 ; Kelly, 1963) claims that individuals use their constructs to explain and understand events around them, and an individual's personal experience erodes constructs. In this study, it makes sense of the world by developing system trust and trust in the phenomena of virtual banking; an individual's perceptions create a network of constructs. Kuhlthau (1983, p. 4) argues that "it is the individual formulation of a personal perspective or focuses from the information gathered to create something new, at least for oneself, that fits with the notion of construction".

PCP rejects efficacy and determinism as explanatory concepts of human behaviour, attitude and experience, and instead it involves constructive processes that give rise to individual experience, and has been specifically designed to appear like subjectivity (Burr, King, & Butt, 2014). PCP is a theory of individual and group psychological and social processes that takes a social constructivist position in modelling human knowledge and understanding (Kelly, 1963). The information technology system is a personalised performance of technology development and adoption that is made obsolete through increased choice and personal power (Simpson, Finnegan, & Stevens, 2013). In this study, PCT is used to explore individual user perception to make sense of the enablers and barriers to online banking experience, particularly regarding emotion, risk perception, security and situational elements. "Technoidentology" refers to a technology relationship identity , which is the study of "how and why: (1) People have relationships with technology, (2) relationships help an individual's personal and social identity, (3) identity helps relationships, (4) relationships tie in with both the cognitive and the social" (Simpson et al., 2013, p. 6).

In the technology work environment, individuals develop relationships with technology because these relationships are not recognised in the online relationship marketing literature (Steinhoff et al., 2019). Online relationships remain in vogue among consumers who "want to have a connection, a relationship, with the organisations they deal with" (Petty 2017, p. 1). Kelly's fundamental postulates argue "a person's processes are psychologically channelized by how [they] anticipates events" (Kelly 1991, p. 63), it seems to be evident that if two people are engaged in the same construction of experience, their psychological process would have to duplicate each other.

Venkatesh, Morris, Davis, and Davis (2003) has reported in the technology acceptance literature that an individual will adopt a technology if it is practical and useful and according to their perception, emotion and behaviour. This study applies psychology to understand beliefs and attitudes and how they influence users in adopting new technology. Each individual has unique prior perceptions, including technology experiences, which influence how they react to new technology services; these reactions may or may not be considered "rational" (Herz & Rauschnabel, 2019). According to Kelly (1963), the psychological similarities or differences between two parties rely on the makeup of their exposure and experience, among other external factors.

The PCP method is focused on specific and concrete objects and events (Bannister & Fransella, 2019). It uses a fundamentally different approach to accepting technology than conventional organisational computing. A crucial underlying assumption is that new innovative technology is seen as an activity for business performance with higher goals.

Benbasat and Barki (2007, p. 212) stated that perceived usefulness and perceived ease of use "have largely been treated as black boxes that very few have tried to pry open".

This national outlook on technology makes it challenging to explore emerging events that are deeply embedded in everyday life experiences. In the context of trust and system trust in online banking from a consumer point of view, it supports the description of how stakeholders and users think about an innovative phenomenon. According to Kelly's personal construct psychology, humans do not react to the past, as they anticipate and arrive at the future, and perceive the world, through anticipation, prediction and preparation. Personal construct psychology, an internal coherent theoretical foundation, is used to explore knowledge within information systems. Therefore, "a person is in business to understand their own nature and the nature of the world and to test that understanding in terms of how it guides them and enables them to see into the immediate and long-term future" (Bannister & Fransella 1986, p. 8).

Despite sociality, however, an individual acting according to PCP is often seen as closed, as personal meaning exists within the idiosyncratic web. The concepts of personal science and personal construct are closely linked to "constructive alternativism," the foundational philosophical proposition of PCP. "Constructive alternativism" postulates infinite possibilities for conceptualising events (Kelly, 1991). It allows for linking PCP with epistemological constructivism. Participants in the study use evidence in supporting or opposing the data. In awarding relevance and effectiveness of the data, researchers must apply evidence to back up the data, creating new sections (Dwivedi, Wade, & Schneberger, 2011).

The fundamental postulate of personal construct theory demonstrates the agency and autonomy central to the theory.

No	Kelly's Fundamental Postulate	"A person's processes are psychologically channelised by the ways in which [they] anticipates events."
1	Construction Corollary	"We anticipate future events according to our interpretation of recurrent themes."
2	Individuality Corollary	"People have different experiences and therefore construe events in different ways."
3	Organisation Corollary	"We organise our personal constructs in a hierarchical system, with some constructs in a superordinate position and others subordinate to them. This organisation allows us to minimise constructs."
4	Dichotomy Corollary	"All personal constructs are dichotomised, that is, we construe events in an either/or manner."
5	Choice Corollary	"We choose the alternative in a dichotomised construct that [we] see as extending our range of future choices."
6	Range Corollary	"Constructs are limited to a particular range of convenience, that is, [they] are not relevant to all situations."
7	Experience Corollary	"We continually revise our personal constructs as the result of experience."

8	Modulation Corollary	“Not all new experiences lead to a revision of personal constructs. To the extent that constructs are permeable they are subject to change through experience. Concrete or impermeable constructs resist modification regardless of our experiences.”
9	Fragmentation Corollary	“Our behaviour is sometimes inconsistent because our construct system can readily admit incompatible elements.”
10	Commonality Corollary	“To the extent that we have had experiences similar to others, our personal constructs tend to be similar to the construction systems of those people.”
11	Sociality Corollary	“We are able to communicate with others because we can construe their constructions. We not only observe the behaviour of others, but we can also interpret what that behaviour means to them.”

**Table 3. 3 Kelly’s fundamental postulate (Feist & Feist, 2008, p. 587)**

The individuality corollary states, "Persons differ from each other in their construction of events." Two individuals observing the same evidence may arrive at different interpretations. Their construct systems based on previous experience can help them to classify the same evidence into different constructs. The commonality corollary states, "To the extent that one person employs a construction of experience which is similar to that employed by another, [A person ] psychological processes are similar to those of the other person." Individuals share similar personal construct systems due to the variety of common experiences.

### **3.3 The repertory grid (RG) interviews**

The repertory grid guides a semi-structured interview and formalises the interaction between the interviewer and the interviewee; it relates to the personal constructs and the objects given in the discussion, which is "attempt to bring to the surface concepts from the (individual) consumer's knowledge structure" (Steenkamp & Van Trijp, 1997, p. 154). The repertory grids method has been increasingly applied in clinical psychology and psycho-diagnostics related to self-conceptions and social relationships (Fransella & Bannister, 1977). The triadic method compares and contrasts two elements related to the topic. The question is therefore asked during the repertory grid interview: "Which two elements are similar and yet different from the third?" (Hunter, 1993, p. 16).

Kelly (1955) describes the system used by individuals to help them understand the world as the documentation of an individual construct system accomplished through the repertory grid technique. The repertory grid is developed using concrete and individual representations of the material that is being explored in the domain, known as elements (Bourne & Jankowicz, 2018; Jankowicz, 2005). There are specific rules for choosing elements. First, elements must always be practical and observable (people, objects, activities or events). Second, a set of elements should be homogeneous and not evaluated, as it has different individual meaning. Kelly defines elements as "the things or events which are abstracted by a construct" and they are seen as one of the "formal aspects of a construct" (Kelly, 1955, p. 95).

The idea of inspiration is valuable because it carries different meanings, and therefore it is a construct. Once the elements are set, continuous questions are asked regarding

the field of investigation, allowing interviewees to elicit their bipolar constructs, for example, "hard vs soft" and "good vs honest", which involves comparing them with triangular rotating elements, known as trading (Jankowicz, 2005). The elements of repertory grids are related to system trust in online banking from the management perspective, in which participants have personal experience. Each element is rated on each construct, and provides an accurate idea of how that person wants to describe each element (Bourne & Jankowicz, 2018). The construct is elicited from participants directly comparing the two elements that are identical, and then the constructs are combined with each element to create a grid. For example, Kelly stated that "If the test is to indicate how the subject develops his role in the light of his understanding of other people, as elements in the test must be representative of all the people with whom the subject must relate his self-constructed role" (Kelly, 1991, p. 161).

The specific focus of this study is to apply the repertory grid technique to explore what factors or constructs in the context of developing system trust in promoting online banking in Bangladesh from the consumer perspective.

The repertory grid can be used for a number of constructions depending on the purpose of the data analysis. It can be created through any rating using a tick box grid or Likert scale. This enables the process to standardise scores, enabling the replicability and reliability of results. Elements can be ranked qualitatively against each construct, with some research using cognitive mapping. In this regard, people knowingly close systems: "In fact, it is really with the idea of the closure of cognitive systems that the subject/object dichotomy is substantially overcome and traditional realistic perspectives are actually abandoned" (Chiari & Nuzzo, 1996, p. 171).

The repertory grid technique allows sufficient flexibility for participants to be able to express their interpretation of the research area and its structured "one-to-one" face to face interviews. The construct is like a reference axis, and it is a dimension of evaluation, excluding the fundamental processes it controls. Bhattacharjee (2012, p. 10) defined "A construct is an abstract concept that is specifically chosen ("created") to explain a given phenomenon."

"Behaviourally it can be regarded as an open channel of movement, and the system of constructs provides each man with his own personal network of action pathways,

serving both to limit his movements and to open up to him passages of freedom which otherwise would be psychologically non-existent" (Kelly, 1969, p. 239).

According to Jankowicz (2005), the laddering technique is tailored to achieve detailed observations from participants regarding subject matter. Laddering entails finding the participant's understanding of the subject matter in the research and determining the relationship with the notion of the constructs. It helps the researcher gain a better understanding of individual construct systems. Constructs have a function for the individual and involve more than just names, ideas, attitudes, or opinions. Constructs are the building blocks of how individuals confer meaning to their experiences in the subject area. In this study, eliciting constructs is one of the central features of the repertory grid technique.

According to Siau et al. (2010), participants and researchers develop varying bipolar constructs to form their subject matter models. In other parties, the unique experiences and exposures to their environment trigger these differences (Hassenzahl & Wessler, 2000). As applied to this study, personal construct theory suggests that online banking tools and institutions determine which online banking platform to trust and which online platform not to trust (Bauman, 2015).

According to Kelly (1955, p. 91), argues "constructive alternative" that "we take the stand that there are always some alternative constructions available to choose in dealing with our world. No-one needs to paint themselves into a corner; no-one needs to be completely hemmed in by circumstances; no-one needs to be the victim of their biography."

Contrasts are at the heart of the understanding that change is the most readily available alternative to the current way of looking at the world (or opposite pole), and that changed behaviour will reflect this at least initially. Similarly, a person's understanding of the world is achieved through an active and constructive process in contrast to the similarity of "constructs", a term that Kelly (1955, p. 1005) describes as "a way in which things are construed as being alike and yet different from others." Thus, for example, the word "comfortable" would not be a construct if there was no contrasting pole such as "comfortable vs painful".

### 3.3.1 Repertory grid data analysis

A repertory grid data analysis objectively reviews the constructs and identifies the main themes in which each grid is identical to others. There are many data analysis procedures in the underlying theory, using both qualitative and quantitative approaches. Repertory grid data analysis is one of several qualitative methods currently available for data analysis and its interpretation (Schreier, 2012). It is used to make a distinction between the elements in which the constructs are revealed during the interview. The ratings are used in the grid to record the relationships between elements and constructs (Jankowicz, 2005). In other words, the basic description in the grid is used to explore the relationships between constructs and elements. This content analysis technique and procedure was developed by Honey (1979). According to Krippendorff (1989, p. 403), "content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use."

Jankowicz (2005) describes the repertory grid as a kind of organised interview, with or without ratings, that provides a chance to elicit the participant's standpoint, untainted by the researcher's view. The grid is thus an ideal procedure for pilot research and is a helpful examination instrument that incorporates quantitative and qualitative methodologies. Scholars have embraced different variants of the repertory grid, nevertheless, the fundamental process developed by Kelly (1995) has not altered considerably.

The repertory grid structure is summarised as involving the characteristics of an individual grid, that will elicit a single construct. For example, in cognitive complexity several constructs have been used differently (functionally independent construction) (Landfield & Cannell, 1988), there are also several constructs clusters (articulation) (Burlison, Kunkel, & Szolwinski, 1997). This aspect is critical for summarising and logically organising data for easy interpretation. For instance, describing the differences and similarities between sound stimulation and spatial features of reproduced sound quality are essentially descriptive "constructs" (Berg & Rumsey, 1999). It is therefore essential to know what constructs are, and whether there is a standard set, and to adopt successful and appropriate scaling methods that are essentially psychological and social sciences-related attitude inductive.

### 3.3.2 Qualitative content analysis

Content analysis was the first analysis technique used in the United States in the early twentieth century (Barcus, 1959). However, the initial definition of content analysis shows that it began as a quantitative research approach: "a research technique for the objective, systematic, and quantitative description of the manifest content of communication" (Berelson, 1952, p. 18). Researchers used content analysis as a qualitative or quantitative method in their research. Content analysis is primarily used as a quantitative method to describe using statistics text data. Content analysis is insight "to provide knowledge and understanding of the phenomenon under study" (Downe-Wamboldt, 1992, p. 314).

Qualitative content analysis is the most widely used method for evaluation data systematically (Lincoln & Guba, 1985). Content analysis is limited to categorising as a qualitative versus quantitative research method. It is a systematic and objective way of describing and quantifying phenomena (Schreier, 2012). Content analysis is described as "subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes" (Hsieh & Shannon, 2005, p. 1278). According to Mayring (2000, p.2), it is "an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification". According to Cavanagh (1997) content analysis is a flexible method for analysing text data. Content analysis describes a family of analytical methods ranging from understanding, intuitive and explanatory analyses to systematic, rigorous text analyses (Rosengren, 1981).

There are various types of content analysis, and a researcher can choose a specific approach with a theoretical and substantive interest in identifying the problem being studied (Weber, 1990). This study used a summary to report the qualitative content. The summary commenced by classifying numerous aspects of the text content to reveal contextual meanings. The approach produces a shallow analysis and explanation of the content. This shortcoming results in overlooking a variety of critical issues which affect the comprehension of the content. According to Lincoln and Guba (1985), this flaw complicates the credibility and effectiveness of the content, thus affecting its validity. Similarly, McAdams and Zeldow (1993, p. 243) argued that,

regarding the validity of the content analysis, "Carefully articulated constructs are preferable to omnibus systems that promise to cover the universe by presenting a list of theoretically decontextualised terms and topics."

Kelly's personal construct psychology is applied to the philosophical that divides the text into quantifiable units in the analytical process. Credibility (truth value), transferability (applicability), and dependability (consistency) have been used to evaluate the reliability of qualitative investigations in the content analysis (Guba, 1981). There are no evaluation criteria specified in the qualitative content analysis design, but overall qualitative research criteria can be applied.

A summative method of qualitative content analysis incorporates latent content analysis without merely counting words. Analysing the latent content can be defined as the data interpretation process. According to Babbies (2015), data interpretation is tailored towards finding the meaning of the content. It focuses on topics and contexts and emphasises variety, such as the similarities and differences existing in the content. According to Graneheim and Lundman (2004), the research can analyse the diverse types of content available in the study. A content analysis does not need to be limited to theory-based coding schemes and standards set by experts. Content analysis is a social scientific method that researchers use to build a strong case for the validity and reliability of their data. It is evidence of trustworthiness and relies on credibility; one way to demonstrate reliability or internal consistency is to make textual evidence consistent with interpretation (Weber, 1990).

Honey (1979) found that dissimilar respondents have different construct likeness quantities. For example, a similarity score of 82% between a paradigm and the delivered construct may be unexceptional in one respondent whose construct, whereas it demonstrates a significantly high magnitude of agreement when viewed in an alternative respondent whose construct makeup is comparatively free, with similar scores of 60-70%. Honey (1979) believes that when choosing model constructs in the final level of the content analysis, combined with selecting others with the same significance and excellent percentage correspondence scores, an individual should specifically focus on constructs with similar results that are exceptionally high for the person backed that specific construct.

### **3.3.3 Qualitative content analysis concept**

Qualitative content analysis is concept related, and it should be seen as contributing to the debate rather than as an endeavour to find consensus. Therefore, Graneheim and Lundman (2004, p. 107) argue that the content analysis concept of manifest and latent content; "is a unit analysis, meaning, concentration, abstraction, content unit, coding, category and theme". It focuses on topics and contexts, and emphasises variety, such as the differences and similarities between parts of the text. It thus provides an opportunity to analyse manifest and descriptive content, and latent and explanatory content (Graneheim & Lundman, 2004).

In contrast, an analysis of what the text discusses in relation to the interpretation of the underlying meaning which is analysed in this regard as latent content, with explanations and degrees of the latent content, with interpretations differ in depth and abstraction (Downe-Wamboldt, 1992; Kondracki et al., 2002). In the inductive approach, the organisation stage includes open coding, creating categories, and abstraction (Elo & Kyngäs, 2008). The fundamental decision when analysing qualitative content is whether the analysis should focus on manifest or latent content. Analysis of what the text says relates to the direction of the content, and visible, prominent elements are described as the manifest content (Downe-Wamboldt, 1992; Kondracki, Wellman, & Amundson, 2002). Although Sandelowski and Liman (2012) explain the difference between a theme and a subject, they described the adherence of the treatment regime as themes using the words 'trust', 'confidence' and 'symptoms'.

### **3.3.4 Inter-rater reliability (IRR) measuring**

The reliability of this content analysis process can be judged by referring to two individual judges and asking them to perform this categorisation independently with the same set of objects. Two independent judges (Judge A & Judge B) identified individual constructs as per the previously agreed themes. The extent to which these classifications coincide often represents what is significant as inter-rater reliability.

In the context of inter-rater reliability measuring, two or more independent judges will map two systems to evaluate its reliability. Honey's content analysis method is an interactive, calculated iteration within the inter-rater statistic. The content analysis agrees on a set of themes from generated constructs, and two shades of colours have

been used to identify the commonality and differences. The extent of agreement between raters is used in evaluating inter-rater reliability statistics. If the statistics are not considered high enough, however, of those inclusion-exclusion criteria will be applied for each heading. If the level of reliability is not satisfactory, the researchers repeat the previous steps. Shapiro and Markoff (1997) argued that content analysis is only valid and meaningful when the results relate to other measures.

The individual judges reproduce the work until inter-rater reliability is considered high enough when judges will work independently to refine themes. After refining the themes, the content analysis process will be stopped (see the flowchart below, section 3.4). Two judges will discuss the significance of the content analysis themes and categories if further judges (Judge C & Judge D) require working for themes and theme definition to reproduce the final classification. The apparent outcome is that the reliability coefficient of their report is artificially inflated (Krippendorff, 1989). Therefore, the content analysis is to develop clear recording guidelines to avoid this.

### **3.3.5 Inter-rater reliability (IRR) measure**

This study considers two judges at a time and repeats this process as follows: (A versus B) and (AB versus C) & (AB versus D). It is possible to use the inter-rater reliability measure with three or more judges at a time (Fleiss, Levin, & Paik, 1981).

Cohen's kappa (K) is considered one of the most commonly used statistics and the most widely used accepted measure of inter-rater reliability (Brennan & Silman, 1992; Sim & Wright, 2005). Inter-rater reliability refers to the consistency of ratings and the extent to which judges agree on relative ratings concerning the measure of quality and accuracy of the rating process (Wright & Linacre, 1989). Weber (1990, p. 12) stated that "the classification procedure must be reliable in the sense of being consistent: different people should code the same text in the same way".

Two judges (Judge A & B) work independently to classify N constructs into content analysis themes. Inter-rater reliability (IRR) can be calculated using Cohen's Kappa, whose coding is (1) when fully reliable for a particular construct and is (0) if there are no matches for a particular content analysis theme (Brennan & Silman, 1992).

	Judge- B		
Judge - A	Present	Absent	Totals
Present	a	b	a+b
Absent	c	d	c+d
Totals	a+c	b+d	N

**Table 3. 4 Agreement of two judges over N constructs**

Where, N= a+b+c+d

Where:

a = the number of (1,1) matches

b = the number of (1,0) matches

c = the number of (0,1) matches

d= the number of (0,0) matches

From the above table 3.4 Cohen's Kappa (K) has defined as:

$$K = \frac{P_o - P_e}{1 - P_e} \quad \text{(Equation 1)}$$

or

$$K = \frac{\text{Observed agreement} - \text{chance agreement}}{1 - \text{chance agreement}}$$

Where:

$P_o$  = proportion of units on which the judges agree/Observed agreement

$P_e$  = the proportion of units for which agreement is expected by chance/chance agreement

Where the observed ratio of agreement between two judges (both joint presence (1,1) and joint absence (0,0)) between the two judges is shown

$$P_o = \frac{a}{N} + \frac{d}{N} = \frac{a + d}{N} \quad (\text{Equation 2})$$

The derivation of the expected ratio of the agreement ( $P_e$ ) is more involved, and requires an understanding of the theory of isolated probability, including Baye's Theorem, which is described here as:  $P_e$

$$P_e = \frac{(a + c)(a + b) + (b + d)(c + d)}{N^2} \quad (\text{Equation 3})$$

The system of equations for calculating Cohen's kappa can be written as follows:

$$K = \frac{P_o - P_e}{1 - P_e}$$

Whereas,

$$P_o = \frac{a + d}{N}$$

$$P_e = a + b \quad \text{(Equation 4)}$$

The assessment of inter-rater reliability (IRR) measures the percentage of agreement between judges, and demonstrates consistency among the judges. The Cohen kappa statistic measure (1960) is commonly used for assessing IRR regarding the degree of agreement between two judges.

Value of Kappa	Level of Agreement	Percent (%) of data that is Reliable
0-.20	None	0-4%
.21-.39	Minimal	4-15%
.40-.59	Weak	15-35%
.60-.79	Moderate	35-63%
.80-.90	Strong	64-81%
Above .90	Almost perfect	82-100%

**Table 3. 5 Interpretation of Cohen's kappa (Landis & Koch, 1977, p. 165)**

Kappa statistics measure the level of agreement observed between judges for a set of nominal ratings, and correct the expected agreement by chance (Landis & Koch, 1977); there is an opportunity to provide a standardised index of IRR that can be generalised throughout the iteration process. Weber (1990, p. 15) stated that in terms of reliability measuring, "reliability problems usually grow out of the ambiguity of word meanings, category definitions, or other coding rules", and thus the inclusion/exclusion category is applied in regard to reach a high level of agreement between two judges.

Cohen's Kappa Paradox "is a traditional measure originally designed as a measure of agreement between two judges, based on the accuracy but corrected for chance agreement" (Delgado & Tibau, 2019, p. 27). Kappa Paradox is useful when estimating inter-rater reliability; all disagreements can be considered equally severe, and the relative severity of different disagreements can be determined between two judges. Kolbe and Burnett (1991, p. 248) stated that "interjudge reliability is often perceived as the standard measure of research quality. High levels of disagreement among judges suggest weaknesses in research methods, including the possibility of poor operational definitions, categories, and judge training".

An example of Kappa Paradox overall inter-rater reliability shown below:

	Judge- B		
Judge - A	Present	Absent	Totals
Present	90	6	96
Absent	4	0	4
Totals	94	6	100

**Table 3. 6 An example of the “Kappa Paradox”**

For the Kappa calculation of  $P_o$  and  $P_e$  as shown below as per the (Table 4.6)

$$P_o = \frac{a + d}{N} = \frac{90 + 0}{100} = 0.90$$

$$P_e = \frac{(a+c)(a+b) + (b+d)(c+d)}{N^2} = \frac{(90+4)(90+6) + (4+0)(6+0)}{100^2} = .9048$$

So, the result of Cohen Kappa (K) value is shown below:

$$K = \frac{0.90 - .9048}{1 - .9048} = -0.042$$

The result (-0.042) of K has indicated that there is "poor" inter-rater reliability between two judges, according to Landis and Koch. On the other hand, however, the analysis example between two judges demonstrated positive agreement in 90 out of 100 matches. The interpretation of Kappa Paradox corrects for prevalence should be explained very carefully, however. Byrt, Bishop, and Carlin (1993) developed the PABAK statistic for considering the "Kappa Paradox" for the interpretation of "corrects

for prevalence" regarding more robust statistics. On the other hand, Cohen's, and Siegel and Castellalan's kappa estimates are low if conventional effects are present and cannot be preferred if significant prevalence problems are present.

In regards to describing "Kappa Paradox", Cicchetti and Feinstein (1990, p. 553) stated that "If  $P_e$  is the large, the (chance) correction process can convert a relatively high value of  $P_o$  into a relatively low value of  $K$ . Thus, with different value of  $P_e$ , the  $K$  for identical values of  $P_o$  can be more than twofold higher in the instance than the other'

Several "Kappa paradoxes" have been introduced by Cohen's kappa as an inter-rater reliability measure of agreement between two judges (Brennan & Prediger, 1981; Cicchetti & Feinstein, 1990; Zwick, 1988), many authors have widely used it. According to Byrt et al. (1993, p. 425), prevalence-adjusted bias-adjusted kappa (PABAK) can be seen as a "corrected" form of the kappa and it can be written as.

$$PABAK = 2P_o - 1 \quad (\text{Equation 5})$$

This demonstrates that a natural process of adjusting for bias and prevalence is consistent with the Cohen kappa results the "index linearly related to the observed agreement " (Byrt et al., 1993, p. 425).

The definition of prevalence-adjusted bias-adjusted kappa (PABAK) has shown below as:

$$PABAK = 2P_o - 1 = \frac{2(a + d)}{N} - 1 = \frac{2a + 2d - N}{N} \quad (\text{Equation 6})$$

$$PABAK = \frac{2a + 2d - N}{N} = \frac{2 * 90 + 2 * 0 - 100}{100} = 0.80$$

The application of PABAK in Table 3.6: provides a statistic with insight into the inter-rater reliability measure.

Although, PABAK is considered a more powerful statistic than Cohen's Kappa for assessing inter-rater reliability (IRR).

The application of PABAK in Table 3.6 provides a statistic with insight into the inter-rater reliability measure. PABAK is considered a more powerful statistic than Cohen's Kappa for assessing inter-rater reliability (IRR). In order to consider the effects of bias and prevalence, Byrt et al. (1993, p. 428) therefore suggested that he would “endorse Cicchetti and Feinstein’s observation that no single omnibus index of agreement can be satisfactory for all purposes”. As a strategy for interpreting the agreement, tables 2x2" (Table 3.6) that the result the following statistics should also be recommended in order to assess the proportion of positive and negative agreement, bias and prevalence indices.

$$\text{Bias index, } B_{\text{index}} = \frac{(b-c)}{N} \quad (\text{Equation 7})$$

$$\text{Prevalence Index, } P_{\text{index}} = \frac{(a-d)}{N}$$

$$\text{Proportion of positive agreement} = \frac{2a}{(N+a+d)}$$

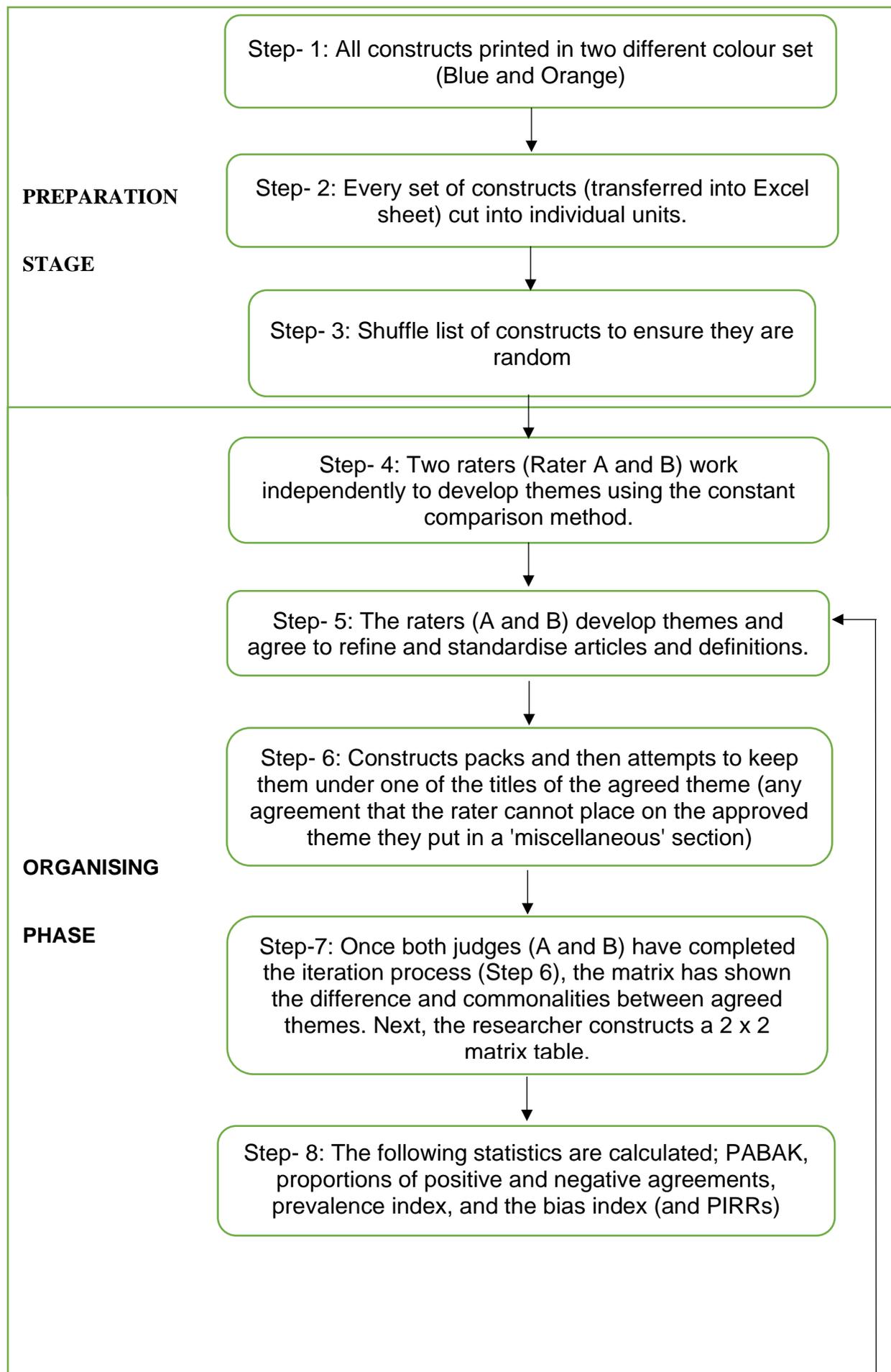
$$\text{Proportion of Negative Agreement} = \frac{2d}{(N+a-d)}$$

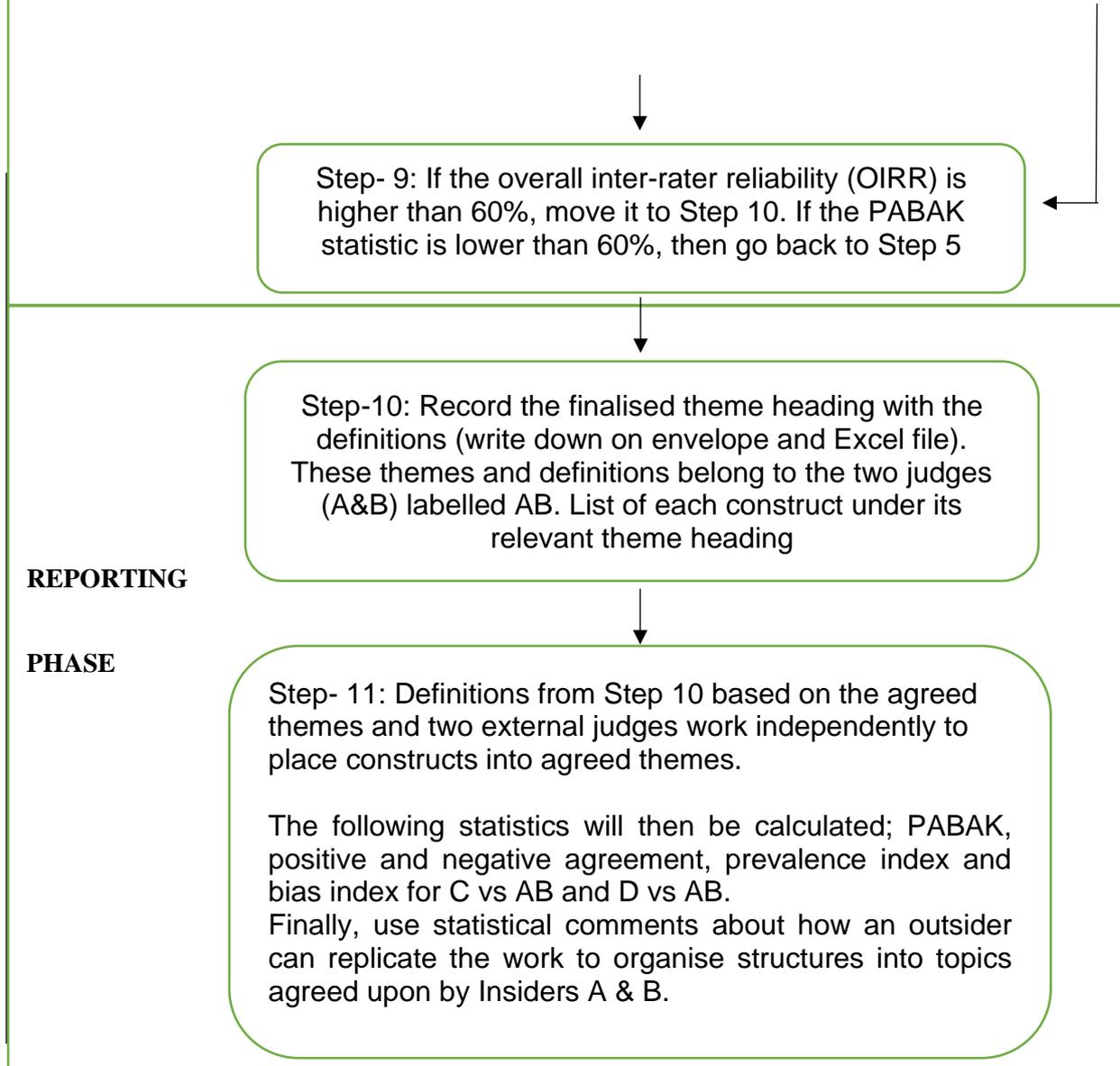
Four PABAK statistics are used in this DBA thesis regarding inter-rater reliability measures. It might be helpful to use Cicchetti and Feinstein's positive and negative agreement indices for the practical interpretation of prevalence effects

### **3.4 The content analysis process**

The content analysis process was used when the structure of the content analysis has been operationalised to address the issues of this thesis. In this study, the researcher seeks latent meanings from individual elicited personal construct data as a constructivist stance from the participants. According to Abbaspour, Amirkhani, Ezzat, and Hozori (2018) and Elo and Kyngäs (2008), there are three main phases of content analysis process: preparation, organisation and reporting.

The following flowchart shows the iterative content analysis process in detail, step by step (Figure 3.2)





**Figure 3. 2 Flowchart-the content analysis process (Lillystone 2011, p. 106)**

The above flowchart (figure 3.2) content analysis process is based on Honey's content analysis approach and adopted from Lillystone (2011, p. 106). The two judges (A and B) will follow Honey's method in the first tier of the iteration process. First, however, Judges A and B will shape the agreed themes before Iteration Process One, and then two external judges, C and D, use the second tier of content analysis for a single statistic to measure inter-rater reliability

### **3.4.1 Analysing the finalised primary data**

The content analysis data will be systematically analysed to compare individual constructs and develop content analysis themes. It is "indigenous to communication research" (Krippendorff, 1989, p. 403) and seeks to analyse data within a specific context because of individual meanings. However, content analysis rarely aims at a literal description of communication content.

This study will use the cluster analysis (CA) tool to finalise the content analysis data. "Cluster analysis is a general logic process, formulated as a procedure by which groups together objects into groups based on their similarities and differences" (Amendola, Niglio, & Vitale, 2010, p. 505).

Cluster analysis is a technique for highlighting the relationships in individual repertory grid data so that they are visible at a glance (Honey, 1979; Jankowicz 2005). The purpose of cluster analysis is to measure the similarity of objects (correlation coefficient and association coefficient) or degree of distance (distance coefficient) (Trebuňa & Halčinová, 2013). Here are two methods of cluster analysis, classified as hierarchical or non-hierarchical methods. Individuals need to find the measure of "distance" or "similarity" within the construct system consistent with the content analysis process. In this study, the researcher focuses on gathering data by asking whether it is "successful" vs "less successful" to compare system trust factors in the online banking context. In this content analysis process, the observed clustering is based on dichotomous variables using the value (1) for the presence, or (0) for the absence, of the specific theme heading to measure similarity and dissimilarity.

A similarity measure of personal constructs is used between the individual participant and themes by deploying the Jaccard Coefficient. The concept of a similarity coefficient measure was argued by Jaccard (1901), and others (Dice 1945, Sorensen 1948, Sokal & Michener 1958). The similarity measure process will use the most similar coefficient of the constructs or themes using the Jaccard similarity coefficient (Jaccard 1901). Some generally used similarity coefficients are shown below.

Coefficients	Similarity expression	Source
Jaccard (J)	$\frac{a}{a + b + c}$	Jaccard, 1901
Simple Matching (SM)	$\frac{a + d}{a + b + c + d}$	Sokal and Michener, 1958
Sorensen-Dice (SD)	$\frac{2a}{2a + b + c}$	Dice, 1945; Sorensen, 1948

**Table 3. 7 Widley used similarity coefficients (Binanto et al., 2018; San Segundo & Mompean, 2017)**

The binary vector is one of the most common representations of patterns, and it plays an essential role in many of the measurements of similarities and distances, such as clustering and categorisation, or classifications:

where, a = (1,1), b = (1,0), c = (0,1) and d = (0,0) to indicate the joint presence of a property and its joint absence with d & c explaining non-matches.

This study uses the Jaccard matching coefficient to justify commonality between the two raters over all the agreed themes regarding the similarity justification. Jaccard similarity is given between zero (0) and one (1): a value of one (1) indicates the presence of similarities, whereas no similarity between the two raters indicates its absence, that is zero (0).

### 3.4.5 The application of cluster analysis to similarity data

The cluster analysis in this DBA thesis aims to divide set subjects such as individual (participant) or content analysis themes. Those subjects are divided into several relatively homogenous subgroups where the subgroups contrast with other subgroups, while the reduction condition is the maximum and simultaneously minimal similarity of clusters (Trebuña & Halčinová, 2013).

According to Everitt (1981, p. 171), the purpose of cluster analysis is that “given a number of objects or individuals, each of which is described by a set of numerical measures, [it is possible to] devise a classification scheme for grouping the objects

into a number of classes such that the objects within each class are similar in some respect and unlike those that form other classes.”

Cluster analysis to a dissimilarity measure between two objects “use a finite set of predicates that are capable of distinguishing any two objects considered, the number of predicates shared by any two such objects is a constant independent of the choice of objects” (Watanabe, 1985, p. 25).

The results obtained from the cluster analysis process are not pre-determined for the use of subgroups or the number of group members consistent with this study (similarity and dissimilarity analysis). In this study, hierarchical clustering therefore favours non-hierarchical clusters (K-means clustering). Several iteration processes are required to obtain a satisfactory clustering result, where the judges implement the algorithm with different values of K-means (Pham, Dimov, & Nguyen, 2005). The literature generally agrees that hierarchical clusters produce better quality clusters than the K-means algorithm, but the calculation intensity is linear for K-means clustering (Wu, Xiong, Chen, & Zhou, 2007). According to Sneath and Sokal (1973), the theoretical foundations of the similarity data matrix analysis are related to the hierarchical cluster, and this is called "taxometrics" or "numerical taxonomy".

The data matrix will be transformed into data participant 'S' (participants), and the data matrix 'T' (data) respectfully will be transformed to the similarity matrix with the themes 'S' (themes). Hierarchical cluster analysis will be employed to explore the relationship between the construct system and the themes. Cluster analysis is applied using content analysis followed by the cluster analysis, in the personal construct system. This method has been used to analyse Cantonese-English bilinguals (Yim & Bialystok, 2012), and to understand SME manufacturing strategies (Lorentz, Hilmola, Malmsten, & Srai, 2016), marketing communications in small and medium-sized enterprises (Ližbetinová, Štarchoň, Lorincová, Weberová, & Průša, 2019), biotechnology (Klyuchko, 2017) and food science and technology (Ares, 2014). Bell (1988, p. 1), specified that cluster analysis is revealed to "relate to the fundamental postulate or construction corollary, while new hierarchical approach relates to the structure corollaries of organisation and range" and explored the relationship between personal construct theory and the method of repertory grid analysis. The distinction between

relationship and representation is essential when the cluster analysis considers psychometric factors related to repertory grid analysis.

A Jaccard similarity matrix will be used in cluster analysis to discover the relationship between the clustering patterns by using dendrograms. In this DBA thesis, cluster patterns will be considered as developing system trust to promote online banking in Bangladesh and the relationship between personal constructs system and themes with respect to trust across the content analysis process.

The idea of using the Jacquard coefficient to create a similarity matrix is to determine which algorithm should be used for cluster formation. Then, the researcher will use the Statistical Package for the Social Sciences (SPSS) software to determine the cluster information to connect the measurement of the distance between clusters. According to Sneath and Sokal (1973), the unweighted pair group method with arithmetic mean (UPGMA) method is an agglomerative hierarchical clustering approach to producing a dendrogram from a distance matrix. In order to apply the clustering algorithm information between-group connection or within-group connection as a default, the UPGMA method will be applied in terms of similarity matrix and dendrogram building in a stepwise manner. The weighted pair group method with arithmetic mean (WPGMA) is similar to the UPGMA algorithm, and it will be applied to calculate the distance between the clusters as a simple average (Yim & Ramdeen, 2015).

### **3.6 The trustworthiness of this research**

In this section, the researcher will discuss the trustworthiness of qualitative research to establish the transparency of the study's conduct. First, however, procedures have been discussed, which is necessary for a study to be considered trustworthy by readers (Amankwaa, 2016).

A constructivist stance and personal construct psychology will be adopted in this study. According to Lincoln and Guba (1985), a naturalistic enquiry initially presented four criteria: credibility, dependability, confirmability, and transferability to develop trustworthiness in qualitative research. In 1994, Guba and Lincoln added a fifth criterion, authenticity, to establish the study's transparency. The most common standards used for evaluation in this qualitative study are therefore reliability and

transparency, which are crucial for the effectiveness and integrity of the study's conduct (Cope, 2014).

"Trustworthiness" is usually considered an important criterion for the quality of social research, and quantitative enquiries assess it using "validity," "reliability," "generalisability," and "objectivity" and also advocate for predetermined methods for social research (Lincoln & Guba 1985, p. 289; Marshall & Rossman 2011, p. 19).

Rigorous and rich data is necessary in inductive research, and this is often accomplished through detailed descriptions of experiences in study participant anecdotes (Boje & Rosile, 2019). In this study, qualitative research data analysis evaluates rich and rigorous data that explains complex phenomena from participant perspectives.

### **3.6.1 Credibility**

Credibility is improved by describing the experiences of research participant views. Credibility refers to the truthfulness of data or participant opinions and their interpretation and representation by the researcher (Polit & Beck, 2012). The accuracy and accountability of the data analysis are therefore significantly aligned with the concepts of credibility. To judge data accuracy and enhance the accuracy of investigations are intended for the evaluation process for accountability criteria. There are some comprehensive standards criteria that should be followed for the credibility of evaluation: representations, propositions, interpretations, and reporting (Liao & Hitchcock, 2018).

Schwandt (1994, p. 222) stated that the constructivist believes that: " to understand this world of meaning, one must interpret it. The inquirer must elucidate the process of meaning construction and clarify what and how meanings are embodied in the language and actions of social actors".

Constructivism thinking, the knowledge of reality in the social sciences, has only recently been considered a foundation for knowledge. In the place of constructed realities, "knowledge and truth are created, not discovered by the mind" (Schwandt, 1994, p. 236). Constructivists are extremely committed to the contrary view that what we take to be objective knowledge and truth is the result of our perspective. Crotty

(1998, p. 42) therefore defined constructivism as a social perspective where “knowledge, meaningful reality as such, is contingent upon human practices, being constructed in and out of the interaction between human beings and their world, and developed and transmitted within an essentially social context”.

Qualitative research is constructivism which views knowledge as socially constructed and may change depending on the circumstances. This method allows researchers to discover interrelated dynamics, new variables, and the relationships of these experiences, and illustrate the effects of their social context (Gioia, Corley, & Hamilton, 2012; Shah & Corley, 2006). Credibility entails the accurate description of the phenomenon of interest, and the generation of believable research claims (Kvale, 1996; Marshall & Rossman, 2011), and can be promoted by using a systematic process throughout all stages of research.

### **3.6.2 Dependability**

In a naturalistic enquiry, according to Guba (1981), dependability is a concept that accounts for unreliability in the conventional sense, and other changes that the investigator deliberately introduces as the design of the enquiry unfolds. “Dependability” is considered difficult to measure, and a naturalistic enquiry needs to facilitate a future investigation to obtain consistent data (Polit & Beck, 2012; Shenton, 2004).

“Overlapping methods” and “a dependability audit” are generally used throughout the research process to be sure about the “dependability” of a qualitative study (Guba, 1981, p. 87).

Shenton (2004, p. 71) explained that dependability means that “if the work were repeated, in the same context, with the same methods and with the same participants, similar results would be obtained.”

### **3.6.3 Confirmability**

According to Guba (1981, p. 87), there are three criteria with which to assess “interpretational confirmability” in the evaluation of qualitative research: 1) triangulation, 2) practising reflexivity, and 3) arranging for a confirmability audit.

Confirmability refers to the researcher's ability to demonstrate that the data represents the participant responses and not the researcher's viewpoints.

As a constructivist viewpoint, in naturalistic research, confirmability describes how conclusions and interpretations are established in the study and demonstrates that the findings were derived directly from the data. The evidence of naturality can be achieved through the process of "confirmability audit". Guba (1981, p. 88) stated a confirmability audit that "data exist in support of every interpretation and that the interpretations have been made in ways consistent with the available data". An audit trail process is therefore necessary in this confirmability, including all raw data (interview and observational notes), data analysis and process notes, and drafts of the final report.

#### **3.6.4 Transferability**

In this study, the researcher must ensure the transferability of qualitative enquiry to descriptive data and provide a detailed description of the enquiry in order to make a judgment about whether it is appropriate in other possible contexts. Thus, the "researcher facilitates the transferability judgment by a potential user through 'thick description' and purposeful sampling" (Bitsch, 2005, p. 85).

According to Li (2004, p. 305) thick description "enables judgments about how well the research context fits other contexts, thick descriptive data, i.e., a rich and extensive set of details concerning methodology and context, should be included in the research report".

#### **3.6.5 Authenticity**

According to Lincoln and Guba (1985), primary criteria in the trustworthiness of naturalistic enquiry include credibility, authenticity, criticality, integrity, and authenticity, and new criteria have been revealed to evaluate qualitative research. Authenticity refers to the ability and extent to which the researcher expresses the participant's experiences and emotions precisely (Polit & Beck, 2012). Criticality refers to the researcher's decision process and the critical evaluation of evidence and interpretation. Finally, integrity refers to the use of critical reflection to maintain a valid interpretation of the data.

### **3.7 Research limitation**

A qualitative study will be conducted in a specific research context on online banking in Bangladesh. This study has methodological limitations, like all other research. With respect to qualitative research, this study focuses on many constructs rather than sample size to obtain data analysis, as increasing sample size is complicated and expensive. The limitations of the repertory grid technique are concerned with the bipolar constructs system. Marsden and Littler (1998) argued that a bipolar constructs system might not be helpful because meanings can be contested in any specific event, and the interpretations of words have specific social contexts.

There are some limitations to using video conference interviews, such as issues in sound quality making recording difficult, dropped internet connections suddenly disconnecting the participants, and audio issues (Deakin & Wakefield, 2014). Participants may also have poor knowledge of IT systems or might be interrupted by issues with the internet and technical systems.

There are repertory grid data constraints affecting aggregates. Even where the constructs are similar, people with similar constructs have different experiences. Fransella, Bell, and Bannister (2004) argued that a high volume of repertory grid data might distort the meaning of constructs. The ability to generalise in the data analysis, in order to recognise connections between research findings and other concepts, might not be evident in the study-specific research context. Lillis and Mundy (2005, p. 133) stated that the issue of generalisability is “potentially the greatest method issue affecting research conducted.”

Furthermore, the repertory grid technique (RGT) provides a rigorous and powerful method for collecting the often idiosyncratic and nuanced mental models used by individuals in making sense of the world. However, utilising this technique meant that the required discussions restricted the number of people interviewed, which may be a limitation of the study (Akbay & Börekçi, 2021). Nonetheless, the repertory grid approach is a structured qualitative technique underpinned by personal construct theory (PCT), which explores subjective experiences by studying individuals' personal views. Therefore, the repertory grid approach provides a powerful alternative to other qualitative methods. Its ideographic, humanistic and non-exploitive basis is consistent

with the rationale of public participation (Pike, 2007). Personal construct psychology is the theory on which RGT is based and used as a data collection tool consistent with this philosophy (Downs, 1976; Gucciardi & Gordon, 2009). Stewart and Stewart (1981) stated that RGT is used in several fields, including quality control, work motivation, managerial effectiveness and training evaluation. Although RGT interviews are objective, there is the potential for bias due to the subjective consciousness of the research participants. Bias also affects the research findings, preventing them from reflecting the actual situation in the sector and market. The limitation of the repertory grid approach is the construct 'effectiveness', which may possess a bipolar dimension running from 'effective' to 'ineffective' (Marsden and Littler 1998). However, Marsden and Littler (2000) indicate that RGT is used to integrate disparate knowledge into a systematic framework, and it has become a successful tool in research, including financial services.

“At the core of PCT is constructive alternativism, which proposed that people have the creative capacity to interpret their environment, rather than simply react to it in a stimulus-response manner” (Pike, 2012, p.9). “To generalise is to claim that what is the case in one place or time will be elsewhere or in another time. Everyday social life depends on the success of actors doing just this” (Payne & Williams, 2005, p. 296). “The primary theoretical contributions offered by this study relate to a deeper understanding and articulation of one setting” (Evans & Tucker, 2015, p. 368).

### **3.8 Ethical consideration**

This section is related to code of ethics, since trustworthiness and credible research are careful considerations in relation to researchers working with people and in a specific area of study. This study therefore follows Northumbria University's ethical guidelines for academic research.

The principles of research ethics and the execution of this study are intended to avoid harming participants. The code of ethics involves the welfare and protection of research participants, and ethical considerations are intended to protect research participants physically and psychologically. Requirements for the participants' “informed consent” were therefore strictly adhered to within this thesis. The participants were fully aware of the purpose of the study, how the data will be used and stored for analytical purposes (Bryman & Bell, 2015), and that this data will be

destroyed after the completion of the study. According to Allmark (2002, p. 13) the "dignity and rights of the participants are linked to the consent given by the participant, to sufficient and adequate information provided as a basis for giving that consent, and that the consent is given voluntarily."

In this study, the researcher will use the MS Teams online software to interview participants and thus ensure there are zero risks from COVID-19 virus transmission. Ethical issues may arise during the virtual interviews, around taking video or audio recordings of interviewees in their own home. They might also feel uncomfortable using video conferencing. Participants have the right to withdraw their statements if they feel uncomfortable with the data being used for the study.

The research participants were remotely working during the COVID-19 pandemic, and data protection was followed according to General Data Protection Regulation (GDPR) with the University of Northumbria Newcastle "Research Ethics and Governance" procedures and guidelines. The online ethics clearance form has been submitted, and it has been granted by Newcastle Business School/ University of Northumbria Newcastle "Research Ethics Committee" (REC).

An individual participant produces detailed data in a qualitative research method, and the interviews were consistent with the constructivist stance of this research. With respect to originality and authenticity, the repertory grid interview data was not corrected, and grammatical mistakes were retained to show the participant's expression and originality.

### **3.9 Chapter summary**

This chapter has described and justified the methodology, research limitations and research ethics. It has also explained Kelly's method of personal construct psychology. This study has adopted a widely-used repertory grid interview technique to collect and analyse data. This chapter has explained the semi-structured interview technique using a grid sheet to accumulate unique constructs in relation to trust, including system trust in the banking sector. Finally, the end of this chapter discussed research limitations as well as ethical considerations, and noted that an ethics application was approved by the ethics committee of the Newcastle Business School at Northumbria University, Newcastle.

## Chapter 4

### Findings and Discussion

#### 4.0 Introduction

The purpose of this chapter is to address Research Objective Two (2), **“Report the findings from the study and then synthesise the data collected using the above tool with the extant academic literature in order to develop and present contributions from the study” [Chapter 4 – Discussion]**

This chapter will discuss the data collection and analysis process so that the reader can judge whether the data collection and analysis process is transparent and rigorous. This chapter is focused on drawing the most appropriate conclusions from the content analysis of the study and the literature review regarding trust, including system trust, in the practice of online banking in Bangladesh. It conducts empirical research using a qualitative method based on the repertory grid interview technique. It thus collects and analyses data based on Honey's content analysis procedure.

#### 4.1 How the Bangladesh participants make sense of their online banking experience

The study is intended to solve the managerial issues in the banking sector through examining participant experience, the meaning of interpretation and observation. Sampling is used to define the population of interest, and that population refers to the entire element from which the sample is to be selected. In this study, the unit of analysis is the personal construct, not the person (i.e., participant), which is descriptive of the universe of meaning.

“It is the individual formulation of a personal perspective or focuses from the information gathered to create something new, at least for oneself, that fits with the notion of construction” (Kuhlthau, 1983, p. 4).

This is supported by Butt and Burr (2004, p. 124), who note that “human conduct is a mystery and it is best approached by asking people what they are doing, how it reflects

their construing. This is quite different from thinking that people have constructs that are in some way responsible for the way they act.”

Scrutinising data is a personal construct that represents the fundamental quantum of how individuals construe and apply meaning to their world. According to Kelly (1963), this pattern is called the personal construct. When selecting sample size, it is therefore important to consider the richness of what a participant understands of the complexity of the topic under discussion.

“The data collection and analysis will yield two kinds of findings; e.g. (1) high quality, detailed description of each case, which are useful for documenting uniqueness, and (2) important shared patterns that cut across cases and derive their significance from having emerged out of heterogeneity” (Patton, 1990, p. 172).

Kelly founded the philosophical methodology known as constructive alternativism, explaining that individuals have an opportunity to make diverse choices when providing meaning to constructs (Boeree, 2006; Fransella & Dalton, 2000). The cognitive systems that people use to predict and interpret occasions are personal constructs. For instance, if an individual says something is “good”, it can be interpreted as meaning “poor” vs “good” as if complementing a presentation, or as “evil” vs “good”, to mean the ethical.

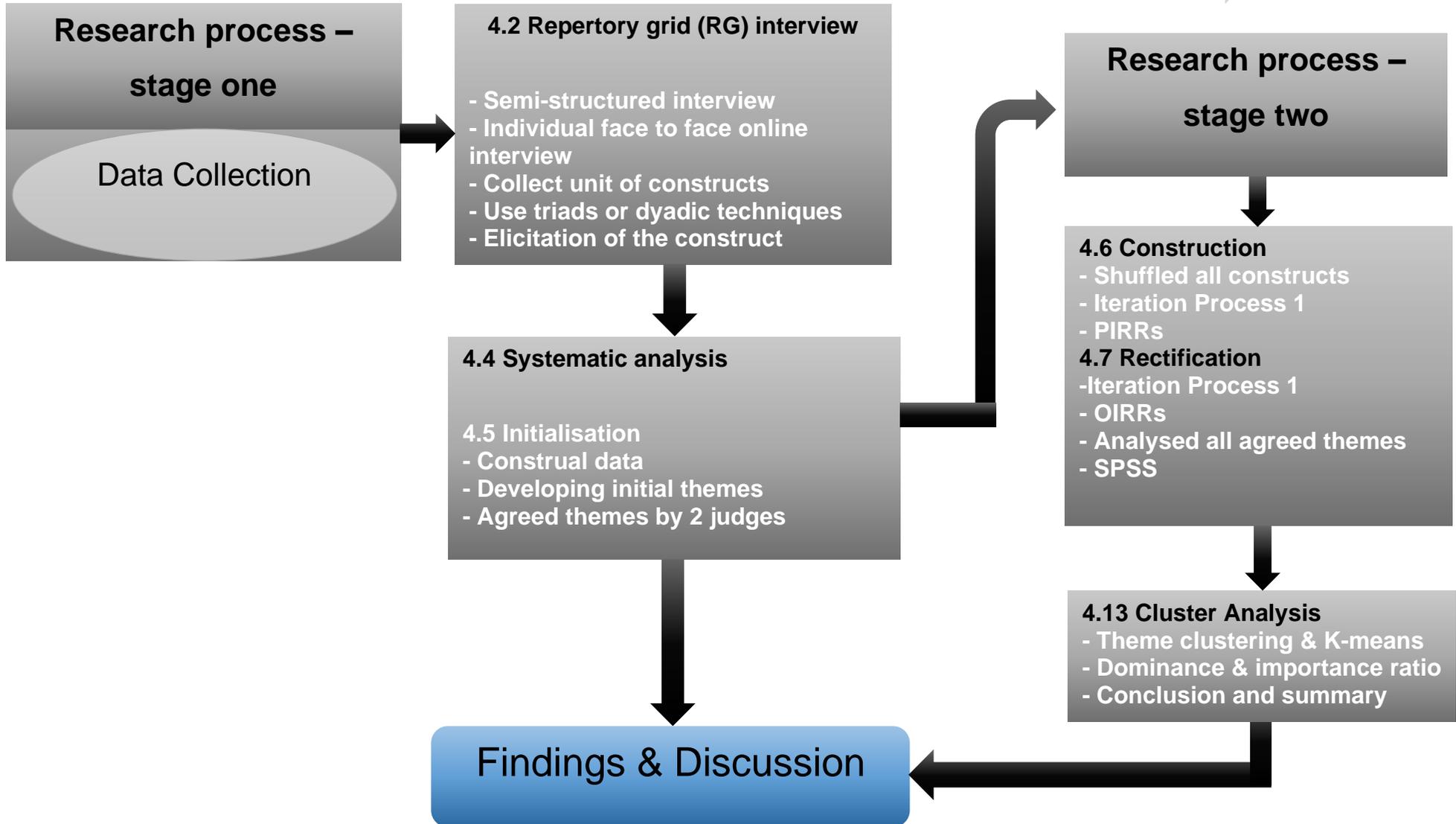
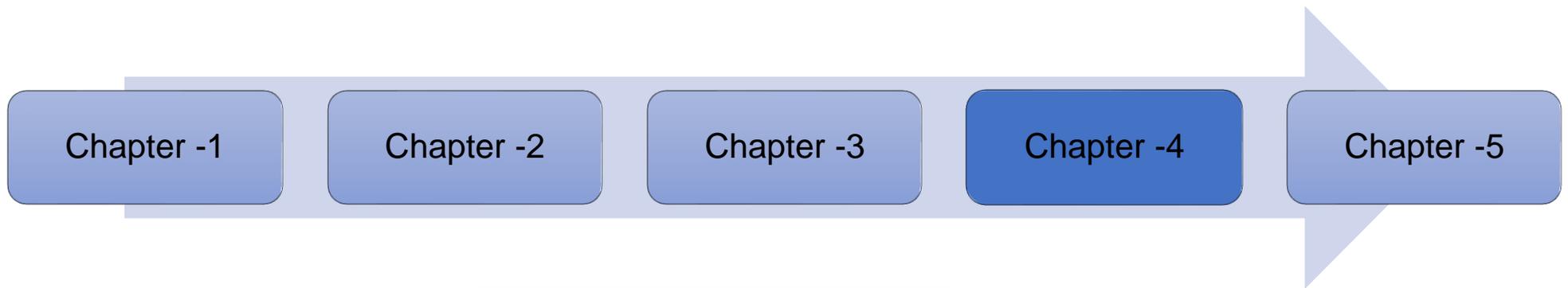
Jankowicz (2005, p. 12), argues that “people have constructs about anything and everything. A grid is always conducted about a particular topic, with the intention of eliciting just those constructs which the person uses in making sense of that particular realm of discourse that particular slice of their experience”.

It critical to involve research participants with adequate experience of the online banking systems rather than simply creating a higher headcount. The sufficiency of a sample relies on its ability to generate constructs that represent the universe of meaning (Schneider, Benetos, Pernin, & Emin, 2009)). Dick and Jankowicz (2001) also argue that a collective set of two hundred (200) to four hundred (400) constructs over a collection of research participants results in the near exhaustion of the possible universe of constructs.

The interviews will be conducted in the sense of “successful vs less successful” concerning a participant’s online banking experience regarding trust, including system trust in online banking. The researcher will facilitate this judgment by establishing truth during the research process and offering explanations allowing readers to understand how and why decisions are taken. Kvale (2008, p. 11) stated that “the interviewees are encouraged to accurately describe their experiences, feelings, and emotions. As a result, complex descriptions are formed which reflect the specific characteristics of the phenomenon, and not rigid categorizations”.

The easiest way to be aware of an individual's construct is to enquire about them from participants. The unit of constructs will be collected from the individual participants in the context of online banking trust, including the system trust relationship. The personal constructs system of each participant is different in terms of experience, interpretation and emotions. On the other hand, there are many similarities between them in the specific phenomena. The overall construct uses a procedure to determine the differences for each construct and the simple relationship between constructs within the topic area.

The following operational diagram shows the data collection process, including conducting repertory grid interviews, theme development and repertory grid content analysis.



## 4.2 Conducting repertory grid interviews

This DBA thesis follows a naturalist paradigm founded on how non-resident Bangladeshi citizens view their online banking system trust. This research aims to create rich understandings rather than drawing generalisable conclusions. The researcher therefore does not need large samples to ensure the statistical acceptability of the results. Important topics of methodology were considered before deciding the data collection method and analysis techniques. Since this research, practitioners or academics might find it helpful in transferring knowledge consistent with Kelly's corollaries.

Kelly's designed repertory grids technique is to help to understand the "conversational technology" (Stephens & Gammack, 1994, p. 76) that "explore [s] the structure and content of implicit theories" held by research participants (Fransella, Bell, & Bannister, 2004, p. 3).

The researcher asked participants to supply elements representing the research area, focusing on producing constructs based on selected elements. In this study, consumers construed their personal experience to distinguish the similarities and differences between two to three elements in the sense of being "successful vs less successful". Adopting Kelly's (1955) personal construct theory (PCT), twenty (20) repertory grid interviews were conducted regarding their "successful vs less successful" banking relationship, with people who have a banking relationship with Bangladeshi retail banks.

The following table shows the demographical data of the research participants.

Biographical data for interview participants						
Interviewee Number	Code	Age	Gender	How Long Lived in the UK	Occupations	Number of Constructs
1	PM01	38	Male	12	Accountant	14
2	PM02	37	Male	15	Banker	14
3	PM03	26	Male	7	Student	16
4	PM04	35	Male	10	Manager	12
5	PM05	41	Male	15	Lawyer	12
6	PM06	39	Male	12	Manager	10
7	PM07	33	Male	12	Entrepreneur	10
8	PM08	40	Male	12	Self-Employed	11
9	PM09	35	Male	12	Manager	12
10	PM10	35	Male	11	Self-Employed	11
11	PM11	37	Male	11	Manager	11
12	PM12	27	Male	7	Student	11
13	PM13	38	Male	12	Self-Employed	10

14	PM14	35	Male	1	Student	12
15	PF01	30	Female	7	Student	12
16	PF02	29	Female	4	Student	13
17	PF03	36	Female	8	Teacher	9
18	PF04	33	Female	8	Student	11
19	PF05	37	Female	12	Freelancer	12
20	PF06	32	Female	12	Freelancer	12
					Total Constructs	235

**Table 4. 1 Biographical data for interview participants**

Fourteen (14) male participants and six (6) female participants were interviewed to generate enough constructs. Jankowicz (2005); Siau, Tan, and Sheng (2010) argue that a small sample size (10–25 participants) is usually sufficient to generate a vast universe of constructs. These twenty (20) online one-to-one interviews provided two hundred and thirty-five (235) constructs. The researcher provided codes for each respondent as unique identifiers throughout the analysis stage. The code for the male group is PM, and the code for the female group is PF.

Schneider et al. (2009, p. 739) claim that “a sample of 15-25 persons should generate constructs that are representative of the universe of meaning”.

Participant understanding does not progress linearly over time, however, but moves in response to critical cases. This position is in line with Kelly's (1991) experience corollary, which states that an individual's construction scheme fluctuates as they successively interprets replications of occasions. In this study, based on the constructivism stance consistent with Kelly's PCP, the participants explore their personal experiences in developing system trust in the online banking relationship.

The researcher contacted potential participants for this study using email, the telephone and social media such as Facebook Messenger and WhatsApp to organise interview sessions. The consistency of the constructivism approach is a "distinct and mutually exclusive approach to knowledge, evidence, and proof" (Bourne & Jankowicz, 2018, p. 130). The participants were told about the consent form they needed to sign before conducting the interview (see Informed Consent Form in Appendix A).

As a result of the Covid-19 pandemic, interviews were carried out over Microsoft Teams (online) and recorded with the consent of the participants. This study used laptop recording software and otter.ai online recording and transcription software to record the data for analysis purposes. The consistency of the constructivism approach is a "distinct and mutually exclusive approach to knowledge, evidence, and proof" (Bourne & Jankowicz, 2018, p. 130). The participants confirmed their interviews by signing the informed consent form provided.

The data was collected in London within the Bangladeshi community during June and July 2021 via Microsoft Teams (online), following Northumbria University's ethical guidelines concerning individual informed consent and government COVID-19 guidance. One-to-one semi-structured online interviews were also conducted with non-resident Bangladeshis. The researcher shared their computer screen during the interview process to explain the interview procedure and present elements and repertory grid sheets to the participants.

Many factors provide different dimensions and challenges regarding developing system trust in promoting online banking in Bangladesh. Bangladeshi retail banks build and maintain a constructive banking relationship with consumers to gain satisfaction, however, whether the customers of Bangladeshi retail banks trust in the online system depends on some specific factors. The repertory grid data was analysed using Honey's content analysis method, and the empirical study's potential outcome.

Deakin and Wakefield (2014, p. 3) stated that "the online interview should be treated as a viable option to the researcher rather than just as an alternative or second choice when face-to-face interviews cannot be achieved".

The following table shows the actual duration of the interviews with each participant.

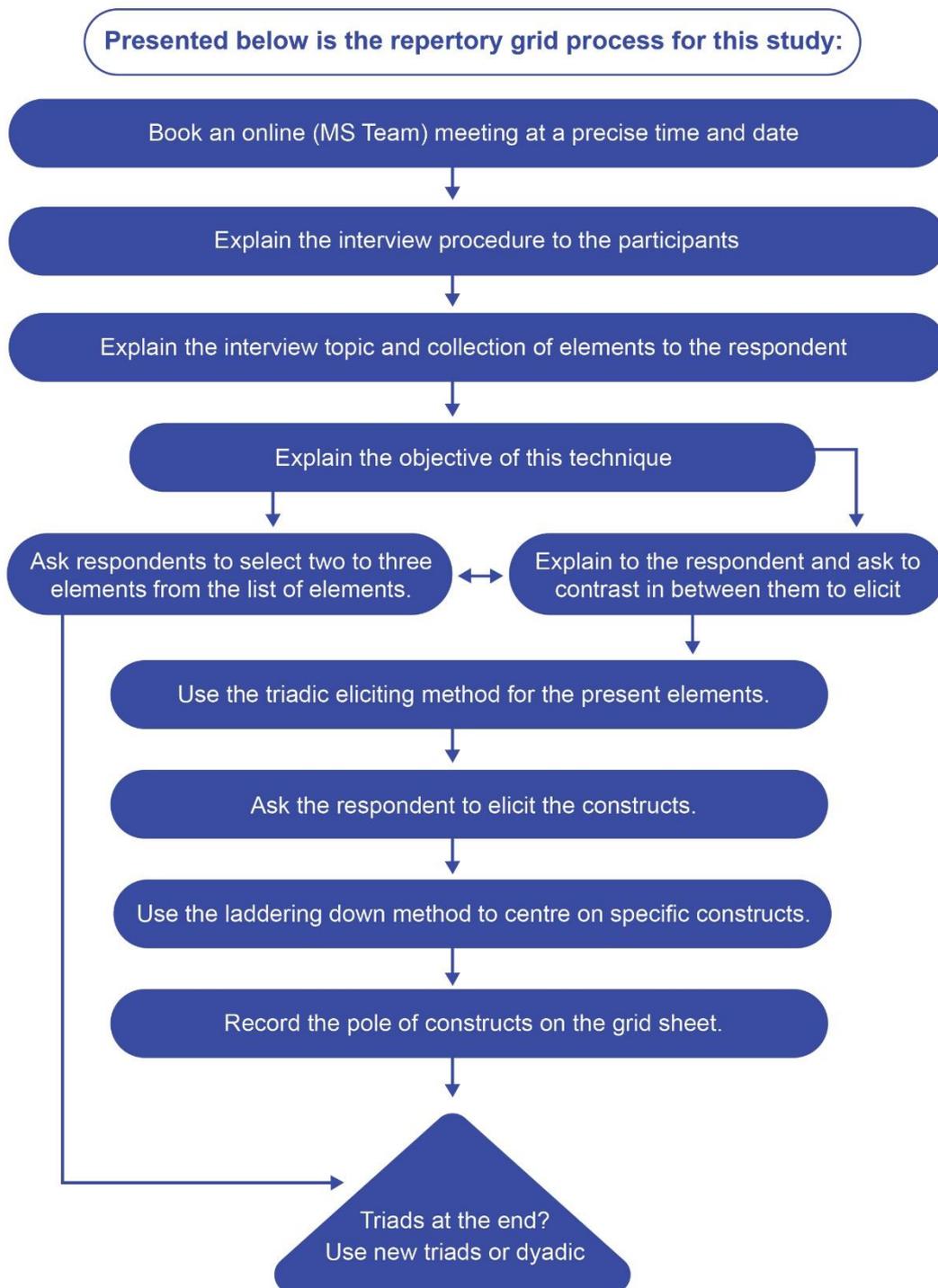
Participant's Code	Device used during the interview session	Duration of the interview	Types of recording
PM01	Personal laptop, MS Team & Otter.ai	1:15 hours	One to one audio recording
PM02	Personal laptop, MS Team & Otter.ai	56 Minutes	One to one video & audio recording
PM03	Personal laptop, MS Team & Otter.ai	1:9 hours	One to one video & audio recording
PM04	Personal laptop, MS Team & Otter.ai	20 minutes and 46 minutes	One to one video & audio recording
		In total 1:7 hours	
PM05	Personal laptop, MS Team & Otter.ai	1:16 hours	One to one video & audio recording
PM06	Personal laptop, MS Team & Otter.ai	1:05 hours	One to one video & audio recording
PM07	Personal laptop, MS Team & Otter.ai	29 minutes and 17 minutes	One to one audio recording
		In total 47 minutes	
PM08	Personal laptop, MS Team & Otter.ai	1:20 hours	One to one video & audio recording
PM09	Personal laptop, MS Team & Otter.ai	1:19 hours	One to one video & audio recording
PM10	Personal laptop, MS Team & Otter.ai	1 hour	One to one video & audio recording

PM11	Personal laptop, MS Team & Otter.ai	45 minutes	One to one video & audio recording
PM12	Personal laptop, MS Team & Otter.ai	54 minutes	One to one video & audio recording
PM13	Personal laptop, MS Team & Otter.ai	42 minutes	One to one audio recording
PM14	Personal laptop, MS Team & Otter.ai	52 minutes	One to one video & audio recording
PF01	Personal laptop, MS Team & Otter.ai	52 minutes and 33 minutes	One to one (online) video & audio recording
		In total 1:25 hours	
PF02	Personal laptop, MS Team & Otter.ai	1:23 hours	One to one (online) video & audio recording
PF03	Personal laptop, MS Team & Otter.ai	55 minutes	One to one audio recording
PF04	Personal laptop, MS Team & Otter.ai	1:09 hours	One to one audio recording
PF05	Personal laptop, MS Team & Otter.ai	56 minutes	One to one audio recording
PF06	Personal laptop, MS Team & Otter.ai & mobile phone	58 minutes	One to one audio recording

**Table 4. 2 Duration of the actual interviews with each participant**

Three interviews were interrupted due to internet issues, and therefore, the researcher had to reschedule meetings with those participants (PF01, PM04 & PM07). The interview data has been encrypted and stored in the university's OneDrive (Cloud Drive) with a strong password, and uses two-step verification to protect against cyber threats. The interview audio recordings, notes and individual grid sheets, participant personal data, and list of the constructs has been stored in an Excel file to analyse the data. The researcher confirms that this data will be permanently deleted or destroyed from OneDrive and personal laptops in October 2023.

**The flowchart presented below shows the repertory grid process for this study:**



**Figure 4. 1 Flowchart -repertory grid interview process for data collection**

Several methods are available for the analysis and aggregation of construct systems across repertory grids when every grid encompasses similar elements (Bourne &

Jankowicz, 2018; Fransella et al., 2004). It becomes necessary to utilise content analysis to permit the aggregation of a construct across research participants.

### **4.3 Analysing repertory grid interviews**

Kelly created the repertory test as a methodological addition to the personal construct theory. The test involves a structured interview that researcher can use to elicit personal constructs about a specific subject. No single repertory test can show the participants' complete structure of constructs, however, instead it results in a representative sample of constructs and displays how participants utilise them (Beail, 1985). Honey (1979) developed the content analysis technique that has been used in this explorative study; the fundamental unit of meaning is the personal construct split from both the ratings and elements used in their elicitation. In other words, it uses content analysis techniques, which easily make sense of a collection of constructs (Jankowicz, 2005). Krippendorff defines it:

"Content analysis is a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (Krippendorff, 2004, p. 453).

The repertory grid technique "identifies the personal reasons for construct preferences, eliciting reasons iteratively until fundamental underlying reasons, identified with personal values, are reached" (Jankowicz, 2005, p. 189). The value of this individual view for understanding the world is described by Hinkle;

"Constructs functioning at this level of superordination are of fundamental importance; an awareness of them is essential for understanding the world of another human being" (Hinkle 1965, p. 34).

Through this process, the content analysis combines the meanings united by a collection of individuals while imitating some of the unique provenances (Honey, 1979). From the constructivist point of view, consistent with Kelly's PCT, acknowledging that each construct is unique to them. When applying Kelly's fundamental postulate with respect to individual constructs, which is the dichotomy corollary, "A person's construct system is composed of a finite number of dichotomous constructs".

The personal construct system is a certain amount of idiosyncratic bias along with constructivism (Granvold, 1996). In regard to comparing to the construal of "successful vs less successful" in the context of trust relationship in online banking. In agreement with Kelly's theory, the elicitation of constructs achieves this stage by relating consecutive, randomly chosen triads of elements. The participant answers questions such as "Which offered features are the same as, or dissimilar to a third feature?"

The methodology includes a flow chart for the analysis process (Section 4.2- figure 4.1). It indicates that construal systems are about developing internal models of the world (expectation) based on previous experiences to anticipate future occasions, that is, the construct system, against individual participant experience. This is consistent with the PCP experience corollary.

The research participants have many years of personal experience in their retail banking relationship. Most of the research participants have direct banking relationship and service experiences Two hundred thirty-five (235) unique constructs (Appendix B) were elicited from twenty participants, however, on average, the twenty participants provided 11.75 constructs, with males averaging 11.85 and females 11.5.

The following table shows the number of male and female participants and the calculation of average constructs.

Number of constructs and average constructs			
	Male	Female	Total
Number	14	6	20
Total Constructs	166	69	235
Average Constructs	11.85	11.5	11.75
Percentage of Constructs	71.60%	28.40%	100%

**Table 4. 3 Total number of constructs by male and female**

The following table shows an example of a study conducted by repertory interview and the total number of constructs elicited to compare the number of constructs produced from previous research.

The area of study	Number of Participants	Number of Constructs	Author & Year
An investigation of the factors that influence e-banking adoption by older users	Twenty (20)	Three hundred and seventeen (317)	Eghebi (2019)
The construction of online shopping experience	Twenty-three (23)	One hundred (100)	Kawaf & Tagg (2017)
Organisational heritage: Exploring effects on employee outcomes and perceptions of organisational attractiveness	Twenty (22)	Two hundred and twenty-one (221)	Pidcock (2017)
Trust and commitment in international business to business partnerships	Sixteen (16)	Four hundred and fifty-one (451)	Lillystone (2011)

**Table 4. 4 An example - total number of constructs and participants from previous study**

The set of constructs has been transferred to an excel file for iteration purposes, and it has been printed with twenty-four(24) pages of A4 size paper to cut into an individual construct. First, however, all constructs have been shuffled and put into a relevant, unique theme. This process has been repeated twice in a different colour (the supervisor) to identify the inter-rater reliability measures.

The following Table 4.5 shows an example of a single construct card.

PM10.118	Highly satisfied (In regard to delivery services, trucking option, default items / flexible refund options)	versus	Lack of integrity within operations (don't have any proper system in place)
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**Table 4. 5 An example of a construct card**

A construct card captures the participant's words precisely – which relates to the idea of authenticity and trustworthiness. The constructs were elicited during the interviews process, which created more meaning and sense-making, and better-understood results with both parties involved.

#### **4.4 The systematic analysis of the construal data by content analysis**

This study involved the “initialisation”, “construction”, “rectification”, and “finalisation” phases of the theme development process (Vaismoradi, Jones, Turunen, & Snelgrove, 2016, p. 103) and two (2) independent judges developed initial themes with regard to categories of constructs. The analytical importance of the content analysis theme is that the participants' subjective meanings and social reality are appropriately conveyed in the study (Hesse-Biber & Leavy, 2010).

A systematic analysis approach emphasises the construal of elicited constructs to make sense of participant experiences, and therefore, "a richer understanding of

complex phenomena such as human experience is achieved in qualitative approaches" (Hair, Rose, & Clark, 2009, p. 57).

The systematic analysis in this study explores the perception of online banking experience; Hair, Rose, and Clark (2009, p. 52) argue that "given the affective and sensory nature of customer experience, a methodology that elicits the internal perceptions and feelings of the customer is required in order to investigate the subject in the new online environment".

The content analysis focuses on the explicit description of communication content, reflecting its implicit meaning (Ayres, Kavanaugh, & Knafl, 2003). Content analysis is a systematic process of coding, text retrieval, and category manipulation, providing details of social reality by creating a theme (Zhang & Wildemuth, 2009). Every content analysis characterises a procedure of sociality by which the researcher interprets the participants' understandings. It is therefore appropriate to conduct an inter-rater reliability check with two independent judges on the initial content examination, creating a joint agreement of the redefinition of the groupings.

"The qualitative analyst's effort at uncovering patterns, themes, and categories is a creative process that requires making carefully considered judgments about what is really significant and meaningful in the data" (Patton, 1990, p. 405).

A reiteration of the content examination uses these established groupings, formerly ending the research. Reliability numbers of at least 0.90 for combined construct groups comprising two hundred to four hundred constructs can be accomplished with some care in category illustration (Dick & Jankowicz, 2001).

#### **4.5 Initialisation**

Initialisation refers to "reading transcriptions and highlighting meaning units", "coding and looking for abstractions in participants' accounts", and "writing reflective notes" (Vaismoradi et al., 2016, p. 103).

Immersion is achieved by carefully eliciting constructs and listing meaning and creative ideas, repeating ideas and making sense of data and critical issues in data. The constant comparison method (Glaser & Strauss, 1967) is an inductive analysis of

qualitative data. King (2004) proposed that the two judges independently identified provisional themes regarding the individual construct data in the complete immersion process.

According to Patton (1990, p. 376), "The first decision to be made in analysing interviews is whether to begin with case analysis or cross-case analysis and to use the constant comparison method to group answers to common questions [and] analyse different perspectives on central issues."

First, according to Matthews and Ross (2010), the researcher should elaborate every strategy explicitly and systematically for quality research outcomes. Second, the method implements an inductive examination to produce the realities from the qualitative data (Birks & Mills, 2015). The inductive procedure is an iterative process that orders and sorts qualitative data comprising documents, observations, and interviews, separating the data into categories of themes, patterns, groups, and meanings that formulate collections of abstract information (Cohen, Manion, & Morrison, 1928).

Judge 1 (the researcher) has developed sixteen (16) and Judge 2 (the supervisor) (10) provisional themes, based on the "look-alike and feel-alike criteria" (Maykut & Morehouse, 1994, p. 136).

Two judges identified the following provisional themes for the study:

Number of themes	Judge 1 (The researcher)	Judge 2 (The supervisor)
T1	Trust & system trust	Trust
T2	Satisfaction (customer service)	Product offering
T3	Commitment	Product knowledge
T4	Security and risk issues	Communication
T5	Power and freedom of choice	Technological advancement
T6	Service quality	Service offering
T7	Accessibility	Customer satisfaction / Service Quality
T8	Advanced technology	Brand recognition
T9	Online banking	Freedom of choice
T10	Easy to use	Miscellaneous
T11	Knowledge	
T12	Information and communication	
T13	Loyalty	
T14	Relationship	
T15	Infrastructure	
T16	Miscellaneous	

**Table 4. 6 Initial themes developed by Judge 1 and Judge 2 working independently**

Both judges discussed clarifying the ambiguity of categorising the content analysis themes related to similar meanings. Lincoln and Guba (1985, p. 347) suggested that researchers should "devise rules that describe category properties and that can, ultimately, be used to justify the inclusion of each data bit that remains assigned to the category as well as to provide a basis for later tests of replicability".

Table 4.7 shows the explanation of themes agreed by both judges.

Number of agreed themes	Agreed themes by both judges	Details explanation of each theme
T1	Trust	Trust and system trust are all about trustworthiness of technology, institution, reliable services, and reliability of every aspect of the system.
T2	Customer satisfaction	Customer satisfaction is included in customer service experience and expectation; it is about a satisfactory level of e-services. So, it fulfils the customer service experience expectation.
T3	Service quality	The service quality includes the quality of online services, facilities, management, strong policy, reputation, image and consumer support.
T4	Knowledge	Theme knowledge is including training, education and learning about new technology.
T5	Information and communication	The information and communication theme is all about efficient and practical information and communication and new technology-based communication systems.
T6	Technological advancement	This is all about latest technology, ICT infrastructure , new technology adoption and software performance.
T7	Service offering	Service offering theme includes all services provided by the banks, for example, fund transfer, bills payment, online payment, online support services.

T8	Accessibility	The accessibility theme includes product availability, limitations, ease of accessing services.
T9	Commitment and brand recognition	This is all about brand reputation, goodwill, responsibility to customers and services, and commitment to making customers happy and satisfied.
T10	Power and freedom of choice	Power and freedom of choice includes consumer bargaining power and freedom of choice regarding service acceptance and learning.
T11	Security and risk issues	'Security and risk issue' is a significant theme, and involves the perceived risk of cyber threat, fraud, corruption, online security and restrictions.
T12	Relationships	The relationship theme is involved with consumer relationships, loyalty and supportive behaviour
T13	Online banking	The online banking theme is about the online banking system and the benefits of online banking services.
T14	Miscellaneous	All others which are not included in any above themes

**Table 4. 7 Explanation of agreed themes for iteration purpose**

The use of the "constant comparison method" suggests and generates plausible themes (Glaser, 1965, p. 437). After a sensitive inspection and discussion, the two judges decided to establish and agree on fourteen (14) themes (Table 4.8 below). After carefully considering and explaining each initial theme, the judges developed agreed themes for the content analysis iteration process. The following table shows 14 agreed themes,

Number of agreed themes	Agreed content analysis themes
T1	Trust
T2	Customer satisfaction
T3	Service quality
T4	Knowledge
T5	Information and communication
T6	Technological advancement
T7	Service offering
T8	Accessibility
T9	Commitment and brand recognition
T10	Power and freedom of choice
T11	Security and risk issues
T12	Relationships
T13	Online banking
T14	Miscellaneous

**Table 4. 8 Fourteen agreed content analysis themes finalised by judges**

Fourteen agreed content analysis themes were decided on for the iterative content analysis process, both judges working independently. Two judges tried to match their group of two hundred and thirty-five (235) separate-coloured cards against these fourteen headings. The iterative process proceeds until the study deems that the inter-rater reliability is sufficiently high to permit the procedure to halt. The iteration process for inter-rater reliability (IRR) will continue until considered sufficient to allow the system to be completed.

#### **4.6 Construction**

The construction phase refers to "classifying", "comparing", "labelling", "translating and transliterating", and "defining and describing" in terms of similarities and differences in the process of data analysis (Vaismoradi et al., 2016, p. 105), and is followed independently by both judges in the iteration process one.

These fruitful constructions will be practical and consistent with a person's construing system. Judge One and Judge Two both worked independently so that "comparison as an iterative, cyclical process is carried out" across data (Vaismoradi et al., 2016). The use of the "constant comparison method" suggests and generates plausible themes (Glaser, 1965, p. 437).

The iterative process is a recursive, repetitive, and systematic procedure used in qualitative data analysis. Researchers can use numerous methods to analyse qualitative data and reveal the reality. An iterative process is one of the methods used by investigators when examining qualitative data (Kekeya, 2016). Interpretive qualitative research uses several different methods to produce knowledge from the qualitative data. It involves a collection of tasks conducted in a similar way every time, and executed numerous times. The objective of iteration is to move closer to the discovery, solution, or answer with every repetition. The notion and the solution ultimately converge, because with each iteration, the researcher is progressing towards the expected outcome.

#### **4.6.1 The iterative process (Content analysis)**

First, according to Matthews and Ross (2010), the researcher should elaborate every strategy explicitly and systematically for quality research outcomes. Second, the method implements an inductive examination to produce the realities from the qualitative data (Birks & Mills, 2015). The inductive procedure is an iterative process that orders and sorts qualitative data comprising documents, observations, and interviews, ordering the data into categories of themes, patterns, groups, and meanings that formulate collections of abstract information (Cohen, Manion, & Morrison, 1928).

The researcher carried out the iteration process to measure the level of inter-rater reliability (IRR) in terms of the overall agreement (OIRR) with the fourteen (14) agreed content analysis themes with respect to partial inter-rater reliability (PIRR). The concept of “agreement among raters” is relatively simple (McHugh, 2012, p. 227), and inter-rater reliability is measured as the percentage agreement between the judges.

Two judges represent the overall inter-rater reliability (OIRR) to achieve the measure of per cent agreement in order to reach a sufficient percentage of agreement between both judges. It therefore helps to determine when the judges achieve satisfactory agreement to allow the iterative procedure to halt. Two judges used fourteen (14) themes to obtain partial inter-rater reliability and the level of continuity between two judges by agreeing with each theme. As a result, the PIRR shows the problematic themes where two judges have a low level of agreement. The two judges discussed and clarified the definition of the specific themes to reduce vagueness. The two judges are consistent in the iteration process, and reach the overall inter-rater reliability (OIRR) regarding measuring the magnitude of agreement between the partial inter-rater reliabilities – PIRRs (content analysis) for the themes.

In this research, two judges identified fourteen (14) themes (Section 4.5 – Table 4.8) and calculated the PIRRs. This study then used the Jaccard similarity coefficient, which compares units in two groups to identify similar and distinct units. It is a determinant of similarity for two data groups, and it varies between zero (0%) and one hundred per cent (100%). The higher the percentage acquired, the greater the similarity between the groups.

For instance, the theme named “Customer satisfaction” was measured on the PIRRs within the total construct number for each judge and resulted in the following table (Table 4.9).

Content analysis theme: Customer satisfaction (first iteration)	
Judge 1	186,118,104,117,156,215,96,10,66,136,129,200,82,231,72,143,40,12 7,149,67,189,88,14,52,106,80,101
Judge 2	232,75,52,96,103, 90, 72,206,88,77,231,66,4,54,34,67,215,156,10,189

**Table 4. 9 The constructs placed into the “Customer Satisfaction” theme at the end of Iteration One (1)**

The researcher can determine the Jaccard Coefficient using the following equation:

Theme: Customer Satisfaction		Judge 2	
		Present	Absent
Judge 1	Present	a	b
	Absent	c	d

$$\text{Jaccard Coefficient} = \frac{a}{a + b + c}$$

The researcher discussed the Jaccard coefficient in the methodology chapter (Section 3.4.5 – Table 3.7 ), and the Jaccard coefficient method has been used to measure the PIRRs. The Jaccard coefficient is used to justify similarity and differences rather than PABAK statistics.

A summary table (such as Table 4.10) is needed in order to calculate the Jaccard coefficient. The table below displays the Jaccard Coefficient for all fourteen agreed themes:

Number of agreed themes	Agreed themes by both judges	PIIR
T1	Trust	0.446
T2	Customer satisfaction	0.343
T3	Service quality	0.214
T4	Knowledge	0.133
T5	Information and communication	0.2
T6	Technological advancement	0.676
T7	Service offering	0.242
T8	Accessibility	0.105
T9	Commitment and brand recognition	0.214
T10	Power and freedom of choice	0.15
T11	Security and risk issues	0.589
T12	Relationships	0.111
T13	Online banking	0.167
T14	Miscellaneous	0

**Table 4. 10 Fourteen (14) themes and the partial inter-rater reliabilities (PIRRs)**

The table above shows that the miscellaneous theme had no similarity between the two judges, hence the Jaccard Coefficient of zero percent. The highest Jaccard Coefficient of 67.6 % was by Technological advancement theme, meaning it had the most significant similarity between the two judges more than the other themes had. Conversely, the lowest Jaccard Coefficient of 10.5 % was by the theme Accessibility.

#### 4.6.2 Overall inter-rater reliabilities (OIRR) (Content analysis)

After completing the first iteration process, the OIRR between two judges arises from the idea that both the judges agreed with the placement of one hundred and eleven constructs into fourteen themes. The table below represents the overall agreement of the judges. Upon the successful completion of the partial inter-rater reliability, the researcher proceeded to conduct the overall inter-rater reliability. After the first iteration process, both judges had placed 47.23% constructs into the themes, and 53.77% remained to be placed into individual themes.

The table below displays the general agreement by the two judges:

Overall agreement between the Judges		Judge 2	
		Present	Absent
Judge 1	Present	111	124
	Absent	124	0

**Table 4. 11 Overall agreement between the Judges**

To determine the overall inter-rater reliability, it is necessary to calculate the following statistics:

The researcher also calculated the following statistics when determining the overall inter-rater reliability:

$$PABAK = \frac{2a+2d-N}{N}$$

$$\text{Proportion of positive agreement} = \frac{2a}{(N+a-d)}$$

$$\text{Proportion of negative agreement} = \frac{2d}{(N+a-d)}$$

$$\text{Prevalence index, } P_{\text{index}} = \frac{(a-d)}{N}$$

$$\text{Bias index, } B_{\text{index}} = \frac{(b-c)}{N}$$

The following table displays the results from the statistics:

Overall inter-rater statistics	Iteration
PABAK	<b>-0.382</b>
Bias index	0
Prevalence index	0.309
The proportion of negative agreement	0
The proportion of positive agreement	0.472

**Table 4. 12 Overall inter-rater statistics / the Bias index and proportion of negative agreement**

Table 4.12 shows that the bias index and proportion of negative agreement were zero per cent; but this figure ignores the negative joint agreements (absent). This DBA study continued to report the PABAK statistic, with more emphasis on the proportion of positive agreement and the prevalence index. Although the researcher overlooks the joint absences, the prevalence index becomes indistinguishable from the Jaccard similarity coefficient used in calculating partial inter-rater reliabilities.

The overall inter-rater reliability after every iteration process is measured as the minimum of the proportion of positive agreement and prevalence index expressed as shown below

$$\text{OIRR} = \text{Min (PPA, Prevalence index)}$$

After accomplishing the first iteration process, the smaller value between PPA and the prevalence index is 0.309. The overall inter-reliability at the conclusion of the first iteration is thus 31%. Byrt et al. (1993) argue that no individual omnibus statistic for the calculation of inter-rater reliability can be satisfactory when implemented with 2 x 2 agreement tables.

#### **4.7 Rectification**

The rectification phase refers to "verification as the process of checking and confirming, ensures a relative certainty about developed themes" (Vaismoradi et al., 2016, p. 106), and it is consistent with the following stages of content analysis "immersion and distancing", "relating themes to established knowledge", and "stabilising".

For this DBA study, it is ostensible that could determine the level of inter-rater reliability (IRR), in terms of the overall inter-rater reliability (OIRR), with respect to partial inter-rater reliabilities (PIRR) for the fourteen agreed to content analysis themes. The overall inter-rater reliability represents the universal level of agreement between the two judges, and so the study uses it to determine when satisfactory agreement is achieved between the two judges to permit the iterative process to end. On the other hand, partial inter-rater reliability, of which is relating to every theme for this study, is utilised to determine the level of dependability between the two judges for every theme. The importance of partial inter-rater reliability is that it permits the ready recognition of problematic themes where the judges show minimal agreement. The two judges could discuss the challenging themes and offer clarification for their definitions to decrease ambiguity.

##### **4.7.1 Second iteration process (Content analysis)**

The second iteration begins similarly to the initial iteration, however, there is a clear sense of shared understanding between the judges in the second iteration. Both judges set iteration rules before starting the second iteration process so as to obtain a high level of agreement and accurate results. For example, the following table shows a number of rules set by the two judges.

Rules	Explanation
Rule 1	If it is money fear, it goes to security and risk
Rule 2	If it is safety fear, it goes to security and risk issue
Rule 3	If it is reliable or trustworthiness, it goes to trust theme
Rule 4	If it is recognition or reputation, it goes to commitment and brand recognition
Rule 5	If it is government regulation or policy, it goes to trust
Rule 6	If it is a high degree of consumer consciousness, it goes to brand recognition and commitment
Rule 7	If it is banking software or communication with consumers, it goes to information and communication
Rule 8	If it is accessible or easy to access or available, it goes to accessibility

**Table 4. 13 Iteration rules set by two judges**

Using those rules, two judges started the second iteration process. The two judges again worked independently to come up with an agreed placement of constructs into themes.

#### **4.7.2 Partial inter-rater reliability (Second iteration)**

Finally, the researcher compared the results from the second iteration and the first iteration. The study considers the theme of “customer satisfaction” to illustrate the process of the second iteration. The table below displays the construct numbers from both judges.

Content analysis theme: Customer satisfaction (Second Iteration)	
Judge 1	54,118,104,117,156,215,96,10,66,136,34,101,103,231,72, 14,52,127,149,67,189, 88,106
Judge 2	104,117,52,96,103,136,72,206,88,77,231,66,101,54,34,67, 215,156,10,189,90,14,149

**Table 4. 14 The constructs placed into the theme “Customer Satisfaction” at the end of iteration two (2)**

Following the equation below determines Jaccard Coefficient:

Theme: Customer satisfaction		Judge 2	
		Present	Absent
Judge 1	Present	a	b
	Absent	c	d

$$\text{Jaccard Coefficient} = \frac{a}{a + b + c}$$

The table below will determine the values for a, b, and c:

Judge 1 Constructs	Judge 2 Constructs	Agreed Constructs	Constructs by Judge 1 only	Constructs by Judge 2 only
54	104	54	118	206
118	117	104	127	77
104	52	117	106	90
117	96	156		
156	103	215		
215	136	96		
96	72	10		
10	206	66		
66	88	136		
136	77	34		
34	231	101		
101	66	103		
103	101	231		
231	54	72		
72	34	14		
14	67	52		
52	215	149		
127	156	67		
149	10	189		
67	189	88		
189	90			
88	14			
106	149			
Totals		a = 20	b = 3	c = 3

**Table 4. 15 Example of Jaccard Coefficient, a, b & c value**

The Jaccard Coefficient for the second iteration for the theme of Customer Satisfaction is thus:

$$\text{Jaccard Coefficient} = \frac{20}{20 + 3 + 3} = 0.769$$

Applying the Jaccard Coefficient to the other themes results in the following table:

Number of Agreed Themes	Agreed Themes by both Judges	PIIR
T1	Trust	0.9
T2	Customer satisfaction	0.769
T3	Service quality	1
T4	knowledge	0.778
T5	information and communication	0.857
T6	Technological advancement	1
T7	Service offering	0.816
T8	Accessibility	0.923
T9	Commitment and brand recognition	0.9
T10	Power and freedom of choice	0.818
T11	Security and risk issues	0.933
T12	Relationships	1
T13	Online banking	1
T14	Miscellaneous	N/A

**Table 4. 16 Partial inter-rater reliability (Second iteration)**

When assessing the partial inter-rater statistics generated in the second iteration process, it is necessary to compare the statistics with the statistics from the initial iteration.

The table below shows a summary of the partial inter-rater reliabilities for Iterations 1 and 2:

Number of Agreed Themes by both Judges	PIRR for Iteration 1	PIRR for Iteration 2
Trust	0.446	0.9
Customer satisfaction	0.343	0.769
Service quality	0.214	1
knowledge	0.133	0.778
information and communication	0.2	0.857
Technological advancement	0.676	1
Service offering	0.242	0.816
Accessibility	0.105	0.923
Commitment and brand recognition	0.214	0.9
Power and freedom of choice	0.15	0.818
Security and risk issues	0.588	0.933
Relationships	0.111	1
Online banking	0.167	1
Miscellaneous	0	0

**Table 4. 17 The summary of partial inter-rater reliabilities for iteration 1 and 2**

As per the above outcomes, the rating consistency between two judges was significantly improved from the first and second iterations. The table indicates that thirteen out of fourteen themes have a partial inter-rater reliability of 0.769 or higher. According to Landis and Koch's (1977) criteria, this value shows that the two judges have reached significant agreement concerning thirteen of the fourteen themes.

There is a significant increase in the agreement between the two judges from the first iteration, however, the theme for miscellaneous remained low in both iterations compared to all other themes. The partial inter-rater reliability for the miscellaneous theme was zero in the first iteration and remained zero in the second iteration. The partial inter-rater reliability for the miscellaneous theme is crucially lower than the other thirteen themes. The low PIRR could indicate dissimilarities between the two judges in relation to this theme, or it could signify a more profound ambiguity regarding how participants construe online banking in Bangladesh.

### 4.7.3 Overall inter-rater reliability (Second iteration)

After completing the PIIR, the researcher conducted the overall inter-rater reliability for the second iteration. The table below shows the overall agreement between the two judges:

Overall agreement between the judges		Judge 2	
		Present	Absent
Judge 1	Present	219	16
	Absent	16	0

**Table 4. 18 Overall inter-rater reliability (Second iteration)**

To be able to compute the overall inter-rater reliability, the researcher calculated the following statistics:

Overall Inter-Rater Statistics	Iteration 2
PABAK	0.745
Bias Index	0
Prevalence Index	0.873
The Proportion of Negative Agreement	0
The Proportion of Positive Agreement	0.932

**Table 4. 19 Overall inter-rater statistics/the bias index and proportion of negative agreement**

The researcher gauged the overall inter-rater reliability at the end of each iteration as the minimum of the proportion of positive agreement and prevalence index defined by the equation below:

$$\text{OIRR} = \text{Min} (\text{PPA}, P_{\text{Index}})$$

The smaller value between PIndex and PPA is 0.873. The overall inter-rater reliability at the end of the second iteration is thus 87.3%.

The table below compares the overall inter-rater reliability between the first and the second iterations:

<b>Overall Inter-Rater Statistics</b>	<b>Iteration 1</b>	<b>Iteration 2</b>
PABAK	-0.382	0.745
Bias Index (Bindex)	0	0
Prevalence Index (Pindex)	0.309	0.873
The Proportion of Negative agreement (PNA)	0	0
The proportion of positive agreement (PPA)	0.472	0.932

**Table 4. 20 Comparison of the overall inter-rater statistics/the bias index and proportion of negative agreement**

The above table shows that the two judges achieved an almost perfect (Landis & Koch 1977) agreement after completing the second iteration reliant on the prevalence index, the proportion of positive agreement, and PABAK statistics. The researcher therefore terminated the iterative process at this phase because the two judges had achieved satisfactory agreement.

#### **4.8 Finalisation (The fourteen (14) agreed themes analysis)**

The finalisation phase refers to the validity of the agreed 14 themes and ensures the coherent and plausible storyline of analysis (Vaismoradi et al., 2016). Hunter, Lusardi, Zucker, and Jacelon (2002) argue that content analysis develops creativity for depicting themes through the presentation of a psychological, cultural, and social story.

##### **4.8.1 Service offering**

The Service Offering theme had a Jaccard Coefficient of 82% with forty (40) agreed-upon constructs between the two judges. The banks should therefore outline the different offers they intend to provide to the clients using the online banking system. The more transactions that clients can complete using the online system, the more appealing it will be. The services offered by the online system should outweigh the

benefits that the clients get through the conventional banking system. The services should be easily accessible and executed.

Critical and innovative service offerings identified as having the potential to develop system trust include accessibility, meaning that the consumers could access the bank's services from convenient locations. They also include technology because innovation brings progress and improvement, eliminating risks and increasing the efficiency and benefits of online banking. The banking staff mainly identified knowledge and information as essential, improving their expertise increased their competencies, empowering them to improve systems trust through their understanding. They were able to improve relationships with their clients through improved service delivery, improving customer satisfaction in online banking.

#### **4.8.2 Trust**

Trust is necessary in the banking sector, especially where clients have expectations of the bank, and the banks wish to use their experience to meet these expectations. According to most of the participants in this study, trust is a generalised expectancy and is important. Consumers (non-resident Bangladeshi banking clients) expect Bangladeshi banking systems to be trusted to maintain safe, consistent, convenient, and competitive online banking services. Consumer trust in this context therefore refers to the individual's feelings, behaviours, and emotions manifested when the bank ascertains that they can be relied upon to effectively deliver on expectations, serving their interests and securing their investments and transactions.

The Trust theme had a Jaccard coefficient of 90%, and thirty-six agreed themes between the two judges. It is very similar to the other themes. The ability for the customer to trust the online system is crucial since it will determine whether they use it or not. Trusting the system means the clients agree with the terms and conditions offered by the bank. They believe the system has no security issues, the technology is easy to use and understand, and the system is accessible with any device. The bank should ensure their clients trust the online banking systems using several assurances.

Trust refers to confidence in either or both party's honesty, reliability, and credibility. In this study, most respondents identified trust as a chief determinant of their loyalty

and engagement with the banking sector's online services (Nur, 2012). Accessibility to physical institutions is limited for non-residents, but regardless, clients seek robust and consistent delivery of banking services, transfers, deposits, and savings, among other things, at a convenient time and from any location. This is vital in establishing their loyalty as consumers have the freedom of choice due to limitation of banks offering online services in Bangladesh.

The other hurdle identified in connection with the different themes essential to building system trust is technological advancement. The Bangladeshi banking sector is significantly further behind than other countries in its innovations, increasing its risk of cyber-attacks, fraud, and identity theft. Without modern tech, accessibility is limited, especially for non-residents, because some of these institutions are in locations without an internet connection. These factors undermine consumer trust because they attest to the unreliability of these services, reducing commitment, loyalty, satisfaction, and trust.

#### **4.8.3 Technological advancement**

The study of participant data provided over 235 constructs of aspects they considered to be vital themes in the assessment of 'successful vs less successful' regarding relationships to trust, the Technological advancement concerning the bank's employees and the customers of online banking services in Bangladesh. The Technological advancement theme had a Jaccard coefficient of 100% and twenty-eight agreed constructs were placed into this theme by the two judges. The advanced technology theme is very similar to the remaining themes. The banks should use technology that consumers from different age groups and backgrounds can understand.

The concept of trust is related and dependent on the technological developments in the banking sector, however, contrary to the other theme analysis defined above, trust does not mean the firm belief in something's reliability and truth, but the functional predictability of the systems in supporting the online banking services (Teigland, Siri, Larsson, Puertas, & Bogusz, 2018b). In this research, a significant number of participants agreed that system trust was correlated to technological innovation, as online services rely on the internet and other infrastructural advancements. In the

operational dimension, however, there was consensus that the consumer's ability to predict the desired outcome within the system was optimal for trust to be established (Teigland, Siri, Larsson, Puertas, & Bogusz, 2018a). The banks in Bangladesh therefore needed to make their output predictable, eliminating bottlenecks such as security threats. The institutions deal with people's money, and what the banks do with the funds, measures to secure the funds, and the benefits gained by consumers increase predictability and directly boost system trust (Ejdys, 2018). The banking sector, like other industries, is subject to change. In order to develop system trust, clients must predict the resilience and robustness of the institution in weathering these storms in technological shifts and changes.

Digital technologies have permeated the banking sector, focused on promoting the interactions and communication necessary to avoid errors and delays that undermine consumer trust and satisfaction. The other crucial goal identified as reinforcing the theme of technological advancement is its ability to improve service offerings, such as online services, while increasing the quality of services. More importantly, however, collaboration, efficiency, and productivity advancing innovations promotes consumer satisfaction, creating trust through the increased ease of use of the technologies. This is why providing knowledge and information for customers and banking employees is essential in order to ensure that consumers adequately and correctly use the technology in service delivery.

The general trust levels of the participants in this research were based on specific financial institutions. This, in turn, was dependent on the perceived service quality of their offering, customer satisfaction, and investment in progressive developments in technologies to promote business predictability and reliability. For both the practical and strategic implications of this study, there is evidence to support the argument that system trust is established and influenced by many factors.

#### **4.8.4 Customer satisfaction**

The Customer Satisfaction theme had a Jaccard coefficient of 77%, and twenty (20) matching constructs by the two judges. The ability to satisfy any customer is an indication of a good and developing business. The objective of any business is to ensure their clients are satisfied with their products and services. The banks should

therefore strive to fulfil customer needs and desires through the online system to ensure maximum satisfaction and that the clients continue to use the system.

Customer satisfaction is determined by comparing the offerings of one bank to consumer expectations and perceived performance. If the performance supersedes expectations, a positive attitude will emerge, increasing customer satisfaction and vice versa; that is to say that there is a positive correlation between customer satisfaction and systems trust. Studies found that clients were more willing to adopt online banking if they were convinced their expectations would be met (Skvarciany & Jurevičienė, 2018).

Consumer satisfaction is necessary, proving the dyadic relationship between consumers and the banking sector in an operational and strategic context. The lack of trust has numerous dimensions, including the lack of consumer satisfaction, poor service quality, lack of staff knowledge and empowerment in online banking, security threats, lack of technological infrastructure, and communication and accessibility issues, to name a few. Without the theoretical context to give these themes some background, however, they cannot be understood as a logical or an emotional evaluation.

#### **4.8.5 Commitment and brand recognition**

The Commitment and brand recognition theme had a Jaccard coefficient of 90%. For any product to be successful and accepted by consumers, its brand must be recognised, and there must be an evident commitment to making it successful. In order to make online banking in Bangladesh a success, the responsible parties should promote the brand to the clients as better and more efficient than the other banking systems.

Considering how important it is to the participants, the banks should prioritise promoting their brand. Significant reforms are needed to increase brand recognition and loyalty, where one reliable instrument is reliability. Once a client attempts or is confident enough to use a service, their experiences determine their repeated use of the service and their association with the brand. More importantly, if their experience is straightforward and smooth with minor errors and without complicated procedures,

these clients are likely to use the services again, eventually forming a habit that gives brand loyalty.

In contrast, any negative experiences equally erode the brand appeal. For example, having customer data leaked or an increased incidence of fraud in the sector or given institutions suggests their lack of security and competence in securing their assets. That diminishes the commitment and loyalty of clients to the brand.

#### **4.8.6 Knowledge**

The Knowledge theme had a Jaccard coefficient of 68% with thirteen (13) matching constructs. Having sufficient knowledge concerning a brand is vital because it enables one to make proper and correct decisions. The banks should ensure that clients have adequate knowledge regarding online banking, security, cyber risks and user management systems. They can accomplish this by organising interactions with the clients through social media platforms, email or the clients about the online systems at the bank's premises. Educating the public about the online banking system, services, and risk is essential, since not everyone is conversant with new online or mobile banking.

Technology advances in data collection and analytics have provided financial institutions with diverse ways of engaging their clients and building better relations through the real-time and offline dispensation of information. Consumer knowledge regarding digital banking is necessary to make the adoption process easier and faster in the Bangladesh economic landscape. By actively sensitising clients to the dynamics of online banking, a relatively new venture for these financial institutions, there will be minimal risk affecting customer loyalty and willingness to opt for online banking services (Zanoon & Gharaibeh, 2013). It is especially critical to create an awareness of the security options and cautionary measures for customers in the digital space. This is guaranteed to reduce misconceptions regarding the digital solutions to their financial services needs. Apart from creating awareness about security for the clients, banks within the Bangladesh region should consider educating their customers on the products and services on offer so that they are better enabled to make informed choices that adequately cater to their needs. Banks must integrate this process into

their organisational culture due to the rapid changes being made in the digital space. Customers will require regular updates for the institutional efforts to be fruitful.

#### **4.8.7 Service quality**

The Service Quality theme has a Jaccard coefficient of 100%, and fifteen matching constructs between the two judges. The quality of service that the banks offer to the clients will determine whether the clients stay loyal to the online banking system. The banks should strive to provide excellent services to their clients change the conventional banking system. According to Teigland et al. (2018b), the banking industry is a dynamic service-oriented sector reliant on people and the services offered. Modern technology has made transformations in the industry more fast-paced, increasing performance, however, it has been painfully evident in the research that the Bangladesh banking sector is out of touch with the needs of their clients. It has become increasingly difficult to satisfy their needs without knowing their expectations, as the service quality is below standard. As a result, consumers are today freer to pick which brand to associate with, eliminating loyalty. More importantly, a significant number of participants had more than one bank account, meaning that they already had a measure of comparison regarding the adequate measures of different institutions.

Innovation and globalisation have paved the way for service improvements. New industry entrants have also intensified the need for faster innovations and creativity in order to stay ahead of rivals and satisfy consumer needs. In this study, service quality was crucial in building system trust for consumers. Their perceptions of the service security and risk issues including privacy, security against fraud, and other intrusions by unauthorised persons, diminished trust and their adoption of these services

#### **4.8.8 Power and freedom of choice**

The Jaccard coefficient is 82% with nine agreed constructs between the two judges. In the globalisation era, the consumer does not have any boundaries in terms of banking relationships. An interesting observation of consumer behaviour is that it is primarily characterised by the preference for institutions that maximise their expected outcomes for the services rendered (Balau, 2012). Banking institutions in Bangladesh should promptly grasp the power of internet banking in providing their target consumers with a wide variety of options from which they can choose, and the

availability of relevant information that guides their options. Institutional players in the banking industry must invest in effective online tools that could improve their customer reviews. This could be essential in helping their clients make informed choices, especially regarding online banking options. Provision of the right information about the bank's online banking services, alongside other relevant information, is a certain way of steering customer decisions towards the involved institutions for their banking needs (Balau, 2012). It is also important to regularly update the information according to the developmental changes made in the banks to avoid customer frustration, which could breed trust issues and prevent their full utilisation of online banking platforms provided.

#### **4.8.9 Security and risk Issues**

This Security and Risk Issue theme had a Jaccard coefficient of 93% with fourteen agreed-on constructs between the two judges. Security and risk issues are significant factors to consider for any transaction or system operating online. The online banking system should be safe for clients to use, without risk issues. Consumers need to know that the system is free from malicious people, outside interference or hacking and cyber-attacks. The banks should strive to convince their clients that their accounts will be safe, monitored in real-time, and that nobody can access their accounts without permission. The system should provide security checks when logging in, such as second verification by the client, comprising biometrics or answering a question only the client will know. The risk and security issues of any online system need to be zero in order for it to progress. The banks in Bangladesh should strive to make this a reality.

#### **4.8.10 Information and communication**

The Information and Communication theme had a Jaccard coefficient of 86%, and had six matching constructs between the two judges. For any system to develop and progress, it must provide the consumers with relevant information concerning the product to ensure they make informed decisions. The information the banks give their clients will determine whether the clients accept and adopt online banking. Regular and continuous communication between the banks and the clients would be significant for the way in which customers view online banking and whether they decide to switch from the conventional banking system to the new online system.

#### **4.8.11 Relationships**

The Relationship theme has a Jaccard coefficient of 100% with five (5) matching constructs. The banks in Bangladesh should therefore focus on developing a better relationship between their systems and the clients to improve online banking in the country. The relationships affect customer satisfaction and trust in the online business context. The relationship theme is directly linked with other themes such as customer satisfaction, service quality, and trust. Banks should focus on customer satisfaction and service quality in order to maintain a long-term relationship with customers. Communication forms the building blocks for establishing good relations between consumers and service providers, since it fosters trust through managing client expectations and settling emerging disputes amicably. The exchange of information is crucial to generating meaningful partnerships, which could help the banks and their corresponding clients better respond to emerging threats and opportunities in the banking sector. The role of relationship quality management cannot be underestimated, as it directly affects client loyalty to the brand of their preferred banking institutions (Garepasha et al., 2020). Banks could adopt various relationship marketing strategies in Bangladesh, such as using back-office technology and exploiting client touchpoints. Banks need to provide the best experiences for their clients since it makes the delivery of the best customer services easier, improving the ability of bank stakeholders to get their clients on board in the online banking system (Garepasha et al., 2020). Technological systems could be used to engage clients personally, in an approach guaranteed to help banks understand the needs of their service consumers.

#### **4.8.12 Accessibility**

This theme had a Jaccard coefficient of 92%, with twelve constructs agreed between the two judges after the second iteration. The first level indicates that it is very similar to all the other themes except the Miscellaneous theme. It has a distant resemblance to the Miscellaneous theme on the second level. Accessibility is a significant theme because it outlines how consumers can access the system to conduct any transaction. If the banks make the online banking process readily accessible to clients, they will remain loyal to the new system. The online banking system should be easily

accessible to clients on different platforms such as personal computers, smartphones, or tablets. Clients expect to access their online accounts using any of their devices without difficulties and barriers.

#### **4.8.13 Online Banking**

The theme of Online Banking had three constructs from the judges. Both the judges agreed to each construct that related to online banking. The Jaccard Coefficient associated with online banking is 100% per cent. Online Banking theme is not a dominant theme of all the themes, but the respondents consider it the most important. This importance could be because it was the main idea for the study, or the respondents feel the online banking system in Bangladesh is very significant. Online Banking is very similar to other themes except with Miscellaneous.

#### **4.8.14 Miscellaneous**

The Miscellaneous theme is the least important and dominant theme to the participants. It has a Jaccard coefficient of zero and no constructs after the second iteration process.

In summary, the content analysis above should be meaningful. The study combines the theoretical aspects of the literature review by applying a dyadic exchange between banks and customers, which developed from the direct analysis of the literature review. It discusses and compares thirteen (13) themes identified in conjunction with social exchange theory (SET) and relationship marketing (RM) and provides evidence of commonalities in the themes. These commonalities respond to the research question, acknowledging the ongoing challenges within the Bangladeshi banking sector for non-resident consumers.

### **4.9 Conclusions (Content analysis)**

The iteration process depends on a repeated cycle of modifications to improve results. It helps in finding the solution to a problem. It commences with an initial guess regarding variables and finally introduces a series of algorithms to obtain the answer. The content analysis for this study, the fourteen themes derived in the process and their constructs are critical to each analysis. Consequently, the reader must view the

procedure as trustworthy, credible, and robust. The best way to ensure the reader judges the investigation this way is by ensuring the content examination remains transparent. Unlike reliability, the reader is responsible for evaluating transparency. This analysis extends the definition of partial inter-rater reliability to involve the overall inter-rater reliability statistics and the partial inter-rater reliability statistics. The use of partial inter-rater reliabilities was significant in completing the first iteration and recognising ambiguous and contentious themes, and crucially assisted in improving the partial and overall inter-rater reliability statistics.

This study determined reliability in the context of content examination by using a second independent judge and inter-rater reliability statistics. The study used in this research extends the definition of inter-rater reliability to involve partial inter-rater reliability statistics (PIRRs) and overall inter-rater reliability (OIRRs).

According to Byrt et al. (1993), there is a risk in using one statistic comprising Cohen's Kappa to gauge inter-rater reliability. The researcher therefore used various statistics involving the Jaccard coefficient, bias index, prevalence index, proportions of negative and positive agreements, and PABAK.

PIRRs statistics were instrumental in recognising ambiguous and contentious themes after the initial iteration, and played a vital part in improving the overall and partial inter-rater reliability statistics. The flowchart for content analysis in the methodology stated a 60% inter-rater reliability statistic as satisfactory, and the values from the analysis significantly surpass 60% at both the OIRR and PIRR stage. The general phases of agreements are accomplished by utilising a proportion of the positive agreement statistic, which is 93.2%, surpassing the benchmark of 90% set by Jankowicz (2005). The prevalence index and PABAK follow closely at 87.3% and 74.5%, respectively. The use of numerous statistics to determine inter-rater reliability removes the need for the researcher to choose one statistic carefully to maximise the stated level of inter-rater reliability.

Krippendorff (2004, p. 430) argued that "when it comes to discussing mathematical objects such as agreement measures and their use as indices of the reliability of data, mathematical proofs and demonstrations should speak louder than majority opinions, even when published".

## **4.10 Cluster analysis (CA)**

### **4.10.1 Introduction of cluster analysis**

The cluster analysis in this DBA thesis aims to divide set subjects such as individuals (participants) or content analysis themes. In this thesis, the assessment will look at the study's participants, that is, arranging each participant into a cluster. The clusters will be based on their comprehension of trust, including system trust in the context of online banking in Bangladesh, and exploring patterns within the responses to the content, that is, an in-depth analysis theme cluster (Jankowicz, 2005; Jankowicz & Thomas, 1982). The analysis will focus on measuring the numerical relationships of the data, looking at patterns in the subject responses, effectively creating a cluster of similar yet distinct elements compared to data in other clusters (Everitt, 1979).

“Cluster analysis is a general logic process, formulated as a procedure by which groups together objects into groups based on their similarities and differences” (Amendola et al., 2010, p. 505).

Cluster analysis is defined as a simple logical technique that allows variable clearing objects to be grouped into clusters based on similarities or differences. Cluster analysis belongs to the multivariate statistical methods. Cluster analysis is complex, and to perform it effectively it is pivotal that the research uses the Jaccard similarity coefficient. However, cluster analysis naturally takes place during the exploratory stage of the study because it does not distinguish between independent and dependent variables. As an alternative, it is frequently leveraged to identify structures in data without providing an interpretation or explanation. The analysis permits the researcher to recognise and describe patterns between data elements. Exposing the patterns helps in differentiating and delineating structures that might not have been obvious before, but give substantial meaning to the data once identified. Once the researcher recognises the defined structures from the available dataset, informed decision-making becomes much more manageable.

Finally, the researcher can create a binary data matrix representing the final content assessment. Each construct will have two unique identifiers connected to the agreed content analysis theme within the first stage. Developing a binary matrix to represent the finished content analysis is therefore essential for carrying out cluster analysis

through the Jaccard similarity coefficient. First, every construct with its unique identifiers is combined with its agreed content analysis theme (Appendix C), and a cross-tabulation of research participants is generated against content analysis themes (Appendix D). When developing the binary construal matrix, the researcher substitutes non-zero elements in the construal matrix (Appendix C) with the value one. Whereas the construal matrix records how many constructs every participant has with respect to every theme, the binary form of the matrix (Appendix D) demonstrates that a participant lacks constructs represented by zero or one or more constructs described by one, with respect to every content examination theme.

The following table below illustrates the binary construal matrix:

Theme vs participant code	Trust	Customer satisfaction	Service quality	Technologically advanced knowledge	Commitment and communication	Power and freedom of choice	Security and brand recognition	Accessibility	Service offering	Online banking	Relationships	Miscellaneous		
PM01	1	1	1	0	0	1	1	0	0	1	0	0	0	0
PM02	1	0	1	1	0	1	1	1	0	0	1	0	0	0
PM03	1	1	1	0	0	0	1	1	1	1	1	0	0	0
PM04	1	1	0	0	1	1	1	1	1	0	0	0	0	0
PM05	1	1	0	1	0	1	1	0	0	1	0	1	0	0
PM06	1	1	1	0	1	1	1	1	0	0	0	0	0	0
PM07	1	1	1	0	0	1	1	0	1	0	1	0	1	0
PM08	1	1	1	1	0	1	1	0	1	0	1	0	0	0
PM09	1	1	1	1	0	1	1	0	0	0	0	0	0	0
PM10	1	1	0	0	0	1	1	1	0	1	1	1	1	0
PM11	1	1	1	1	0	1	1	0	0	1	0	0	0	0
PM12	0	1	0	0	1	1	1	0	1	1	1	0	0	0
PM13	1	1	0	1	0	1	0	1	0	0	1	0	0	0
PM14	0	1	0	0	0	1	1	1	1	1	1	1	0	0
PF01	1	0	1	1	0	1	1	0	1	0	1	0	1	0
PF02	1	1	0	1	0	1	1	1	1	1	1	0	0	0
PF03	1	0	0	1	1	1	1	1	1	0	0	1	0	0
PF04	1	1	1	1	1	0	1	1	1	1	1	1	0	0
PF05	1	1	0	1	0	1	1	1	0	0	0	0	0	0
PF06	1	1	1	0	1	1	1	0	1	1	1	0	0	0

**Table 4. 21 Illustration of the binary construal matrix**

#### 4.10.2 Construal cluster analysis

Construal clustering differs from the binary matrix approach. It compares how the research participants construe "successful vs less successful" in regard to trust in the context of the online banking system in Bangladesh while aligning them with theoretical factors. The Bangladesh online banking system is diverse and unique compared to other developed nations driven by culture, as seen in Hofstede's analysis, chiefly power distance versus individualism (Hofstede, 2011). The culture is compounded by sector infrastructure and advancements, suggesting a unique clustering compared to developed countries like the UK. For example, unlike in the UK, staff within the banking sector in Bangladesh do not value individualism and emphasise culture more than the UK. National culture is conceptualised as shared symbols, norms and values in a social collective. One of the most popular cultural theories adopted in information systems (IS) research is Hofstede's model. Hofstede (1984, p. 25) defined culture as "the collective programming of the mind which distinguishes the members of one human group from another."

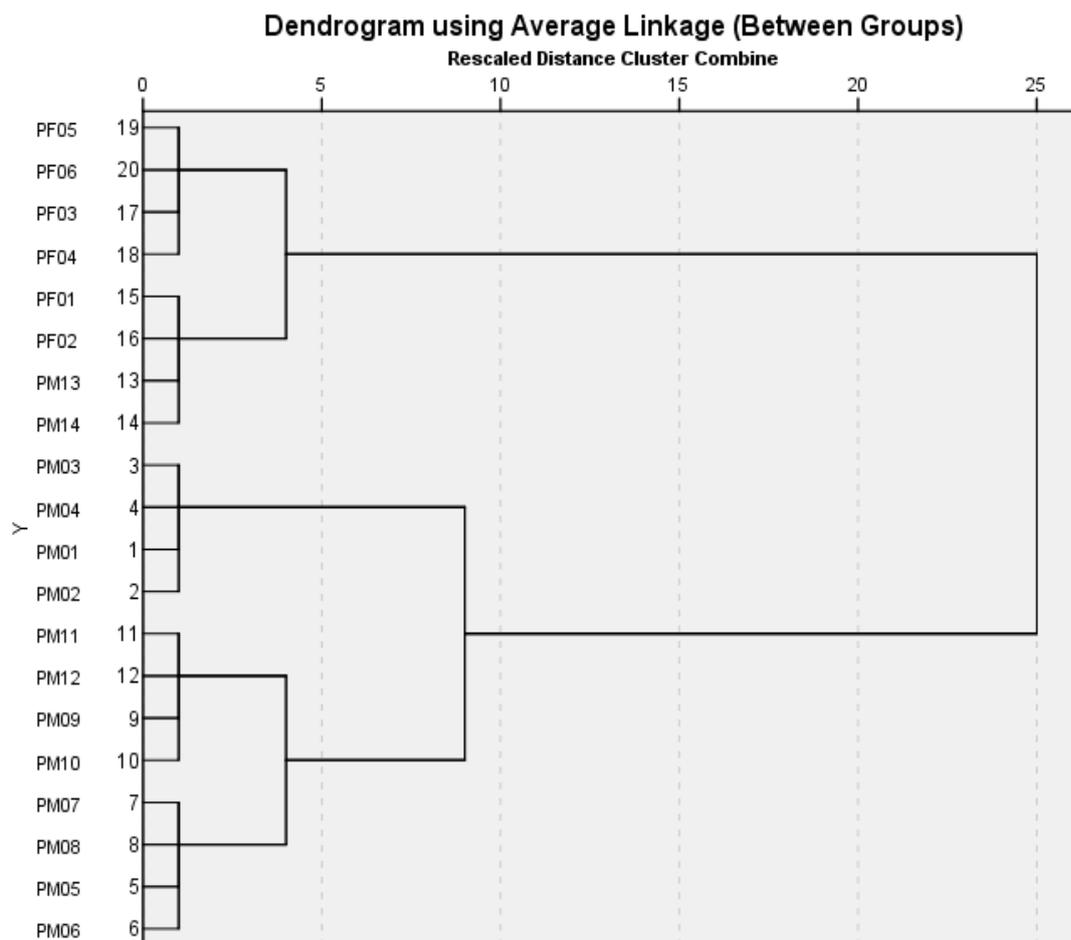
For most participants, personal experiences do not diminish the effect and value of corporate and national cultures. Instead, the national culture influences their organisational culture, and therefore their perceptions, contrary to suggestions by Gerhart and Fang (2005), who argued that corporate culture outweighed national cultures. These findings support findings that organisational behaviour and practices adhere to concepts embedded in national cultures, which are vital in Bangladesh, despite the rapid globalisation of economies and societies. National culture is a bridge that different organisations can adopt to connect to the local people, markets, and businesses.

According to Kelly's PCP, culture exists at three distinct levels: organisational, national, and sectoral. Contrary to similar deductions by other researchers, however, Kelly separates culture from ethnic or national aspects, arguing that culture is not mainly about the people behaving similarly but about their constructs. Kelly (1963: p94) stated that "People belong to the same cultural group, not merely because they behave alike, nor because they expect the same things of others, but because they construe their experience in the same way."

National culture variations are often too insignificant to explain the organisational culture, and thus influence decision-making. Undoubtedly, there are nuanced relationships identified in the financial sector, but many are constructs of the IT system. For instance, in many studies, the determinants of advanced technology acceptance consider national cultural effects on the individual consumers.

The binary matrix displayed above (Section 4.10.1 – Table 4.21) represents the construal of twenty participants across the fourteen themes agreed by the two judges during the content analysis process. Examining the table in rows shows how every participant interprets successful vs less successful in the context of online banking in Bangladesh.

Using the Jaccard similarity coefficient together with the average connection between-group clustering algorithms in SPSS (version 26) generates the dendrogram below:



**Figure 4. 2 Dendrogram using average linkage (Between groups)**

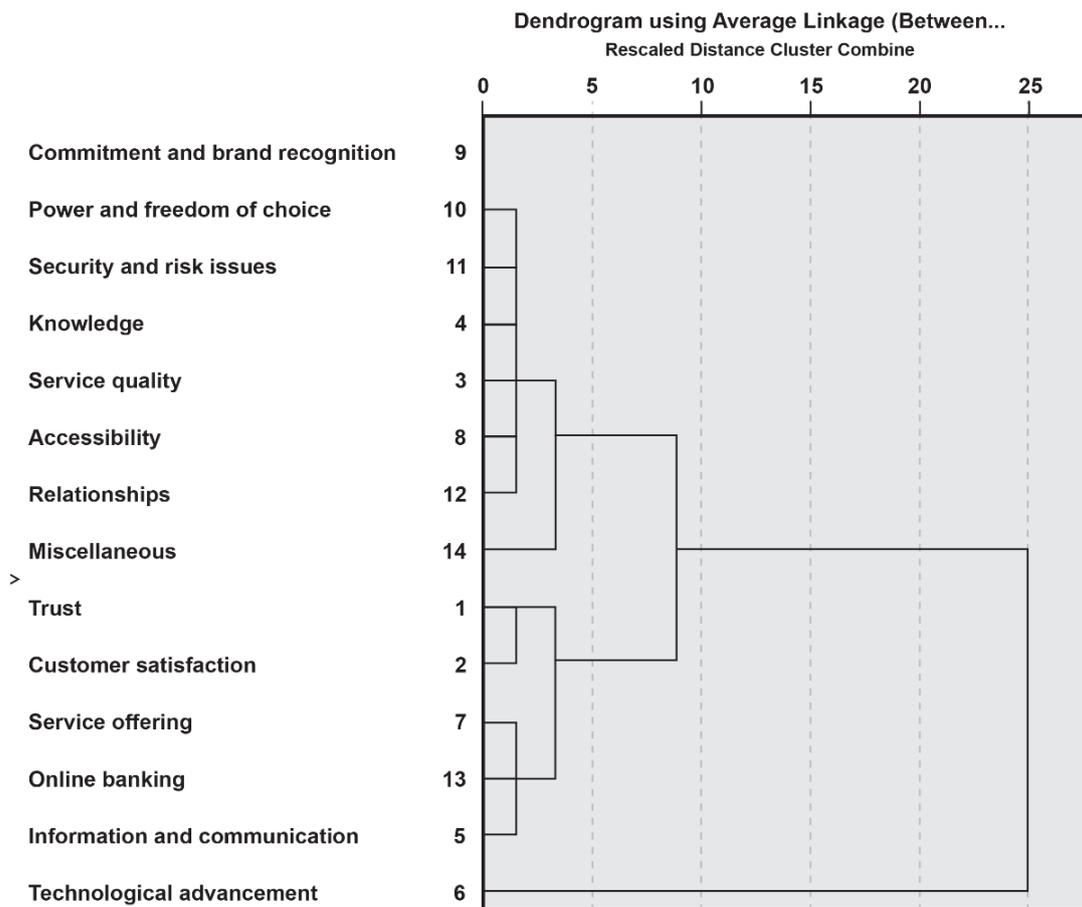
When interpreting a dendrogram, it is vital to emphasise the height at which any two objects join each other. For instance, in the dendrogram above, PF05, PF06, PF03, and PF04 are most similar, since the height of the association that joins them is the smallest. The following most similar objects are PM12 and PM08, followed by PM04 and PM10. The least similar objects due to the height that links them are PF04 and PM11. This shows that different participants construe online banking differently in Bangladesh.

#### **4.10.3 Theme clustering**

The clustering of themes is consistent with Kelly's Organisation Corollary (see Section 3.2 – Table 3.3), which indicates that individuals organise and arrange personal constructs in a hierarchical system from super-ordinate positions to subordinate constructs. It is measured against their expectations and satisfaction with online banking in Bangladesh, and potential trust issues. Moreover, the different clusters are joined successively to create smaller thematic groups significant to the nexus of online banking trust issues rather than the sector's functionality, as discussed in the literature review. The themes are emphasised as well-defined clusters, acting as the 'core' for other theme clusters. For example, this may include service quality, trust, technological advanced and customer satisfaction, information and communication, security and risk issues, all focused on the consumer trust and relationships aspects within their responses.

This analysis considers the columns of the binary data matrix. It represents the pattern of construal across content analysis themes concerning individual perceptions of trust in online banking in Bangladesh.

The following dendrogram below displays the results:



**Figure 4. 3 Dendrogram using average linkage (Between themes)**

From the dendrogram above, the pattern of construal among the participants in respect to commitment and brand recognition, power and freedom of choice, security and risk issues, knowledge, service quality, trust, customer satisfaction, service offering, online banking, information and communication, technology advanced, and relationships are very similar due to the height that links them. The 'core' themes that emerge are trust, customer satisfaction, Technological advancement, and service quality and security and risk issues. Additionally, miscellaneous, relationship and accessibility were the least similar themes due to the considerable distance.

These clusters are vital as it relates to the technological advancement, trust issues and the service quality rather than the behavioural characteristics identified in the literature review. For example, according to Hofstede's (2003) six dimensions model, Bangladesh is a collectivist cultural society, where people are influenced by family and

friends. Undoubtedly, national culture affects consumer behaviour and perception regarding the adoption of new technology. McSweeney (2002, p. 1) suggested that “cultural factors should be considered in order to design effective information security policies, practices and technologies in global networks.”

The themes are refined and revised through content analysis focused on expectations versus the delivery of satisfactory results. The content analysis provides a holistic view of all factors affecting the identified themes, including sector commitment to counter the infinite threats to the sector, such as cyber-attacks and trust. It also focuses on aspects of customers engagement, given that the competing standards of online services such as banking include usefulness, and commitments.

This study resulted in a diverse collection of content analysis themes, including some shared themes that demonstrated a form of consistency and, thus, the need for and benefit of a content analysis approach. For example, in contrast to popular studies (as seen in Chapter 3). There are five core themes determined from amongst all agreed themes.

1. Trust
2. Customer satisfaction.
3. Service quality
4. Technological advancement
5. Security and risk issues

The following table aligning aligns these five (5) thematic dimensions with the 13 themes agreed overall

Trust	Information and communication (Theme 5), Technological advancement (Theme 6), Accessibility (Theme 8), Security and risk issues (Theme 11) and Online banking (Theme 13) will promote the consumer trust in the systems and increase
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	customers engagement and adoption of online banking services.
Customer satisfaction	Service Quality (Theme 3), Information and communication (Theme 5), Technological advancement (Theme 6), Knowledge (Theme 5), Accessibility (Theme 8), Power and Freedom of Choice (Theme 10), Security and Risk Issues (Theme 11), Relationships( between banks and clients) (Theme 12), Trust (Theme 1).
Service quality	Service Offering (Theme 7), Online banking (Theme 13), Customer Satisfaction (Theme 2), Commitment and brand recognition (Theme 9), Power and freedom of choice (Theme 10), Accessibility (Theme 8), Technological advancement (Theme 6), Knowledge (Theme 5), Information and Communication (Theme 5) and Trust (Theme 1).
Technological advancement	Information and communication (Theme 5), Security and Risk Issues (Theme 11), Online banking (Theme 13), Service offering (Theme 7), Customer satisfaction (Theme 2), Service quality (Theme 3), Knowledge (Theme 4) and Trust (Theme 1).
Security and risk issues	Security and risk issues (Theme 11), Trust (1), Technological advancement (Theme 6), Information and communication (Theme 5) and Knowledge (Theme 4)

**Table 4. 22 Associating these five (5) thematic dimensions**

It is necessary to understand that trust, service quality, customer satisfaction, advanced technology and security and risk issues are implicit concepts that are subject to a particular individual's experience compared to the other themes. The analysis of the personal constructs agrees on the advancement of these themes. The

content analysis was transformed to be more iterative as each theme was matched to the participant responses. Those found to have high inter-rater values were selected and perceived to be more reliable through elimination.

#### **4.10.4 Analysis of constructs concerning content themes**

The construal clustering highlights the significance of national culture; it was ineffective without correlations to the nuanced themes, such as security and risk issues, service quality, trust, advanced technology, and customer satisfaction. The most vital metrics were dominance and importance, which is consistent with the study's inductive and exploratory nature.

Descriptive richness, however, is textual, and attempts to recognise the latent meanings in each participant construct; thus it is consistent with the naturalistic paradigm and specifically the use of content analysis to create themes through which the research participants interpret trust relationships with their bank. On the other hand, importance and dominance are quantitative and consistent with Kelly's (1995) personal construct psychology and the inductive design of this research, since their usage is exploratory. The dominance metric relates to the content themes instead of individual constructs, as they are more dominant. Individual metrics and constructs are subjective and often ambiguous, affecting the research credibility and viability. In contrast, the content themes are often shared and numerous, ensuring that a metric that conveys their satisfaction levels is always found. It is therefore better to compare service industry players and the online banking systems of other countries, increasing the depth of the study.

The ranking of all augmented themes, including the status of online banking, trust, reputations, information and communication, loyalty, and service quality, shows that the most dominant issue for most consumers is trust. Trust and commitment to security were more significant in the construed "successful versus less successful" relations, an outcome also acknowledged by Morgan and Hunt (1994). They argued that it encourages businesses to preserve the relationship between their organisation and consumers. It is also essential to discourage short-term gratification in favour of the long-term benefits offered by a message of trust to existing users and potential consumers.

#### **4.10.5 Ratio of dominance (with respect to themes)**

Ratio constructs developed in response to disconfirming subject experiences warrant more anticipation and control. The participants had more constructs around the themes of trust because the majority are non-residents who are solely dependent on online banking platforms. Consumers may be in remote regions or where their banks suffer from the poor underdeveloped internet infrastructure, result in a lack of access to their funds and bank accounts. More importantly, many are at a loss with this archaic infrastructure with slow reforms and diminished standards and regulations, because they fear that their funds are at risk from cyber hackers and online banking fraud.

The lack of control experienced by consumers regarding operations within banks leaves them vulnerable, as they are dependent on the bank's measures and policies, a fact many perceive or interpret as a loss of power. Power dynamics and dependency are inversely related, and thus crucial determinants of conflict pressures. These discrepancies cause large power imbalances where abuse or failure on one side diminishes social cohesion, altering and eroding the trust that customers have in the services (Muthusamy & White, 2005; Ward, 2017). A consumer brand relationship affects interim trust, service quality, consumer satisfaction, and reputations that are essential to the business relationship as they are developed over time (Mainardes, de Melo & Moreira, 2021).

These dynamic understandings of the relationship mean that the participants had numerous varied constructs. Consequently, the study is more vulnerable to deviations resulting from many multifaceted constructs regarding trust, what it is and why it is necessary. The non-residents are the primary users of online banking services. They have more authority and input regarding the outcomes due to their increased awareness and experiences, determining trustworthiness, technology, information and communication.

There are several potential explanations regarding why these participants have more constructs related to virtual banking, the barriers to information and communication, poor consumer satisfaction, low levels of system trust and poor reputations that online Bangladeshi banking has locally and internationally. Reviews of Bangladeshi online banking systems have been dismal. Even though this is also a concern for the non-

resident participants, it dictates that they must make numerous trade-offs when relying on their bank's reputation. More importantly, they have to trust the facility, including the new technology, to care for their needs and best interests.

Dominance is a modest metric that is associated with themes instead of individual constructs. A theme is considered to dominate another when it has more constructs. According to the finalised content analysis themes, there are 219 agreed constructs.

The table below shows the number of constructs within each theme:

<b>Constructs</b>			
<b>Themes</b>	<b>Total number</b>	<b>Percentage (%)</b>	<b>Overall rank</b>
Service offering	40	18.26%	1
Trust	36	16.44%	2
Technological advancement	28	12.79%	3
Customer satisfaction	20	9.13%	4
Commitment and brand recognition	18	8.22%	5
Service quality	15	6.85%	6
Security and risk Issues	14	6.39%	7
Knowledge	13	5.94%	8
Accessibility	12	5.48%	9
Power and freedom of choice	9	4.11%	10
Information and communication	6	2.74%	11
Relationships	5	2.28%	12
Online banking	3	1.37%	13
Miscellaneous	0	0	N/A
<b>TOTAL</b>	<b>219</b>	<b>100</b>	

**Table 4. 23 Theme analysis with respect to dominance**

The table above shows that the Miscellaneous theme is not significant in how the twenty participants construe successful vs less successful. The Service Offering theme is the most effective amongst the twenty participants, followed by the Trust and Technological advancement themes.

#### **4.10.6 Theme analysis with respect to importance**

Two of the most distinct metrics used in this DBA study are importance and dominance, however, they are distinct, as importance relates to the elicitation of constructs in the individual interviews with different participants. It works on the premise that elicitation is related to vitality, value, and importance compared to earlier constructs found to be more important. As a result, the importance metric relates to the elicitation order focused of the constructs identified in each participant interview. The constructs identified from every interview were recorded according to their importance, and an average importance statistic is then calculated using the constructs in the content analysis theme.

According to Tomico, Karapanos, Levy, Mizutani, and Yamanaka (2009) the following formula can be used for this calculation of construct importance, that is, their order of elicitation:

$$\text{Order (Normalised)} = \frac{\text{Constructs number} - 1}{\text{Total Constructs} - 1} \quad (\text{Equation 8})$$

The total number of constructs arises from a separate interview instead of the total number of constructs elicited from all the interviews. The formula therefore places  $n$  constructs on the interval  $[0,1]$  so that the first elicited construct has the value 0 and the last, a value of 1. Consequently, the remaining  $(n-2)$  constructs are equally spaced between the two endpoints. However, the formula has some drawbacks, primarily that the numerical value assigned is inversely proportional to elicitation, and therefore contradictory. Secondly, while the formula would be useful, it is not essential to measure important metrics as a percentage, which is the case with the dominance

metric. A proposed revision to the equation to make it more effective and thus indispensable is therefore shown below:

$$\text{Order (Normalised)} = 1 - \frac{\text{Constructs number} - 1}{\text{Total Constructs} - 1} * 100 \quad (\text{Equation 9})$$

This revised formula is more valuable as it can be applied to all 235 constructs, however, only the importance statistic relating to the 219 agreed constructs will be used for the subsequent assessment to present each construct's absolute and actual importance values, unlike the previous formula. The important constructs are also sorted according to the agreed content analysis themes, and statistical importance is focused on their averages and standard deviations by themes. The following table shows the content analysis theme (ordered importance)

Content analysis theme (Ordered Importance)	Number of agreed constructs	Average importance (%)	Importance rank
Online banking	3	75.00	1
Relationships	5	71.43	2
Information and communication	6	68.42	3.5
Commitment and brand recognition	18	68.42	3.5
Service quality	15	68.18	5
Accessibility	12	67.57	6
Technological advancement	28	67.45	7
Security and risk Issues	14	67.44	8
Trust	36	66.09	9
Knowledge	13	66.00	10
Service offering	40	64.964	11
Customer satisfaction	20	64.789	12

Power and freedom of choice	9	60.00	13
Miscellaneous	0	0.00	N/A

**Table 4. 24 Importance of statistics with respect to themes**

According to the importance table above, the theme of Online Banking is the most important, followed by the theme of Relationships, and thirdly the theme of Information and Communication. The least essential theme is Miscellaneous.

It is evident from the previous tables that participants interpret online banking in Bangladesh differently concerning the two metrics of importance and dominance. Mixing the 219 agreed constructs concerning the fourteen themes therefore leads to the table below:

Themes	Dominance Statistic (%)	Importance Statistic (%)	Dominance Rank	Importance Rank
Service Offering	18.26%	64.96%	1	11
Trust	16.44%	66.09%	2	9
Technological advancement	12.79%	67.45%	3	7
Customer satisfaction	9.13%	64.79%	4	12
Commitment and brand recognition	8.22%	68.42%	5	3.5
Service quality	6.85%	66.00%	6	10
Security and risk Issues	6.39%	68.18%	7	5
Knowledge	5.94%	67.44%	8	8
Accessibility	5.48%	67.57%	9	6
Power and freedom of choice	4.11%	60.00%	10	13
Information and communication	2.74%	68.42%	11	3.5
Relationships	2.28%	71.43%	12	2
Online Banking	1.37%	75.00%	13	1
Miscellaneous	0.00%	0.00%	N/A	N/A

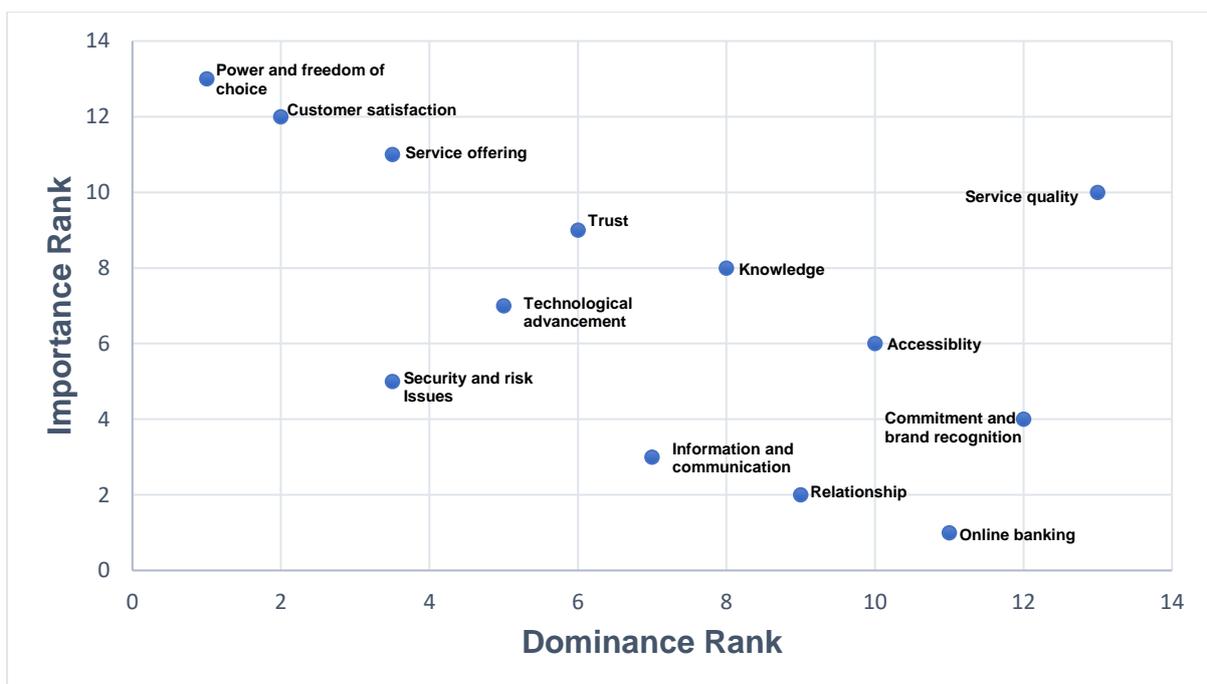
**Table 4. 25 The two metrics of importance and dominance**

The above table shows that the Service Offering theme ranks number eleven in importance to the participants with a statistic of 64.96%, however, it is the most dominant theme of all the other themes, with 18.26%. The Technological advancement theme ranks number seven in terms of importance to the participants with a statistic of 67.45%. On the other hand, it has a dominance of 12.79% and ranks number three. The Customer Satisfaction theme ranks number twelve in terms of importance to the participants, with 64.79%. On the other hand, it ranks number four in terms of dominance with a statistic of 9.13%. Service Offering is also very similar to the other themes, but does not match the Miscellaneous theme.

The following Spearman's Correlation Coefficient calculation was used to determine the association between importance and dominance. The formula is as follows:

$$r = 1 - \frac{6\sum d^2}{n(n^2 - 1)} = 1 - \frac{6 * 568}{13 * 168} = -0.56$$

The weak negative association indicates that importance and dominance are independent conceptions. Below is the scatter plot for the two metrics according to rank:



**Figure 4. 4 Scatter diagram by themes (Importance and Dominance)**

#### **4.10.7 Conclusion**

The iteration process depends on a repeated cycle of modifications to improve results. It helps in finding the solution to a problem. It commences with an initial guess regarding variables and finally introduces a series of algorithms to obtain the answer. The content analysis for this study involved fourteen themes derived in the process, and their constructs are critical to each analysis. The process should be transparent in order for the reader to be able to understand it easily. This analysis extends partial inter-rater reliability to involve the overall inter-rater reliability statistics and the partial inter-rater reliability statistics. Using partial inter-rater reliability was significant in completing the first iteration and recognising ambiguous and contentious themes, and crucially assisted in improving the partial and overall inter-rater reliability statistics.

The cluster analysis model provides a better understanding of how the participants view the system trust in the context of online banking in Bangladesh. The results from the model should be significant for practitioners and academics. The relevant authorities can use the information from this analysis to make informed decisions concerning which ideas to implement and which to avoid. The model shows the similarity between participant responses with respect to the fourteen (14) content analysis themes. The foundation of these differences is the metrics of importance and dominance, which show the delicate dissimilarities present regarding how different participants construe online banking in Bangladesh.

Construal is significant in the efficient management of business practitioners' general perceptions and behaviour, and specifically with respect to reliance on services and technology. The assessment of differences across the participants represents a subjective appraisal of encounters reliant on expectation and satisfaction (Rust & Oliver, 2000). The expectations come from the participants' construal structure as expressed by Kelly's fundamental postulate. According to Kelly (1991), the way that individuals anticipate occurrences guides their psychological processes

Businesses in the Bangladeshi banking sector have struggled to meet the requirements and satisfy the needs of consumers, mainly, non-residents, who doubt

the security of online banking services. More importantly, breakdowns in communication due to insufficient ICT infrastructure have caused many to lose trust and commitment in these institutions and their benefits. Compared to other countries, these instabilities and poor performance have resulted in the premature writing-off of online services and the banks that offer them.

#### **4.11 Chapter summary**

This chapter was divided into two stages, conducting repertory grid interviews and content analysis, to address Objective Two. This chapter focused on drawing the most appropriate conclusion from the content analysis of the study and the literature review on trust, including system trust in the practice of online banking in Bangladesh.' The systematic analysis of this chapter provides a unique research contribution. Finally, the end of this chapter discussed cluster analysis, including theme clusters and dominance, and the importance of content themes. The next chapter will explain the study contribution and conclusion.

# Chapter 5

## Conclusion

### 5.0 Introduction

This chapter concludes this doctoral investigation. It presents the contributions of the study and makes specific practical managerial recommendations for boosting customer engagement in the Bangladeshi banking system. The chapter begins by showing how the research fulfilled the research objectives. Reflecting the practical nature of this DBA study, several practical recommendations are made for Bangladeshi banks that wish to encourage their customers to engage with online banking services. Finally, the chapter concludes with a discussion of areas for future research.

### 5.1 Addressing the researchable questions, and objectives

The research aim of this DBA thesis was to “explore and identify the constructs that establish systems trust and promote customer engagement with Bangladeshi online banking systems, which directly and indirectly contribute to boosting the country’s GDP”.

This section reviews the objectives presented in Section 1.2.

**Research objective 1: Critically review the extant literature relevant to ST and its related constructs (in particular, trust, customer engagement with respect to satisfaction, and security) in the context of the Bangladeshi banking sector [Chapter 2 – Literature review]**

Chapter 2 provides an introduction to trust theory. Following a review of the different meanings of “trust” in the marketing context, Section 2.2 concludes that the antecedents of trust are complex, nuanced, and multifaceted (Morgan and Hunt, 1994); thus, trust is context-specific, dynamic, and culturally loaded. As recognised by Nobel laureate Arrow (1972, p. 357), "Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time",

thus acknowledging the interplay of trust and GDP. Despite the importance of trust in the banking system, the Bangladesh Central Bank (2020) provides evidence that, as of 2020, 52% of adults in Bangladesh were unbanked, revealing a disjoint between Bangladesh's aspirations to grow its economy, current levels of trust, and current levels of customer engagement with the online banking system. To better understand customers' resistance to engaging in online banking services and promote greater participation, a critical exploration of the system from the customer perspective is needed.

This study acknowledged that intrinsic psychological factors involving the trust required in developing online banking systems with their benefits and risks. However, the majority of participants were most worried that their financial transactions, money and details were not secure. Given the unstable information technology advancements in the Bangladeshi infrastructure, many participants were concerned about security due to minimal or non-existent modern-day authentication systems. According to Marafon, Basso, Espartel, Dutra de Barcellos, and Rech (2018), today's online services use biometrics that relies on assessing the user one's behaviour or the physical biology of the individual.

Consequently, security cannot be limited, shared or forgotten, increasing the platform's security and protecting users' identities. More importantly, security provisions of security increase the user's trust in their transactions and the institution, increasing the consumer satisfaction crucial to building loyalty (Lin, Wang, & Hung, 2020). With the mitigation of threats such as identity theft and fraud, the majority of the interview participants believed that self-efficiency was non-negotiable as a suitable solution that affirms asserts trust in online banking systems. Therefore, trust directly impacts customer satisfaction with regard to maintaining long-term relationships and accepting new technology-based services (Cuong, 2020).

There was also a significant issue relating to the consumer's circumstances with difficulty in relating to the consumer's personal circumstances from this research, whereby most of the participants felt these services were complex, complicated, and untrustworthy. One study on the adoption, impact, practice and security steps of online banking in Bangladesh by customers abroad discovered that the significant gaps were a lack of simplicity in conducting transactions, the lack of facilities, a credible system,

service quality, and relationships (Ananda, Kumar, & Singh, 2022). These sentiments were reiterated by Rahman and Sloan (2015), who argued that Bangladesh as a developing nation was slow in terms of its change management. The global banking sector has undergone tremendous changes over the last decade, including in the traditional banking segments and with regard to innovations. One driver of this shift has been the transformation of banking consumers' lifestyles. One disruptor forcing this change had been technology, primarily the internet moving people towards modernity in business practices.

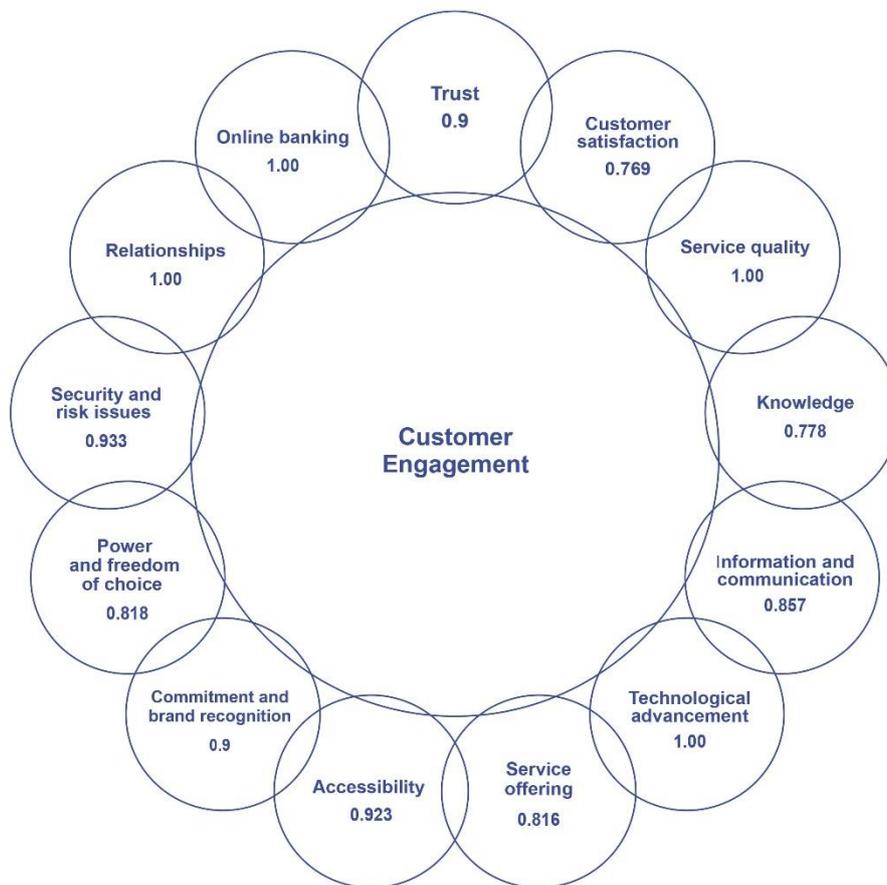
Undoubtedly, the quality of the system, the quality of services and brand awareness are significant predictors of initial trust. However, more crucial is relevant and accurate information, swift communication, ICT infrastructure and client satisfaction concerning matters such as security and privacy. These factors affect the trust, dependency, integrity, transparency, and usefulness of the service's essential long-term factors in long-term decision-making about commitment to online banking activity, customer appeal, and retention.

**Research Objective 2: Develop a rigorous methodological tool to explore barriers relating to Bangladeshi expatriate engagement with Bangladeshi banking systems, particularly its online features [Chapter 3 – Research Methodology and Methods]**

A decision was made to interview Bangladeshi expatriates living in the United Kingdom who have extensive experience of engaging in online banking systems both in the UK and in Bangladesh. These participants were selected for their understanding of both developed (UK) and developing (Bangladesh) banking systems, recognising that trust and others related constructs are impacted by national culture. The cultural onion, culture exists at human level from the national down to the personal (individual construal system), hence use of repertory grid (see section 3.3). A decision was made not to employ structured and semi-structured interview methods to avoid the risk of observer bias (see section 3.7). As explained by Easterby-Smith and Thorpe (1991, p. 24), "the job of social scientists should not be to gather facts and measure how often certain patterns occur but to appreciate the different constructions and meanings that people place upon their experience". The "repertory grid" methodological approach was chosen to capture the systems of meaning that the participants use to navigate

the world of online banking in their own words and construals. The interviewees were 20 expatriates living in the United Kingdom, and the interviews were conducted via Microsoft teams (see section 4.2 - table 4.1). This tool also had practical benefits, as the data were collected at the height of the COVID-19 pandemic, when a socially distanced interview process was needed (section 3.8). Exploratory statistical methods were used to interrogate the resulting personal construal systems to identify the nature of trust and other related constructs. Although this is not a statistically driven thesis, exploratory statistics were used in two ways to support the development of the analysis. First, overall inter-rater reliabilities (see section 4.7.3 - table 5.19) were the key statistics (“which is the proportion of positive agreement”), after a two-stage iterative process of 93.2%, showing that the themes identified through the content analysis process are rigorously defensible.

In addition, cluster analysis was used to examine construal patterns across individual research participants (see the resulting dendrogram in section 4.10.3 – figure 4.2).



**Figure 5. 1 A framework containing the 13 themes [Associated overall inter-rater reliability] to impact customer engagement for Bangladeshi online banking systems**

**Research Objective 3: Report the findings from the study and then synthesise the data collected using the above tool with the extant academic literature in order to develop and present contributions from the study [Chapter 4 – Discussion]**

Chapter 4 presents the findings from the repertory grid interviews, identifying 13 robust themes of customer engagement, as shown in the conceptual framework above (Figure 5.1). The effective management of these factors has been shown to boost national GDP, as illustrated in Figure 5.2. These 13 themes were compared and contrasted with the extant literature (Chapter 2) for a critical evaluation of how

customers can be encouraged to engage in the online banking environment. The most notable finding from this discussion is that 10 of the 13 themes are human-centric, rather than technologically based. As highlighted in this discussion, the findings reveal the repertory grid to be an appropriate and practical tool for exploring individuals' construals (i.e., a constructivist tool), whilst avoiding the risk of the interviewer introducing their prejudices into the interview process (interviewer bias).

## 5.2 Managerial contributions developed from this DBA

This study compared the UK and Bangladeshi online banking systems to clarify the barriers, challenges, and opportunities that such systems present. This new knowledge can be applied practically to manage customer engagement – and this engagement, when aggregated, could benefit Bangladeshi GDP and overall economic competitiveness (see Arrow and scatter diagram – chapter 1- figure 1.1 on page 4).

By developing a study that targets Bangladeshi expatriates (here in the UK), the best practice of using online banking systems and their evaluations can be developed.

This examination of the Bangladeshi online banking system from a 'customer-to-business' perspective has revealed a number of themes. These themes emerged from the rigorous application of the repertory grid method (as highlighted in section 3.3) and adapted content analysis (as discussed in section 3.4).

Revisiting Table 5.1 (as displayed on page 200), the 13 themes in the first column represent the participants' construals of online banking systems. A close examination of these themes reveals that most are "human" rather than "technologically centric". The implication is that, for an online banking system to be acceptable to customers, designers must consider associated human behaviours.

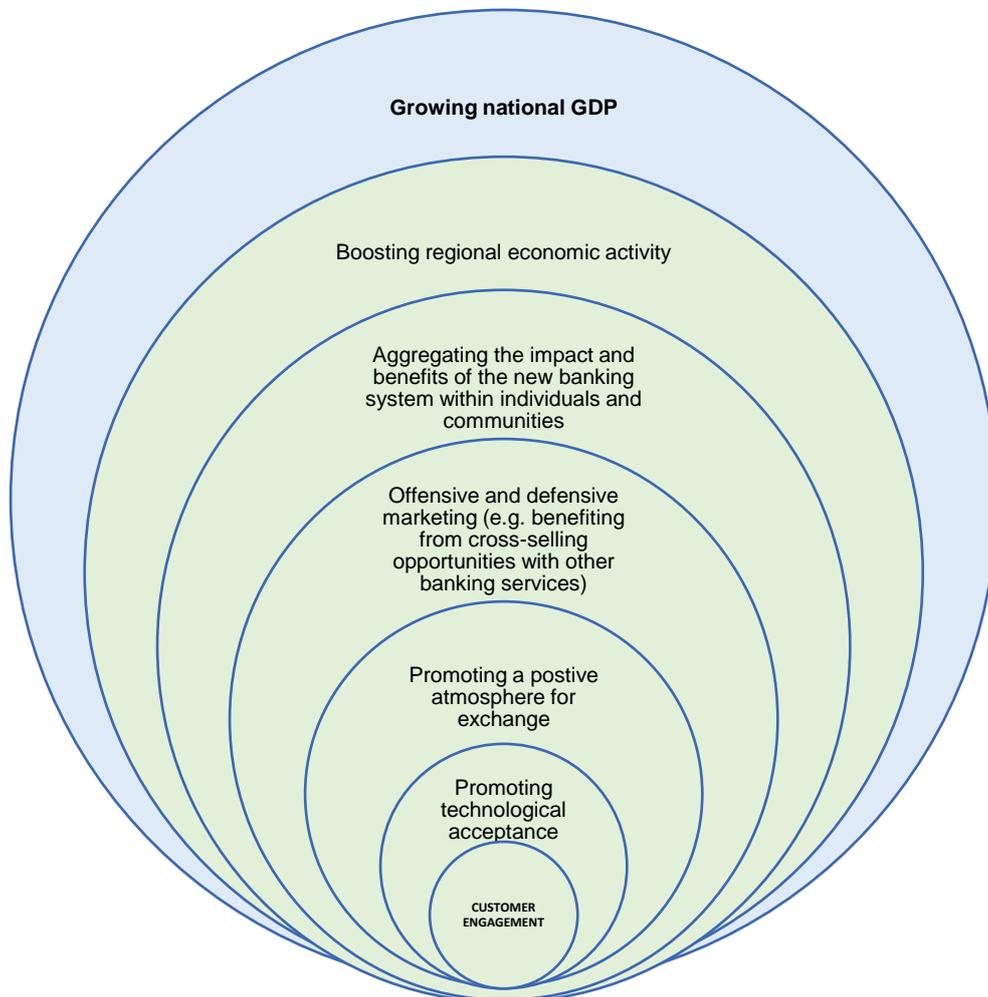
Themes	Dominance Statistic (%)	Importance Statistic (%)	Dominance Rank	Importance Rank
<b>Service offering</b>	18.26%	64.96%	1	11
<b>Trust</b>	16.44%	66.09%	2	9

Technological advancement	12.79%	67.45%	3	7
<b>Customer satisfaction</b>	9.13%	64.79%	4	12
<b>Commitment and brand recognition</b>	8.22%	68.42%	5	3.5
<b>Service quality</b>	6.85%	66.00%	6	10
Security and risk Issues	6.39%	68.18%	7	5
<b>Knowledge</b>	5.94%	67.44%	8	8
<b>Accessibility</b>	5.48%	67.57%	9	6
<b>Power and freedom of choice</b>	4.11%	60.00%	10	13
<b>Information and communication</b>	2.74%	68.42%	11	3.5
<b>Relationships</b>	2.28%	71.43%	12	2
Online Banking	1.37%	75.00%	13	1

**Table 5. 1 The two metrics of importance and dominance (\*Miscellaneous removed)**

Closer inspection of the themes above (Table 5.1) reveals that 10 of the 13 identified themes relate to human (as shown in bold) rather than technological (as shown in the non-bold font) factors human-centric factors are dominant when customers consider engaging in Bangladeshi online banking systems. The importance of these human factors is further evidenced by their dominance and importance rankings (see Figure 4.4 scatter diagram in subsection 4.10.6). The scatter diagram (Figure 4.4) reveals the significance of each theme with respect to customer engagement, with those closest to the origins of the graph being most important to the individual's evaluation of their online banking experiences. Consequently, such themes should be carefully addressed by online banking designers to improve user experience and increase customer satisfaction and loyalty. The successful integration of these human factors would result in a movement from a 'transactional' to a 'collaborative' exchange.

These themes have been combined to provide a framework representing how the research participants navigate, evaluate, and make sense of their online banking experiences in the United Kingdom and Bangladesh



**Figure 5. 2 A diagram showing the multiplier effect based on increased customer engagement in the Bangladeshi banking system \***

Through the construal of the research participants using a repertory method, 13 themes have been revealed (as shown in Table 4.8 – Section 4.5)

By addressing these 13 themes, the Bangladeshi banking system could redevelop its online banking offerings to better serve its existing and new customers (defensive and offensive marketing). The impact of this would be aggregated across individuals, regions, and nationally, boosting national GDP. More specifically, if trust in the

relationship between customers and banks were to grow, one would expect greater commitment to and willingness to save in the Bangladeshi banking system. These savings would provide opportunities for investment in new and existing businesses to help them grow, resulting in job creation in the local economy, which would increase wages (for further investment in the banking system) and tax receipts. This boosting of economic activity and growth – both regional and national – would improve the country's overall competitiveness. Therefore, shifting Bangladesh from its current position on (see diagram X and Y axis in section 1.1 – figure 1.1) to a more favourable position would result in greater prosperity. This argument is predicated on enhancing customer engagement, recognising that actions of individual customers – when aggregated at the regional and national levels – result in GDP changes: this is the “multiplier effect”, (Pérez-Montiel, 2020) in economic language, shown diagrammatically in Figure 5.2.

Cultural applicability plays a critical role in Bangladeshi banking systems (Ashraf, Thongpapanl, & Auh, 2014) and the acceptance of new technology and, in turn, public trust, and this study focuses on online banking systems to be specific about the consumers' engagement. This study addresses the role of national culture in the diagram showing the multiplier effect based on the increased customer engagement in the Bangladeshi banking system (See Figure 5.2, page 200) in the container aggregating the impact and benefit of the new banking system for individuals and communities. Hofstede's cultural study (2011, p.3) stated that "Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others". Hofstede's cultural dimensions involve trust in systems specific to public trust (Power distance index, individualism/collectivism, uncertainty avoidance). The cultural study identified multiple dimensions such as information quality, system quality, security, user satisfaction, service quality and ease of use (Mahfuz, Hu, & Khanam, 2016) relevant for users to engage with and accept mobile banking services.

Hence, consumer engagement in online banking acceptance in Bangladesh is significantly linked with Hofstede's cultural dimensions through a framework necessary for understanding the cultural differences across nations and discerning the ways that trade is undertaken across divergent cultures (Hofstede, 2011). Initially, online banking

acceptance faced serious challenges as illustrated by Hofstede's five cultural dimensions, which entailed gathering data concerning Bangladesh's scores for power distance, uncertainty avoidance, femininity versus masculinity, individualism versus collectivism, normative versus pragmatic, and indulgence versus restraint. Consequently, online banking also triggered the promotion of technology acceptance represented by the perceived ease and acceptance of the customer engagement model characterised by a positive atmosphere for relationship exchange.

Nevertheless, systems trust in online banking was significant for management repercussions and acted as a bridge in linking professional practice and cutting-edge research. Hence, the study of trust relationships between institutions and users "explicitly centre around client trust in the corporate and characterise trust as client trust in the quality and dependability of administrations offered by organisations" (Chandio, Irani, Zeki, Shah, & Shah, 2016, p. 257). The most recent progress in digital marketing banking financial facilities is online banking involving financial institutions embracing the World Wide Web and taking advantage of access to the internet to cope with the accelerating business environment dynamics. Moreover, the government must recognise the nation's capabilities in terms of customer engagement, whether they are indirectly or directly tied to FDI attractiveness.

Hence, online banking service adoption helps developing nations with strategic options concerning the delivery channels and the sophistication of the service level provided by the respective delivery channels. Compared to the past, a mature banking industry currently exists in Bangladesh through developing the brand in undertakings such as online banking. Currently, various multinationals and emerging private and indigenous commercial banks have launched modern and digital banking services. Online banking is among the latest and most demanded banking industry technologies. Online transactions have a supportive effect on GDP progress and hence aid in attaining the respective Millennium Development Goals (Kabir, 2018). Consequently, in globalisation, the internet and online undertakings make the globe smaller and e-commerce facilitates shopping and promotion from home (Dey & Francis, 2021). Therefore, e-commerce expedites online banking systems and customer engagement by permitting customers to buy services and goods over the internet.

Despite, Bangladesh trailing in available online banking opportunities, the banking sector has experienced the introduction of the online banking system playing a complementary role in e-business expansion. However, the Bangladeshi culture is primarily Muslim and follows a collectivist culture approach, which is highly conservative and rigid about embracing new technology, thus, severely inhibiting the banking sector (Amel, 2004). The findings of this study have cultural applicability and academic implications for those seeking to understand the factors impeding the adoption of online banking systems, especially within Bangladeshi society and other cultures. The interchanges with the different participants, particularly regarding online banking trust, technology and security issues, involve an in-depth comprehension and exploration of Bangladeshi banking services, particularly in online transactions. In addition, Bangladeshi banks should see that consumer perceptions of trust and security can be handled directly through improved infrastructure, improved consumer satisfaction, and a commitment to mitigate risks to develop consumer engagement.

The finding has practical and academic implications for those who wish to understand the factors that impede the adoption of online banking services, especially within Bangladeshi society. The exchange of public trust, particularly regarding online banking trust, technology and security issues, involves an in-depth comprehension and exploration of Bangladesh banking services. At the practical level, the bank's workforce should connect their knowledge gaps to the lack and provision of training and awareness programmes. Bangladeshi banks should also recognise that consumer perceptions of trust and security can be handled directly through improved infrastructure, improved consumer satisfaction, and a commitment to mitigate risks such as fraud that effect content analysis themes.

Technically, it is essential to note that the findings of the research relate to the dissemination of the study results thereby allowing for lessons to be drawn to improve the outcomes of online banking systems in Bangladesh and their relations to potential consumer engagement. A secure online banking system helps develop business and the national economy. In addition, the business expansion produces the demand for more money to facilitate exchange transactions. However, consumers currently have a low and diminished opinion of the financial industry. Therefore, the main dissemination activities will include the following:

The study findings will be presented to fintech within the Bangladeshi banking sector and chiefly those used in the study that participated in the research dealing with online banking services. In addition, the findings on information and communications technology (ICT) infrastructure developments, policymakers, consumer perceptions and the vital role of trust in any online-based business but primarily online banking will be presented.

"Societal cultures reside in (often unconscious) values, in the sense of broad tendencies to prefer certain states of affairs over others" (Hofstede, 2001, p. 5). Kelly's fundamental postulate, the sociality corollary, states, 'We can communicate with others because we can construe the other person's constructs. We not only observe the behaviour of others, but we also interpret what that behaviour means to them' (Feist & Feist, 2008, p. 587). Therefore, the RGT is a tool for making explicit this mental programming for individual observation.

This study helps others in developing a network for digital Bangladeshi organisational and private and public strategic alliances, and co-operation is necessary for the national development of the banking system. The online banking system is characterised by addition to the value chain through the technology-based procedure and process, increasing a nation's GDP. In this way, the online banking system brings an emerging distribution process channel leading to dynamic monitoring challenges and cross-border trading through marketing distribution avenues. The online banking system provides quick banking services delivered to an array of customers, indicating that consumers in Bangladesh have experienced positive and attach significant prominence to the advent of online banking. Offensive and defensive marketing (e.g. benefiting from cross-selling opportunities with other banking services) and support from firms eliminate impediments to usage and influence adoption through hedonic motivation with significant influence on the actual uses of technology and customer engagement.

This study has focused on human organisational challenges in online banking systems in Bangladesh that aid in expediting business via the electronic medium. The Bangladesh Bank governor pronounced that the bank had attained a remarkable milestone in the business and trade platform, shifting from conservative banking through the recent introduction of digital banking towards digitisation (Chandrasekhar and Sonar, 2018). Nonetheless, there were challenges associated with electronic

money transfer related to accessibility, authenticity, security, and non-reputability and recommendations for apposite control and effective security metrics and enhanced audit trail exploitation in the online banking systems (Khattak, Jan, Ahmad, Wadud, & Khan, 2020; (Gupta Bhol, Mohanty, & Kumar Pattnaik, 2021). Indeed, trust and satisfaction in the system significantly affect the performance process and procedure. Trust and satisfaction are the processes between 'individuals or comparative social qualities, past communications, or expected future advantages of the corporate or corporate-explicit traits' (Purwanto, Deviny, & Mutahar, 2020). Hence, customer engagement is highly significant for management implications and acts as a connection between professional practice and leading edge research. This study has identified the challenges of technology backwardness, limited resources, managerial inadequacy, and socio-infrastructure difficulties such as cultural law evasion, corruption, strikes, and rampant corruption.

Bangladesh's banking sector acknowledges the importance of information technology to achieving success. It suggests that a significant online banking rationale, particularly in the business-to-customer niche, is growing swiftly but also involves substantial associated costs concerning trade execution, inventories, procurement, and intangibles such as distribution and banking costs. It is also evident that online banking system energies should concentrate on knowledge transmission, technical assistance and information dissemination, and there is a need to include clear steps to create appropriate knowledge in various online services (Shah and Clarke, 2019).

Online banking acts as a complement to e-businesses nationally and internationally and helps create opportunities for both customers and financial institutions that might not be feasible in Bangladesh. Hence, further study is needed to evaluate whether the nation has an appropriate online banking infrastructure, its e-business status, and the functioning of national online banking in Bangladesh. The customer engagement model is replicable across other cultural contexts in banking and other financial sectors, which results in online banking system solutions to help firms achieve sustainable competitive advantage.

Researchers in different cultural contexts can adopt the model, and it will be helpful to the banking sector and other e-businesses. Commercial banks are faced with the challenge of initiating online banking services and the communications network approach with computers. Regulatory authorities such as the Bangladesh

Telecommunication Regulatory Commission and the Central Bank of Bangladesh play a critical role in progressing development in the communication industry and overcoming infrastructural challenges, triggering the successful implementation of online banking (Mujeri & Azam, 2018; Kumar, 2022). Yet, cross-cultural studies of ICT, briefly reviewed by Lifintsev, Fleşeriu, and Wellbrock (2019), reveal a divergence between societies regarding several aspects of information technology and contention about the high/low context. On the utilisation anchor of electronic devices, Bangladesh's banking sectors are classified as private commercial banks and foreign commercial banks, wholly online banking, first-generation private banks and second-generation private commercial banks (Kabir, 2018). Allegedly, there is an online medium-range banking system, state-owned commercial banks, and a few specialised banks with subcontinent branch online banking systems with low gradings.

Furthermore, the research will also help in private-public collaborations in the vital aspect of applying and enhancing ICT. The study involves the central government in providing the essential business conditions, and swift ICT progress is impossible without significant ICT investments. The research discussed undertaking a trial launch of the nation's pioneer broadband wireless technology and helping telecommunication entrepreneurs spread digital communications to rural people's doorsteps (Islam and Yang, 2019).

Alternatively, other researchers can adopt this model. It offers a customer-centric approach to gathering opinions following the emergence of online banking in the banking industry, in which systems trust in business mobile banking applications is regarded as one of a firm's most significant financial drivers. To mitigate the cost and time required to serve customers, financial institutions introduced online banking, but online banking is now considered a convenient and efficient banking approach because it is easily accessible. Conversely, online banking has triggered financial firms to obtain real-time access to banking services, reducing clients' operational costs by providing customers with electronic channels.

Primarily, the research helps other researchers include the cultural dimensions acceptance model because cultural values play an important role in technology acceptance. Hence, customer engagement in the online banking cultural dimension should be incorporated. Generally, individuals are significantly more concerned about themselves in an individual society, while within a collective community, members are

more concerned about taking advice from others concerning technology (Hofstede, 2011). To avoid uncertainty, humans also avoid using complex technology.

### **5.3 Limitation to this research**

Demographically, the research also found distinct relationships between factors such as occupation, education and age and the acceptance of these online services. Demographic factors precisely determined behaviour concerning the perceived convenience, ease of use, usability, risk and security of these online systems (Lin, Wang, & Hung, 2020). Consequently, without knowledge of the developments affirming the adoption advantages over the threats, acceptance is far from becoming a reality because there is a little behavioural incentive for the clients to use these services. Rahman and Sloan (2015) offer the opinion, removed from the behavioural and psychological argument, that the gaps in actual information technology knowledge amongst consumers and the Bangladeshi banking staff are to blame for the slow adoption of online banking and lack of promotion. The incompetence of the workforce in meeting customer expectations diminish consumer satisfaction, confidence and trust. Without the necessary infrastructure to acquire, assess and deliver information to relevant users, these institutions cannot differentiate themselves from rivals.

### **5.4 Areas for future research**

Figure 5.2 illustrates the various layers of the relationships between customers and their banks, from the purely transactional to the collaborative. All relationships (both person-to-person and online) exist on this spectrum. To better engage with their customers, banks need to move progressively towards a more relational system that includes transactional features.

To develop their customer relationships, Bangladeshi banks could draw upon this collaborative customer-to-business relationship to develop their online banking systems, benefiting from the help and input of their customers. A focus on functionality and human-centric factors would improve the online banking systems and enhance service quality (ranked first on dominance in section 4.10.5 - Table 4.23).

Trust within the Bangladeshi banking system will take time to develop. The building of a positive relationship between customers and banks will require investment.

However, as shown by the 13 themes listed above (Figure 5.1 framework), this investment is required to build a human-centric relationship, not to develop the IT infrastructure. Consequently, future research could explore the long-term benefits of greater customer engagement, with a longitudinal study that considers customer attitudes and behaviours. This would create a clearer picture of micro-changes in customer behaviour and their impact on the macro scale, such as national GDP.

## **5.5 Chapter summary**

This chapter presents a systematic discussion of the research (Section 1.2 on page 16-17), identifying the theoretical and practical contributions of this doctoral investigation. It highlights the 13 themes found to be critical for customer engagement with online banking systems in the Bangladeshi context (Figure 5.1). The effective management of these themes can be a driver of national wealth enhancement and GDP growth (Figure 5.2), , with evident economic, social, and human benefits for Bangladeshi society as a whole [shown by the Nobel Prize winning research of Arrow, who links trust to national GDP through the “multiplier effect”]

# Appendices

## Appendix A

### E-consent forms Northumbria University Newcastle



#### CONSENT FORM

Project Title: **Developing systems trust to promote online banking in Bangladesh:**

**A non-resident Bangladeshi Consumer perspective**

Principal Investigator: Mr Mohammad Shafiqul Islam

*please tick or initial  
where applicable*

I have carefully read and understood the Participant Information Sheet.

I have had an opportunity to ask questions and discuss this study and I have received satisfactory answers.

I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice.

I agree to take part in this study.

I also consent to the retention of this data under the condition that any subsequent use also be restricted to research projects that have gained ethical approval from Northumbria University.

Signature of participant..... Date.....

(NAME IN BLOCK LETTERS).....

Signature of Parent / Guardian in the case of a minor

.....

Signature of researcher..... Date.....

(NAME IN BLOCK LETTERS).....



**CONSENT FOR TAKING PART IN A STUDY WHICH MIGHT CAUSE PSYCHOLOGICAL  
DISTRESS**

Project Title: **Developing systems trust to promote online banking in Bangladesh: A non-resident Bangladeshi Consumer perspective**

Principal Investigator: Mr Mohammad Shafiqul Islam

*please tick or initial  
where applicable*

I have carefully read and understood the Participant Information Sheet.

I have had an opportunity to ask questions and discuss this study and I have received satisfactory answers.

I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice.

I agree to take part in this study.

I understand that by taking part in this study I may be exposed to situations that may generate some psychological distress that may become apparent during and/or after the study has finished. I accept the small risk of experiencing psychological distress as part of this research

I also consent to the retention of this data under the condition that any subsequent use also be restricted to research projects that have gained ethical approval from Northumbria University.

Signature of participant..... Date.....

(NAME IN BLOCK LETTERS).....

Signature of researcher..... Date.....

(NAME IN BLOCK LETTERS).....



**Northumbria  
University**  
NEWCASTLE

**FOR USE WHEN A INTERVIEW IS BEING CONDUCTED THAT DOES NOT REQUEST  
DETAILED PERSONAL OR PSYCHOLOGICAL INFORMATION**

Project Title: **Developing systems trust to promote online banking in Bangladesh: A  
non-resident Bangladeshi Consumer perspective**

Principal Investigator: Mr Mohammad Shafiqul Islam

**Please read and tick the box below.**

The investigator has explained to me the nature of the study, and what is required from me. They have given me a debrief sheet providing me with their contact details. I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice. I agree to provide information to the investigator and understand that my contribution will remain anonymous and confidential

---

I also consent to the retention of this data under the condition that any subsequent use also be restricted to research projects that have gained ethical approval from Northumbria University.

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**Northumbria  
University**  
NEWCASTLE

Faculty of Health & Life Sciences

**FOR USE IN ONLINE STUDIES**

If you would like to take part in this study, please read the statement below and tick 'I agree'

I understand the nature of the study, and what is required from me. I understand that after I participate I will receive a debrief providing me with information about the study and contact details for the researcher. I understand I am free to withdraw from the study at any time, without having to give a reason for withdrawing, and without prejudice. I agree to provide information to the investigator and understand that my contribution will remain confidential. I also consent to the retention of this data under the condition that any subsequent use also be restricted to research projects that have gained ethical approval from Northumbria University.

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I agree



**FOR USE WHEN PHOTOGRAPHS/VIDEOS/TAPE RECORDINGS WILL BE TAKEN**

Project title: **Developing systems trust to promote online banking in Bangladesh: A non-resident Bangladeshi Consumer perspective**

Principal Investigator: Mr Mohammad Shafiqul Islam

I hereby confirm that I give consent for the following recordings to be made:

Recording	Purpose	Consent
<i>e.g. facial photograph</i>	<i>e.g. for measurements of facial symmetry</i>	
e.g. video of bodily movement	e.g. for rating <i>by opposite-sex individuals</i> on various personality characteristics	
e.g. voice recordings	e.g. for rating <i>by opposite-sex individuals</i> on various personality characteristics	

Clause A: I understand that other individuals may be exposed to the recording(s) and be asked to provide ratings/judgments. The outcome of such ratings/judgments will not be conveyed to me. My name or other personal information will never be associated with the recording(s).

Tick or initial the box to indicate your consent to Clause A

Clause B: I understand that the recording(s) may also be used for teaching/research purposes and may be presented to students/researchers in an educational/research context. My name or other personal information will never be associated with the recording(s).

Tick or initial the box to indicate your consent to Clause B

Clause C: I understand that the recording(s) may be published in an appropriate journal/textbook or on an appropriate Northumbria University webpage, **which would automatically mean that the recordings would potentially be available worldwide**. My name or other personal information will never be associated with the

recording(s). I understand that I have the right to withdraw consent at any time prior to publication, but that once the recording(s) are in the public domain there may be no opportunity for the effective withdrawal of consent

Tick or initial the box to indicate your consent to Clause C

Signature of participant..... Date.....

Signature of Parent / Guardian in the case of a minor

..... Date.....

Signature of researcher..... Date.....

Clause D: I also consent to the retention of this data under the condition that any subsequent use also be restricted to research projects that have gained ethical approval from Northumbria University.

Tick or initial the box to indicate your consent to Clause D

Signature of participant..... Date.....

(NAME IN BLOCK LETTERS).....

Signature of Parent / Guardian in the case of a minor

.....

Signature of researcher..... Date.....

(NAME IN BLOCK LETTERS).....

## Appendix B

Total 235 constructs elicited from 20 participants

Total number of constructs presented below				
Number of Constructs No.	Constructs Code	Emergent Pole (Successful)	Versus	Implicit Pole ( Less Successful)
1	PM01.1	Trustworthy (In terms of system/Technology)	Versus	Level of Awareness
2	PM01.2	Consumer Preference (In terms of cash payment)	Versus	Quick transaction processing time (In terms of online banking)
3	PM01.3	More secured and reliable (in terms of banking relations)	Versus	Physical existence (In terms of banking and consumer feel more secure)
4	PM01.4	Quality of service (consumers expectations quality service from both industry)	Versus	ineffective online service (in terms of consumers in bd)

5	PM01.5	Convenient (in terms of online shopping or teaching)	Versus	Level of motivation poor / less motivated (In terms of online teaching)
6	PM01.6	Time saving (online retailers)	Versus	Highly risky
7	PM01.7	Better operation/ management (In terms of CRM)	Versus	Poor customer care support
8	PM01.8	More options to choose from (UK+BD)	Versus	Lack of knowledge of online system
9	PM01.9	Progressive (In terms of technology and knowledge)	Versus	Under developed in Information technology
10	PM01.10	Emerging industry ( In terms of consumer satisfaction)	Versus	Lack of legal implementation (Overlook rules etc)
11	PM01.11	Proper Appointment system in place (customer service)	Versus	In sufficient
12	PM01.12	New technology/ (In terms of online system)	Versus	Communication
13	PM01.13	Exchange relationship	Versus	Poor infrastructure / need education (Consumers need education to learn)
14	PM01.14	Necessary to satisfy customer	Versus	Unhealthy (Cash trans in terms of COVID-19)

15	PM02.15	Private banking services (In both country)	Versus	Highly competitive private banking service (In terms of BD perspective)
16	PM02.16	Hugely / Highly advanced (In the UK online)	Versus	Far way from technological advances (in terms of BD online banking)
17	PM02.17	High level of Trust (In terms of customer service)	Versus	Very expensive (In terms banking or consumers support)
18	PM02.18	Depend on social media channels (In terms getting service or buying things from online)	Versus	Unsatisfied quality service ( In terms of buying from online)
19	PM02.19	Practically experienced by using services (In terms of education or learning )	Versus	Lack of trustworthy education institutions (Education provider/ Banks are dept in terms of banking)
20	PM02.20	Virtual / Contactless/ Digital Money services (In terms of online payment)	Versus	Risk of counterfeit notes (To do cash transactions)
21	PM02.21	Mobile money baking service (Most popular online payment method in BD)	Versus	Consumers inconvenience (For example people need to visit to specific place to make banking transactions)
22	PM02.22	Large cash payment/ Highly scrutinised (In terms cash banking relation)	Versus	Increase personal security risk (To carry large cash payment)

23	PM02.23	Easily accessible support via online (Online education, GP service consultation)	Versus	Poor verification process (In terms of getting medicine or Diagnostic services)
24	PM02.24	Innovative and forward looking (UK online retailers)	Versus	Reluctant to adopt new technology (Cash online delivery/ Nor adopting new technology)
25	PM02.25	Smart phone highly used for online transaction (online or online shopping)	Versus	Lack of IT infrastructure to implement proper online payment (Depend on cash transactions)
26	PM02.26	Wider knowledge of banking services (In the UK banking)	Versus	Unavailable learning opportunities for banking consumers (Banking education or learning service)
27	PM02.27	Easy International money transfer by using online	Versus	Challenging for emerging markets ( In regards to cash payment)
28	PM02.28	Convenient / Cost of banking is reduced/ Bank perspective operations cost reduced	Versus	Sophisticated fraud group (In terms online banking)
29	PM03.29	Quality of services provider (In terms doctors, qualifications or technology)	Versus	Poor policy to defend customers interest (In terms of service security)
30	PM03.30	Online customer service	Versus	service quality (Lack of efficiency service)

31	PM03.31	Freedom of choice (Many options in UK online retailer)	Versus	Low bargaining power
32	PM03.32	Cash transactions wide used (In terms of medical services)	Versus	Lack of monitoring by government or authority (Universities in Bangladesh are not fully monitored by police maker/ Corruptions)
33	PM03.33	Strong establishment / Brand value (In terms of providing services or brand reputation of Banks)	Versus	Security threat (Usage's frequency made highly security threat)
34	PM03.34	Ensure / Assurance of getting service (In terms of getting quick delivery or right items)	Versus	Lack of accessibility (In terms getting delivery or service knowledge etc)
35	PM03.35	Extremely regulated by the financial authority	Versus	Flexible
36	PM03.36	Frequently encouraging customer to save cost by cash transactions (In terms of online transactions / online services consumers need to pay)	Versus	Under developed websites and online banking support ( In terms of online platform)
37	PM03.37	Easily accessible (In terms service availability)	Versus	Limitation in operation (Presence not everywhere)
38	PM03.38	Strongly online presence (In terms of banking services, website, apps and online support)	Versus	Speed of services (In terms of getting quick or faster service, emergency)

39	PM03.39	Virtual learning environment (In terms of getting education in the crisis moment)	Versus	Highly cyber risk (In terms of online shopping or online retailers)
40	PM03.40	Satisfied in technology (shopping experience, payment, refund)	Versus	Difficult to get effective service
41	PM03.41	Well infrastructure (in terms of facilities)	Versus	Poor value of money (Degree)
42	PM03.42	Strongly existence required	Versus	Less expectation (In terms health service)
43	PM03.43	Public awareness / Highly conscious	Versus	Unavailable used of technology
44	PM03.44	Service commitment (In terms of getting services and paying by online or cash/ Exchange relationship)	Versus	User friendly online platform (In terms of consumers expectations of getting online service)
45	PM04.45	Using online banking service to same time	Versus	Untrustworthiness (In terms of making online transactions)
46	PM04.46	Highly Performance (In terms banking service in the UK or online retailer)	Versus	Lack of using modern technology ( In terms government banks in BD)
47	PM04.47	Free of cost to get the services (In terms of UK banking service)	Versus	Highly cost effective (Very expensive to get the services)
48	PM04.48	Availability with limitation (In terms	Versus	Restriction to getting better services ( In

		online and cash transaction)		terms of online retailers)
49	PM04.49	Up to date (In terms of resources or technology)	Versus	Following Traditional style (In terms of providing services)
50	PM04.50	Acceptance to everyone (In terms UK Uni degree / UK Bank highly trustable)	Versus	Growing up ( In terms of accepting technology)
51	PM04.51	Highly recognised by consumers (In terms of banking or services in the UK)	Versus	Underprivileged services providing by local banks (Consumers have low trust in local banks)
52	PM04.52	Level of satisfaction high (Consumers are happy)	Versus	Inappropriate services (In terms of services medical in BD)
53	PM04.53	Reliable on Online payment ( In the UK Banks/ consumers in the UK)	Versus	Physical presence importance (In Banking services in BD/ Security)
54	PM04.54	More loyal to consumers (Online retailer and online payment relationship)	Versus	Unfocused online customer service ( Online retailers are focusing to make money not in customer satisfaction)
55	PM04.55	Easy to pay online (Using PayPal service in online retailer)	Versus	Unavailable reliable service (PayPal not available in BD)
56	PM04.56	Using advanced technology in terms of banking relations	Versus	Consumers rely on liquid money (Cash transactions)

57	PM05.57	Tends to rely on cash (In terms reliability on cash compare to online)	Versus	Lack of proper service and support (Not fully updated in terms technology and management)
58	PM05.58	High level of facilities (In regard to GP service in UK)	Versus	Easily accessible in cities compare to rural area (Less banking branches or No internet available)
59	PM05.59	Huge ranges of products and services (online retailers in UK)	Versus	Risky to carry large amount of cash
60	PM05.60	Using modern technology (UK universities are using modern technology)	Versus	Unable to provide expected services ( Due to unavailable appropriate doctors)
61	PM05.61	Customers Preferred cash method due to lack of knowledge in IT	Versus	Insecurity of losing money (In regard to online payment)
62	PM05.62	Very efficient and professional and readily available (In terms of UK online retailers / Delivery method)	Versus	Rely on their own facilities (Unavailable delivery services in BD)
63	PM05.63	Convenience in regard to making payment	Versus	Traditional manual methods used (In terms keeping records, IT systems are poor)
64	PM05.64	High Interpersonal relationships (In regard to teachers and students)	Versus	Unable to confide on their services ( they doctor or nurses are not provide accurate services)

65	PM05.65	High reliability (In terms services and support)	Versus	Unwilling to cooperate to provide services (Due to their private services)
66	PM05.66	Focus on customer satisfactions (In terms of service)	Versus	Limited availability of online payment methods
67	PM05.67	Level of satisfaction high (In terms of international transactions)	Versus	Low affordability (In terms of tuition fees and expenses)
68	PM05.68	Practical and effective method to provide education (In terms of providing education service in the UK)	Versus	Equipped with traditional method (In Bangladesh education system)
69	PM06.69	Depend on advanced technology (In terms using technology for banking or customer)	Versus	High risk for consumers for online transaction (In terms money transfer)
70	PM06.70	Strong data management system (In terms of keeping patients records)	Versus	Customers trust on private sector (In regard to medical services)
71	PM06.71	Security level is high (In regards withdrawn and deposit money)	Versus	Using cash transactions is rare (Consumer prefer to use card payment)
72	PM06.72	High rate of customer satisfaction (online retailers in UK)	Versus	Papers based activity in place in the banking sector (In regard to open account or other services)
73	PM06.73	(Students) Active in online study to learn (Students are trusting	Versus	Based on traditional methods of study (Because unavailable

		online platform as like physical study)		of internet support or platform)
74	PM06.74	Available retailer and easy to access (Online retailer in the UK)	Versus	Less preference/ Choice for customers (Retail shops limited)
75	PM06.75	Getting excellent service by online ( e.g: online prescription, online doctor consultation/ telephone)	Versus	Poor quality services (In regard to medical services or university support)
76	PM06.76	High level online support (In terms opening account in the UK or services)	Versus	Expensive and costly (In regard to tuition fees and accommodation cost/ Unaffordable
77	PM06.77	Saving money and time by using online platform (Consumers using online retailers to save money and time)	Versus	High chance to robbed and hijack (To carry cash)
78	PM06.78	Easy and reliable (in regard to Online payment)	Versus	Handing cash unhealthy (COVID-19 risk / Virus transmission)
79	PM07.79	Widely Used online payment (In regards online payment, banking or online shopping)	Versus	Service delivery assurance (Uncertainty to get the product)
80	PM07.80	Ease of service requisition (in regard to depend on money)	Versus	Safeguarding

81	PM07.81	Trusted media as a global financial management (High trust on banks in regards international or local payment)	Versus	Low popularity for mini transactions / Small business owner / High cost of accessibility
82	PM07.82	User acceptance (In regard to seamless payment process)	Versus	Fraud in payment processing ( Low trust)
83	PM07.83	Very secure and reliable system (Online payment in the UK)	Versus	Inconvenient to vast majority people / Population ( e.g older age people doesn't know how to use online system)
84	PM07.84	High Level of standard (In regards UK university services)	Versus	Accessibility issues ( In terms tuitions, seats not available or limited)
85	PM07.85	Using modern technology (High trust)	Versus	Different Quality of services
86	PM07.86	Value of quality education / Quality of service	Versus	Inconvenience for wider age group (In regards to get access online banking, APP banking, E-banking )
87	PM07.87	Flawless Performance of systems	Versus	Lack of infrastructure IT system (online retailers in bd)
88	PM07.88	High Customer satisfaction in terms of service availability	Versus	Shortage of investment in ensuring quality service management/ Low resources

89	PM08.89	Maintenance Confidentiality (Banks are always kept customer data confidential)	Versus	Poor online banking services (Very few banks offer online banking)
90	PM08.90	Offering great services for their clients (Patient)	Versus	Lack of tools or equipment (To support their patient)
91	PM08.91	Emerging market in the information technology (Developing sector / establishing ICT)	Versus	Lack of knowledge in technology ( Most of the target audience doesn't know how use IT system/ Unfamiliar)
92	PM08.92	Following Centralised system in operations (Universities and Medical services established in cities)	Versus	Limited facilities/ Opportunities ( In terms of education or medical services)
93	PM08.93	Growing up in adopting new technology (online retailer and Medical service)	Versus	Service quality (In terms product specification/ Size or colour or quantity)
94	PM08.94	Skills generation (In regard to provide practical knowledge and experience)	Versus	System error (In regarding online payment in emergency)
95	PM08.95	Lifetime essential matter / Basic needs for everyone (banking and health service is vital/ Close relationship)	Versus	Less facilities / Poor customer support (Due to Covid-19)
96	PM08.96	High level of satisfaction (for saving time and money)	Versus	Health and safety Issues (To handling cash)

97	PM08.97	Providing financial support to customers (In regard to helping economy/loan)	Versus	Life risk (In regards hack bank account and data and stolen money)
98	PM08.98	Commitment is vital (In terms of retailers to deliver items on time)	Versus	Inadequate security issues (In regards online payment in bd)
99	PM08.99	Modern technology-based education (Home based education)	Versus	Inconvenient to handle cash transactions (Fake notes, risk to carry large amount of cash)
100	PM09.100	Banking services developing day by day (In regarding to adopting technology or customer in Bangladesh)	Versus	Poor service quality (In regard to medical service in Bangladesh)
101	PM09.101	Profit oriented business and less focus on services (Because most of the medical services are privately owned)	Versus	Small amount teaching resources (In terms of education or teaching)
102	PM09.102	Friendly environment to learn and providing services	Versus	Unwelcoming / Hostile of customer services (In terms banking services in Bangladesh)
103	PM09.103	Expectation full fill by online retailers (Due to delivery or payment system)	Versus	Back dated in terms of using technology/ Employees have low IT skills
104	PM09.104	Online retailers more cheap and strong return policy ( In terms of customer service satisfaction)	Versus	Depend on mobile money banking (Online retailers in Bangladesh/

				expensive and less secure)
105	PM09.105	Small number of retailers available everywhere (not enough largest retailer)	Versus	Cash transaction is high risky (In terms of money laundering)
106	PM09.106	Highly Restricted to transfer money to foreign countries (Rules and regulation is not flexible from bd)	Versus	Traditional way of education systems (In regard to teaching or learning and method as well as framework/ Valuation method)
107	PM09.107	High Opportunities to learn practical skills (In regards to UK education availability)	Versus	Lack of knowledge and equipment or tools (In regard to selling medicines)
108	PM09.108	Micro crediting banking service everywhere (In Bangladesh/ No need any strong evidence for micro credit loan)	Versus	Highly focused on individual financial establishment (to get the loan or credit cards in the UK)
109	PM09.109	Strong data management system (In regards GP/HNS or Pharmacy to support patients)	Versus	Low level of satisfaction to keeping personal records ( in regards to patients data)
110	PM09.110	Improve a lot in the last few years in terms to technology banking services (in online)	Versus	Prefer to do banking physically (Customer trust high on physically banking)
111	PM09.111	Focusing on branch banking to reach local customers (in rural area customers target)	Versus	Expensive in online banking service (Bangladesh)

112	PM10.112	Opportunities for online banking services (Making payment any time and anywhere)	Versus	Risk for money laundering (Lack evidence how you get this cash)
113	PM10.113	Virtual appointment system available (To get services on time)	Versus	Unskilled employees in the management (lack of train nurses or doctor)
114	PM10.114	Convenient for the customers (making payment)	Versus	Cyber crime for hacking bank account (Security issue)
115	PM10.115	Formal and friendly relationship (In regard to UK Uni systems)	Versus	Political issues involved in the management (Session Jam)
116	PM10.116	Trustable payment channels (Paypal or Skrill etc)	Versus	Poor monitoring system in place (Fake products or frauds on going)
117	PM10.117	Happy to use UK bank because of committed service / Hassle free customer service (Satisfactory)	Versus	Time consuming because of physical banking relation (Banks prefer to do physical banking)
118	PM10.118	Highly satisfied (In regard to delivery services, trucking option, default items / flexible refund options)	Versus	Lack of integrity within operations (don't have any proper system in place)
119	PM10.119	Acceptable to everyone in regard to learning and training (Freedom of choice)	Versus	Flexible options for customers (In the UK banks)

120	PM10.120	Use Advanced technology and tools (Crisis moment helping people)	Versus	Short of skilled people in the operation (Lack skilled doctors)
121	PM10.121	Social network helping to reach local customers	Versus	Lack of education and knowledge to use technology
122	PM10.122	Adequate fundamental resources (Educational support)	Versus	High regulated by government officials (In terms of online payment)
123	PM11.123	Using Latest digital technology or software for database to more efficiency for their employees	Versus	Less trustworthy in regard to authenticity (Products)
124	PM11.124	Increase gradually because of convenience	Versus	Security issues to carry cash (It's high risk)
125	PM11.125	Cost effective (In terms of service, value of money)	Versus	Expensive and unskilled (Nurses, doctors etc)
126	PM11.126	Technological advancement in terms of learning resources (Wide range of courses, using modern technology)	Versus	Poor quality of services and support ( In terms uni courses and education resources)
127	PM11.127	Mental satisfaction because of online payment (Customers have evidence of buying products)	Versus	Restricted services (In terms of using cash)

128	PM11.128	Money saving facilities (Repeat purchase, voucher code etc)	Versus	Limited options for rural customers ( Geographical areas service restriction)
129	PM11.129	High customer Loyalty ( e.g: Buy now pay later)	Versus	Weak relationship with customers
130	PM11.130	One stop solutions consumer support (Banking, mortgage, bills/ mobile banking etc)	Versus	Cyber threat increasing (Due to online banking etc)
131	PM11.131	Wide range of variety (In terms of products and services)	Versus	Lack of proper logistical support (Retailers depend on 3 <sup>rd</sup> party)
132	PM11.132	Committed and trustable (In terms of GP services)	Versus	Unable to provide actual information and support
133	PM11.133	Accessibility of information (In regard to learning resources)	Versus	Lacking physical of workforce (They are reducing staffs and moving forward online)
134	PM12.134	More comfortable to use online services (UK banking service)	Versus	Security issues (In terms online banking fraud)
135	PM12.135	People like to handle cash transaction (Older generation or rural area)	Versus	High risk (In terms using case)
136	PM12.136	Highly satisfied in terms of customer service and support	Versus	Expenses are too high (Unsatisfactory customer support)

137	PM12.137	Virtual learning / Distance learning presence (Easy for the student or uni )	Versus	Less trustworthy (Under develop medical services / not well structured medical service system)
138	PM12.138	Bargaining power (In terms of buying items from online retailers)	Versus	Unfavourable customer services (Banks doesn't care about customer support)
139	PM12.139	User friendly technology (In terms of using technology)	Versus	Lack of logistics support (For study purpose)
140	PM12.140	Strong infrastructure (In terms of well technology and experienced manpower)	Versus	Time consuming to get refund (Issues with some specific online retailers)
141	PM12.141	Availability / Sufficient product line (In terms online retailers/ Banking service)	Versus	Lack of service commitment/ Limitation in regard to delivery of their products (Time consuming / Not promising)
142	PM12.142	Public Awareness is highly motivated (Banks are always aware of issues or concerns or security issues)	Versus	Freedom of choice (Low product line)
143	PM12.143	Achievements / Appreciation in terms of reward (UK Uni are prioritize students' achievements or success)	Versus	Weak foundation of education system (Based are not strong enough for School or Universities in BD)

144	PM12.144	Efficient and effective communication	Versus	Less favourable from management / Poor communication
145	PM13.145	Financial inclusion/ Accessible for anybody (Banking service like agent banking etc)	Versus	Cash is always dirty (money laundering, Uncomfortable in terms of covid-19 or money launderers.
146	PM13.146	Cash less transactions prefer in the UK	Versus	Cash dominant (Most people prefer to use cash)
147	PM13.147	Secure mode of payment/ safety (In Bangladesh)	Versus	Failing to increase online payment ( Lack of motivation)
148	PM13.148	Focusing on advanced technology	Versus	Lack of satisfaction ( In terms of online support or services / No human interaction)
149	PM13.149	High motivated / Service are used for Commercial purposes	Versus	Unnecessary services to gain commission ( Trust level is lower)
150	PM13.150	Strong infrastructure in terms for client support	Versus	Rules and regulations issues / Lack of monitoring (Misused the rules and regulations)
151	PM13.151	Much easier of mobile money account (In Bangladesh)	Versus	KYC / Complex issues in terms of verification

152	PM13.152	More trustworthiness	Versus	Difficult to get payment gateway for seller.
153	PM13.153	More exposed in terms subjects	Versus	Lack of research / More intensive
154	PM13.154	Focusing on technology (Increasing tech entrepreneurs)	Versus	Financial Literacy required for banking relationship /
155	PM14.155	Growing enormously in term of service (Online medical support or modern technology etc)	Versus	Lack of knowledge about online payment system and services.
156	PM14.156	Service satisfaction is high enough (In terms of banking services or support)	Versus	Less trustworthy (Because introducing new banks or loan scandal)
157	PM14.157	Highly secure (Online payment)	Versus	Insecure (In terms using cash transaction)
158	PM14.158	Technological advancement and worlds Class education	Versus	Traditional education and Poor technology facilities
159	PM14.159	High organised and managed as well as more accessible	Versus	Corrupted (Huge corruption in medical sector / Service does not meet expected level
160	PM14.160	Great services/ online support	Versus	Risk of fraud (In terms of cash handling/ smuggling)

161	PM14.161	More convenient / easy to access	Versus	Political interruption (Corruption/ Influence)
162	PM14.162	Empowering to young generation (In terms of earning / brand promotion)	Versus	Lack of promotion (In terms of advantages)
163	PM14.163	Huge collection or alternative/ Freedom of choice (In terms products or services)	Versus	Unfriendly environment during face-to-face customer service.
164	PM14.164	Loyal to their customers or clients (Maintaining good relationship)	Versus	Less engage with students / Lack of engagement
165	PM14.165	Emerging technology /	Versus	Lack of infrastructure (Service available in cities only)
166	PM14.166	Privacy and confidentiality are priority to banks	Versus	Variety of facilities (Banks services and products) / Inadequate Service Quality
167	PF01.167	Advance in technology (Service efficiency in the GP service)	Versus	Emerging / Underdeveloped services system (in terms of technology)
168	PF01.168	Better quality in education/learning (in terms of teaching)	Versus	Requires exercise/ Equipping training programmes
169	PF01.169	Fast phase in service relationship (Online banking transactions or payment)	Versus	Emerging market yet to develop a secured platform (Less trust in technology)

170	PF01.170	Secured data efficiently (eg. GDPR, data protection act in uk)	Versus	Consumers reliability issues ( In terms trust)
171	PF01.171	Online payment promotion in vast	Versus	Lack of knowledge in online transaction
172	PF01.172	High Popularity (In terms of cash transactions)	Versus	Cash payment restrictions / Most preferred card payment
173	PF01.173	Online payments more feasible	Versus	Risk of Cyber crime (To prevent people from using online payments)
174	PF01.174	Highly professionalism (In terms of providing services in medical)	Versus	Enhancement of advanced technology (Need to develop more medical uni)
175	PF01.175	Employability factor increases (Apprenticeship programme, practical training)	Versus	Inexperienced human resources ( In terms of Technology/ educational training programmes )
176	PF01.176	Effectively use online services	Versus	Frequent fraudulent activities
177	PF01.177	Level of monitoring system intact (Uk Bank more restricted to use cash transaction)	Versus	Rules and regulations required to handle cash inflows and outflows
178	PF01.178	Providing Quality services (Online customer services good in the UK)	Versus	Limited services available ( In terms of poor access of online customer service)

179	PF02.179	Trustworthiness (In terms of using online service)	Versus	Less professionalism (In terms of quality customer services)
180	PF02.180	Dependency/ Necessary (in terms of medical services / treatment)	Versus	cost effectiveness (Getting things online)
181	PF02.181	Responsibilities / dedication of organisation (In terms of management/ Education)	Versus	Poor Universal Recognition (In terms of banking services/ university degree)
182	PF02.182	Security issues (Banking transactions)	Versus	Verification process ( In terms cash transaction/ online)
183	PF02.183	Flexibility (In terms of online service)	Versus	Unfamiliarity of the services (In terms of online shopping in bd)
184	PF02.184	Frequently use (In terms of online/cash in delivery)	Versus	Better Scope of services (In terms of online retailers in uk)
185	PF02.185	Obtaining knowledge of online service (Consumers need to learn)	Versus	Feasibility/ Unavailability services (not available everywhere)
186	PF02.186	Willingness (Consumers + banks are willing to accept cash in bd)	Versus	Restrictions of cash transactions (Uk banks)
187	PF02.187	Highly advanced in technology	Versus	Unskilled resources (Consumers + employees required IT skills)

188	PF02.188	Easily accessible to get the services (In terms of UK universities online resources + online payment)	Versus	Limited Authorisation ( In terms of online payment for Uni in bd)
189	PF02.189	Consumers highly Satisfaction rate (Consumers expectation)	Versus	Under performing (According to consumers expectation)
190	PF02.190	Emergency service /Rapid service (In terms of getting urgent service)	Versus	Enthusiastic (In terms of providing services from Hospital)/
191	PF02.191	Optimistic (In terms of GP services / Positive)	Versus	Lack of acceptance (In terms predations and customers)
192	PF03.192	Fantastic services about awareness (In terms of treatment or consultation)	Versus	People are unprivileged in terms of getting online payment service
193	PF03.193	Supportive behaviour enhancing (In terms of banking relations with small business in bd)	Versus	Less constructed in solving customers issues (In regard to refund or return items from buying online)
194	PF03.194	High importunacy of information and communication (In regard to update to consumers/ Keep updated)	Versus	Weak Relationship with customers and management
195	PF03.195	Trust and commitment relationship with customers	Versus	Insecure payment process (Cash handling/ robbery)

196	PF03.196	Much more Transparent / quick (Online banking services)	Versus	Lack of trust on the product quality
197	PF03.197	Learning and training involved to promote employment (In the banking sector)	Versus	Involvement of political influence (Banks, medical)
198	PF03.198	Using user friendly advanced technology (Banks or uni)	Versus	Less technology dependency (Prefer to use cash rather than online payment- low trust)
199	PF03.199	Independent study opportunities (In the UK school or uni)	Versus	Forceful in imposing education system (Education system)
200	PF03.200	High reputation in customer satisfaction (Welcoming and eager to help)	Versus	Lengthy process to get proper service
201	PF04.201	Developing unique banking software to reach consumers (In regard to online banking and online retailers)	Versus	Using traditional Teaching methods (In regards education and training)
202	PF04.202	Easy to access (Accessible by online to make appointments to banks or medical services)	Versus	Lack of communication issues (In regard to 3 <sup>rd</sup> party online seller/ Maintenance problem)
203	PF04.203	Highly regulated banking sector (In the UK)	Versus	Control by Privately operated (Banks)

204	PF04.204	High loyalty (Banking relation/ banks offer to switch banking to other to get good facility)	Versus	Less experience in industry due to this losing consumer trust (Online retailers in BD)
205	PF04.205	Highly convenience (Online payment)	Versus	Hassle and risky (Using cash payment)
206	PF04.206	Well commitment with consumers	Versus	Consumers Choose to use cash transactions
207	PF04.207	Growing online retailer market /Customers are depend on online retailers during any crisis ( Trust is developing)	Versus	Quality of service or items (Consumers are not satisfied due to quality or colour)
208	PF04.208	helpful welcoming customer support by online	Versus	Lack of proper online/virtual customer support
209	PF04.209	Using virtual learning techniques (Online teaching or online methods)	Versus	Expensive / High study expenses (Tuition fees)
210	PF04.210	High availability options for customers (In regard to online retailer/ Social media or new online platform)	Versus	Unfriendly relationship with clients
211	PF04.211	Trustworthiness platform (To use for online shopping or banking)	Versus	Use of low level of technology (Paper application in place still now)

212	PF04.212	Inter connection in between banks or school with clients and students (Consumers are getting notification for any issues or news events)	Versus	Very poor services (In regard to getting on time appointment or proper support)
213	PF05.213	Mobile money banking accessibility (Bikash or any mobile money banking)	Versus	Less reliability (In terms of customer trust and relation)
214	PF05.214	Consumers trust on state banks (Compare to private bank in Bd)	Versus	Limited availability for rural communities (In terms of education)
215	PF05.215	Level satisfaction high (GP services in UK/ Customer service / support)	Versus	Very frustrating (In terms of satisfaction of service)
216	PF05.216	Practical knowledge (In relation to present days demand)	Versus	Conventional content for teaching (Focused on traditional Educational methods or system)
217	PF05.217	Trustworthy (In terms of quality of service)	Versus	Poor service quality (In terms advice or guidance or medical tools)
218	PF05.218	Using social media platforms for online retailer (In terms of Bangladesh)	Versus	Lack of user's friendly platform (Poor IT system or error infrastructure)
219	PF05.219	Strongly technological advanced (In terms banking or customer services)	Versus	Easy to use for rural people (Lack of bank acc or Online access etc)

220	PF05.220	Wide range of products/ Valid products	Versus	Imaginary products / High level of fraud (In terms of products or quality)
221	PF05.221	Straightforward delivery method / Channels (up to date / realisable)	Versus	Complexity (In terms of getting items on time)
222	PF05.222	Available cash withdrawal points (Accessible for customers/ ATM)	Versus	Great threat of cybercrime (In UK, Online banking etc)
223	PF05.223	Well Educated / experienced ( in terms of university teachers or professional)	Versus	Unskilled employees in terms of IT knowledge ( Limitation training/ Resources)
224	PF06.224	Trustworthy and secure to keep money in the bank	Versus	So many branches and traditionally handle the payment system (Poor system)
225	PF06.225	Excellent / Great transport system to get service on time.	Versus	Transportation system is unfavourable
226	PF06.226	Huge loyal to their customers/ clients/ High value	Versus	Difficult process for customers / Complex in every aspect of getting proper services
227	PF06.227	Established policy and rules for online services.	Versus	Poor time management/ delivery services

228	PF06.228	Highly secure and developed in terms of payment or refund	Versus	Lack of product / service accuracy
229	PF06.229	Less hassle to open bank accounts and getting services	Versus	Very lengthy paper works / Political handle
230	PF06.230	High level of Freedom to use banking services	Versus	Expensive for customers to maintain banking relationship
231	PF06.231	Level of satisfaction is high and learning / gaining new experience as it's new technology	Versus	Poor service quality and slow movement in terms system
232	PF06.232	More trendy/ Convenient to customers	Versus	Cash transaction is popular to customers
233	PF06.233	High availability for public support	Versus	Comfortable on private services
234	PF06.234	Privileged to all type of public / Students /	Versus	Lack of Fear judgment to support their students/ customers
235	PF06.235	New technology to the customers (In terms of learning about technology)	Versus	Lack of transparency / Customer service are poor

## Appendix C

### The Construal Matrix

The construal matrix is based on the number of constructs that every study participant has under each theme.

Code	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14
PM01	2	2	2	0	0	2	4	0	0	2	0	0	0	0
PM02	3	0	3	1	0	2	4	1	0	0	1	0	0	0
PM03	1	1	1	0	0	0	6	1	3	1	1	0	0	0
PM04	2	2	0	0	1	2	2	1	2	0	0	0	0	0
PM05	3	2	0	3	0	1	2	0	0	1	0	1	0	0
PM06	4	2	1	0	2	1	1	1	0	0	0	0	0	0
PM07	2	1	1	0	0	1	2	0	1	0	1	0	1	0
PM08	1	2	1	3	0	1	2	0	1	0	1	0	0	0
PM09	1	4	1	1	0	1	5	0	0	0	0	0	0	0
PM10	3	2	0	0	0	1	2	1	0	1	1	1	1	0
PM11	3	1	1	1	0	2	2	0	0	2	0	0	0	0
PM12	0	1	0	0	1	2	1	0	4	1	2	0	0	0
PM13	4	1	0	1	0	3	0	1	0	0	1	0	0	0

<b>PM14</b>	0	1	0	0	0	3	1	1	1	2	2	1	0	0
<b>PF01</b>	1	0	2	3	0	1	3	0	1	0	1	0	1	0
<b>PF02</b>	2	1	0	1	0	1	3	2	2	1	2	0	0	0
<b>PF03</b>	2	0	0	1	1	1	1	1	1	0	0	1	0	0
<b>PF04</b>	1	1	1	1	1	0	3	1	2	1	1	1	0	0
<b>PF05</b>	2	1	0	2	0	2	3	2	0	0	0	0	0	0
<b>PF06</b>	3	1	1	0	1	1	2	0	1	1	1	0	0	0

## Appendix D

### The Binary Construal Matrix

The binary construal matrix does not count the number of constructs each respondent has in a given theme, instead of whether a participant has no construct in a theme represented by zero or one or more constructs represented by one.

Code	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14
PM01	1	1	1			1	1			1				
PM02	1		1	1		1	1	1			1			
PM03	1	1	1				1	1	1	1	1			
PM04	1	1			1	1	1	1	1					
PM05	1	1		1		1	1			1		1		
PM06	1	1	1		1	1	1	1						
PM07	1	1	1			1	1		1		1		1	
PM08	1	1	1	1		1	1		1		1			
PM09	1	1	1	1		1	1							
PM10	1	1				1	1	1		1	1	1	1	
PM11	1	1	1	1		1	1			1				

<b>PM12</b>		1			1	1	1		1	1	1			
<b>PM13</b>	1	1		1		1		1			1			
<b>PM14</b>		1				1	1	1	1	1	1	1		
<b>PF01</b>	1		1	1		1	1		1		1		1	
<b>PF02</b>	1	1		1		1	1	1	1	1	1			
<b>PF03</b>	1			1	1	1	1	1	1			1		
<b>PF04</b>	1	1	1	1	1		1	1	1	1	1	1		
<b>PF05</b>	1	1		1		1	1	1						
<b>PF06</b>	1	1	1		1	1	1		1	1	1			

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