FROM WALLET TO MOBILE: EXPLORING HOW MOBILE PAYMENTS CREATE CUSTOMER VALUE IN THE SERVICE EXPERIENCE

by

JULIAN BARNES

A thesis submitted to the University of Birmingham for the degree of DOCTOR OF PHILOSOPHY

Department of Marketing
Birmingham Business School
College of Social Sciences
University of Birmingham

June 2021

ABSTRACT

This study explores how mobile proximity payments (MPP) (e.g., Apple Pay) create customer value in the service experience compared to traditional payment methods (e.g. cash and card). The main objectives were firstly to understand how customer value manifests as an outcome in the MPP service experience, and secondly to understand how the customer activities in the process of using MPP create customer value. To achieve these objectives a conceptual framework is built upon the Grönroos-Voima Value Model (Grönroos and Voima, 2013), and uses the Theory of Consumption Value (Sheth et al., 1991) to determine the customer value constructs for MPP, which is complimented with Script theory (Abelson, 1981) to determine the value creating activities the consumer does in the process of paying with MPP.

The study uses a sequential exploratory mixed methods design, wherein the first qualitative stage uses two methods, self-observations (*n*=200) and semi-structured interviews (*n*=18). The subsequent second quantitative stage uses an online survey (*n*=441) and Structural Equation Modelling analysis to further examine the relationships and effect between the value creating activities and customer value constructs identified in stage one. The academic contributions include the development of a model of mobile payment services value creation in the service experience, introducing the concept of *in-use barriers* which occur after adoption and constrains the consumers existing use of MPP, and revealing the importance of the *mobile in-hand* momentary condition as an antecedent state. Additionally, the customer value perspective of this thesis demonstrates an alternative to the dominant Information Technology approaches to researching mobile payments and broadens the view of technology from purely an object a user interacts with to an object that is immersed in consumers' daily life.

ACKNOWLEDGEMENTS

This thesis would not have been possible without the Economic and Social Research Council scholarship for which I am extremely grateful. The PhD journey is a long and winding road during which I have met numerous academics and post graduate researchers who have provided support and guidance along the way. Firstly, I would like to thank my supervisors Dr. Sheena Leek and Dr. Doga Istanbulluoglu for their invaluable support, patience, guidance, and feedback. They always generously made themselves available when needed and provided invaluable comments and feedback during this journey. Secondly, I would like to thank all those academics and support staff I encountered during my journey at the University of Birmingham. While there are too many to mention, I would like to specifically thank Prof. Finola Kerrigan for her words of wisdom during my annual reviews, Prof. Mark Saunders for his guidance and infectious passion for all things methodological, and Marleen who was the font of all knowledge on anything administration related and will be sorely missed by the PGRs.

I have also been fortunate to meet so many great fellow PGRs on this journey both past and present who made the process easier by providing support when it was needed. Thank you to Mika, Tran, Helen, Mutta, Rob, Juliana, and my office buddies Ran, Raeni, and Min. Lastly but by no means least a special thank you to my linguistics friend Jed. You were always a great sounding board whenever I had a problem or just needed someone to share an idea with. I look forward to working with you on all those ideas for papers we had while sat in the Bratby marrying marketing and linguistics.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF VISUAL OBSERVATIONS

ABBREVIATIONS

CB-SEM: Covariance Based - Structural Equation Modelling
CV: Customer Value
CVH: Customer Value Hierarchy
EU: European Union
GDL: Goods Dominant Logic
G-VVM: Grönroos-Voima Value Model
IT: Information Technology
MGA: Multi-Group Analysis
MMR: Mixed Methods Research
MNO: Mobile Network Operator
MPP: Mobile Proximity Payment
NFC: Near Field Communication
OS: Operating System
PLS-SEM: Partial Least Square - Structural Equation Modelling
POS: Point of Sale
QR: Quick Response
SDL: Service Dominant Logic
SL: Service Logic
TAM: Technology Acceptance Model
TCV: Theory of Consumption Value
UK: United Kingdom
UoB: University of Birmingham
UTAUT/2: The Unified Theory of Acceptance and Use of Technology/2

CHAPTER 1 - INTRODUCTION

This thesis explores why consumers use mobile proximity payments (MPP) to pay for goods or services in the United Kingdom from a customer value (CV) perspective. The payment methods consumers use in their daily lives and the broader implications of a cashless society have been an allure of academics for the past five decades since Reistad (1967) introduced the term a chequeless society. During this period various technological developments have offered consumers alternatives to paying with cash, from the introduction of a bank identification card now commonly known as a contactless bank or debit card, to more recently allowing customers to pay using their mobile phone. Despite the widespread adoption of mobile phones in the United Kingdom (UK) (OFCOM, 2020) mobile payment services, such as Apple Pay and Google Pay, which allow the customer to pay in a physical store or on public transport have not been widely adopted (UK Finance, 2019, 2020a). Concurrently, academic research into the adoption of mobile payment services over the past decade has predominantly used Information Technology (IT) frameworks to explain why customers adopt or do not adopt these services (Dahlberg et al., 2015). Therefore, this thesis through using a CV perspective offers an alternative approach to understanding why MPP are not widely adopted in the UK. The findings of this research make several theoretical and practical contributions which increase our understanding towards why consumers' adoption of MPP is relatively low compared to traditional payment methods.

The aim of this chapter is to introduce the research topic beginning with the research background in Section 1.1. This section introduces the concept of a cashless society and the digital readiness of the UK to adopt new payment services. The rationale for the study is then explained in Section 1.2 through considering how previous research has studied the adoption

of financial mobile services. The research aim and objectives of this study are then discussed in Section 1.3 which is followed by an overview of the thesis structure in Section 1.4.

1.1. Research Background

Five decades of initiatives have failed to eliminate cash transactions in European countries (Baitz-Lazo et al., 2014) but researchers suggest a cashless society could transpire within the next decade (Arvidsson, 2016). The definition of a cashless society being one in which there is no use of physical banknotes or coins, rather than eradicating the use of cash to underpin the banking system (Bátiz-Lazo et al., 2014). This long journey towards a cashless society has been driven by potential macro and micro level benefits alongside the introduction of new electronic payment methods. The benefits of a cashless society at a macro country level include the potential to reduce the social cost of a country's payment system. Research has proposed that countries who move from a purely paper-based payment system to an all-electronic system can save at least one percent of their annual GDP through efficiency gains in their banking system (Humphrey et al., 2003). At a micro level, the introduction of new electronic payment methods offers potential economic and experience benefits for both the providers who process payments and the consumers who use them.

The first electronic payment methods were introduced during what was initially termed a move towards a chequeless society (Reistad, 1967). These early electronic payment methods in the form of electronic one bank identification cards are what we now know as the debit card. As electronic payment cards were introduced to the consumer researchers began to consider the micro benefits of reducing the use of paper-based cash and cheque payment methods. The micro benefits of reducing paper payment methods for the customer included for example increased

security, through the proposed use of fingerprint and voice recognition instead of a signature (ibid). For providers electronic bank cards had the potential to offer efficiency gains in the form of reducing the time lost when processing a transactional payment (Dodgson et al., 2015). As computing has advanced in the last five decades this has led to the development of new electronic payment methods. These new electronic payment methods include both improvements to existing physical card payment methods with the introduction of contactless debit cards and integrating payment methods into other convergent devices (Licklider et al., 1968), such as the mobile phone.

The introduction of electronic payment methods has led to a reduction in the use of cash in many countries, but considerable differences exist. These differences between countries exist both in the time to transition towards becoming cashless and the makeup of payment methods used (Humphrey et al., 1996; Snellman et al., 2001). At a macro level the difference between countries is demonstrated through the amount of cash in circulation per country indicator, using cash in circulation as share of GDP ratio as shown in Figure 1-1 below.

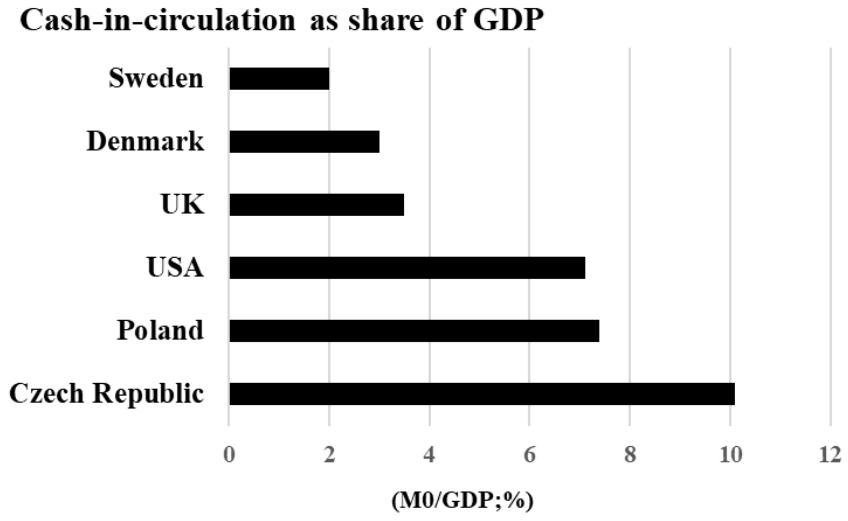


Figure 1-1: Cash in circulation related to GDP (2014) Adapted from: Arvidsson (2016)

The relatively low percentage of cash in circulation in the United Kingdom compared to other countries suggests that it is comparatively advanced in terms of becoming a cashless society. A reduction in the use of cash payments in the UK is also demonstrated by consumers increased use of electronic payment cards. In 2016 payments made by consumers using electronic payment cards (credit and debit) overtook payments made using cash for the first time (BRC, 2017). A quarter of these card payments were also made using contactless cards and the average transaction size of these card payments is increasing year on year (UK Finance, 2017). This shift in payment method use represents a change in consumer payment patterns since the introduction of contactless payment cards in 2007 (UK Finance, 2018) and demonstrates a changing payment method landscape in the UK.

A changing payment landscape has provided researchers with multiple aspects to consider regarding new electronic payment methods. Research into new electronic payment methods has focused on either the provider (supply side) or customer (demand side) rather than holistically considering multiple perspectives (Dahlberg et al., 2015). A decision which is due in part to the complexity of the payment platforms that underlie payment solutions (Ondrus and Lyytinen, 2011) and that the new electronic payment market contained a range of disparate solutions from multiple providers (Barnes, 2002; Chae and Hedman, 2015). For example, supply side research has covered a range of technical payment platform issues, such as security and system architecture (Ozcan and Santos, 2014). In contrast, demand side research has focused on the customer adoption and diffusion of new electronic payment methods (Antonides et al., 1999; Liébana-Cabanillas et al., 2014). Despite contrasting perspectives, it is accepted that for any new electronic payment method to be adopted by a market the countries payment ecosystem must be materially ready. To be materially ready covers a wide range of country specific factors,

from having appropriate technology infrastructure in place to legal and regulatory frameworks from which electronic payment methods can be adopted and used by businesses and consumers (Thomas et al., 2016). The UK has a relatively high overall materially ready score for adopting electronic payments among developed countries, as shown in Figure 1-2 below.

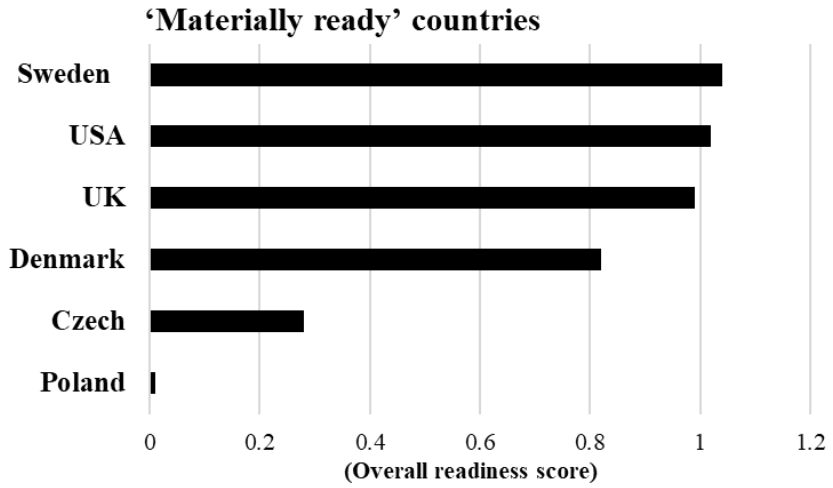


Figure 1-2: Countries materially ready for digital payments. (Adapted from: Thomas et al. 2016)

Therefore, the UK has the individual components in place: banking environment, technology infrastructure, supply, and demand conditions, to adopt new electronic payment methods. The technology infrastructure also exists to not just introduce new integrated electronic payment methods but also replace the physical payment-container (wallet or purse) within which payment methods are carried (Shaw, 2014). An example of an electronic payment container is a mobile wallet which allows the customer to not just use the mobile device to complete electronic payments but also electronically store other items located in a physical wallet, such as identity cards (Shin, 2009).

1.2. Rationale for the Study

The mobile phone has developed since the 1980's into an integral part of consumers' daily lives which allows them to conduct a wide range of services through mobile applications. These mobile services range from those that are used for hedonic purposes (e.g., playing games or music) to utilitarian purposes (e.g., pay for parking or banking) (Heinonen and Pura, 2008). Consumer demand has led to mobile services within what is termed the app economy being worth €86 billion in direct revenue to the EU economy in 2019 (Deloitte, 2020). However, within the different categories of mobile services that are available to consumers rates of adoption vary and this is particularly noticeable within the financial services sector.

The financial services sector is considered a leader among sectors in terms of developing mobile services (Tam and Oliveira, 2017). These mobile services range from those which allow the customer to access their bank through a mobile phone for checking account balances, to making discretionary payments to a provider of a good or service. Although, mobile banking services in the UK have a relatively high adoption, with 41 per cent of UK adults using mobile banking (UK Finance, 2018), the mobile payment category has varied adoption rates. Two different types of mobile payment services exist which differ depending on the location of the customer and provider. Firstly, when the consumer uses a mobile phone to pay for goods or services but are not in the same location as the provider, these are termed mobile remote payments (Slade et al., 2013). Thus, the customer can pay through the mobile phone using various electronic payment methods (e.g., traditional bankcard) in any location that is convenient to them. The use of mobile remote payments has had relatively high adoption rates in the UK and more consumers in 2018 made an online purchase through a mobile phone than a desktop computer

(Morgan, 2019). Secondly, when the customer uses a mobile phone to pay for goods or services and is in the same location as the provider, these are termed mobile proximity payments (MPP) (Slade et al., 2013), e.g., in a physical store using Apple Pay. MPP have not been as widely adopted in the UK and in 2016 MPP accounted for only 2.04% of total UK in-store transactions (WorldPay, 2017) and of the UK adult population 18% were registered to use MPP services in 2019 (UK Finance, 2020a).

As mobile services in the financial sector have been introduced to the consumer considerable academic research has investigated their adoption from an IT perspective. This stream of research that explains why consumers adopt or do not adopt financial mobile services has predominantly used Technology Acceptance Model based (TAM) approaches (Oliveira et al., 2016; Dalhberg et al., 2015). Although, this research has contributed to our understanding of the adoption of financial mobile services it is increasingly recognised as limiting our progress of knowledge accumulation (Benkasat and Barki, 2007). Despite various adaptations to the underlying TAM model (e.g., UTAUT and UTAUT2) the results of these studies typically report the same over-riding factors which explain customers' intention to adopt financial mobile services. The most common significant factor to explain why customers intend to adopt financial mobile services is the degree to which an individual perceives that using the technological service will result in performance gains (Venkatesh et al., 2003), termed performance expectancy (Oliveira et al., 2016). These IT streams of research investigate the factors that prevent or lead to adoption of mobile payment services at a generic level, rather than in the context of real-world payment scenarios. In the real-world context customers' have a choice to pay for goods and services with existing traditional payment methods (cash and card) or mobile payment services. Therefore, research into the consumer adoption of mobile

payments has recognised that studies should use alternatives to the dominant IT perspectives, be conducted in real-world payment scenario contexts, and consider the use of mixed-method approaches (Dahlberg et al., 2015).

This study differs from the dominant IT perspectives used in mobile payment research by firstly, recognising that in the real-world context consumers who have adopted MPP have a choice to use alternative traditional payment methods. Secondly, this study uses an exploratory mixed method approach and does not rely solely on self-reported surveys for data collection. Thirdly, this study recognises that MPP not only provide the consumer with the ability to pay using their mobile phone but also provide a range of additional services which are done during the process of making a payment. To ensure the scope of the study was feasible while achieving the depth of inquiry required within a practical time frame and the resources available a trade-off had to be made between researching either those consumers who do not adopt MPP or those that do adopt MPP (Creswell, 2014; Patton, 1999). As consumers' can now use MPP in a wide range of stores and public transport across the UK, despite adoption being relatively low (UK Finance, 2020a), this study chooses to research those consumers who have adopted MPP. Although, it is recognised that to increase the adoption of MPP it is important that the area of mobile payment research considers both those customers who do and who do not adopt MPP. This study views the customers' decision to use MPP or not as a choice between the mobile payment service and traditional payment methods (e.g., cash and card) and takes an exploratory approach using a CV perspective. A CV perspective allows the consumers decision to use MPP to be viewed as a preference judgement in the situations when the mobile payment service is used (Woodruff and Gardial, 1996). This perspective also implies that the consumers' preference to use MPP is relative to traditional payment methods and that the value MPP create

can only be determined by the consumer (Holbrook, 1999). As MPP are used across a range of different scenarios within consumers' daily life the scope of the mobile payment service is not limited to any particular type of service encounter. Thus, the focus of the study is the consumers' personal experience with using MPP as it exists within the service experience. The service experience including both the consumers' interactions with multiple providers (e.g., store employee and mobile application provider) and interactions which may occur prior to and after the service encounters where the MPP is used to purchase a product or service (Sandstrom et al., 2008).

1.3. Research Aim and Objectives of the Study

The aim of this research is to explore how MPP services create CV in the service experience to broaden our understanding of why consumers use mobile payment services. As the focus of this study is to explore, this research uses a sequential exploratory mixed methods research (MMR) design within which priority is given to the initial qualitative stage (Creswell and Plano Clark, 2018). The exploratory sequential MMR design allows the CV phenomena to be explored in a qualitative stage before these results are used to specify the procedures of a quantitative stage (Tashakkori and Teddlie 2010).

The main research objectives were therefore:

Objective 1: How does customer value manifest as an outcome in the MPP service experience?

This research objective aims to explore for those consumers' using MPP why they prefer to use this mobile payment method versus traditional payment methods through the phenomenon of customer value as an outcome.

Objective 2: How do the customer activities in the process of using MPP create customer value?

This research objective aims to explore the activities the consumer does in the process of using MPP throughout the service experience and how these activities create customer value, while recognising that these activities may be both value increasing and value decreasing.

1.4. Structure of the Thesis

This section gives an outline of each chapter in the thesis after Chapter 1 introduced the background for the research and presented the aims and objectives for the study.

Chapter two reviews the literature associated with mobile payments and the types of experiences these payment methods are used in. This begins from the wider implications of a cashless society, the related concept of the mobile wallet, and the development of financial mobile services. The factors influencing the adoption and use of mobile payments are subsequently reviewed, including both supply and demand side factors. The IT approaches to researching consumer adoption and use of mobile payments are then reviewed which justifies the overall customer value approach used in this study.

Chapter three discusses the literature and theories related to customer value creation in the service experience. Initially, the value concept is introduced and then value creation is explored through the Service Dominant-Logic lens including discussion and explanation of key terms. The chapter then discusses and determines suitable customer value and service interaction theories through which to answer the aim and objectives of this study. The selected theories are

then used to determine the studies conceptual framework which is presented and concludes the chapter.

Chapter four introduces the research methodology used in this thesis through an initial discussion of the philosophical background to the study. Then the over-riding research design and the sequential exploratory mixed methods approach used to achieve the research aim and objectives is presented and discussed in detail.

Chapter five details the qualitative methods used in the first exploratory stage of the mixed methods research design. The chapter details and justifies the methods used including data collection procedures, sampling strategy, analysis procedures, and piloting of the methods. The chapter concludes by presenting ethical considerations and methodological limitations for this qualitative stage.

Chapter six discusses the findings from the first qualitative stage in the studies mixed methods design. These findings detail how MPP create customer value and the value creating activities the customer does when paying with a mobile phone compared to traditional payment methods. Additionally, these findings are delineated by whether the value creating activities occur when the consumer is using MPP in the service encounter or outside of the service encounter.

Chapter seven integrates the data from the qualitative findings in Chapter 6 through the design of a measurement model and online survey for the second stage of the mixed methods research design. The chapter details and justifies the method used including data collection procedures, sampling strategy, analysis procedures, and piloting of the methods. This is followed by a discussion of the ethical considerations and methodological limitations.

Chapter eight details the SEM analysis conducted on the online survey data collected from Chapter 7 and the results of the research model and hypotheses. Additional analysis is then presented which includes mediation and Multi-Group Analysis to supplement the structural model. These findings detail the relationships between, and the effect of the customer value constructs identified from the findings of the initial qualitative stage discussed in Chapter 6.

Chapter nine discusses the research findings in terms of their contribution to the overall aim and objectives of this study. A model of mobile payment customer value creation in the service experience is introduced and discussed. The chapter then proposes the concept of post adoption in-use barriers which suggests that after an innovation has been adopted constraints exist which constrain consumers increased use of mobile payment services.

Chapter ten concludes the thesis and begins by revisiting the research findings, followed by presenting both the theoretical and managerial research contributions. The limitations inherent in the research are then presented and followed by suggestions for future research.

CHAPTER 2 - AN OVERVIEW OF MOBILE PAYMENTS

The mobile phone is now the most popular device used by adults (18 to 64years old) to access the internet in the UK (Morgan, 2019) and it allows them to conduct a wide range of services in their daily lives. This includes paying for products or services which was previously done using physical cash or bank and debit cards (Oliveira et al., 2016). Thus, the aim of this chapter is to introduce how mobile payments have been researched and how technology has changed the service encounter in which consumers pay for products and services. This chapter begins by introducing mobile payments through the broader context of a mobile wallet in Section 2.1 and the evolution of mobile service providers in Section 2.2. The development of financial mobile services in the UK is then explored in Section 2.3 and justification for the focus of this study that of mobile proximity payments (MPP) is discussed. The current literature on the adoption of mobile payment services is then discussed in Section 2.4 and further detail of the dominant IT approaches to mobile payment adoption explored in detail. The chapter concludes with a discussion of the mobile payment encounter in Section 2.5 which focuses on how technology has changed the service encounter and technology's role when consumers' use payment methods.

2.1. The Concept of a Mobile Wallet

A mobile wallet shares similarity with its physical counterpart both in terms of uses and the sense of individual attachment between the consumer and the object. The modern day physical wallet (or purse) has not changed in function or as part of everyday life since an Elizabethan bowgett, a leather pouch used to carry small items deemed to be of daily necessity (Wroth, 1954). The physical wallet still contains items used for a variety of task-based activities which

at their core is the ability to make payments, either in the form of cash or non-cash payment methods, such as credit or debit cards (Humphrey, 2004). Also included in the physical wallet and directly related to payment methods are a range of items, such as retailer loyalty or reward cards (Disney, 1999) and proof of purchase receipts (Mainwaring, et al., 2005a). Additional items of daily necessity may also include travel credentials (tickets or smartcards) or forms of personal identification for varying purposes in differing contexts. All these task-based activities for which a physical wallet is used are a taken for granted part of everyday life (Mainwaring et al., 2005b). Therefore, the items contained in a wallet allow the user to conduct routine activities and interact with the users' environment as an integral part of everyday life.

The mobile phone is now also an integral part of consumers' everyday life (Barkhuus and Polichar, 2011). As a tangible possession the mobile phone has become not only an essential part of certain consumers' everyday lives but a self-extension of our identity as individuals (Belk, 1988). As a possession the mobile phone can play a critical role in our sense of self and is an artefact through which consumers exert a sense of individual attachment (Belk, 2014). Thus, the mobile phone not only enables the user to complete functional tasks, but it also embodies social and emotional life (Clayton et al., 2015). As a personal possession, the mobile phone not only enables the user to complete functional tasks, but it also embodies social and emotional life (Clayton et al., 2015). For example, users develop a sentient relationship with their phone which can manifest itself as emotional panic when users are separated from the device (Vincent, 2006). This sentient relationship exists through the senses of touch, hearing, and sight between the user and the device (ibid). Despite forming a sense of attachment (Konok et al., 2016) with the mobile phone it has yet to replace the physical wallet in the UK. The services that could form a mobile wallet remain in their infancy (UK Finance, 2019), despite in

2004 it being expected that the mobile phone would eventually incorporate all the functions provided by physical wallets (Labrou et al., 2004).

2.2. The Evolution of Mobile Service Providers

The provision of mobile services has undergone considerable change since the first mobile phones were introduced in the UK in the 1980s and the supply side has developed from being controlled by MNOs to a value network dominated by technology companies. This section discusses the development of the mobile service value chain to a value network and identifies that due to supply side developments mobile applications now provide services across a range of activities consumers' do in their everyday lives. The mobile phone was introduced in the UK during the 1980s and has evolved from a single-purpose communication device into a dynamic tool that supports a wide variety of user activities. Initially introduced to consumers as a direct replacement for the fixed line telephone (Dunnewijk and Hultén, 2007), a quarter of mobile phone users in developed markets no longer make traditional voice calls (Deloitte, 2016). These mobile phone users have replaced traditional voice calls with mobile communication services, made possible by supply side advances in the mobile computing environment over the past twenty years. The result of today's mobile computing environment is that mobile services are now seamlessly integrated into consumers' everyday lives (Barkhaus and Polichar, 2011). As the supply side that provides mobile services has developed there has been widespread consumer demand for mobile services across a range of categories. The mobile services which allow the consumer to communicate, navigate, and play entertainment content, have been widely adopted in the UK, but those which allow the user to conduct financial transactions have seen varied levels of adoption (OFCOM, 2017). For example, 23% of mobile internet users

accessed their bank through the mobile phone at least once a month but only 5% used mobile payment services to pay in person (ibid).

The evolution of mobile computing services in the past decade has been caused by a change in the supply side of the mobile industry from a value chain to a value network (Peppard and Rylander, 2006) from which mobile provider eco-systems have emerged (Hyrynsalmi et al., 2016). As wireless connections and the internet have converged through mobile computing the traditional mobile industry value chain has evolved into a value network, as shown in Figure 2-1 below. The mobile service market in the UK was originally dominated by mobile network operators (MNO) such as Vodafone and Telefonica (Anwar, 2003), but has evolved to include both new and established providers from multiple industries, such as Microsoft and Tesco (Barnes, 2002; Ritson, 2003). Additionally, the convergence of the fixed and mobile internet has led to challenges for MNOs', such as increased data traffic and reduced voice revenue, which has shifted their role from a provider of telephone (voice) services to a provider of data connections (Ghezzi et al., 2015).

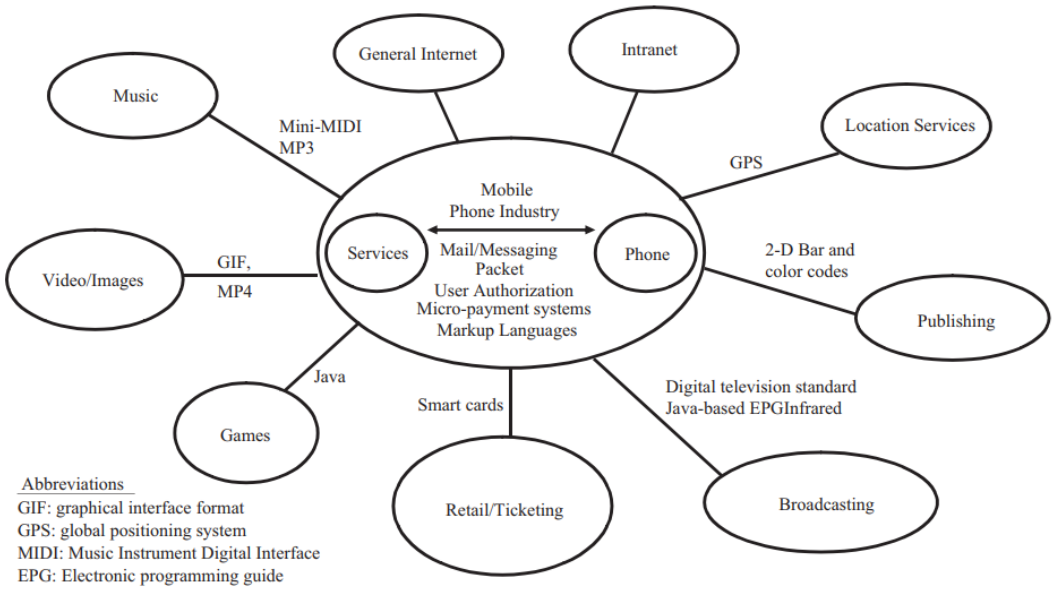


Figure 2-1: The emerging value network for the mobile phone industry (Funk, 2009)

This market evolution coupled with technology developments, such as enhanced handset capabilities and a 90% mobile network coverage in the UK (OFCOM, 2016, 2017), has resulted in mobile computing that is considered to be: '...lightweight, accessible on the go, and wirelessly connected' (Barkhuus and Polichar, 2011, p.629).

The mobile value network involves many providers, a complex set of relationships between the providers, and more agreements on a greater number of interface standards then value chains (Funk, 2009). As the mobile industry has evolved into a value network and mobile services have mirrored those of the fixed line internet significant structural changes occurred. The formation of the mobile internet was made possible by companies from various backgrounds, including mobile network operators, software developers, and handset manufacturers (Barnes, 2002). However, the structural changes resulted in a loss of control for some providers, such as the MNO and the arrival of new providers, most notably technology companies such as Apple and Google (Holzer and Ondrus, 2011). The resulting supply side value network which develops and provisions mobile internet services is now dominated by these technology companies (Basole and Karla, 2012).

These mobile internet services are run on the mobile phone handset, termed a smartphone. Hence, a smartphone is defined as an integrated mobile device that performs many of the functions of a computer. Typical features of a smartphone include a touchscreen interface, internet access, and an operating system capable of running downloaded applications. The smartphone reduced the inherent device constraints of early mobile phones by having a large screen size, extended battery life, and larger memory, thus improving overall handset usability for the consumer (de Groot and van Welie, 2002). This usability benefit meant the smartphone

had the ability to run mobile services that could provide greater benefit to the consumer (Verkasalo, 2006). The services that run on mobile devices were provided either through direct internet access, the same internet web pages as the fixed line internet, or as mobile applications. These mobile applications are referred to as 'native' from a software development view, due to them being coded specifically for a mobile phones operating system (Charland and Leroux, 2011). Mobile services which are native applications utilise the characteristics of a smartphone and provide distinct advantages over mobile internet services. These advantages are due to the mobile applications code being built specifically for the phones' operating system. Therefore, it is faster to run, provides a consistent user experience, has a common user-interface, and can access the phones functionalities such as the phones camera (Holzer and Ondrus, 2011). Mobile services provided through these mobile applications now have the capability to provide not only performance at least equal to the fixed line internet but also be aware of and adapt based on where they are being used (Dai et al., 2012).

As the smartphone continues to develop mobile services have become more aware of where they are being used. This functionality of mobile services is termed location awareness and is defined as: '...the ability of an application to detect and understand its situational context and to adapt its behaviour in a user preferred manner accordingly' (Zhang et al. 2009, p. 29). An example of location aware mobile services is push notifications which were initially used for marketing campaigns. Although push notifications have now developed into an integral part of value-added mobile services, made possible through GPS (Global Positioning System) technology since 2004 (Whipple et al., 2009). Examples of combining location aware mobile services and push notifications include navigation and fitness mobile applications (Freyne et al., 2017). An important technology development being used by transactional mobile services

is the development of Near Field Communication (NFC) technology, which has been available in consumer mobile phones since 2011 (Chae and Hedman, 2015).

NFC technology enables mobile devices to wirelessly communicate bidirectionally (in both directions) within a proximity of up to several centimetres (Madureira, 2017). Therefore, allowing either two mobile devices or a mobile device and for example a point of sale terminal (POS) to communicate securely. NFC has distinct advantages over similar technology, such as using less battery power compared to bluetooth wireless communication (Ortiz, 2006). The introduction of NFC technology into mobile phones is suggested to be the most important recent technology development to enable the widespread adoption of mobile wallet services (Madureira, 2017). This is because NFC enabled mobile services can provide an open and ubiquitous access point between consumers and providers of a range of transactional services, such as terminals for payments, tickets, and loyalty cards (de Reuver and Ondrus, 2017). NFC technology is now a common standard in the supply value network through which mobile phones and providers terminals can communicate to deliver these NFC enabled services, but it is inherently complex. For example, in an NFC enabled mobile payment service there can be at least six providers involved, these include: mobile device manufacturer, application software company, mobile network operator, bank or credit card company, payment terminal company, and merchant (Madureira, 2017). A result of this supply side complexity is that the consumer mobile wallet applications are not globally available (Dalhberg et al., 2015), but exist at both a country and continent level, such as Alipay wallet in China and Apple Pay in North America and Europe (Deloitte, 2019).

Despite the supply side complexity that delivers mobile services the combination of technology developments and market evolution has resulted in the app economy (Ghose and Han. 2014) being worth US$1.3 trillion in sales revenue globally in 2016 (EPRS, 2018). These mobile service applications now provide services for a range of activities in consumers' everyday lives, but the mobile wallet has not been widely adopted outside of Asia (Guo and Bowman, 2016). Since Apple included NFC technology in the iPhone 6 (Morosan and DeFranco, 2016) it has become accepted in the value network and mobile wallet services are expected to be more widely available to the consumer in Europe (WorldPay, 2018).

2.3. The Development of Financial Mobile Services in the UK

Financial mobile services are divided into two over-arching categories, that of mobile banking and mobile payments (Slade et al., 2013). The financial service industry is considered a leader among sectors in terms of developing online consumer banking services in the UK (van Steenis, 2019), firstly in the form of internet banking and then subsequently mobile banking services. Internet banking allows the consumer to conduct online banking activities via a desktop computer, in contrast to mobile banking which is defined as: '…a service or product offered by financial institutions that makes use of portable technologies' (Tam and Oliveira, 2017, p.1046). Mobile banking services allow the customer to conduct a range of banking related activities through mobile applications. Although variation exists between the providers, mobile banking applications allow the consumer to check account balances, view recent transactions, set-up and amend recurring payments (e.g., standing orders and direct debits), and perform bank transfers (Baptista and Oliveira, 2016; Yen and Wu, 2016). Mobile banking offers the consumer anytime anywhere access to their bank (Perry et al., 2001), a convenience benefit which gives the customer real-time and 24hr a day access to banking services irrespective of time or location

(Komulainen and Saraniemi, 2019). This convenience benefit has resulted in consumers increasingly using banks self-serve facilities through the mobile phone, as it reduces their need to visit a physical bank which in turn enables financial institutions to make cost savings through store closures (Harden, 2002).

The transition of consumer banking services from the physical high street to mobile has led to some concerns. Firstly, traditional banks have closed a significant number of high street stores in the UK as a reaction to technological developments and increased competition from new entrants (BBA, 2015). These store closures have created fears that in remote rural areas of the UK consumers will no longer have access to a physical bank (House of Lords, 2017). Secondly, although mobile banking services are constantly evolving research suggests that they are provider led, simply a replication of internet banking (Lahteenmaki and Natti, 2013), and do not adequately understand the banking activities consumers do as part of their daily lives (Komulainen and Saraniemi, 2019). Despite these concerns, consumer adoption of mobile banking in the UK continues to grow, and in 2018 over two-thirds of adults in the population used online banking of which half accessed their accounts through a mobile device (UK Finance, 2019). Notwithstanding consumer risks of mobile banking, such as fraud and technical outages (FOS, 2019), the growth of mobile banking is expected to continue at the expense of internet, telephone and branch based services (CACI, 2019).

The second mobile payment financial service category combines providers' payment systems with customers' mobile phones, this allows the initiation and completion of a financial transaction (Dahlberg et al., 2008). The core difference between the two mobile payment sub-categories of remote and proximity payments being the location of the consumer to the provider

at the point of purchase (Slade et al., 2013). Remote mobile payments allow the consumer to conduct a financial transaction for a product or service independent of the providers' location. A remote payment is done by the consumer through accessing a provider's website or mobile application on their mobile phone. The act of paying is then completed on the mobile phone typically through two methods. The first method is where the consumer enters their physical bank card details into a retailer's mobile website or application to complete a purchase. The second remote payment method is where the consumer uses an intermediary service provider at the point of making a payment, such as PayPal (Deloitte, 2015). An intermediary service allows the consumer to store their bank card and other personal details such as delivery address with the intermediary provider. A consumer benefit of using an intermediary payment provider is the reduction in the amount of information the consumer needs to input to make a transaction when compared to using a physical bank card (Assimakopoulos et al., 2018). Initially mobile payment solutions were aimed at low value payments (Slade et al., 2013) but mobile payments are now an extension of internet payments that are conducted on a desktop or laptop computer.

The transition from remote internet payments through a desktop computer to mobile payments has been made possible since the introduction of the smartphone (Kleijnen et al., 2007). In the UK 84% of adults now own a smartphone (Mintel, 2019) and this has led to sales through mobile devices accounting for 40% of all online retail sales (IMRG, 2019). Retail sales through the online channel in the UK are growing at year on year revenue increase rates of 12.8% (2014 to 2019 average) while physical retail store sales revenue remains relatively flat (2.4% increase year on year 2014 to 2019 average) (ONS, 2021). However, overall online retail sales through both mobile and desktop devices only accounted for 19% in 2019 of all money spent in retail in the UK, as shown in Figure 2-2 below. Most retail sales (81% in 2019) are still done in

physical stores in the UK, and this covers sales for a wide range of goods such as: food, beverages, household equipment, clothing and footwear, and information and communication equipment (ONS, 2021).

The second category of mobile payments is that of mobile proximity payments (MPP) which allow the customer to pay for goods or services in a physical store retail environment. MPP offer the consumer a direct substitute to paying in person with traditional physical cash or card payment methods (Dahlberg et al., 2008). MPP also share a core similarity with contactless physical bank cards, as neither require the consumer to input a Personal Identification Number (PIN) at the POS for payments under a set monetary amount (UK Finance, 2018). However, MPP do require a greater degree of setup by the consumer before they can be used compared to physical bank cards as it is the consumers' responsibility to download and setup an MPP application (Slade et al., 2013). This setting up of the MPP application is done by the consumer through registering an existing physical bank card with an MPP application provider.

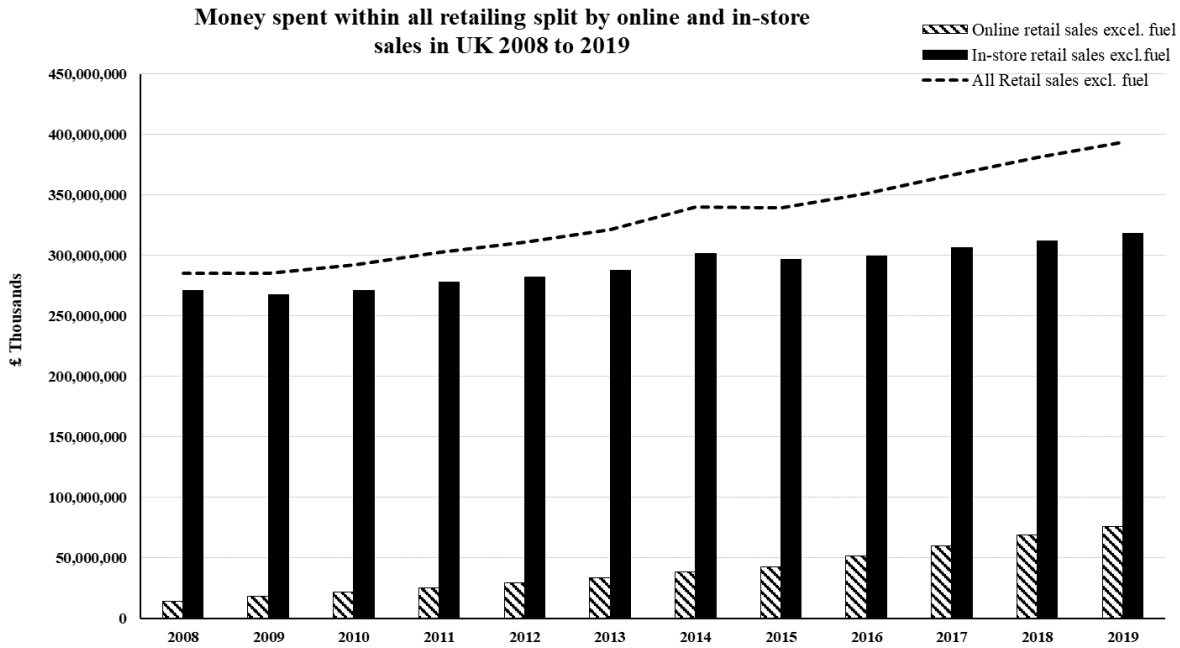


Figure 2-2: Money spent within all retail in UK 2008 to 2020 split by online and in-store (ONS, 2021)

2.3.1. Mobile Proximity Payment Applications

A range of MPP applications exist in the UK, but their use still represents a small volume when compared to traditional physical payment methods, such as cash and card. In June 2017, MPP only represented 2.04% of total in-store transactions in the UK (WorldPay, 2017). MPP applications are provided by a range of companies which include new technology companies, retailers, and the providers of the mobile phone operating system. The two dominant mobile phone operating system providers in the UK, Apple (iOS) and Google (Android) both launched MPP applications several years ago, Apple Pay in July 2015 and Google Pay in September 2016 (Annicelli, 2017). The mobile applications provided by retail stores were originally used to notify the consumer of discount offers which could be triggered based on location and prior consumer activity (Kang et al., 2015). Retail store applications have developed to now include the ability to collect loyalty rewards at the point of purchase and in some instance's payment capabilities, as in the case of the coffee chains Costa and Starbucks (Taylor, 2017). MPP applications provided by new technology companies in the UK include examples such as YoYo Wallet (Mavadiya, 2017) and Bink (Arnfield, 2019) which offer an integrated approach to payment and loyalty reward schemes. A core difference between the different types of MPP applications is the underlying technology they use to interact with the physical environment at the point of payment.

Two technology solutions exist which allow the consumer to make a payment in store using an MPP, either Near Field Communication (NFC) or Quick Response (QR) code. The NFC technology is similar to that used in contactless physical bankcards and enables NFC based MPP applications to be used at the same retail POS terminals. In contrast QR code based MPP applications cannot be used at the same POS terminal as contactless physical bankcards and

require the retailer to have a separate POS terminal just for the QR MPP (Sorensen, 2019). To date no academic research in the UK has studied how the different MPP applications vary in terms of the services they offer consumers. Thus, it is difficult to determine as a starting point how the consumer experience differs between the use of differing MPP and traditional payment methods. Mobile services in the physical environment have offered consumers an improved experience through applying mobility (Figge, 2004), as they can be used independent of time and place (Kleinrock, 1996) and understand the context in which the service is used. Therefore, fundamental to improving the mobile service experience for consumers is leveraging the context in which they are used (Ström et al., 2014).

Initial attempts by mobile services to understand and leverage use context were primarily based on location following the development of GPS (Global Positioning System) technology (Whipple et al., 2009). These location aware services were a transition towards truly context aware services which are defined as using: '…context to provide relevant information and/or services to the user, where relevancy depends on the user's task' (Dey, 2001, p.5). To increase relevancy, context aware services are able to adapt based on a range of environmental and user information. This can be achieved by knowing the user's situational dependency (Figge, 2004), conceived as a three-dimensional space, including: user identity, access position and access time. Additionally, to increase the user context beyond location, the services criticality in terms of time and space (Heinonen and Pura, 2008) can also be determined. For example, entertainment mobile services are less critically dependent on being used at a particular locality and may be used while a user is on the move. In contrast a user purchasing a travel ticket in a train station has a greater critical dependency on a particular time and space. However, a challenge for mobile service development is how to determine such levels of criticality when

the user context and environment are constantly changing due to the ubiquitous nature of the mobile device (Barkhuus and Polichar, 2011).

2.4. Consumer Adoption of Mobile Payment Services

The consumer demand for services that form the core payment activity of a mobile wallet can be considered from both new payment method and technological innovation perspectives. Mobile payment services are in direct competition with existing widely adopted traditional cash and card payment methods (Slade et al., 2013; Dahlberg et al., 2015). Research suggests that consumers currently use an assortment of payment methods (Au and Kauffman, 2008; Trütsch, 2016) with different approaches being taken to explain why consumers chose existing payment methods and their intention to use new payment methods. To explain the use of different payment methods researchers have often focused on socio-demographic factors and patterns of payment using surveys (Schuh and Stavins, 2014). These studies are conducted in specific countries, but recurring consumer characteristics are found to explain preference for certain payment methods. The consumer characteristics of age, gender, education, and income significantly correlate with consumer payment method behaviour (Klee 2008; Connolly and Stavins, 2015; Stavins, 2016). For example, those consumers with a higher education are more likely to use a range of cards and less cash (Carow and Staten, 1999; Klee, 2008) than those with a lower education (Borzekowski and Kiser, 2008). Higher income consumers are suggested to prefer credit cards but are less likely to use them than lower income consumers, in part due to them being less likely to need the credit feature (Klee, 2008; Koulayev et al., 2016). In terms of gender, it is suggested that males prefer to use cash and credit card payment methods particularly relative to debit cards (Koulayev et al., 2016). In the case of age, younger

consumers are more likely to adopt new payment methods which is partly due to their familiarity with new technologies (Schuh and Stavins, 2013).

Consumer attitude to new technology can also be attributed to the digital technologies available when they were growing up. For example, consumers born between 1965 and 1980 who are termed as generation X in generational cohort analysis (Howe and Strauss, 2007), grew up in the 1980s and 1990s and became accustomed to the first mobile phone technologies developed during this period (Reisenwitz and Iyer, 2009). Whereas, for the following generation of consumers known as millennials or generation Y, the mobile internet represents an integral part of their everyday lives (Howe and Strauss, 2007). The choice of and preference for different payment methods cannot be explained solely by consumer socio-demographic characteristics (Schuh and Stavins, 2013) but is a decision formed by an array of factors. These factors include the context of the service or product being purchased and the features of the differing payment methods. For example, in the case of transaction size smaller transactions tend to be paid with cash and larger transactions using payment cards (Klee, 2008; Cohen and Rysman, 2013). Although socio-demographic consumer attributes alone cannot explain the use of differing payment methods, they are frequently included in studies investigating the adoption of new mobile payment methods (Shin, 2009). These studies use socio-demographic attributes as moderating variables which are recognised to affect the relationship between dependent and independent variables in statistical studies (Saunders et al., 2019).

The decision by the customer to adopt a new technological innovation or not can also be considered as a decision process (Rogers, 2003). This process begins with the (1) knowledge stage where customers are exposed to innovation which creates an awareness. If the customer

is motivated enough at this stage to find more information about the innovation, then they progress to the persuasion stage (Kaplan, 1999). It is in the (2) persuasion stage that the customer forms their attitude towards the innovation and evaluates the innovations attributes (Rogers, 2003). Whereby, the customer refines their perception of the innovation, forms an intention, and decides to either adopt or reject it in the (3) decision stage. Then in the (4) implementation stage the customers intention is transformed into actual behaviour where the innovation is either purchased (adopted) or not (rejected) (Nabih et al., 1997). Finally, in the (5) confirmation stage the customer may continue to use the innovation or stop, if for example the innovation does not continue to perform as expected. However, this innovation adoption decision process neglects customers rejection and resistance behaviour that occurs prior to the persuasion stage, through assuming that customers are open to change and interested in evaluating new technological products or services (Talke and Heidenreich, 2014). Additionally, the boundaries between the stages of adoption for mobile technologies are suggested to be more nuanced than the stages of the innovation process proposes (Magsamen-Conrad and Dillon, 2020).

Customers are also known to be creatures of habit in that they routinely repeat previous behaviour when responding to certain contexts (Wood and Neal, 2009). This can result in them having no desire to change their payment method behaviour because they have established usage habits and are content with the status quo, termed innovation resistance (Ram, 1987). This behaviour to resist new innovations can be pre-dispositional such that it occurs prior to evaluating an innovation termed passive resistance (Talke and Heidenreich, 2014). Therefore, customers can unconsciously resist innovations because of either cognitive passive resistance, an individual's disposition to resist changes, or situational passive resistance (Heidenreich et

al., 2016). The latter is a result of an individuals' contentment with the status quo surrounding situation specific factors (ibid), whereby status quo satisfaction encourages repeat behaviour and decreases the acceptance of new alternatives (Ellen et al., 1991; Heidenreich et al., 2016). When resistance is encountered during the use of an innovation this is termed active resistance (Nabih et al., 1997). The sources of active resistance can comprise of a range of psychological and functional barriers, as shown in Figure 2-3 below.

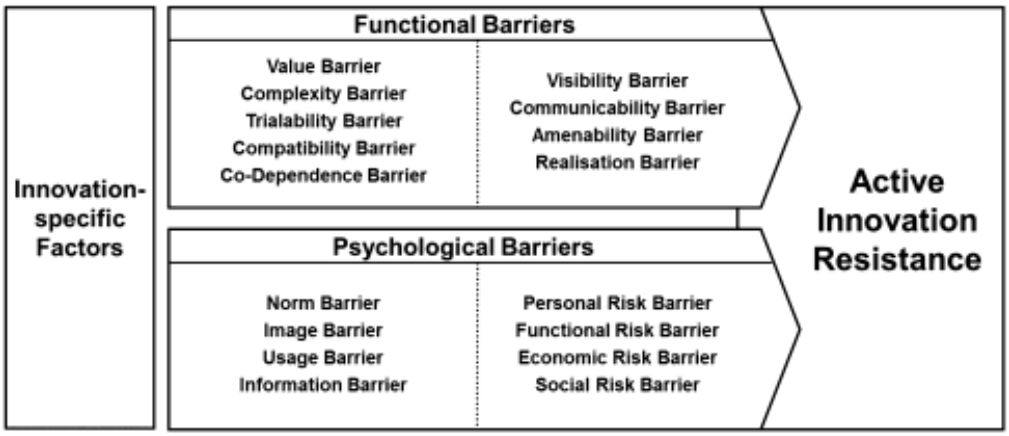


Figure 2-3: Sources of active innovation resistance (Talke and Heidenreich, 2014, p.899)

The functional barriers that cause active resistance occur when the consumer determines that an innovation has either dysfunctional or inadequate product attributes for their needs (Nabih et al., 1997). The types of functional barriers include the value barrier when an innovation does not have a superior performance to an existing alternative, the complexity barrier when an innovation is difficult to understand or setup, and the amenability barrier when the ability to modify an innovation to the consumers specific needs is limited (Talke and Heidenreich, 2014). In contrast, psychological barriers occur when an innovation conflicts with a consumers' usage patterns and is deemed too risky (Ram and Sheth, 1989). Examples of psychological barriers include image barriers when an innovation has unfavourable brand associations, usage barriers when the innovation threatens to disrupt the consumers' established patterns of behaviour, and

a range of risk barriers. The risk barriers can occur if the innovation is perceived as being able to harm the consumer, including physical, economic, and functional risk (Talke and Heidenreich, 2014). The result of active innovation resistance is that consumer's trial for a period but then decide not to adopt a new technology.

Strategies have been proposed to reduce these barriers (Ram, 1989) which include for example in the case of functional value barriers, providing enhanced functional capabilities through product development (Ram and Sheth, 1989). Research has demonstrated that of all the functional barriers the value barrier is the: '…strongest inhibitor of innovation adoption and usage intention for mobile and internet banking services' (Laukkanen, 2016, p.2437). Therefore, if consumers are to use MPP in the UK these services must provide a relative advantage to existing traditional payments methods. Conversely, for those consumers that are currently using MPP services in the UK the functional value barrier must have been overcome and existing MPP solutions provide these consumers with a superior performance compared to existing traditional payments methods. Research into the adoption of mobile payment services has predominantly taken the approach that customers are open to change termed a pro-change bias and had less consideration for the existence of innovation resistance (Laukkanen et al., 2007; Talke and Heidenreich, 2014).

2.4.1. Information Technology Approaches to Mobile Payment Adoption

Research into how to increase customers' use of mobile payment services over the past ten years has predominantly been based on information technology (IT) approaches (Dahlberg et al., 2015). Notable exceptions include the use of a perceived value perspective (de Kerviler et al., 2016) and transfer of learning theories to investigate how usage habits affect consumers'

intention to continue to use mobile payments (Jia et al., 2014). IT based studies have focused on customer intention to adopt, in part due to the limited supply side availability to conduct studies in a real-world context (ibid). Intention to adopt a new mobile payment service is viewed as a good predictor of actual system use, with studies attempting to increase the proportion of the variance in usage intentions and behaviour (Venkatesh et al., 2003). This explained variance is increased through either adding new constructs to the original TAM model or using extended variations of the TAM model, for example the UTAUT and UTAUT2 models (Zhou et al., 2010; Slade et al., 2015). Most of these IT based mobile payment adoption studies make marketing practitioner recommendations which centre on communicating customer benefits or reinforcing messages to alleviate concerns. These contain recommendations such as emphasising security credentials and reputation, which can positively influence consumer trust (Shen et al., 2010) and promote functional gains (Slade et al., 2013). As a reaction to the continually changing and dynamic service environment these studies continually extend TAM based models with additional constructs (Benbasat and Barki, 2007).

2.4.1.1. Technology Acceptance Model

The TAM model was originally created to predict, explain, and increase the user acceptance of organisational computer based tools, with a focus on word processing software (Davis et al., 1989). It was created as an adaptation of the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), which sought to predict actual consumer behaviour. This prediction was done through the antecedents of attitude towards a behaviour from an individual's beliefs and evaluations, and subjective norms in the form of normative beliefs and motivation. Although supported by a substantial body of empirical research the TRA is a general model and therefore does not specify the antecedent beliefs that are required to research the specific behaviour being

studied (Armitage, 2001). Therefore, researchers must identify these beliefs prior to being able to apply the TRA to the subject under study. Consequently, Davis (1986) adapted the TRA specifically for IT usage behaviour through specifying the causal linkages between two key beliefs: perceived ease of use (PEU) and perceived usefulness (PU), see Figure 2-4 below.

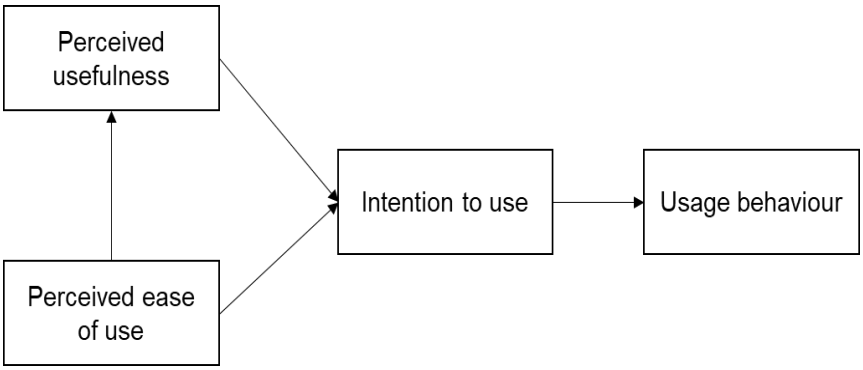


Figure 2-4: Technology Acceptance Model (Davis, 1986; Davis et al., 1989)

Perceived ease of use is the degree to which a new technology is expected to be free from effort when it is used. An example of how to improve a mobile phones PEU is to increase the devices usability by ensuring the mobile application has distinct symbols and function keys (Bewley et al., 1983; Schierz et al., 2010). These technological attributes influence consumer attitude and behaviour through the ease of which an innovation can be interacted with, ultimately enabling the consumer to carry out the sequences required to operate the innovation. Therefore, through increased PEU the consumer increases their performance and reduces the effort required to carry out the task or activity for which the innovation is designed for. In contrast PU is the degree to which an innovation is believed to offer a clear benefit to the consumer. This can be achieved through an innovations design characteristic, which are said to have a direct effect on PU and an indirect effect on PEU (Davis, 1993).

2.4.1.2. Unified Theory of Acceptance and Use of Technology Models

The UTAUT and UTAUT2 models have built on the original TAM constructs to include additional variables such as: social influence, facilitating condition, trust, and risk, as shown in Figures 2-5 and 2-6 below. As an example of an environmental factor, social influence can occur when a consumers' decision to adopt a new technology is influenced by important others in their social network (Zhou et al., 2010). It is suggested that social influence affects consumer's behavioural intention to use a new technology (Venkatesh et al., 2012), whereas in contrast a facilitating condition determines technology use. Examples of facilitating conditions include when the consumer has the relevant means and knowledge to perform a transaction using their mobile phone and the solution is well-matched with current technologies (Slade et al., 2013). The trust and risk constructs are related to consumers' concerns that a mobile payment method is free from vulnerability, for example exposure to losing data related to their bank account (Schierz et al., 2010). This results in the consumer having trust in the supply chain providing the payment service (Zhou, 2013) as data vulnerability is reduced.

Limited studies have explored these TAM based model constructs in greater detail, although Hampshire (2017) has explored the trust and risk constructs in relation to mobile payments in the UK through using qualitative interview methods. Wherein, it was found that: '…UK consumers have significant risk and trust concerns with mobile payments' (Hampshire, 2017, p.354) but consumers have greater levels of trust in mobile services that are provided by banks rather than new technology companies. These concerns related to trust and risk can be offset to a degree through providing and clearly communicating the benefits of new payment services.

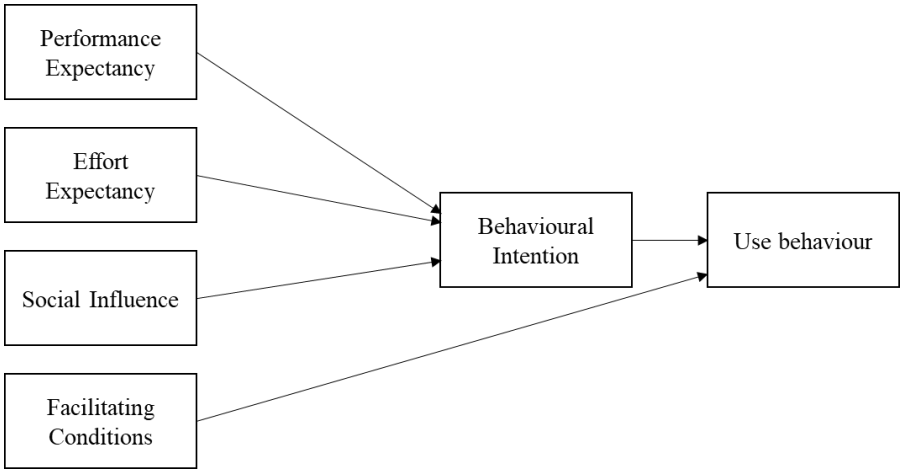


Figure 2-5: UTAUT research model (Venkatesh et al., 2003, p.447)

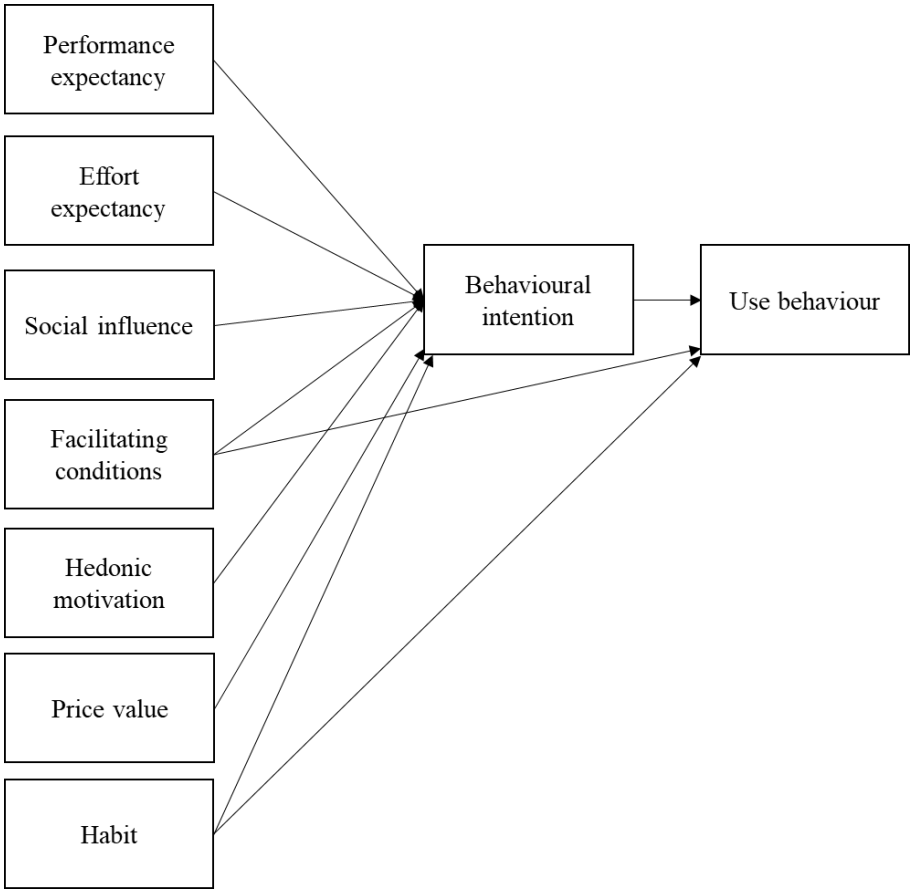


Figure 2-6: UTAUT2 research model (Venkatesh et al., 2012, p.11)

Despite additional predictor variables in the TAM based models increasing the predictive power (variance and saliency) of intention to adopt models, four dominant constructs are consistently

stated to influence consumer intention to use mobile payment solutions. These are the PEU, PU, trust, and risk constructs (Dahlberg et al., 2015; Baptista and Oliveira, 2016). If new mobile payment methods are to be adopted research suggests that these innovations must offer a relative performance advantage over existing solutions (productivity benefit) (Arvidsson, 2014) and be compatible with a user's existing mobile platform (Oliveira et al., 2016). Despite the results of TAM based studies achieving an initial purpose in researching consumer adoption of technological innovations, they have had their ability to increase innovation adoption knowledge questioned (Benbasat and Barki, 2007; Venkatesh et al., 2007). These concerns include viewing technology in isolation, producing similar findings, limited marketing practitioner recommendations, and self-reported intention to use payment innovations (Dahlberg et al., 2015). Therefore, researchers have called for alternative approaches to be considered which can increase the knowledge of how payment innovations are used. Essential to these alternative approaches is the need to consider the real-world context in which new payment innovations are used (Arvidsson, 2014). A real-world perspective of the environment in which payment innovations are used moves away from viewing technology in isolation and can increase knowledge of why consumers use new payment innovations instead of existing payment methods (Dahlberg et al., 2015). Thus, to research the real-world use of new payment methods this study requires focusing on the act of paying and how consumers and providers (technology and human) interact within the service experience.

2.5. The Mobile Payment Service Experience

When technology is introduced into a service experience where the service is used by a consumer, it can create multiple challenges for new services such as mobile payments. The result of failing to recognise customer challenges can be a collection of incoherent service

fragments that fail to provide satisfactory service (Patricio et al., 2008). Technology based services themselves are complex service systems (Patricio et al., 2011), configurations of: '…people, technologies, and other resources that interact with other systems to create mutual value' (Maglio et al., 2009, p.395). The terms service experience and service encounter are at times used interchangeably (Bitner and Hubbert, 1994), however the service experience relates to a more continuous period within which all service encounters occur. Whereas the service encounter relates to the specific consumer provider interactions in the service context (Bitner and Wang, 2014). These interactions can additionally be broken down into pre-core, core, and post-core service encounters where the core encounter is defined as when the service is delivered by the provider (Voorhees et al., 2017). In the pre and post-core elements of the service encounter the provider may interact with the consumer, such as communicating on boarding processes or requesting feedback about service performance (Lemon and Verhoef, 2016).

2.5.1. How Technology Changes the Service Encounter

The service encounter was originally viewed as being a social encounter, a social interaction and social exchange between the customer and an employee of the service provider (McCallum and Harrison, 1985). This views the service encounter as being purely dyadic in nature, an interaction between a pair of individuals. Recent marketing concept developments broadened the role of the service environment to include both technology and the physical environment. The influence of the physical environment in which a service occurs, termed the 'servicescape' (Bitner, 1992), is conceptualised as containing multiple types of stimuli including: ambient conditions, spatial layout, functionality, signs, symbols, and artefacts. These stimuli which may include technology to varying degrees are controllable and affect both customers and

employee's ability to facilitate or hinder the social interaction to varying degrees (Parish et al., 2008). The role of technology in the service environment was recognised by Parasuraman (1996) who modified the Services Marketing Triangle (Bitner, 1995). This change extended the three fundamental interlinked groups (customer, employees, and company) to include technology.

The resulting Services Marketing Pyramid was an initial recognition of technologies role as a key dimension in the delivery of services (Keyser et al., 2019). It introduced the need to manage the link technology has with providers in the form of company and employees, and customer (Fisk et al., 2008). As technology becomes increasingly infused in the service encounter so this changes the links between the actors involved. As shown below in Figure 2-7 below, it is suggested that the infusion of technology occurs predominantly between the employee and customer (Keyser et al., 2019).

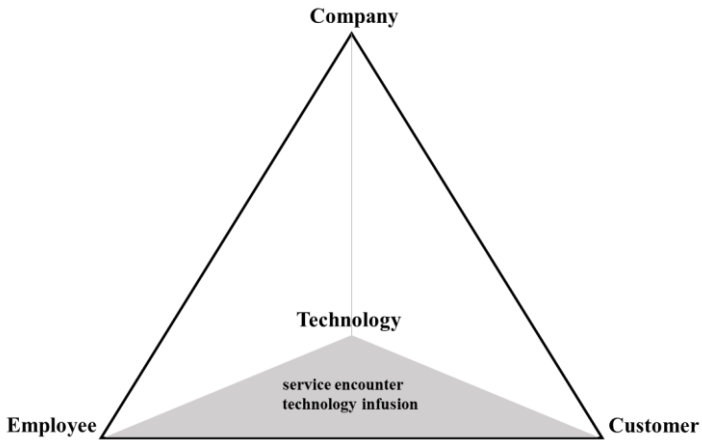


Figure 2-7: The service pyramid (adapted from: Parasuraman, 1996; Keyser et al., 2019)

In this area of technology infused service interactions, a range of different encounters exist, and the role of technology can vary considerably. For example, the human employee does not have to be present for certain services to be completed when customers can self-serve (Verhoef et

al., 2009). In these services where an employee is not present technology takes on the role previously reserved for a human actor (Novak and Hoffman, 2019).

2.5.2. The Role of Technology in the Payment Encounter

Research into the role of technology in the service encounter has predominantly focused on the technological interface between the customer and provider, in what are termed Self-Serve Technologies (SSTs) (Newman et al., 2018; Blut et al., 2016; Reinders et al., 2008). SSTs are defined as any facility that enables consumers using technological interfaces to: '...produce services for themselves without assistance from firm employees' (Meuter et al., 2000, p.61). These interfaces can replace a physical store's location, such as the use of an ATM (Automated Teller Machine), whereby the customer no longer must physically visit a bank to conduct certain bank services (Patrício et al., 2011). SSTs may also exist as part of a multi-interface environment, for example a multi-interface service encounter may include the ability to check in and/or out of a hotel using self-serve technology (Giebelhausen et al., 2014), or when paying for a product in store using a payment method through a self-serve terminal. Although, the degree of customer and employee interaction can vary and the customer will often have a choice as to whether they use a technology enabled interface or not (Wünderlich et al., 2012).

The rise of SSTs has led to a myriad of customer contact types within the service encounter and these are distinguished by the mode of customer contact, either 'face-to-face' or 'face-to-screen' (Froehle and Roth, 2004), as shown below in Figure 2-8. The range of customer contact types shows how the traditional interpersonal encounter has evolved into a myriad of encounters where technology plays differing roles in the service encounter. The traditional face-to-face

encounter between a customer and employee where no technological assistance occurs (type A: technology free customer contact) is limited in payment situations to cash based payments.

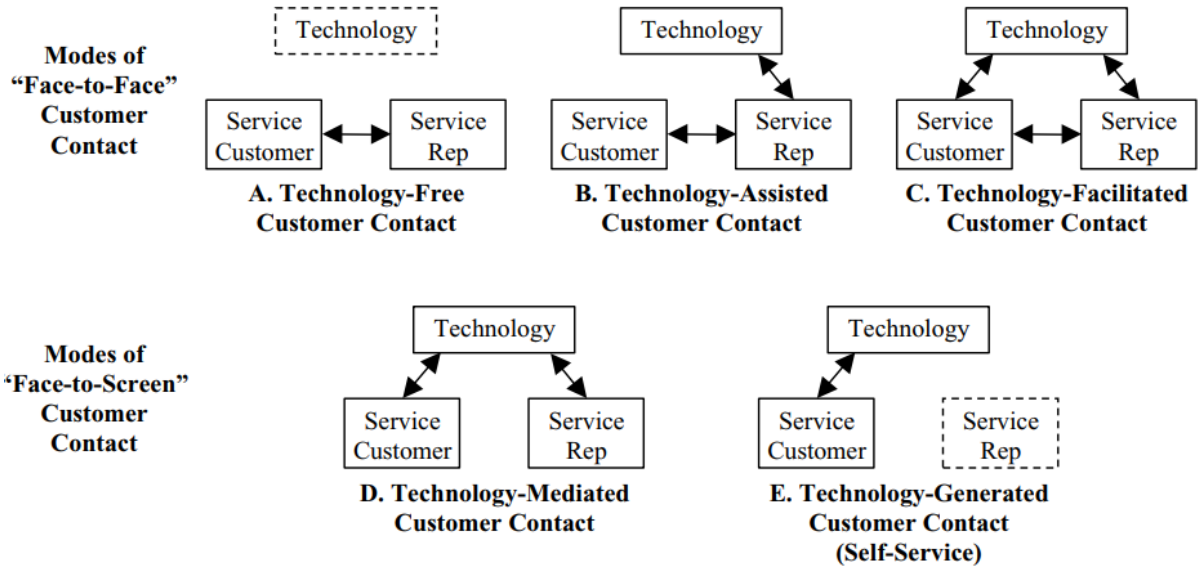


Figure 2-8: Conceptual archetypes of customer contact in relation to technology (Froehle and Roth, 2004, p.3)

Although, when using cash to pay for a product or service where a stores point-of-sales terminal is connected to a technological payment network, this could be considered technology that assists the employee (type B: technology assisted customer contact). Mobile payments in a 'face-to-face' (proximity) mode are a form of technology that facilitates customer contact (type C). This is because a successful payment can only occur when both the customer and employee have access to the same compatible technology solutions (Froehle and Roth, 2004).

Where the customer and employee are not in the same location the mode of customer contact is termed 'face-to-screen'. This can include the use of remote mobile payments when paying for an online shopping purchase (type D) and the use of a bankcard when using a self-serve ATM (type E). Although, MPP solutions could be included in types C and E, the delineation of

modes between ‘face-to-face’ and ‘face-to-screen’ may not be as distinct as research suggests. The distinction between ‘face-to-face’ and ‘face-to-screen’ modes of contact does not account for the screen on a mobile device having a purpose when making a mobile payment in the ‘face-to-face’ customer contact type C. Aside from the customers mobile device screen in the customer contact type C, technological screen interfaces are also becoming increasingly common in retailers. These screens often accompany face-to-face interactions and assist customers with ordering and payment (Rowley and Slack, 2003; Giebelhausen et al., 2014).

The increased use of technology in the service encounter has been driven from the firms’ perspective by a need to improve operations and increase efficiencies (Bitner et al., 2000; Meuter et al., 2003), which can be perceived by the customer as cost cutting rather than extending customer service levels (Nijssen et al., 2016). For the consumer, these new forms of contact can provide functional benefits such as increased speed of service delivery and greater convenience through increased hours of operation (Bitner et al., 2000; Beatson et al., 2007). However, customers may feel forced or obliged to use SST as companies increasingly replace human employees with SSTs (White et al. 2012), which limits their freedom to choose. Whereby, the forced adoption of SST is perceived by the customer as a threat to their freedom to choose how the service is delivered and causes negative emotions and perceptions of the SST (Feng et al., 2019). In contrast, these new technology based forms of contact may also provide the customer with affective reactions, such as novelty and excitement (Wells et al., 2010), during what is termed the ‘honeymoon’ period of adoption (Fichman and Kemerer, 1993). Research has discussed and investigated SSTs from a number of perspectives including: impact on service outcomes (Meuter et al., 2000), adoption and rejection (Dabholkar and Bagozzi, 2002), impact on customer retention (Curran et al., 2003), and how both employee and customer

roles in the service encounter are transformed (Larivière et al., 2017). It is suggested that technology transforms roles in the service encounter through augmenting employees' interactions with the customer, an ability to assist and complement service employees (Marinova et al., 2017). In certain augmented service interactions rather than using technology to replace employees and save costs (Meuter et al., 2005) smart technologies have been used to enhance the customer experience. For example, in the retail environment smart technology in the form of connected devices has been used to create mirrored displays which allow the customer to try on clothing virtually (Roy et al., 2019). The use of smart technologies can focus on enhancing the customer experience with for example virtual or augmented reality technologies, but their use is currently limited to interactive advertising and product experience (Scholz and Smith, 2016). The more common change that technology has had in transforming roles in the service encounter is where technology substitutes to varying degrees the role of the employee (Larivière et al., 2017). This employee substitution occurs in self-serve encounters, where customers can for example complete shopping at a supermarket checkout without any contact with a service employee (Marinova et al., 2017).

The infusion of technology in a service encounter can also transform the interaction by acting as an enabler for both customers and employees (Bitner et al., 2000). This enabling activity ranges from an employee helping resolve a technical difficulty (Bowen, 2016), to the customer having an active input through becoming a partial employee, such as in the case of withdrawing money from an ATM (Bitner et al., 2000; Larivière et al., 2017). For both employees and customers' technology can enable a positive service encounter outcome through three primary drivers: effective service recovery, spontaneous delight, and flexibility and customisation (Bitner et al., 2000), but it is not known to what degree these primary drivers are applicable to

the payment experience. Flexible and customised service offerings are one of the most important quality gains that technology can produce (Quinn et al., 1990). This is because customers desire services that fit their individual needs rather than being restricted by rigid rules (Bitner et al., 2000). Conversely, as the infusion of technology in services increases and personal contact with the firm reduces this can lead to a negative impact on the service encounter. For example, research suggests in the case of paying at a restaurant the use of a debit or credit card can cause customers attention to focus on the technology rather than engaging in rapport building behaviours offered by the employees (Giebelhausen et al., 2014). This negative impact is representative of one of the technology paradoxes (Mick and Fournier, 1998), that of 'engaging/disengaging'. The negative quality of this paradox asserts that the use of technology reduces our human skills, such as interpersonal communication in the service encounter.

Research has considered the payment service encounter but predominantly as part of a wider service setting, such as going to a restaurant or when researching SSTs as in the case of ATM. Limited research to date has focused on the payment service encounter across multiple interfaces, including both modes of 'face-to-face' and 'face-to-screen' customer contact types. It is also unclear if these modes are still applicable with the rise of both the mobile device and other screens within the retail experience. The impact of mobile technology on the payment experience in terms of both its nature as a service and the primary drivers for its use for the customer is unknown. Therefore, to understand how mobile services create a superior performance to existing alternatives, it is required to explore the specific service interactions the consumer has when using MPP across different contact types. The following chapter (3) reviews the literature, theories, and frameworks on firstly customer value, which allows the study to determine how MPP create superior performance versus traditional payment methods

as an outcome. Secondly, service interaction literature and theories are discussed from which the interactions the customer has and the activities they do in the process of using MPP across different contact types can be explored.

CHAPTER 3 - CUSTOMER VALUE CREATION IN THE SERVICE EXPERIENCE

The chapter begins by introducing the value concept and its importance to the field of marketing in Section 3.1 and discussing the differing perspectives of the value proposition and customer value. A discussion of the customer value creation literature is then introduced through the lens of the Service Dominant-Logic (SDL) in Section 3.2. This discussion identifies that the value creation process and how value is determined as an outcome by the consumer have been studied from a myriad of approaches but predominantly researched as separate streams (Gummerus, 2013). This has led to a plethora of fragmented research within each stream and a lack of agreement on the definitions of key terms, such as customer value, value-in-use, value creation, and co-creation (Khalifa, 2004; Sanchez-Fernandez and Iniesta-Bonillo, 2007; Woodruff and Flint, 2014). Therefore, these terms and existing customer value (Section 3.3) and service interaction (Section 3.4) frameworks and theories are discussed. The result of this discussion is an initial conceptual framework and specific research questions related to the chosen theories (Section 3.5) through which the research aim and objectives of this study can be explored empirically.

3.1. Introducing the Value Concept

Value has been a central concept of marketing since there was a realisation that firms could not simply create a competitive advantage from the quality of a product or service (Parasuraman, 1997). This realisation came about from increasingly demanding customers, globalisation (Woodruff, 1997), and the slowdown of western economies following the early 1990s recession (Walsh, 1993). Since the rise of the value concept within the marketing domain the term value has been applied to many different situations and used from a range of perspectives. The term

value originally derives from the Latin *valere* meaning to be strong, but the modern-day meaning is more closely associated with the French verb *valoir*. The French verb *valoir* meaning to be of worth is described by Turgot in the 18th century to stand for quality which has no connection with its saleable value (Desai, 1987). In this sense value is associated with the goodness of an object which is relative to the enjoyments taken from the object (ibid). As a broad concept value is associated with two over-riding perspectives (Khalifa, 2004). Firstly, as the creator of a product or service the providers' perspective attempts to persuade customers that an offering is valuable to them (Bitner et al., 2008). Secondly, as the receivers' who consume a product or service, a customer perspective of the value concept attempts to identify how the activities and the experience of the consumer can be supported (Heinonen et al., 2010).

The value concept from a provider's perspective deems the customer to be a passive recipient of the value created by organisations (Prahalad and Ramaswamy, 2004). This perspective places the creation of value inside the providers' value chain through the deployment of organisational resources (Porter, 1985). The result is how customers can be of value to the provider and how organisations can create and deliver superior value to the customer (Payne and Holt, 2001). The value concept was originally considered from the providers' perspective as organisations searched for new ways to create a competitive advantage. Early value concept research was based on the concept of a trade-off between firm and customer, and that consumers make rational decisions to maximise their utility as per the economic Theory of Utility (Stigler, 1950). This perspective of value proposes that customers spend their income to maximise their satisfaction from products (Bowman and Ambrosini, 2000). However, the provider can only suggest what the value of a product or service is worth to the customer, through what is termed

a customer value proposition. It is ultimately the customer who determines the value of a product or service (Grönroos 2011; Ballantyne and Varey, 2006).

In contrast, a customer perspective to the value concept places the emphasis on value for the consumer who purchases and/or uses the product or service, termed customer value (CV) (Grönroos, 2000; Payne and Holt, 2001). This perspective shifts the focus of the value concept between the provider and customer beyond individual exchange and transactions, and towards ongoing interactions over time (Levitt, 1980; Verfhoef et al., 2009). A commonly accepted definition of CV (Leroi-Werelds et al., 2014; Flint et al., 2002) is: '…the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given' (Zeithaml, 1988, p.14). This definition of CV is rooted in economics and hence views CV as a trade-off between what the consumer receives and what they are given. The notion of the use of a mobile payment service as an economic trade-off is problematic from a customer perspective as there is not a monetary exchange between the mobile service provider and the consumer for the use of the mobile application. The monetary exchange exists between the retailer and mobile payment service provider in the form of a transaction fee. From a customer perspective, the MPP acts as a replacement for traditional cash and card payment methods which the consumer uses to pay for a product or service in a physical service encounter. A more applicable definition of CV is that proposed by Woodruff (1997):

> 'Customer value is a customer's perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate (or block) achieving the customer's goals and purposes in use situations' (p.142).

This definition of CV recognises that value as a phenomenon is multi-faceted and not rooted in an economic trade-off, through treating value as the customers' overall preference and evaluation of a product or service. Therefore, as a multi-faceted phenomenon CV is broader than simply economic utility (Sanchez-Fernandez and Iniesta-Bonillo, 2007) and is a comprehensive measure of a customers' overall appraisal and preference judgement of a product or service (Bolton and Drew, 1991). The definition of CV by Woodruff (1997) also suggests that CV arises from both value-adding and value-decreasing characteristics (Heinonen et al., 2019) through the notion that a customer' goals can not only be facilitated but also be blocked. Therefore, CV is not just the result of positive consequences that facilitate value creation but also potentially negative consequences which result in value destruction (Echeverri and Skålén, 2011; Smith, 2013). This definition also proposes that CV arises from the use of a product or service which aligns with the perspective that providers can only make value propositions (Grönroos, 2000).

3.1.1. The Value Proposition

The direct providers of mobile payment applications, companies such as Google and Apple can only suggest to the end user (the consumer), the potential CV of the service through a proposition. Marketing has used the concept of a proposition in various guises over the past century since its early use in advertising as a means of getting customers to act on an advertisement (Hopkins, 1923). The terms Unique Selling Proposition (Reeves, 1961) and Basic Selling Proposition (Oglivy, 1947) were both used to explain successful advertising campaigns. These propositions conveyed the product's specific functional benefit that both differentiated a product from its competitors and ensured a relevance to consumers (Payne et al., 2017). Through a focus on product functionality and features, these propositions viewed

consumers as demonstrating rational behaviour rather than emotional influences (Rowley, 2004). Subsequently, in the 1980s the core benefits proposition was introduced (Urban and Hauser, 1980) which focused on the physical features that product benefits promised to deliver for the consumer. More recently the term proposition has been expanded and used as a concept to express the entire set of experiences that a firm creates for the customer to include both pre and post purchase activities (Ballantyne and Varey, 2006). Customers then subsequently perceive these experiences to be either net superior, equal or inferior to alternatives (Lanning, 1988). This use of the term proposition in marketing is now commonly referred to as the Customer Value Proposition and is hereafter termed value proposition (Payne et al., 2017).

Recent developments suggest that value propositions should now be considered through a broader view that includes not just the direct provider of a service but as in the case of the mobile value network those providers who form the wider service ecosystem (Frow et al., 2014). This is because it is acknowledged that customers exist and interact within a network of providers, a view which recognises that customer relationships exist beyond direct providers (Gummesson, 2007). In these ecosystems value propositions are a reciprocal mechanism through which the stakeholders and actors, offer and attract resources as no single actor has all the resources needed to operate in isolation (Frow et al., 2014). Through taking a broader view of the value proposition, beyond simply delivering potential benefit to the customer by a direct provider, other actors in an eco-system can contribute to new value propositions. This broader perspective can also include the consumer as a contributor whom themselves as users of a service are a particular source of innovation and can contribute creative new ideas (Kristensson and Magnusson, 2010).

MPP applications exist within a mobile service ecosystem (Basole and Karla, 2012) but also require the consumer to interact with a range of other providers in the physical environment. This not only includes the mobile payment application provider but also providers and interfaces specific to the retail environment in which the application is being used in. For example, the MPP process may include the customer interacting with providers such as the: mobile phone manufacturer, mobile payment application developer, mobile network operator, store payment terminal system, and retail employee. The MPP value proposition must resonate with the consumers that use the service, but it is not known what value MPP provide the consumers with. It is also not known which of the providers the consumer considers to be the focal actors in the value proposition. Despite value creation often being referred to as 'two sides of the same coin' (Gupta and Lehmann, 2005), that of value created for the provider and value created for the consumer; it is ultimately the customer who determines the value of a proposition for themselves as demonstrated by using the service in their daily lives (Ballantyne and Varey, 2006). Although broadening out the value proposition to consider the ecosystem of providers does reflect the complexity of delivering mobile services, it does not explain how the consumer uses MPP and how CV is created. To improve value propositions businesses still need to understand the value creation processes that exist within the consumers' own use context, how to support customer activities, and discover unrealised value potential (Heinonen et al., 2010).

3.1.2. Customer Value

Customer value (CV) as a preference judgement offers an approach through which to understand why consumers choose to use mobile proximity payment services versus traditional payment methods. In contrast to Information Technology (IT) research a CV approach to choices between different payment methods broadens the view of why consumers choose to use

MPP. The approaches which stem from the IT research domain take a narrow view of new technologies. These view the customers' decision to use a new service from a binary yes/no choice of technical rationality and the use of new innovations as: '…an encounter between a disembodied subject facing an objective technical artefact' (McMaster and Wastell, 2005, p.386). In contrast, a CV approach offers the ability to view technology in the context and environment in which it is used rather than as an isolated object. However, despite agreement that CV is central to marketing there is no consensus on how it is created (Woodruff, 1997; Wikstorm and Decosta, 2018) and marketing still needs: '…a richer base of knowledge exploring how customers perceive, think about, and engage in customer value processes' (Woodruff and Flint, 2014, p.183).

The economic Theory of Utility (Stigler, 1950) provided an initial underpinning to the CV construct through proposing that customers derive value from the difference between the attributes of a product or service, termed utility, and the price paid, termed disutility (Tellis and Gaeth, 1990). The customers' assessment of utility was suggested to be a rational assessment, but CV is recognised as being far more complex than a trade-off between utility and price (Monroe, 1990; Zeithaml, 1988). There is no direct monetary cost to the customer for purchasing (downloading) a mobile payment service as the applications are free. However, the cost to the customer can include non-monetary cost factors such as a switching cost (Burnham et al., 2003). For example, there is a non-monetary cost to the customer in the form of the time and effort required to set up a new mobile application, which can include registering for and learning to use the mobile payment service. Additionally, any time lost through the disutility of a service during its consumption cannot be easily exchanged or transferred as time is a scarce resource in comparison to money (Leclerc et al., 1995). The time versus money stream of

research also finds that time is a greater source of dissonance than money, and an expenditure of time (vs. money) is more closely associated with the customers' individual self (Mogilner and Aaker, 2009). Although customers place an importance on the non-monetary costs associated with acquiring a new product or service such as time, customer value is also defined by the consumers' perceptions of the product or service quality (Cronin et al., 2000).

The construct of quality and value were not initially well differentiated from each other leading to conceptual confusion between the terms (Zeithaml, 1988). This confusion was in part because of their indistinct and elusive nature and the multi-disciplinary perspectives from which they have been studied (Steenkamp, 1989). The concepts of value and quality share some common characteristics in that both are evaluative judgements made by the consumer and therefore subjective, personal and context dependent (Rust and Oliver, 1994). However, opinion differs in how the constructs of value and quality are related to each other with some researchers viewing quality as an antecedent of customer value wherein quality affects perceptions of value (Cronin et al., 2000; Bolton and Drew, 1991). In contrast, quality is also viewed as a sub-component of the overall value construct (Holbrook, 1999; Sweeney and Soutar, 2001). This later perspective is the view taken in this thesis as it allows the quality of a product or service to be treated as a component of the overall value judgement by the customer (Gallarza et al., 2011).

As an overall preference judgement by a customer, the definition of CV by Woodruff (1997) is conceptual in nature and remains abstract of any real-world context. Two additional characteristics of CV help to define when and where its creation occurs. Firstly, it is suggested that CV occurs when there is an interaction between the customer (subject) and a product or

service (object) (Holbrook, 1999). A focus on the interaction also distinguishes customer *value* from customer *values*, the latter being deeply held and enduring beliefs of the individual (Rokeach, 1973). Secondly, CV is deemed to be experiential in that it resides not in the product or service purchased but in the experience of using a product or service (Holbrook, 1999). These characteristics that propose CV occurs during an interaction in the experience of using a product or service align with the commonly used terms value-in-use (Ballantyne and Varey, 2006) and consumption value (Holbrook, 2006). Therefore, CV can only exist when the customer uses a product or service since: '…value is not created and delivered by the provider but emerges during usage in the customer's process of value creation' (Grönroos and Ravald, 2011, p.9).

Therefore, to increase MPP use not only does the service have to provide the consumer with a relative advantage versus traditional cash and card payment methods (Mallat, 2007), but also superior performance during its use in the service experience. These service experience interactions, often termed touchpoints (Lemon and Verhoef, 2016), provide opportunities for new innovations to offer consumers additional value and a superior overall value proposition (Patricio et al., 2011; Slater, 1997). For example, a focus on improving value for the individual customer in the pre, during, and post phases, of the experience through value add-on services can increase longer lasting competitiveness (Vandermerwe, 2000). Therefore, the environment in which these experiences occur when the customer uses mobile payment solutions must be understood to determine how mobile proximity payments create CV. The creation of CV in the domain of service marketing has more recently been influenced by the Service Dominant-Logic (SDL) (Vargo and Lusch, 2004; 2008) which is discussed hereafter in Section 3.2.

3.2. Value Creation from the Service-Dominant Logic Perspective

The broad transition of economies from being dominated by goods in the industrial era towards services and the experience economy (Pine and Gilmore, 1998) led to a fundamental shift in the domain of service marketing. This shift not only reflected a dominant change towards service industries but also through the SDL that the function of goods is to deliver a service (Lusch and Vargo, 2006). The SDL provides an initial lens for this study through which to explore how MPP create CV and a strategic way of thinking about MPP not as services which are produced for the customer but as a service which is consumed by the customer. In the preceding Goods Dominant Logic (GDL) the basis of exchange between provider and customer was focused on the providers' operand resources, assets that are factors of production within which value is embedded termed exchange-value (Vargo et al., 2008). The SDL changed the focus of value creation towards operant resources, knowledge and skills which can act upon other resources (ibid). This change in logic positions goods as intermediate products that are used by customers as appliances in the value creation process (Brodie et al., 2011). The mobile phone as a physical device can be viewed as an operand resource but it is through consumers and mobile service providers embedded operant resources that value is created. Thus, the SDL does not delineate between categories of goods or services as units of output for a basis of exchange but by using the singular term service value emerges through value generating processes (Vargo and Lusch, 2004; Grönroos, 2008). Although, the SDL provides an initial lens through which to explore how MPP create customer value debate exists about how meaningful it is for theoretical development (Grönroos, 2011). As a logic the SDL represents a way of strategically thinking about value creation through a set of propositions, but it does not explicitly define analytical concepts which allow for empirical investigation (Grönroos and Gummerus, 2014). It is also suggested that the SDL was too provider focused in its terminology

and not distinct enough from the GDL in certain areas, such as the concept that the customer is always a co-producer of value (Lusch and Vargo, 2006). Therefore, the SDL only provides a lens through which to explore how MPP create customer value and as a logic does not constitute a theory which allows for empirical investigation. Consequently, subsequent frameworks are identified for the study which can explicitly define analytical concepts, such as delineating when the customer uses MPP between value creation and value co-creation concepts.

However, the SDL has resulted in a broader and evolving lens through which to understand multiple aspects of marketing (Lusch and Vargo, 2014). For example, in the context of innovation research, it is suggested that the SDL is better suited to frame innovation practices within the context of global competition and new digital developments compared to the GDL and resource-based approaches (Mele et al., 2014). The resulting business implications for innovation research are increased competitive advantage through a means of moving away from traditionally linear innovation models (Cooper, 1988). Thus, competitive advantage through the SDL is achieved by expanding the scope of a market offering to include the interactions between the provider and the customer which form an integral part of a service (Grönroos, 2008). In the GDL, value creation stopped at the transfer of ownership from firm to customer as the units of output from manufacturing were the central component of exchange and the customer was viewed as a resource purely to be acted upon. Alternatively, in the SDL value is created with the consumer within what is termed value-in-use, which reflects the concept that the customer is an operant resource capable of acting on other resources (Lusch et al., 2007).

This shift emphasises not only the position of the consumer in terms of having a central role in creating value but also that value is not embedded in the manufacturing process (Ng et al.,

2012). Therefore, in the SDL value is embedded in controllable external environments, such as technological, physical, and legal, within which there is no value until an offering is used. The external environments are considered resources that providers should draw upon for support through collaboration and to proactively co-create value (Lusch et al., 2007). Despite considerable academic research emanating from the shift to SDL, it has been dominated by conceptual and terminology discussions with limited empirical studies (Kryvinska et al., 2013; Ng and Vargo, 2018). The revised SDL (Vargo and Lusch, 2008) put forward ten propositions as foundational premises which form the basis of economic exchange. Out of the ten propositions six have implications for how value is created and emphasise that value is created through use rather than exchange (Grönroos, 2011), as shown in Table 3-1 below.

Through treating service as the fundamental basis of exchange (FP1), the SDL emphasises that value creation is the result of integrated resources (FP9) from the effort of multiple actors (e.g., firms, employees, customers and stakeholders). The integration of resources during the consumption of a service occurs in a value generating process (Grönroos, 2008) in which value is co-created by multiple actors which always includes the beneficiary (FP6) (Vargo and Lusch, 2016). Therefore, the firm can only deliver value propositions (FP7) as value is not embedded in the resources delivered by the firm and value can only be created when an offering is used, termed value-in-use (FP3). The concept of value-in-use from which it is the customer who determines the value of an offering shares similarities with the concept of consumption value (Holbrook, 1987). In both terms, value is determined by the customer through value generating processes not just at the point of acquisition.

Table 3-1: The Service Dominant Logic Foundational Premises and their implications for value creation

	SD Logic foundational premise (Vargo and Lusch, 2008 unless stated)	**Implication for value creation**
FP1	Service is the fundamental basis of exchange	The ultimate basis of activities performed by parties in business is to provide service
FP2	Indirect exchange masks the fundamental basis of exchange	*n/a*
FP3	Goods are a distribution mechanism for service provision	Goods have no value in themselves, but only as transmitters of service for the user. Therefore, goods derive their value through use, the service they provide.
FP4	Operant resources are the fundamental source of competitive advantage (2016) Operant resources are the fundamental source of strategic benefit	*n/a*
FP5	All economies are service economies	*n/a*
FP6	The customer is always a co-creator of value (2016) Value is co-created by multiple actors which always includes the beneficiary	The customer as user is always involved in the value-creation process and implies value creation is interactional.
FP7	The enterprise cannot deliver value, but only offer value propositions (2016) Actors cannot deliver value but can participate in the creation and offering of value propositions	a) Value is not embedded in resources delivered by the firm, thus the firm cannot produce value b) The firm cannot engage itself with the customer's value creation and influence it.
FP8	A service-centered view is inherently customer oriented and relational (2016) A service-centered view is inherently beneficiary oriented and relational	*n/a*
FP9	All social and economic actors are resource integrators	Consumption is about integrating resources acquired from different sources into a usage process.
FP10	Value is always uniquely and phenomenologically determined by the beneficiary	Only the customer determines what value is created in the specific context of usage.
FP11	(2016) Value cocreation is coordinated through actor-generated institutions and institutional arrangements	*n/a*

Source: Adapted from: Vargo and Lusch, 2004; Vargo and Lusch, 2008; Grönroos, 2008; Vargo and Lusch, 2016

FP10 which states value is phenomenological highlights it's experiential and highly subjective nature and stems from a view of consumption which focuses on non-utilitarian value aspects,

such as emotions and context (Holbrook and Hirschman, 1982). Where specifically in the experience value is created is not specified in the propositions aside from FP9 implying that the context of value creation occurs within networks (Vargo and Lusch, 2008), and it is within these networks that resources are integrated between actors. As the SDL continues to evolve FP11 was added to recognise that institutions (e.g., the rules, norms, practices through which collaboration occurs) don't exist independently of each other within a service eco-system, and value co-creation occurs through institutional arrangements (Vargo and Lusch, 2016).

There are three levels at which these resource integrating networks can be viewed, the micro, meso, or macro, all of which exist within a service ecosystem (Akaka and Vargo, 2015). In the service ecosystem configurations of resources interact with other service systems to co-create value (Maglio et al., 2009; Spohrer et al., 2007) and processes do not start or end with a single actor rather actors are part of many processes (Lusch and Vargo, 2014). The macro level focuses on the market (Frow et al., 2014) within which networks of multiple actors provide the focal relationships and nested within the macro service system are the micro and meso networks. Through expanding out the context of service research this offers researchers a broader approach through which to study the value context. For example, by allowing the parameters of a service to include intersecting and overlapping institutions and viewing markets as configurations of value creating elements in a network (Storbacka and Nenonen, 2011). At a meso level, within which is nested the micro level, the focus is on the specific elements of the market and indirect service-for-service exchange (Chandler and Vargo, 2011) This can be a specific set of actors, such as the providers of mobile phone software, or a common place where interactions and service exchanges occur (Lusch and Vargo, 2014). A common place could be a retail environment in which different providers, such as store terminal, payment software, and

the store employees, produce the capability for a consumer to pay in store using electronic payment methods.

It is the micro level that provides the foundation for any service eco-system where exchange among individual actors (providers and customers) and dyadic interactions termed direct service-for-service exchanges occur (Madhavaram and Hunt, 2008). The result of these interactions in which the resources and competences of each actor are used to directly serve each other in a reciprocal dyad is the creation of CV. This reciprocity occurs because as the actors serve each other, they are active participants in the exchange process (Chandler and Vargo, 2011). The exchange process is centered in the customers' experience (Prahalad and Ramaswamy, 2004) and the customer evaluation of these experiences is termed value-in-use (Sandstrom et al., 2008) which is discussed in the following Section 3.2.1.

3.2.1. Value-in-Use

It is accepted that value-in-use is created by the customer as the end user during their use of a product or services (Holbrook, 1994; Grönroos, 2008). Therefore, for those consumers that are using mobile payment services, there must be enough value-in-use created to warrant their ongoing use of these services. If not enough value-in-use were created then customers would not be willing to use these services and: '…there can be no value without the customer incorporating the firm offering into his or her life' (Vargo and Akaka, 2009, p.38). Value-in-use is created and emerges from the consumers' ongoing use of service processes in contrast to exchange-value which is delivered to them (Gummesson, 2007). It is in the interactive element of the service process that the consumer extracts value from the usage of resources and perceives the value that emerges from the service (Grönroos and Gummerus, 2014). These

service processes at the interaction points between customer and provider can both accumulate or destroy value throughout a consumers' ongoing use (Grönroos, 2011). The ongoing use of a service as in the case of mobile payment services may not be confined to a single instance but rather a cumulative process of multiple interactions from which value-in-use evolves over time (Echeverri and Skålen 2011). As an everyday routine experience the interactions that a consumer does while using a mobile payment service may also be done unconsciously (Thompson et al., 1989). Therefore, value creation emerges from value-in-use for the customer (Grönroos and Gummerus, 2014) as an ongoing process where value is socially constructed through the customers' experiences (Edvardsson et al., 2011). This view locates value creation not as an all-encompassing process from the providers' activities, such as design, development, and the delivery of services through to end use, but in the customers' domain (Grönroos and Gummerus, 2014).

The analytical development of value creation occurring in the customers' domain has led to viewing value creation in terms of spheres which differentiate where the value creation occurs between providers and customers. The Grönroos-Voima Value Model (G-VV) (Grönroos and Voima, 2013) uses this concept of spheres to delineate where customer value creation occurs across the service experience. Additionally, the G-VV model provides analytical distinction between value creation and value co-creation at a micro interaction level, through which the creation of CV for MPP can be explored. In the G-VV three spheres: provider, customer, and joint sphere depict the difference in roles between provider and customer in creating value across the service experience, see Figure 3-1 below. Although the model uses the singular term provider, it is recognised that in the case of mobile payment services there are multiple providers which the customer will interact with. The model operates at a micro level through

which value can be observed in an attempt to free the SDL terminology value creation and value co-creation, from being: '…imprisoned by its metaphor' (Morgan, 1980, p.605).

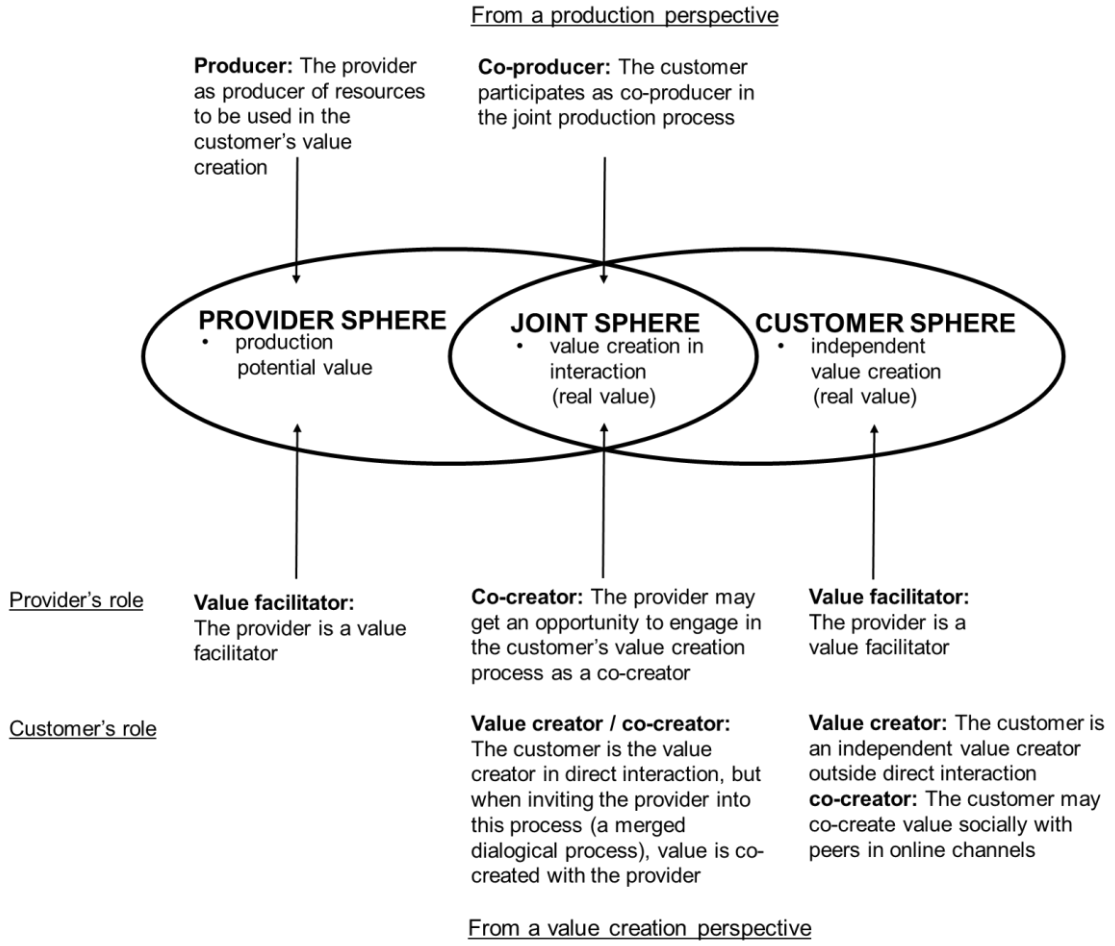


Figure 3-1: The Gronross-Voima Value Model (Grönroos and Voima, 2013, p.141)

In the G-VV model the provider and customer exist in closed spheres and it is only during the joint sphere that direct interactions between them occur. Although, it is recognised that the value creation process is not always linear, and value may be created at different times and/or in different sequences (Grönroos, 2017). In the provider sphere, the provider can only produce and provide potential value to the customer in the goods or services it offers. Thus, the provider takes on a value facilitator role as the producer of resources which can be used in the customer' value creation process. In the customer sphere, the customer can create real value independently of the provider and the provider is unlikely to take part in this value creation process (Grönroos

and Voima, 2013). For example, independent value creation may occur when a customer is influenced by its social networks such as friends and family (Vargo and Lusch, 2008) and this process may not be visible to the provider (Heinonen et al., 2010).

It is in the joint sphere that the provider will have a greater visibility of the customer value created and be able to exert control as the customer and provider interact in a merged dialogical process (Grönroos and Voima, 2013). In the joint sphere, the consumer uses and integrates their resources with the provider' resources and processes from which real value emerges. The concept of real value emerging both during an interaction and independently suggest that value creating processes occur before and after contact occurs between provider and customer. This aligns with the notion that a customers' journey exists outside of direct touchpoints (Grönroos, 2017) and includes pre-purchase, purchase, and post purchase processes (Lemon and Verhoef, 2016). The joint sphere also represents opportunities for value co-creation when value creating processes merge into an interaction and become a platform of co-creation (Grönroos and Gummerus, 2014). This platform of co-creation can only occur if the provider and consumer allow it and if processes exist for such an interaction to materialise.

The notion of a platform recognises that effective co-creation is dependent on a stage from which actors can engage (Ramaswamy and Gouillart, 2010) and these platforms could be resources such as retail community websites or dedicated personal groups. It is on a platform that the provider may engage with the CV creating process and co-create value but if the provider does not want or know how to engage in such a situation their role will be restricted to facilitating the CV creation. Therefore, in the joint sphere the firm may take the role of a value co-creator when it is appropriate and required to do so, providing an opportunity for the firm to influence the CV creating process (Gronroos, 2017). The concept of a value co-creation

platform which can only exist when the consumer has invited the provider into the process differentiates the terminology of value creation and value co-creation which is absent from much of the SDL research (Grönroos and Voima, 2013). However, for the purpose of this study value co-creation is deemed out of scope unless initial exploratory empirical evidence suggests otherwise. This is due to the process of paying in person for everyday purchases being deemed routine and private rather than an experiential and social experience (Heinonen and Pura, 2008). Thus, it is not expected that during the act of using a payment method a platform of co-creation exists through which the individual invites either providers or other individuals from their social network into. While the G-VVM builds on the SDL and provides an analytical framework through which to explore customer value creation it does not specify in detail either how customer value exists for the consumer or the interactions they have that create customer value in the service experience. Therefore, the following sections 3.3 and 3.4 examine and evaluate customer value frameworks and approaches to studying service interactions from which applicable theories are chosen to answer the research aim and objectives.

3.3. Customer Value Frameworks

This section examines the CV frameworks and theories that have been used in marketing, from which Sheth et al.'s (1991) Theory of Consumption Value (TCV) is used to answer the research aim of this study. The TCV provides the study with a theory through which to identify the types of value that MPP create across the service experience during the use of the service by the consumer. Despite the complexity and ongoing debate surrounding the phenomena of CV (Woodruff and Flint, 2014; Kumar and Reinartz, 2016) two over-riding research streams exist through which to examine customer value theories, either uni-dimensional or multi-dimensional (Sánchez-Fernández and Iniesta-Bonillo, 2007). The differences between these

categories are explained and selected theories within each category discussed before examining in further detail two prominent multi-dimensional CV theories: Holbrook's (1994) Typology of Customer Value and Sheth et al.'s (1991) Theory of Consumption Value (TCV). These two multi-dimensional CV theories are then evaluated based on how they have been operationalised in previous research and their suitability for the research objectives and context of this study.

The uni-dimensional category of theories views CV as a one-dimensional construct wherein CV is produced by the effects of multiple antecedents and predominantly measured using self-reported items (Dodds, 1991; Agarwal and Teas, 2002). Examples of these antecedents to CV include price, perceived risk, and quality (Cronin et al., 2000). In contrast, multi-dimensional theories view CV as an aggregate concept formed from multiple components and under some conditions interrelated dimensions (Sánchez-Fernández and Iniesta-Bonillo, 2007). Therefore, it is argued that a multi-dimensional approach to investigating CV forms a more holistic and complex representation of the phenomenon (Holbrook, 1994; Babin et al., 1994).

The CV theories that make up the distinct categories of uni-dimensional and multi-dimensional are discussed hereafter in Sections 3.2.1 on p.65 and 3.2.2 on p.67. However, an exception to this categorisation which attempts to consolidate both approaches (Khalifa, 2004) is the Customer Value Hierarchy theory (CVH) (Woodruff, 1997). The CVH is a means-end type of model that proposes customers consider value through a hierarchal series of desired consequences and attributes to attain a goal (ibid), as shown in Figure 3-2. The CVH theory also suggests that the intensity of abstraction for the value generated increases when moving from lower, attribute-based satisfaction to higher level goals and purposes in the hierarchy

(Woodruff, 1997). For example, mobile financial services can achieve the desired end state of convenience through the consequence of saving time, which can be done by providing access to a mobile service in different locations (Lauukkanen, 2007). These different locations represent changing use situations which subsequently changes the desired value as a goal in the CVH (Woodruff, 1997). The hierarchy also proposes that customers consider products as attribute preferences and these preferences for attributes are formed based on their desired consequences and subsequent goal they wish to achieve (Khalifa, 2004). The notion of CV moving up and down through the hierarchy captures to an extent the dynamic nature of how customers judge value (Parasuraman, 1997) and that the CV from using mobile services will change depending on the consumers' needs.

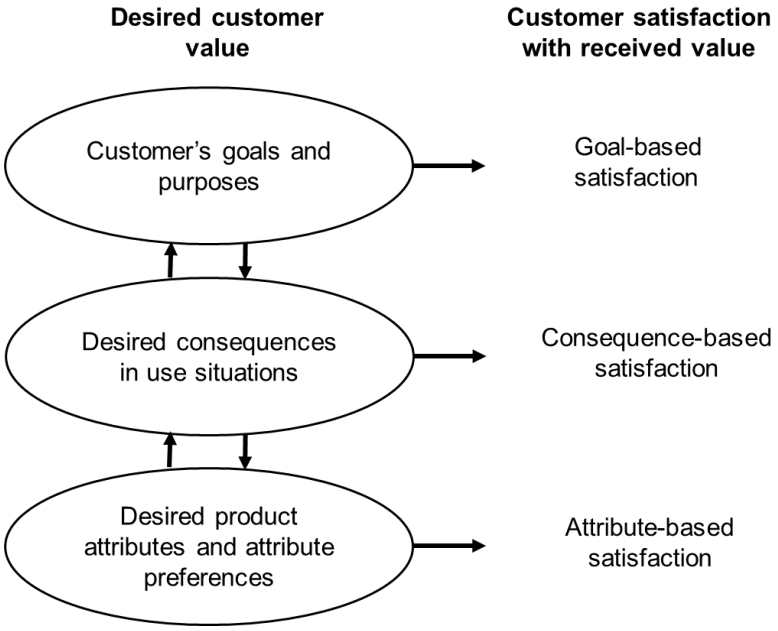


Figure 3-2: Customer Value Hierarchy Model (Woodruff, 1997, p.142)

The CVH does reflect the dynamic nature of CV to a greater degree than uni-dimensional theories, but firstly the CVH does not probe into what the components of CV are. This reflects its uni-dimensional roots of treating the nature of the CV construct as a relatively simple

approach (Sánchez-Fernández, and Iniesta-Bonillo, 2007). Secondly, in the CVH a customers' value judgement is the result of their desired value and the satisfaction with the value from what they receive which is rooted in the expectancy disconfirmation paradigm (Boksberger and Melson, 2009). The expectancy disconfirmation paradigm (Oliver, 1993) assumes that prior expectations are a suitable standard of comparison to observed expectations. It has been argued that the customer does not always have precise previous expectations of all the service attributes prior to using a service, especially with new services in which expectations may not have been formed (Yüksel and Yüksel, 2001). The expectations and importance of different attributes may also change when a service is used in multiple service encounters. Additionally, the CVH is positioned as a strategic management tool and therefore consumer research into customer value tends to use either uni or multi-dimensional approaches. While these two approaches can be categorised as simple or complex (Sánchez-Fernández and Iniesta-Bonillo, 2007) the decision of which framework to use in a customer value study depends on a range of factors. These factors can include the type of product or service being studied (e.g., think or feel and/or low versus high involvement), the intention to obtain actionable results, and the need of the value measurement methods to allow predictive ability (Leroi-Werelds et al., 2014).

3.3.1. Uni-Dimensional Frameworks

The uni-dimensional CV theories predominately take a means end approach (Gutman, 1982) through asserting that values are end-states of existence (Rokeach, 1973) and consumers see products or services as a means to an end. The means end chain model (Gutman, 1982) proposes that within the patterns of consumer purchases there are a range of functional and emotional consequences. These consequences explain the consumer association between service attributes and the end goal a consumer is trying to fulfil, thereby connecting consumers' values with their

behaviour (Sanchez-Fernandez and Iniesta-Bonillo, 2007). Although earlier research focused predominantly on the influence of the price of a product or service (Monroe, 1990) uni-dimensional CV research developed price as a component of means end approaches (Zeithaml, 1988). This resulted in the CV being fulfilled including value for money as in a low price, value from benefits such as convenience, value as quality versus price, or value as a combination of what is received and what is given (ibid). Whereby, uni-dimensional customer value is an: '…overall assessment of the utility of a product' (Zeithaml, 1988, p.14) based on consumer perceptions. This assessment occurs when a consumer uses a product or service such that customer value is viewed as a cognitive trade-off between benefits and sacrifices (Flint et al., 2002) or quality and sacrifices (Monroe, 1990). The sacrifices from the consumer' view can include not just the purchase price but also what are termed life-cycle costs, such as the cost of finding the offering, operating costs, and disposal costs (Slater and Narvar, 2000).

Traditionally uni-dimensional theories have been used for price-based research to explain customers' economic perceptions of price and/or acquisition costs. Although, uni-dimensional theories can also include non-monetary costs, such as risk in the form of a product or services inferior performance (ibid). As the user of mobile payment services already owns a mobile device (phone) and has paid for mobile data through using existing mobile services it can be argued that the monetary costs have been sunk (Shaw and Sergueeva, 2019). Thus, if a smartphone user adds a mobile payment service application to their phone there are no additional monetary costs incurred by the user but a range of non-monetary costs to consider. Examples of non-monetary costs can include the risk of the loss of personal data and inferior performance (Oliveira et al., 2016). Performance is considered especially important for mobile payment services as the act of paying is a goal directed service (Babin et al., 1994) and therefore

has a high utilitarian value (Pura, 2005). However, viewing the act of paying as simply utilitarian and designed from a practical perspective fails to consider other factors that occur when paying for a product or service. For example, emotions are known to exist in the act of paying through the disutility derived from parting with money, which is termed the pain of paying (Rick et al., 2008). This formation of emotions in the consumer can occur at various stages of the service experience, such as when browsing products in a retail store because of observing the price of a product (Knutson et al., 2007) or after making a luxury purchase a sense of guilt (Kivetz and Simonson, 2002). Additionally, these emotional responses in the consumer have been shown to exist during the consumption of routine service transactions (Mattila and Enz, 2002; Westbrook and Oliver, 1991) Therefore, although payment methods are designed to be practical and goal directed the CV the consumer derives from using a payment method may not limited to a cognitive trade-off and purely functional aspects (e.g. quality or performance).

3.3.2. Multi-Dimensional Frameworks

Multi-dimensional theoretical frameworks share the belief that CV is created from several aggregate antecedents (Sweeney and Soutar, 2001). This reflects how consumers perceive value and its complex multifaceted nature (Babin et al. 1994), which includes antecedents such as: intangible, intrinsic, and emotional factors. These frameworks are based on the premise that consumer decisions are balanced and educated, and thus influenced by a range of extrinsic and intrinsic stimuli (Turel et al., 2010). They also propose that customer value is interactive, such that it is the result of contact between: '… some subject (a consumer) and some object (a product)' (Holbrook, 2005, p.46). Therefore, CV exists in the experience when consuming a service or product (Holbrook and Hirschman, 1982) rather than inherently provided by the service or product itself. A key point of difference with multi-dimensional compared to uni-

dimensional value theories is that they include both utilitarian and hedonic dimensions as part of CV.

Utilitarian value is referred to as an overall judgement of the functional benefits and sacrifices a customer makes when considering a purchase (Hoffman and Novak, 1996). For example, online shopping offers consumers the benefit of comparing different shops in a convenient manner without them leaving their home (Overby and Lee, 2006) and therefore enables consumers to conserve resources (Mathwick et al., 2001). In contrast hedonic value is defined as the assessment of experiential benefits and sacrifices, these can include the consumers desire to be entertained rather than simply completing a task (Babin et al., 1994). While it was initially observed that hedonic components of the consumer experience had been neglected in research (Holbrook and Hirschman, 1982) subsequent studies evaluating consumers' shopping experiences identified both utilitarian and hedonic components of customer value (Babin et al., 1994). For example, in researching consumers' online shopping experiences both utilitarian value, in the form of price savings and convenience, and hedonic value were important factors that lead to consumers' preference for online retailers (Overby and Lee, 2006). Three dominant multi-dimensional theories which include both utilitarian and hedonic CV are the: Axiology of Value Theory (Hartmen, 1967), Typology of Value (Holbrook, 1994), and the Theory of Consumption Value (Sheth et al., 1991).

As a multi-dimensional theory Hartmen' (1967) Axiology of Value Theory contains three value dimensions, intrinsic, extrinsic, and systemic value. The first two dimensions stem from philosophical axiology which states that intrinsic value exists when something has value in its own right, such as ethics, morals, or emotion. Extrinsic value in axiology is value that is not

intrinsic (Mueller, 1969) but in a marketing context relates to utilitarian or practical value (Barnes and Mattson, 2011), such as when a consumer uses a service to reach a useful end (de Ruyter et al., 1997). In contrast, intrinsic value relates to the emotional aspect of the service delivery process, such as enjoyment and escapism (Mathwick et al., 2001). The third dimension of systematic value relates to rational aspects of the concept and the relationship between sacrifices and returns and the logical aspects of a service episode (de Ruyter et al., 1997), for example does a product offer good value for money. These three dimensions are differentiated by their degree of richness, with the intrinsic dimension being greater than extrinsic, which in turn is greater than the least rich systemic dimension (Barnes and Mattson, 2011). The theory was adapted by Mattsson (1991) into a less abstract framework that could be applied to a marketing context with three value dimensions: emotional feelings of the customer (intrinsic), practical physical and functional aspects (extrinsic), and logical aspects of the purchase (systemic), as shown in Figure 3-3.

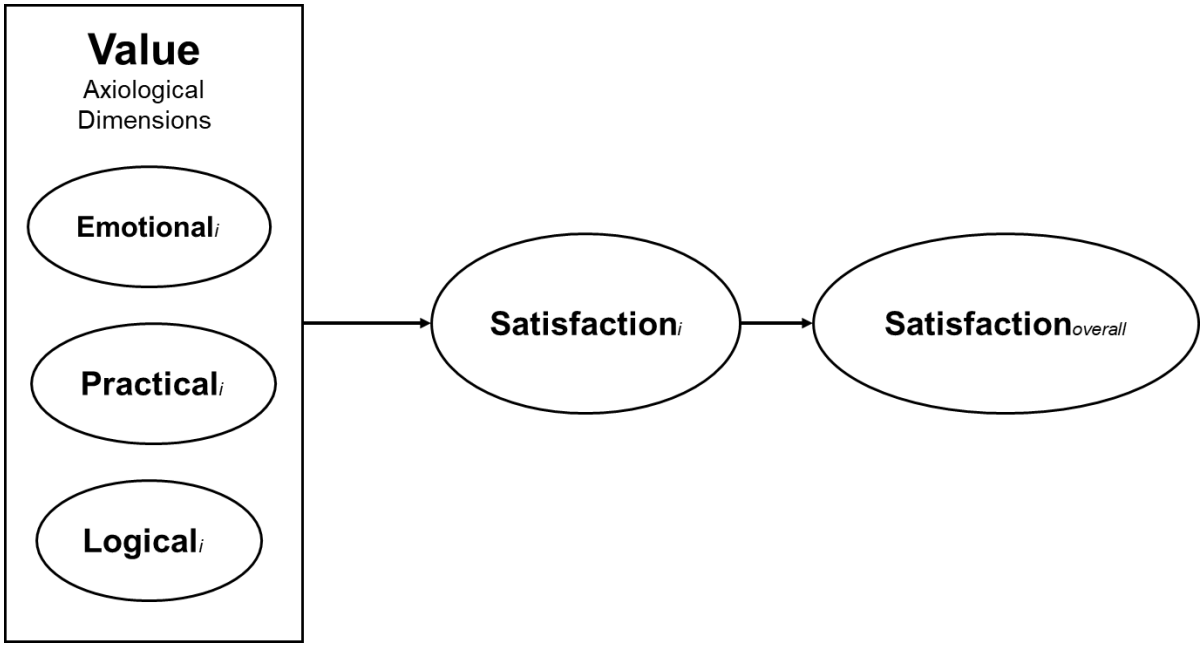


Figure 3-3: Axiological value framework (Mattson, 1991)

The Axiology of Value Theory has been used in marketing and applied to a service encounter context where evidence was found to support the model's value dimensions as a determinate of customer satisfaction with a service (Danaher and Mattson, 1994). When comparing the service delivery processes in a restaurant, conference, and hotel setting, all three value dimensions were evident in each stage of the service settings (Danaher and Mattson, 1998). For example, the value dimensions at the check-in stage of a hotel included emotional value in the form of being well received, practical value when the check-in was quick, and logical value when the correct booking was found (ibid). Despite this evidence the Axiology of Value theory and subsequent framework has had limited use in marketing due in part to its philosophical background and abstract nature. Hartmann's (1967) view of value is said to be atomistic, in that value exists without context and is devoid of the experience in which an object exists (Ng et al., 2012). This contrasts with the phenomenological concept of value which views objects as inherently conceived in the experience and that value in objects can only exist when individuals use them in their daily life (Husserl, 1999). Notwithstanding these limitations the Axiology of Theory (Hartmann, 1967) is acknowledged to have influenced the development of Holbrook's Typology of Value (1994).

3.3.2.1. The Typology of Customer Value

Holbrooks' (1994, 1999, 2005) research into CV within the marketing domain is rooted in the philosophical study of the nature of value (axiology). At the core of this research is the definition that CV is: '…an interactive relativistic preference experience' (Holbrook, 2006, p.212). This definition establishes that customer value exists in the interactive experience between customer and object, will vary between individuals and change among situations as it is relativistic, and embodies a preference judgement (Holbrook, 1999). Despite the influence of

axiology, the definition of customer value put forward by Holbrook was a shift towards an interactionist approach (ibid); that customer value is the result of an interaction between the customer (subject) and a product or service (object). This perspective departs from the objectivist philosophical view of Hartmann (1967) and the belief that an object has inherent value in the form of quality or beauty even when it is not used. The resulting customer value framework from Holbrook's exploration of axiology and research into the experiential aspects of consumption (Holbrook and Hirschman, 1982) is the Typology of Value (Holbrook, 1994). This framework classifies the different types of values found in the consumption experience as reflected in its three dimensions and is discussed hereafter. Although these dimensions are presented in the framework as dichotomous, they should be viewed as existing along continuums (Holbrook, 1999).

The first-dimension views value as either being extrinsic in which consumption is due to the utilitarian or functional properties that allow the customer to accomplish a goal. This contrasts with intrinsic value from which value in the consumption experience is derived from enjoyment of the experience itself. For example, money has a greater extrinsic value than music as it allows the consumer to accomplish the goal of buying a product or service. In contrast the act of listening to music serves no utilitarian goal purpose beyond the experience itself (Holbrook, 1999). The second-dimension views value as either being self-orientated or other orientated, thus the consumption of a product or service is of value either purely for the purposes of the self or other individuals such as family, friends, or neighbours (ibid). The third dimension classifies customer value as either active when it entails physical or mental use of an object or reactive when value is a response to a product or service (ibid). Examples of such reactive responses from the consumption experience can include appreciation of a work of art and

enthusiasm when assessing a high-quality product (ibid). The resulting combination of these three dimensions are eight types of customer value, as shown in Figure 3-4.

		Extrinsic	*Intrinsic*
Self-orientated	Active	EFFICIENCY (Convenience)	PLAY (Fun)
	Reactive	EXCELLENCE (Quality)	AESTHETICS (Beauty)
Other-orientated	Active	STATUS (Success, Impression, Management)	ETHICS (Virtue, Justice, Morality)
	Reactive	ESTEEM (Reputation, Materialism, Possessions)	SPIRITUALITY (Faith, Ecstasy, Magic)

Figure 3-4: A Typology of Customer Value (Holbrook, 1999, p.12)

The typology proposes that all eight types of customer value can occur to varying degrees during any given consumption experience (Holbrook, 1999). Research using the typology confirms that the customer value types exist in differing contexts such as travel and retail shopping (Willems et al., 2016; Gallarza and Saura, 2006) but adapts the types of CV from eight to seven. This adaptation to the original CV types is due to difficulty in operationalising esteem and status (Sanchez-Fernandez et al., 2009). Therefore, esteem and status are combined into a single social value type, meaning to influence the reactions of others (Holbrook, 2006). As an example of the typology being used in the context of differing retail store formats statistically significant differences were observed between discount stores and non-discount stores (Willems et al., 2016). As expected, the discount stores did not offer the customer as much play and aesthetic value as the more expensive non-discount stores (ibid).

The Typology of Customer Value has been applied to marketing and consumer behaviour research across a range of situations. Although, it is suggested to be more suited to feel and experiential products, such as tourism and hospitality (Gallarza et al., 2017). In the more utilitarian context of online shopping the Typology of Customer Value has evaluated how the major UK grocery retailers use the internet shopping channel to create value for their customers (Bevan and Murphy, 2001). This research demonstrated that the online retail channel creates CV through value as convenience (efficiency) as the consumer does not have to physically visit the store, and value as excellence by providing a secure payment process (ibid). Despite the suggestion that this multi-dimensional framework is: '...the most comprehensive approach to the value construct because it captures more potential sources of value than do other conceptualisations' (Sanchez-Fernandez et al., 2009, p.97) there have been few attempts to operationalise and validate the theory (Gallarza et al., 2017). There are also reservations about the intrinsic nature of aesthetic value which may not be derived from just attractiveness alone but also quality and status (Wagner, 1999). Similarly, ethical values may not just be intrinsic as in the example of individuals giving to charity. The act of donating to charity is driven by an ethical value to improve society but may also because an individual wants to increase their standing in society (status) which is an extrinsic value (Smith, 1999). The ability to separate between certain value types does make the theory potentially difficult to operationalise in some contexts, in particular the efficiency construct could include an array of factors (Leroi-Werelds et al., 2014; Willems et al., 2016). Additionally, the Typology of Value is more focused on the benefits of a product or service and the positive side of value creation (Leroi-Werelds, 2019). Therefore, it is less suited where the research aim is to explore comparatively both value creating and value decreasing aspects of a service.

3.3.2.2. The Theory of Consumption Value

As a multi-dimensional CV theory, the Theory of Consumption Value (TCV) (Sheth et al., 1991) was developed to explain why customers make the choices they do. The TCV proposes that customer choice behaviour is the result of five consumption value constructs, as shown in Figure 3-5. The TCV has been used to explain customer choice behaviour across multiple situations including products, services, and brands, such as the choice to buy or not buy a product or to choose one brand over another (Sanchez-Fernandez and Iniesta-Bonillo, 2007).

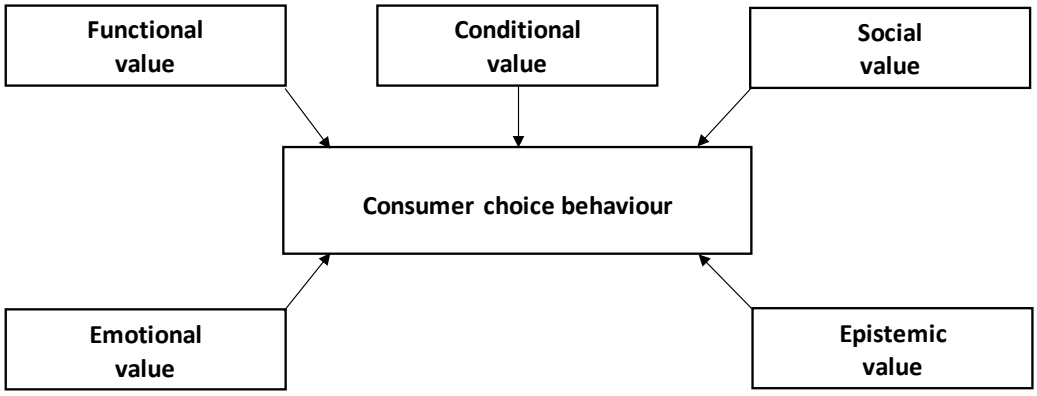


Figure 3-5: The Theory of Consumption Value framework (Sheth et al., 1991, p.161)

The TCV accepts three fundamental propositions firstly, that multiple consumption values exist when a customer makes a choice. Secondly, that in any customer choice behaviour the consumption values make differing contributions, and thirdly that the consumption values are independent (Sheth et al., 1991). The TCV asserts that customer choices are influenced by any or all of the five CV constructs which occur simultaneously. These five consumption value constructs are detailed below:

Conditional value is the result of a specific situation or set of circumstances that the customer encounters when making a choice (Sheth et al., 1991). This construct was originally influenced

by the concept of inhibitors which accepts that forces external to the customer that can impede their preferences (Howard and Sheth, 1969). It recognises that customer intention or attitude alone cannot accurately predict customers' behaviour and situational factors need to be considered to fully understand why customers make the choices they do at a particular point in time. Conditional value can also enhance functional or social value and recognises the importance or learning because of an experience (Sheth et al., 1991). Therefore, the perceived utility based on the conditional value construct will often depend on a contextual 'fit' with the situation or set of circumstances which create a need for a particular service (ibid). For certain products or services, conditional value may be associated with use in a specific context (location or time), such as the choice to pay with a payment method may be influenced by the type of store a customer is in (Xiao et al., 2015). Previous research on payment method usage patterns suggests that contextual factors such as the type of product purchased or payment transaction fees charged are important factors that affect payment method choice (Worthington et al., 2007; Zinman, 2009).

Functional value is acquired through an alternatives utilitarian or physical attributes and was traditionally thought to be the primary driver of customer choice (Sheth et al., 1991). Derived from economic utility theory (Stigler, 1950) functional value assumes economic rationalisation whereby the customer chooses a product or service because it allows them to complete a task effectively (Pura, 2005). Therefore, functional value is derived from the product or service characteristics or attributes such as reliability, durability, and price (Sweeney and Soutar, 2001). Research has demonstrated that the characteristics of a payment method influence their use (Humphrey, 2010). For example, the cash payment method has functional value through its ability to allow the customer to control their spending when compared to card payment methods

and debit cards which enable consumers to pay without having to withdraw cash from a bank or ATM (Xiao et al., 2015).

Social value is acquired through an alternative's association with social groups in the form of social approval or an individual's relationship with their social environment (Roig et al., 2006). Social groups such as friends and family can either positively or negatively be influenced through factors such as social stereo-types, socioeconomics, or cultural-ethnicity (Sheth et al., 1991). Products which are highly visible or services which are designed to be shared are suggested to be driven by social value due to them possessing greater symbolic or conspicuous consumption than their functional utility (ibid). Therefore, social value relates to approval by a social group and is deemed to improve a consumer's self-image through symbolic importance (de Kerviler et al., 2016). For example, certain payments methods such as a large denomination banknote may for some customers have a greater social value. However, if these banknotes are not accepted within the social norms of a social group, they can also have a negative social value (Xiao et al., 2015).

Emotional value stems from a product or services potential to arouse emotions or provoke feelings either positively or negatively (Sheth et al., 1991). Aesthetics such as the beauty or artistry of a product can increase emotional value (Gallarza et al., 2017) but utilitarian products can also arouse emotions, such as food arousing a feeling of comfort (Sheth et al., 1991). Payment methods can arouse emotions from what is termed the pain of paying (Prelec and Loewenstein, 1998), wherein payments such as cash that are more transparent induce higher levels of pain when paying and can result in lower spending levels (Thomas et al., 2011). Additionally, in entertainment based mobile services emotional value in the form of fun and

play has been found to significantly influence customer' commitment to use a new mobile service (Pura, 2005).

Epistemic value stems from novelty and an alternative's ability to arouse curiosity (Sheth et al., 1991). This arousal can occur when consuming or experiencing new products or services and an alternative may also acquire epistemic value because a customer is bored with the current offering. Therefore, the customer may become curious, have a desire to learn, or urge to experiment with a new product or service (Hedman and Gimpel, 2010). It is suggested that epistemic value is particularly important for new technologies but although this might create a reason to initially use an innovation it should not be the primary reason to ensure ongoing use (Xaio et al., 2015; Hedman and Gimpel, 2010).

The TCV has been used in a wide range of contexts including consumer decisions to use technology-based products and services. Examples of studies using the TCV to research the CV of technology products and services includes mobile ringtones (Turel et al., 2010), internet banking (Ho and Ko, 2008), payment methods (Xiao et al., 2015), and smartphones (Hedman and Gimpel, 2010). However, these studies do not use the TCV framework in its original form but amend the framework in two common ways. Firstly, studies have tended to omit or substitute certain value constructs depending on the context and design of the study. For example, in exploratory mixed method studies where there was no qualitative evidence for the epistemic construct it was omitted from the subsequent quantitative stage (Xiao et al., 2015). In other studies, certain value constructs have been omitted because they did not either align with the research aim or context of the research. For example, when developing a perceived customer value scale in the context of consumer durable products the epistemic and conditional

value constructs were omitted in the first research phase (Sweeney and Soutar, 2001). The epistemic construct was omitted because it was deemed more relevant for experiential services (e.g., holidays) than consumer durable products. The conditional construct was omitted as it was viewed to be situation specific and thus less critical when the aim of the study was to develop a generic value measurement scale (ibid). In the same study an additional price-based construct was included which in subsequent studies has been named monetary value. The monetary value construct denotes an alternative being good value for money or low price. Although, research suggests that this construct is less important for mobile services than it is consumer durables (Pihlstrom and Brush, 2008).

Secondly, despite the fundamental proposition of the TCV stating that the consumption values are independent and: '…relate additively and contribute incrementally to choice' (Sheth et al., 1991, p.163) subsequent research has challenged this proposition. In the development of a perceived value scale the value dimensions could be inter-related and subsequent studies have taken this approach (Sweeny and Soutar, 2001). For example, when researching the value of mobile services, the conditional and epistemic value constructs were found to be antecedents of the emotional, social, and monetary value constructs (Pihlstrom and Brush, 2008). This antecedent inter-relationship of the conditional and epistemic values was explained as intensifying the need to use mobile services in certain conditions (ibid). In contrast, the study of hyped technology products using the case of the Apple iPhone suggested that epistemic and social constructs reinforced each other to create adoption preference judgements (Hedman and Gimpel, 2010), as shown in Figure 3-6.

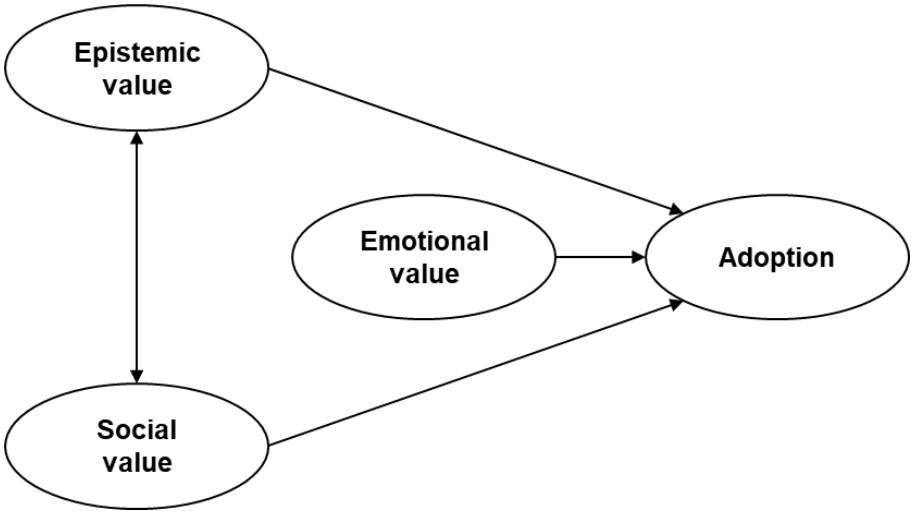


Figure 3-6: Adoption model for hyped technologies (Hedman and Gimpel, 2010, p.161)

This research aligns with the view that the phenomenon of CV is complex and multi-faceted (Smith and Colgate, 2007; Grönroos and Ravald, 2011). As evident in the literature the consumers' decision to use a particular payment method is not based just on the need to achieve a monetary transaction. The consumers decision about which payment method to use potentially includes a range of utilitarian and hedonic factors and these factors can be influenced by the situation the consumer is in. Therefore, a multi-dimensional CV framework is required to answer the research aim. The Sheth et al. (1991) and Holbrook (1999) multi-dimensional theories discussed have both similarities and differences, and concerns exist that certain dimensions in the theories are too broad to be operationalised (Leroi-Werelds, 2019). For example, the Typology of Customer Value efficiency dimension and TCV functionality construct are broad and could include an array of other specific factors (Leroi-Werelds et al., 2014). It can be argued that the Typology of Customer Value is more all-encompassing as it includes the dimension of spirituality that is not included in the TCV (Sanchez-Fernandez and Iniesta-Bonillo, 2007). However, as the context of this study is a transactional service the spirituality dimension is not deemed as relevant. There are some overlaps between the two

frameworks as evident in studies using the Typology of Customer Value and combining the status and esteem dimensions into one social construct (Gallarza et al., 2017). Despite such differences and similarities between the two multi-dimensional customer value frameworks discussed this study chooses to use the TCV (Sheth et al., 1991) based on two fundamental reasons. Firstly, the Typology of Customer Value operates at a macro level and is therefore more suited to comparing customer preferences between product categories (Holbrook, 1999) rather than within a product category as is case of this study. The context of the study is the preference of mobile payment services compared to traditional physical payment services. Whereas if it were comparing mobile entertainment services with mobile payment services the Typology of Customer Value would be more suited. Secondly, the primary goal of mobile payment services is to enable a monetary transaction for a product or service. Thus, this high utilitarian low involvement interaction is best suited to the more goal orientated TCV and less to the more experiential Typology of Customer Value.

Where research has used the Theory of Consumption Value (TCV) (Sheth et al., 1991) and Typology of Customer Value (Holbrook, 1999) changes have been made to the original framework. These changes include omitting original constructs based on either existing literature or from the results of initial pre-study or exploratory qualitative stage. The reason for such changes is to ensure either the constructs of the framework are appropriate to the context of the study or to clarify situations where the differences between the constructs are unclear. The TCV as the source of consumption-values theory within the category of multi-dimensional CV theories, as shown below in Figure 3-7, is chosen for this research to explore the CV that MPP create from the use of MPP. However, the theory only provides an initial starting point from which to explore the creation of CV when customers pay. It is recognised that the original

five TCV constructs need to be explored to understand which of them exist and what inter-relationships exist between them.

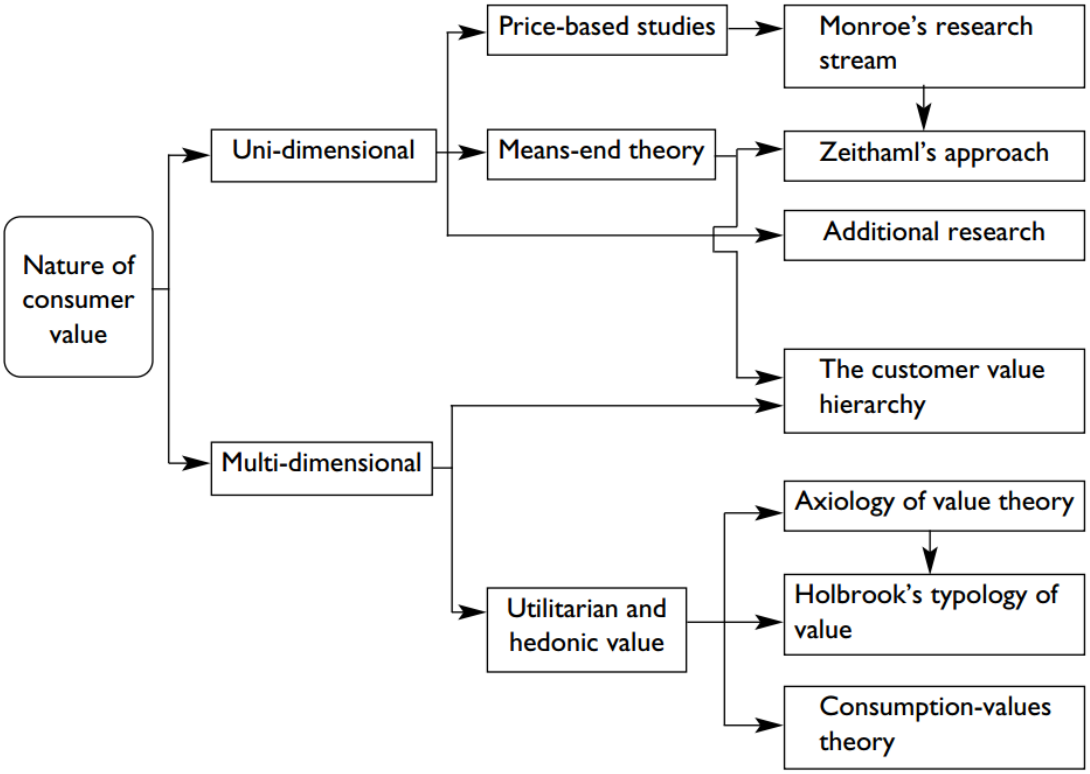


Figure 3-7: Research streams on customer value (Sánchez-Fernández and Iniesta-Bonillo, 2007, p.430)

The TCV as with the other customer value frameworks discussed also only aids the understanding of how value manifests as an outcome for the consumer in the service experience. The theories do not consider the processes through which CV is created (Gummerus, 2013). Therefore, it is required to understand the activities the consumer does when using MPP that create CV to provide a richer understating of why consumers have preferences for MPP in their daily life. The following Section 3.4 discusses approaches to studying service interactions in marketing through which the activities performed when using MPP which create customer value can be explored.

3.4. Approaches to Studying Service Interactions

Service marketing has used a range of models, frameworks, and theories through which to explore the interactions between the customer and provider. These differ in terms of their perspective, either predominantly from the providers or customer viewpoint, and whether the interactions from which value is created is viewed at the macro level or at the micro level (Grönroos and Gummerus, 2014). By viewing the service interactions at a macro level this allows the analysis of a system of actors within the value creation process and results in for example, an understanding of the value created by providers in the supply chain (Frow et al., 2014). Thus, a macro-level perspective is more suited to understanding the different contributions between providers in the value process as the goals of and the interactions between individuals cannot be directly observed (Leroy et al., 2013). In contrast, a micro-level perspective is more suited to studying the everyday processes that create value between individual actors, be that individual providers or the consumers of a service. Therefore, the use of a micro-level perspective allows the investigation of the activities the customer does in the process of using both their resources and that of the providers (Heinonen and Strandvik, 2015) when using MPP.

To observe at a micro-level these consumer activities Script theory (Abelson, 1981) is used in this study. As an everyday activity the use of a payment method aligns with the psychological view of Script theory that consumers store in memory the typical activities they do as scripts which direct their behaviour (Leigh and Rethans, 1984). The following section discusses prominent frameworks used in service marketing to explore the interactions the customer has with providers in the service encounter. However, these frameworks take a provider perspective to what the consumer does when using a service, focus on activities that the provider can

control, and do not provide a means through which to observe in detail the consumers' interactions which are both visible and invisible to providers (Heinonen and Strandvik, 2015). Therefore, Role and Script theories are subsequently discussed as these allow the specific activities the consumer does when using MPP to be explored.

3.4.1. The Servuction Framework

The Servuction framework (Eiglier and Lengeard, 1975) illustrates the factors that influence the customer in the service experience including those which are visible and invisible to the consumer (Hoffman and Bateson 2011). The framework also extends the service interaction process beyond just the interactions between the provider and customer to include other customers which may be present. The framework begins by focusing on the providers' organisation or system value creating resources that are invisible to the customer, as shown in Figure 3-8 below. These invisible resources include for example support services or logistical operations that provide both individual elements of the physical setting and the overall setting itself (Warnaby and Davies, 1997). The Servuction framework was originally intended for services containing physical resources, but these resources can be broadly interpreted to include systems such that the model can be adopted for technological services (Grönroos, 2012). Thus, invisible resources in the payment experience could include the retailer's technology systems required to communicate between a customers' bank and retailer to ensure a successful payment.

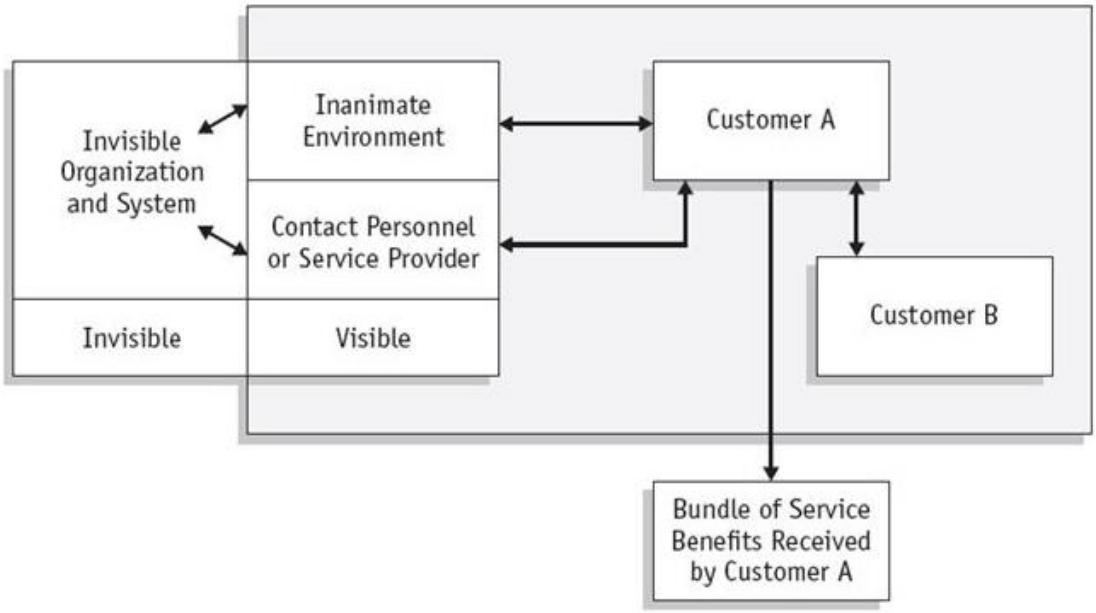


Figure 3-8: The Servuction Framework (Lengeard et al., 1981)

Those resources that the business provides which are visible to the customer are categorised as either physical support or environmental factors, such as personal employee contact and the point of sales terminal that the customer uses for contactless payments. The service is subsequently co-produced during the provider and a focal customer' (Customer A) interactions using these resources (Fisk et al., 2008). A fourth resource in this model are the fellow customers (Customer B) who are present during the service process. Thus, the Servuction model places an emphasis on the role of fellow customers who are present in the service environment during the service encounter who can influence the consumption of a service (Grönroos, 2012).

While the Servuction framework provides a system through which to explore the process of using mobile payment methods and introduces the consumer as an integral part of the interaction process, it is inherently a structural framework. Therefore, it offers limited explanation of the micro level customer provider interactions that occur in the service encounter (Bateson, 1995). Additionally, the model's focus is on the end to end service delivery

framework (Davies et al., 1999), from invisible firm resources through to consumer. This would make identifying the entire system difficult due to the large number of constructs involved (Bateson, 1995). The emphasis on the influence of other customers in the service encounter as detailed in the framework is also deemed less relevant in the context of using payment methods. The use of a payment method in everyday life is not something that is shared with other customers in the service encounter and deemed a private act, especially due to the financial security aspect when paying.

3.4.2 The Services Theatre Model

An alternative interactive service marketing framework is The Services Theatre Model (Grove et al., 1992). This model views the service system from a dramaturgical perspective and proposes that the service encounter has many similarities to theatrical productions. Thus, marketing services are described as performances (Berry et al., 1991) which contain the same key constituent parts as a theatrical performance, see Figure 3-9.

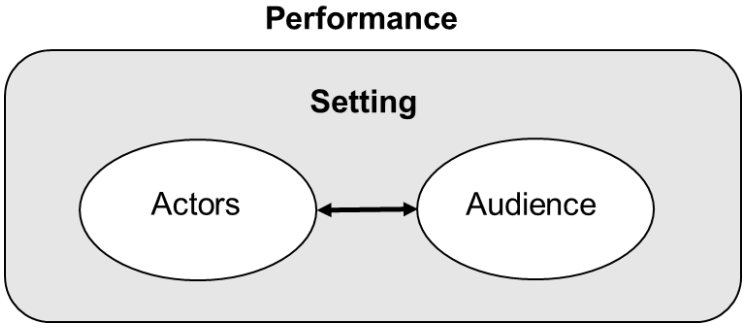


Figure 3-9: The Services Theatre Model (Grove et al., 1992)

In a theatrical perspective the service encounter is contained within a physical setting, akin to the front stage of a theatre that helps frame the service performance (Berry, 1981; Grove and Fisk, 1983). The performance setting is where the actors, in the form of the firms' service

employees, determine the service that is subsequently received by the audience, in the form of customers consuming the service (Grove et al., 1998). The interactions within the service encounter between customers (audience) and employees (actors) can occur through a range of theatrical concepts. Examples of these concepts include scenery, props, costumes, and routines, which together combine to create a service experience and can assist in detailing the nature of services phenomena (ibid). As a collective view, a theatrical framework shares many similarities with the service encounter and the notion that services are processual in their nature (Parasuraman et al., 1985). Examples include their occurring in physical settings, the front stage which frames the performance, and that the customer interacts with a myriad of theatrical phenomena (Grove et al., 1998).

A theatrical framework provides a conceptual concept through which to understand and assess the service experience, but research has predominantly used the specific dramaturgical concepts of roles and scripts to observe the detailed activities that occur. These complementary concepts propose that during a service encounter customers and employees take on specific roles and act out a service script. Research into service encounters often refers to the service encounter interaction between employee and customer as role performances (Giebelhausen et al., 2014). The explanation of employees and customers' detailed interactions during these performances can therefore be explained using Role and Script theories, which despite being used collectively in service marketing research (Nguyen et al., 2014; Giebelhausen et al., 2014; Bonney and Williams, 2009; Bitner et al., 1994) have differing theoretical backgrounds.

3.4.2.1. Role Theory

Role theory has developed and contributed to the understanding of the service encounter through its ability to explain the relationship and interpersonal dimensions between the customer and employee (Solomon et al., 1985). For example, when robots are introduced into the physical service encounter their lack of service competency (e.g. sensorial value) can lead to compromised customer evaluations (Wu et al., 2020). Role theory resulted from multiple origins (Broderick, 1999) including social penetration theory (Altman and Taylor, 1973), which suggests that relationships are developed through sequences of social interactions and when the focus is symbolic interactions, whereby meaning is produced through interactions, termed social interactionism (Goffman, 1967). Social interactionism stresses the relationship of the individual to both other persons and to the society in which relationships exist, akin to the integration of internal and external exchange within the marketing concept (Broderick, 1999). From these multiple origins, Role theory has developed and contributed to the understanding of the service encounter through its ability to explain the relationship and interpersonal dimensions between the customer and employee. This perspective emphasises the nature of people as social actors who learn behaviours that are appropriate to the positions they occupy in society (Solomon et al., 1985). The resulting behaviour of employees and customers during the service encounter are deemed different and predictable depending on both their social identities and the situation (Biddle, 1986). Therefore, for the service encounter to result in a successful outcome for both employee and customer role expectations in the form of expected behaviours must occur. This expectation can be anticipated, known as ‘taking the role of the other, whereby an employee adjusts their behaviour dependent on the behaviour of the customer, thereby leading to a more effective service encounter (Lutz and Kakkar, 1976; Weitz, 1981). The ability to anticipate and adapt behaviours during the service encounter is implied

through common meanings that are specific to different offerings of the same type of service. For the customer, the adoption of their role begins once the service environment is entered and the role-defined interaction then begins (Solomon et al., 1985). The service environment as a service setting can then provide what are referred to as production realities, which will differ depending on the specific service environment and situational cues therein (Lutz and Kakkar, 1976). As a set of dimensions, these production realities can include technology, content, and location, all of which help determine the appropriate role behaviours for that service encounter (Solomon et al., 1985).

When there is a discrepancy between expectations and performance between the roles of the customer and employee, known as role discrepancies, which can lead to an unsatisfactory service encounter (Bitner et al., 1990). A discrepancy may arise when there is an inconsistency with either customer or employee expectations. This discrepancy can occur when an employee does not have the qualifications to fulfil the duties expected of them by the customer. For example, when ordering at a fast food restaurant where a customer asks the server to make a menu recommendation (Solomon et al., 1985). This request from the customer for a menu recommendation is not an expected behaviour in a fast food service encounter and the employee may therefore deem this request to not be part of their role. If this encounter resulted in dissatisfaction with the service encounter for either customer or employee, it is suggested to be due to a lack of congruence between perceived behaviour and the behaviour expected by the roles (ibid). Congruence refers to a conformity that can either be between the employee and the organisation, termed intra-role congruence, or inter-role congruence, between customer and employee (ibid). Intra-role congruence can for example arise because of a lack of role clarity amongst employees who are unsure of the exact nature and expectations of their job (Dubinsky

and Mattson, 1979). Equally as important, inter-role congruence is the level of agreement between customer and employee regarding the appropriate roles to be played. As discussed in Chapter 2 Section 2.5.2 p.40, customers may feel forced into certain roles when technology is introduced into the service encounter whereby they are expected to self-serve in the service encounter (White et al., 2012). The expectations of the roles by customers and employees in the service encounter are often contained within what is termed the service script (Smith and Houston, 1986) which is discussed below in Section 3.4.2.2.

3.4.2.2. Script Theory

Scripts in the context of services have typically been used to specify the procedures that an employee should carry out in the service encounter to guide and control delivery of the service (Victorino et al., 2012). These service scripts are used by organisations to ensure standard operating procedures and a consistent level of service quality through standardising the service encounter (Rafaeli et al., 2008). Whereas, the service script takes a provider perspective to the activities the consumer does in the service encounter, Script theory (Abelson, 1976; 1981) from which the service script originates can be applied to what the customer does in the real-life context of using payment methods. The service script concept originates from Script theory (Abelson, 1976; 1981) which defines the script as: '...a structure that describes appropriate sequences of events in a particular context' (Schank and Abelson, 1977, p.41). As a type of schema, means of describing a pattern of behaviour through organising categories of information and the relationships between them, the script originates from psychology (Abelson, 1981). A script being schematic in nature provides a mental representation of real-world objects and events through embodying everyday events as sequences which represent procedural knowledge (ibid). As a cognitive process, once activated Script theory proposes that

the scripts which are stored in memory are used to direct behaviour (Leigh and Rethans, 1984). Therefore, in a service encounter once the encounter begins so does the script that contains a series of typical consumer activities, which are carried out through a sequence of scenes. For example, during a shopping service setting, the actions and events in the script may contain primary or common activities, such as: enter store, get shopping cart, pay for items and leave store, and secondary or unique activities such as: check shopping list, find sales person and look at item prices (Stoltman et al., 1989). This example of a script contains a standard sequence of events, which characterise typical activities from the customers' perspective, and as a frequent encounter is deemed a strong script. A strong script is one that is frequently repeated and will have stronger learned associations between prior and consequent events than a weak script (Abelson, 1981).

A script contains the activities the customer does, their interactions with employees, and the props used. For example, in a restaurant setting, props can include the menu, table and food, and entry conditions, such as the customer is hungry and has money (Bower et al., 1979). The use of scripts in service marketing research has served multiple purposes; from understanding the variability of scripts as a function of environmental cues within the service encounter, to the impact of deviating from expected scripts on the customer and employee (Leigh and Rethans, 1984). The deviation from expected scripts is especially relevant when a new service is introduced as there is a learning process and a new script to learn for both customer and employee. Therefore, each actor for example customer and employee, must adjust to new expectations and behaviours regarding how they are supposed to use and follow through on a service (Broderick, 1999). Where scripts deviate from what is typical behaviour these are termed either branches, which represent alternatives to normal procedures, or obstacles and

errors when the variation from the typical behaviour is unexpected (Abelson, 1981). Obstacles and errors in a script may interfere with its execution but often have acceptable corrective actions which do not prevent completion of the script entirely. However, each script has core activities that must be completed for the activity to be completed, such as entering a restaurant at the start of a service encounter and paying for the meal towards the end of the script. The use of Script theory allows the micro-level interactions and value creating activities the customer does when using payment methods to be observed in detail. Script theory also allows comparisons to be made not only between different payment methods (traditional and MPP) but also among different types of service encounters. This recognises that the use of payment methods occurs across a range of everyday situations which will include using payment methods in both face to face and self-serve technology contact types (Froehle, 2006).

3.5. Overview of the Conceptual Framework

This section presents the conceptual framework which guides the subsequent empirical stages of this study. The conceptual framework is explained in the context of mobile proximity payments and specific research questions are detailed for each research objective based on the theories discussed and chosen from this chapter. The Grönroos-Voima Value Model (Grönroos and Voima, 2013) provides an over-riding framework through which to view CV creation from the consumers' perspective across the service experience. The service experience in the G-VVM includes both when the consumer is in the physical service encounter (the joint sphere) using an MPP in for example a retail store and outside of the service encounter (the customer sphere). The CV created from these two spheres is differentiated firstly as interaction value in the joint sphere when the consumer uses an MPP to pay for a product or service and interacts with the service providing process (Grönroos and Gummerus, 2014), in which providers' have

an active role. Secondly, the CV created from the customer sphere is termed independent value where the providers have a passive role and the consumer may interact with the providers' resources but not their processes (Grönroos and Voima, 2013). The conceptual model allows for the consumer interactions at a micro level to be investigated with multiple providers, which could include for example human employees and till terminals in a retail store, and the consumers' bank and mobile phone network.

The conceptual model is shown below in Figure 3-10 and includes the two chosen theories from which to explore how MPP create CV through the value creating processes the consumer does when using MPP and CV as an outcome from using MPP as a preference to traditional payment methods. Firstly, to explore the value creating activities the customer does in the process of using MPP in the service encounter Script theory (Abelson, 1981) enables the interactions that the customer has with providers to be detailed. These interactions that stem from the consumers use of MPP in the service encounter to create interaction value include activities the consumer does before, during, and after using MPP to pay for a product or service. Secondly, to explore how CV manifests as an outcome the framework uses the Theory of Consumption Value (Sheth et al., 1991). This allows the CV that MPP create for those consumers that are using MPP to be explored as per the TCV five value constructs. Then it can be determined which of these five value constructs exist and if they derive from either the interaction the consumer has in the service encounter as interaction value in the joint sphere or outside of the service encounter as independent value in the customer sphere.

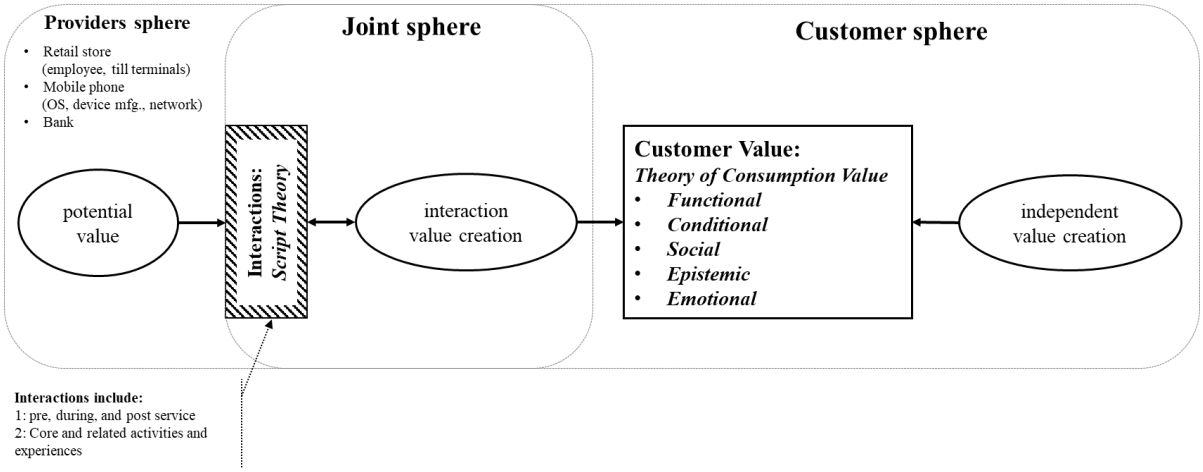


Figure 3-10: Conceptual model to explore how MPP create customer value (Authors own)

This conceptual framework provides a starting point from which to empirically explore how MPP create CV in the service experience from the customers' perspective, and the study further develops this conceptual model into a research model and hypothesis in the second stage of the mixed methods research design as discussed in Chapter 4. It is recognised that CV creation processes are not linear and for those customers' using MPP CV would have emerged and accumulated overtime to a point where they use this payment method with relative frequency in their daily lives (Grönroos, 2011). However, the G-VMM does state either how the value creation spheres form different value creation patterns or potential relationships between the value creation spheres through which value emerges and accumulates overtime. This study recognises at this stage that the emergence and accumulation of CV may become evident from the initial stages of the exploratory research conducted hereafter.

At this stage research questions were developed for each research objective to guide the subsequent research methodology, and these are detailed below:

Objective 1: How does customer value manifest as an outcome in the MPP service experience?

RQ1: How do the TCV constructs exist for the consumer in the MPP experience?

RQ2: What are the relationships between and size of effect for the TCV constructs in the MPP experience?

Objective 2: How do the customer activities in the process of using MPP create customer value?

RQ3: What are the payment scripts across different customer contact types?

RQ4: What are the value creating activities the customer does when using MPP?

CHAPTER 4 - RESEARCH METHODOLOGY OVERVIEW

This chapter begins by discussing the importance of a researcher' philosophical position on the methodological choices for this study in Section 4.1. The philosophy of pragmatism and its implications for using a mixed methods approach are then discussed in Section 4.1.2. A resulting sequential exploratory mixed methods design is then detailed and discussed in Section 4.2. This discussion includes justification for the mixed methods used in the sequential stages of the research design and consideration for how the data is integrated between and inferences made from each method. The chapter concludes by giving an overview of the following chapters in this study which align with the two sequential stages in the research design.

4.1. Research Philosophy

A researcher's philosophical position has a direct influence on how the researcher views the phenomenon being researched and underpins the choices regarding a study's strategy, methods, and techniques (Carson et al., 2001). As philosophical ideas affect a study's subsequent decisions it is important that they are identified and transparent to ensure consistency throughout the research, and if the philosophical position is not considered this can ultimately impact the quality of the research (Saunders et al., 2019). The researcher's philosophical position is a set of basic beliefs which links their assumptions with the world being investigated (Deshpande, 1983). A philosophical position also recognises that a researcher's general orientation and the nature of their research does not exist in a vacuum. This results in the overall research approach being shaped by the personality traits of the researcher (Hirschman, 1986), external influences, and past experiences, such as: '…the discipline area of the student, the

beliefs of advisors and faculty in a student's area, and past research experiences' (Creswell, 2009, p.6).

A researcher's overall philosophical orientation and the set of beliefs and values which guide their research as shared by other researchers within a community is termed a paradigm (Kuhn, 1962) or worldview (Creswell, 2014). The worldview of a researcher is determined based on three main philosophical questions, that of ontology, epistemology, and axiology, which guide the research methodology (ibid). Philosophical assumptions about the nature of reality, termed ontology, shape a researcher's assumptions about the form and nature of social reality (Guba and Lincoln, 1994). These assumptions about how the world operates subsequently influences what the researcher deems is acceptable knowledge in their area of research, termed epistemology (Saunders et al., 2019). The researcher also must decide to what extent their own values and beliefs, termed axiology, should be incorporated into the research which governs how the researcher should act during the research process (Denzin and Lincoln, 2000). Consequently, the result of the researchers' ontological, epistemological, and axiological position is a suitable combination of techniques used to research a particular situation, termed methodology (Saunders et al., 2019). The worldviews that result from a researchers' ontology, epistemology, and axiology exist along an objective-subjective continuum. The extremes of this continuum of worldviews are discussed in detail to present contrasting views, but it is recognised that a plethora of worldviews exist within these extremes (Carson et al., 2001**)**. For example, within these extremes research which seeks to explore the background of socially shared meanings by which a person interprets personal experiences, termed hermeneutics (Thompson et al., 1994), has been used to investigate the design of brand identities (Settembre-Bundo et al., 2018).

At one extreme of this continuum is positivism and its inherent objective view of reality where contributions to knowledge are law-like generalisations (Saunders et al., 2019). The other extreme end of this continuum is interpretivism with a subjective view of reality where multiple realities exist, and opinions rather than facts are considered acceptable knowledge (Carson et al., 2001). The field of consumer behaviour within marketing has used various philosophical positions and associated plethora of philosophical labels (e.g., post-positivism, phenomenology, and pragmatism) that exist along this continuum (Holbrook 1987). Examples in marketing include, research into how touchpoints moderate the antecedents of customer satisfaction within service encounters using a post-positivist philosophy (Bolton et al., 2021) and using phenomenology to understand consumer arrogance as a multi-dimensional trait (Ansaripur et al., 2020). The contrasting worldviews at the extreme sides of this philosophical continuum, that of positivism and interpretivism, are discussed in the following Section 4.1.1 to contrast these perspectives, and the chosen philosophy for this research of pragmatism is discussed and justified in Section 4.1.2 on p.101.

4.1.1. Positivism and Interpretivism

Positivist and interpretivist worldviews have both been used to research consumer behaviour which reflects the development of the field by researchers from various backgrounds, such as economics, psychology, and sociology (Holbrook, 1987). However, researching consumer behaviour is complex and the value phenomena in this study exist in a dynamic environment within consumers' daily life. Therefore, philosophical positions which emphasize a subjective or objective position and have a strict reliance on positivist or interpretivist approaches can limit the researchers' ability to capture the real-life problems that consumers encounter in their daily lives (Majeed, 2018). A comparison of positivism and interpretivism, as shown below in Table

4-1, details the differences between the philosophical assumptions about: what is the nature of reality (ontology), what is considered acceptable knowledge (epistemology), and what is the role of values (axiology) in the research. Answers to these questions lead to typical methods and approaches connecting the theory and data which are associated to positivist and interpretivist research philosophies.

Table 4-1: Comparison of positivism and interpretivism research philosophies

Research philosophy	**Ontology**	**Epistemology**	**Axiology**	**Typical methods**
Positivism	Real, independent Single external reality	Governed by hypothesis and stated theories Observable and measurable facts Causal explanation and prediction as contribution	Value-free research Researcher is detached and independent of what is researched Research maintains objective stance	Typically, deductive Highly structured, large samples Typically, quantitative methods of analysis
Interpretivism	Complex, rich Socially constructed through culture and language Multiple meanings, interpretations, realities Flux of processes, experiences, practices	Seeking to understand specific context Focus on narratives, stories, perceptions, and interpretations New understandings and worldviews as contribution	Value-bound research Researchers are part of what is researched, subjective Researchers' interpretations key to contribution Researcher reflective	Typically, inductive Unstructured, small samples, in-depth investigations Typically, qualitative methods of analysis, but a range of data can be interpreted

Adapted from: Saunders et al., 2019; Carson et al., 2001

Positivism derives from there being one single reality which is independent and external (Saunders et al., 2019) and results in an objective view of the research phenomenon. An objective view believes the research phenomenon can exist outside of social actors and that humans are isolated from their social entities. Thus, what is deemed acceptable knowledge are variables that can be observed and measured. The axiology of positivist research, the role of values, is that the research must be value free such that the researcher is independent of what is being researched. A positivist philosophical position results in methodologies which have a predominantly fixed structure (Hudson and Ozanne, 1988), step by step research processes, and typically use deductive methods of analysis (Creswell, 2014). Laboratory experiments exemplify a positivist position where elements of reality are taken out of their everyday context and observed in a controlled setting (Hudson and Ozanne, 1988). Therefore, the focus of positivist research is often theory testing, where prior theories are used to arrive at hypotheses at an early stage of the research (Carson et al., 2001). The development of theory testing is done through a deductive process. This deductive approach enables acceptable knowledge in the form of predictions and causal explanations to be created (Blaikie, 2010). These causal explanations link two or more concepts together in a causal chain consisting of untested assertions about the relationships between the concepts (Carson et al., 2001). For example, Daugherty et al., (2008) conducted experiments to test the single and sequential impact of consumer exposure to different types of experience (virtual, direct, and indirect) on brand attitude, product knowledge, and purchase intention. Therefore, a positivist philosophical position is less focused on the active participation of the consumer in the social environment within which consumer behaviour and the phenomenon under study occurs (Deshpande, 1983).

In contrast, interpretivism assumes an ontology where reality is socially structured and rich in multiple meanings and realities (Saunders et al., 2019). Interpretivism denies that one real world exists, rather multiple realities are present because of differing group and individual views (Hudson and Ozanne, 1988). Therefore, interpretivist research tends to occur in the natural setting and context where the phenomenon under study exists and recognises that consumers associate different meanings with phenomena when in their natural setting (Lincoln and Guba, 1985). This emphasis on the natural setting results in inferences from the data collected from interpretivist research being bound to a greater degree by the context of the study than positivist research (Morgan, 2007). The result of accepting a complex ontology is that acceptable knowledge is found in for example narratives and stories. Interpretivist researchers also accept that their research is value-bound as the researcher is part of what is being researched to varying degrees. This results in adopting a subjectivist position which suggests that phenomena are a consequence of human actions (Saunders et al., 2019). Thus, interpretivist philosophies use inductive research approaches which involve: '…exploring and understanding the meaning individuals or groups ascribe to a social or human problem' (Creswell, 2014, p.4). Interpretivism connects theory and data typically through an inductive approach which is predominantly used for the purpose of theory building (Carson et al., 2001). Despite, potential limitations of subjectivity as it can be difficult to detect or prevent bias brought to the study by the researcher (Guba and Lincoln, 1994), an inductive approach allows for alternative theories to be discovered through a less structured and more flexible research design than positivism (Saunders et al., 2019). An alternative to the extreme philosophical positions of positivism and interpretivism is pragmatism, which seeks to transcend the dualisms of making either or distinctions between the philosophies that are typically associated with subjective or objective approaches (Morgan, 2007), and is discussed in the following Section 4.1.2.

4.1.2. Pragmatism and Mixed-Methods Approach

The use of a pragmatism in this study allows the researcher to firstly, move back and forth between the theory and data through a process termed abductive reasoning (Morgan, 2007). Secondly, pragmatism seeks inferences from the data which are not context specific or conversely generalisable, but inferences which are transferable. Therefore, this transferability of the data allows the results of the study to be taken from their specific setting and used in other circumstances (Lincoln and Guba, 1985). Pragmatism as a philosophical position allows the researcher to reject the traditional ontological and epistemological assumptions that lead to either / or methodological choices from the outset of the study (Greene and Caracelli, 2003). The result is a form of methodological eclecticism and liberalism (Teddlie and Tashakkori, 2012; Maxcy, 2003), the consequence of which is: '…the freeing of the investigative impulses toward a natural and practical refining and reconstruction of the tools of inquiry' (Campbell, 1992, p.86). This contrasts with the views of positivists or interpretivists that believe combining their ontological and epistemological stances is illogical. The worldviews of interpretivism and positivism that underpin deductive and inductive methodological approaches are deemed fundamentally incompatible, as per the incompatibility thesis (Howe, 1988). Therefore, researchers who align with the incompatibility thesis choose a philosophical paradigm and its associated methods, a form of tyranny of method (Bernstein, 1983), rather than seek methodological pluralism. In contrast, pragmatism as a philosophical position rejects the incompatibility thesis and believes that both positivism and interpretivism have the same overriding aim which is to find the truth, whether that be an objective truth or relative truth of multiple realities (Dewey, 1925). Clasical pragmatism replaces the concept of universal truths concerning the nature of reality and what constitutes acceptable knowledge with the concept of warranted beliefs with an emphasis on the nature of experience (Morgan, 2014). The concept

of warranted beliefs instead of universal truths allows the philosophical position to accept that reality is not static, and the world is in a constant state of becoming (Kaushik and Walsh, 2019). Therefore, the researcher searches not for over-riding universal truth but has warranted beliefs which take shape from repeated actions in similar situations as provisional outcomes (Morgan, 2014).

In comparison to the approaches built on positivism and interpretivism, an approach built on the philosophical position of pragmatism has three main differences. A summary of the main differences between a pragmatic approach and the positivist and interpretivist approaches is shown below in Table 4-2.

Table 4-2: A pragmatic alternative to the key issues in social science research methodology

	Interpretivist approach	**Positivist approach**	**Pragmatic approach**
Connection of theory and data	Induction	Deduction	Abduction
Relationship to research	Subjectivity	Objectivity	Intersubjectivity
Inference from data	Context	Generality	Transferability

Source: Adapted from: Morgan, 2007, p.71

Firstly, in terms of how the researcher approaches the connection between theory and data a pragmatic approach moves back and forth between theory and data, termed abduction. This is in comparison to the predominant induction (bottom-up) and deductive (top-down) in the qualitative and quantitative approaches to connect theory and data. For example, a pragmatic approach can use sequentially deductive results from a deductive study to act as inputs to a inductive study and vice-versa (Morgan, 2007). In contrast to the classical pragmatists (e.g., Dewey, J. and Pierce, J.), Rorty (1999) as a neo-pragmatist places less emphasis on the experience but a greater emphasis on language and positions pragmatists as anti-dualists who

believe in the convergence of methodological approaches. A convergence which can offer the researcher a greater degree of flexibility and responsiveness to the situation under study through which to solve a practical real-world problem (Caracelli and Greene, 1997). Secondly, a pragmatic approach treats the relationship between the researcher and research process as intersubjective, suggesting that the dichotomy between subjective and objective is an artificial summary of what happens in reality (ibid). Thirdly, a pragmatic approach asks what we can take from one specific setting and how that knowledge can be used in other circumstances, i.e., what is the transferability of results (Lincoln and Guba, 1985). This transferability stems from a focus on what can be done with the results of the research rather than assuming that the methods and approach used make the results either context-bound or generalisable (Morgan, 2007). Therefore, rather than focusing on the possibility or not of the generalisability of results a pragmatic approach focuses on how much of our existing knowledge might be usable in other contexts, notwithstanding what the justifications are for such claims (ibid).

Marketing has been influenced by the philosophy of pragmatism through a focus on the usability of findings and an emphasis on how reality is experienced (Chakrabarti and Mason, 2014), such as supporting the view that a brand belongs its stakeholders through their ever evolving experiences with it (Mary, 2012). However, the researcher recognises that all philosophical positions can be perceived as having inherent strengths and weaknesses. For example, pragmatism in the social sciences has been rejected by some philosophers because of its perceived inadequacies as a solution to philosophical debates (Johnson and Onwuegbuzie, 2004) and an over reliance on practical problem solving (Morgan, 2014). However, the use of pragmatism as the overriding philosophical position of this thesis allows the researcher to approach the aim and objectives of this study without being forced to choose between the

approaches typically associated with positivist or interpretivist positions (Taskakkori and Teddlie, 2010). Therefore, pragmatism through rejection of the incompatibility thesis supports the use of different methodological approaches in the same research study, termed mixed methods research.

4.1.2.1. Mixed Methods Research

Mixed methods research uses both qualitative and quantitative methods for data collection and analysis within a single study (Tashakkori and Teddlie, 2010). This mixing of methods enables research aims and objectives to be answered that the researcher deems cannot be done so using single methods. Consequently, offering the potential to provide a more complete picture than would be gained through only using a single method (Morse, 2003). However, the use of mixed methods research can place greater demands on the researcher and requires specific consideration for how the data are integrated from one method to another and how inferences are made from the results (Bazeley, 2018). Mixed-method and multi-method research designs share some of the same terminology and design typologies, such as when distinguishing the order in which the methods are used. However, this thesis adheres to the definition that a mixed method design employs a combination of qualitative and quantitative methods (Creswell, 2014). This contrasts with a multi-method design which uses multiple methods, but which are solely either qualitative or quantitative. To determine the appropriate mixed-method design for this study and consideration of their inherent strengths and weaknesses, a range of mixed method designs are subsequently discussed in detail.

There are multiple mixed method design typologies and techniques to be considered and debate exists about how to categorise different mixed-method designs and the resulting design

typologies (Leech and Onwuegbuzie, 2009; Guest, 2013). Six design types are commonly used (Creswell and Plano Clark, 2018) but of these two design types termed transformative designs are deemed not relevant for the purpose of this study because of the subject area of this thesis. The two transformative designs are typically used where the research topic is interested in social justice due its action-oriented inquiry tradition (Greene and Caracelli, 1997). Therefore, transformative mixed method designs are used in the fields of education and politics rather than marketing, such as exploring healthcare while homelessness (Ramsey et al., 2019) and how education systems adapt to students with refugee backgrounds (Miller et al., 2020). Mixed method research designs are commonly differentiated firstly by the priority order that is given to the quantitative or qualitative stage of the research and secondly the sequence in which the methods are to be implemented (Creswell et al., 2003). The sequence of method implementation can be either sequential, which is most common in marketing (Harrison and Reilly, 2011), or concurrent, with concurrent designs typically having a shorter data collection time than sequential designs.

Each mixed method research design has a specific over-riding purpose, but they do allow the researcher a degree of flexibility in how they are used (Leach and Onwuegbuzie, 2009). For example, a sequential explanatory mixed method designs purpose is to explain and interpret relationships but depending on the priority of the initial quantitative method the uses of the follow-up explanatory stage can vary (Harrison and Reilly, 2011). These design variations range from using the qualitative stage to illustrate the quantitative findings or generating a deeper understanding of surprising quantitative results (Bryman and Bell, 2007). The most common use of this design in marketing is to give the initial quantitative phase priority (notated as QUAN>qual in Table 4-3 on p.107) with the subsequent qualitative phase used to

complement the findings through follow-up findings (Harrison and Reilly, 2011). A sequential explanatory design has been used to research a range of marketing topics from investigating antecedents to consumers attachment to celebrities (Thomson, 2006) to the consistency between stated and revealed consumer marketing preferences (Horsky et al., 2004).

A sequential exploratory design is similar to a sequential explanatory design in that it also uses the results of the first stage to develop the second (Creswell and Plano Clark, 2018). The difference is in the order of the qualitative and quantitative stages; thus, a sequential exploratory design begins with a qualitative stage which tends to be given priority (notated as QUAL>quan in Table 4-3 on p.107). As the initial qualitative stage is given priority this leads to an overall inductive thrust for the research which is best suited to exploring a phenomenon (Morse, 2003). Research situations where this occurs include when measures (survey or interview questions) are not available, or variables are unknown for quantitative research (Morse, 2010a). In such circumstances it is required to develop measures or identify variables from an initial exploratory qualitative stage. This exploratory stage is commonly concerned with exploring the phenomenon of the study in-depth where the need is to obtain a deep understanding and is suited to research problems which are more qualitative orientated (Creswell and Plano Clark, 2018). The rationale for using this design varies but includes:

(Bryman, and Bell, 2007; Harrison and Reilly, 2011)

- *Completeness:* The use of both qualitative and quantitative research brings together a more comprehensive account of the research problem
- *Instrument development:* Qualitative research is used to develop questionnaire and quantitative scale items
- *Confirm and discover:* The qualitative data is used to generate hypothesis in and tested with quantitative research

Each research design has inherent strengths and weaknesses which must be considered prior to conducting the research and a summary of each mixed-method designs purpose, advantages, and disadvantages is shown below in Table 4-3.

Table 4-3: Overview of mixed method research designs

Mixed method design	Notation	Purpose	Advantages	Disadvantages
Concurrent nested	QUAN (qual) QUAL (quan)	Confirm, cross-validate, or corroborate findings	i) Simultaneous data collection in one collection phase ii) Perspectives from different types of data can be gained in same study	i) Limited procedural information on how to conduct this design ii) Evidence may be unequal iii) How to transform the data so that they can be integrated within the analysis needs specific consideration
Concurrent triangulation	QUAN+QUAL QUAL+QUAN	Confirm, cross-validate, or corroborate findings	i) Simultaneous data collection in one collection phase ii) Perspectives from different types of data can be gained in same study	i) Requires great effort and expertise to adequately study a phenomenon with two separate methods ii) Can be difficult to compare the results of two analyses using data in different forms
Sequential explanatory	QUAN>qual quan>QUAL	Explaining and interpreting relationships	i) Straightforward design, easy to describe and report ii) Can provide a comfortable introduction to qualitative methods for quantitative researchers	i) Requires a substantial length of time to complete multiple data collection phases ii) Difficulty may be found building the qualitative data analysis to the subsequent quantitative data collection
Sequential exploratory	QUAL>quant qual>QUAN	Exploring a phenomenon	i) Straightforward design, easy to describe and report ii) Can provide a comfortable introduction to quantitative methods for qualitative researchers	i) Requires a substantial length of time to complete multiple data collection phases ii) Difficulty may be found building the quantitative data analysis to the subsequent qualitative data collection

Adapted from: Tashakkori and Teddlie (2010), Creswell et al. (2003), Morse (2010b)

A sequential exploratory design does allow a deep understanding of the phenomena under study to be gained, the sequential stages are relatively easy to describe and report upon, and the inclusion of a quantitative stage can make the approach more acceptable to quantitative biased audiences (Creswell and Plano Clark, 2018). However, consideration must be made for the length of time required to conduct sequential stages and how the data will be integrated between the qualitative and quantitative stages (Tashakkori and Teddlie, 2010). Mixed methods research can also place greater demands on the researcher such as requiring them to learn multiple methods and that initial ethical approval for the study might be required before the research begins when specific procedures for the subsequent quantitative stage are not available (Creswell and Plano Clark, 2018). After consideration of the different types of mixed method research designs, their purposes, strengths and challenges this study uses a sequential exploratory mixed-methods design which is described and justified in the following Section 4.2.

4.2. Research Design

The exploratory aim of this research, to explore how mobile proximity payments create value for the customer in the service experience, aligns with the purpose of a sequential exploratory mixed-method design. Wherein an initial qualitative stage serves to explore how customer value (CV) manifests itself and is created for the customer when using MPP. The second quantitative stage is then able to use the results of the first stage to examine the relationships between and effects of the value creation variables identified from the first stage. Therefore, the second stage could not be conducted without the first stage as the CV phenomena constructs have not previously been empirically explored in the context of MPP. The quantitative stage allows the value phenomena from the qualitative stage to be generalised to a wider population and

develops an emergent structural model of how CV is created in the service experience. As the qualitative results are used to develop an emergent theory and the quantitative stage studies the results in more detail (Harrison and Reilly, 2001), this design aligns closely with researchers that develop classification systems, termed a taxonomy development design (Creswell et al., 2003).

The research design is shown below in Figure 4-1, this details each data collection, analysis, and results stage for this study, and the relevant thesis chapter and section. The research design also identifies where the data are integrated between the separate methods and where the results are merged from the methods and inferences made. The initial qualitative stage has two phases, firstly phase A uses self-observations to initially explore and elicit the CV creation themes and customer scripts in the real-world context of using payment methods. The data collection and analysis procedures are discussed in detail in Chapter 5 Section 5.1 and the initial results from this first phase are integrated into phase B through the creation of an in-depth-interview guide. Phase B of the qualitative stage uses in-depth interviews to triangulate the results of phase A through further empirical evidence (Erzberger and Kelle, 2003) with customers who use MPP at least weekly. This allows the CV creation themes and customer scripts to be refined, and the procedures of Phase B are discussed in Chapter 5 Section 5.2.

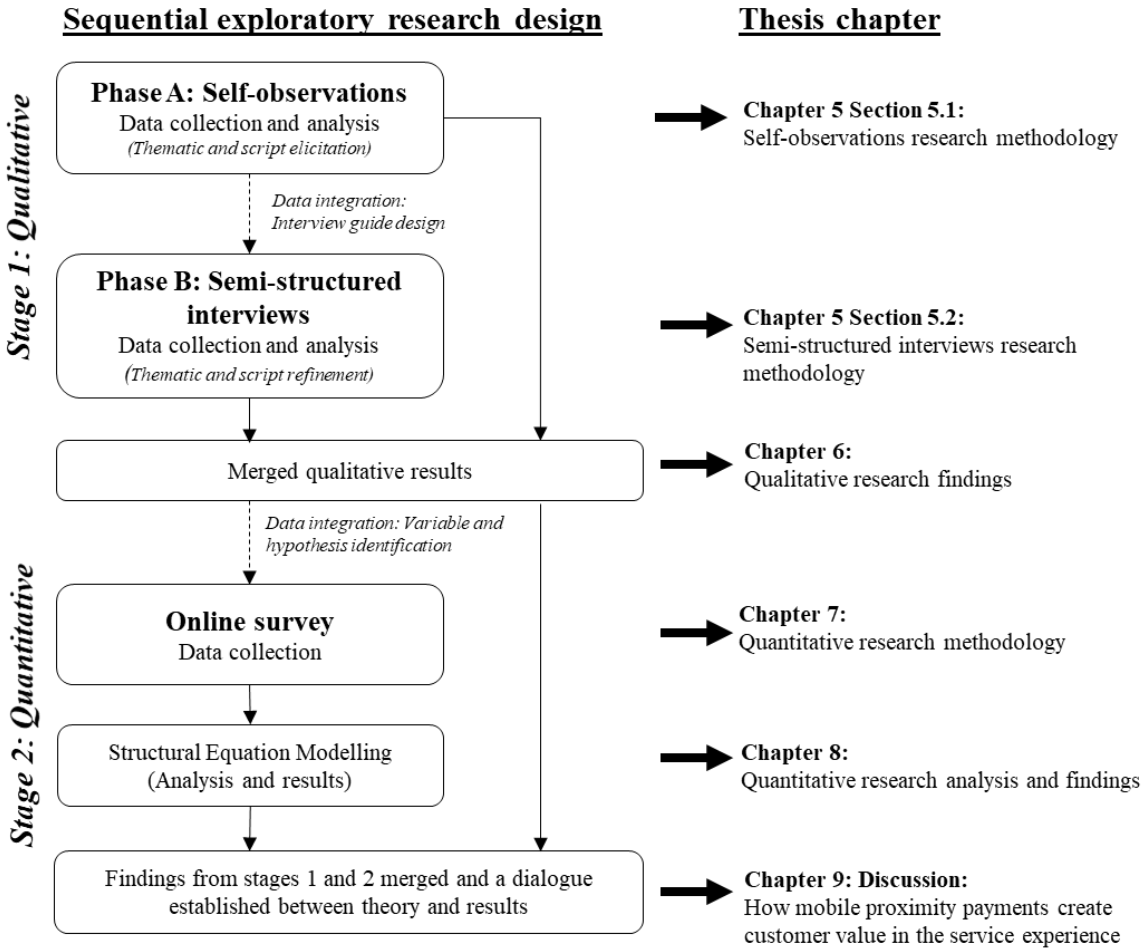


Figure 4-1: The exploratory sequential research design process used in this study (Authors own)

The results from both phases A and B in stage one are then merged into the qualitative findings Chapter 6 and subsequently used to design the hypothesis for a structural model and online survey variables in stage two. The data collection and analysis procedures for the online survey in stage two are discussed in Chapter 7 and the findings from the Structural Equation Modelling (SEM) are discussed in Chapter 8. The findings from both qualitative stage one and quantitative stage two are then merged and meta-inferences developed through the integration of the inferences obtained from each stage (Tashakkori and Teddlie, 2010), which are discussed in Chapter 9.

Additionally, at this stage it was important to determine the mixed-method sampling design to establish the relationship of the target population between the qualitative and quantitative stages. This consideration is separate to the proceeding sampling design for each individual method and increases the validity of the research through ensuring that the sample across the two integrated stages adequately address and represent the research aim and objectives (Onwuegbuzie and Collins, 2007). As customer value is created when the consumer uses a service (Gronroos, 2017) and the real world context of their daily life allows the study to capture real-life problems that are encountered (Majeed, 2018), the target population in this study is those consumers who use an MPP in their daily lives. This mixed method sampling design applies across both the qualitative and quantitative stage. Therefore, the mixed-method design uses parallel sampling as there is a parallel relationship between the sequential stages of the research (Collins et al., 2007). This contrasts with for example, a multi-level sampling relationship between the qualitative and quantitative stages whereby two sets of samples are drawn from different populations (ibid).

CHAPTER 5 - STAGE 1: QUALITATIVE RESEARCH METHODOLOGY

The qualitative stage provides a starting point from which to explore how mobile proximity payments create customer value (CV) in the natural setting where the phenomenon exist. To begin exploring the routine everyday act of paying for goods and services it was deemed necessary to understand and be aware of: '...important nuances that are apparent only to an observer' (Patton, 2002, p.263). Observational techniques have been extensively used in the development of new products (Veryzer, 2005) and service settings (Grove and Fisk, 1992), due to their ability to capture consumers' behaviours, actions, and patterns in specific situations (Carson et al., 2001). Therefore, the first qualitative stage begins with the observational technique of self-observations which allows the CV phenomenon when the customer uses a mobile payment method to be observed as it occurs in its real-life context (Goffman and Lofland, 1989) and facilitates the researcher learning process (Hammersley and Atkinson, 2007). Although, self-observations do allow the researcher to explore phenomenon in an everyday context this method can be prone to observer bias and is inherently resource intensive (Monahan and Fisher, 2010). Thus, the second qualitative phase in this stage uses interviews which allow the sampling of a more diverse group of the population based on specific criteria (Saunders et al., 2019). The use of in-depth interviews serves to reduce potential observer bias from the first qualitative phase through developing a more comprehensive understanding of the phenomenon in this study (Patton, 2002), and to increase the validity of the results that emerged from the qualitative stage (Jick, 1979), termed method triangulation (Denzin, 1978). The following sections discuss and justify each of the two qualitative phases used in the first stage and detail each methods sampling strategy, data collection and analysis procedures.

5.1. Phase 1: Self-Observations

The low involvement characteristic of utilitarian services such as payment methods which are designed to be practical, in contrast to hedonic services which are associated with fun and pleasure (Collier and Barnes, 2015) provides challenges for empirical research. For example, how to minimise the time lag between the actual experience occurring in the service encounter and the point of data collection, and that these service encounters may occur at multiple intermittent points during a day. A significant time lag between the consumer experience occurring and data collection known as intervening time (Wallendorf and Brucks, 1993) can cause recall bias, a systematic error that can be repeated across data collection points as it is inherent in the method being used. This form of systematic error can increase memory distortions and create a faulty reconstruction of the phenomena of interest (Bolger et al., 2003). Additionally, it is widely accepted that when studying actual human behaviour that the intervening time between an experience occurring and the event being recalled can lead to a degradation of the details about past events as memory is reconstructive and degrades over time (Norman, 1976). Observational techniques allow the researcher to overcome these challenges and are also suited to the context of this research in which the use of a payment method is a routine human action that occurs frequently, repetitively, and takes a relatively short time to complete (Carson et al., 2001). As a routine action that is part of an adult consumers' daily life the use of a payment method is also potentially difficult to remember, and observational techniques offer a way of understanding not just explicit knowledge but also tacit knowledge (Polanyi, 1966). Tacit knowledge is created by and embedded in the individual through the experience of doing (Mascitelli, 2000) and observational techniques allow time for the patterns and habits of the personal experience to be observed (Carson et al., 2001). Observational techniques such as non-participant and participant observations aim to achieve an

understanding of routine actions through the researcher getting close to the research subjects (Saunders et al., 2019). This closeness is achieved through the researcher being among the subjects being observed and often does not involve direct elicitation from the subjects. Consumer research into shopping behaviour typically uses observational techniques (Carson et al., 2001) which allows the researcher to get close to the research situation but may differ in the degree to which the researcher actively participates in the research context (Saunders et al., 2019). For example, when studying parent/child grocery shopping researchers unobtrusively followed and watched shoppers using a form of non-participant observation (Gram, 2010). Webb et al. (1981) uses the term unobtrusive measures to describe observational techniques, as compared to interviews they do not attempt to elicit atypical roles and responses (Lee, 2000).

Observational techniques often rely on second-hand accounts when it is not the informants own direct account of the phenomena being recorded but the researcher who observes, collects, and records the consumers' experience (Carson et al., 2001; Grove and Fisk, 1992). In contrast, self-observation techniques enable a first-hand account as the observer and observed (the informant) are the same person, but this technique can inherently introduce challenges for the researcher. For example, a significant amount of informant teaching is required to ensure they know how to observe and report the phenomena being studied. There is also a reliance on the informant to observe every specified action as it naturally occurs in the flow of everyday life and this can introduce a burden resulting in a simple forgetfulness to record an observation (Rodriguez and Ryave, 2002). A common theme amongst self-observational research is that the researcher analyses their own experience which reduces the need for informant teaching to a degree as the informant is the researcher.

The decision as the researcher to enter the real-life world of mobile payments in this first qualitative phase and be the informant is influenced by the fieldwork of auto-ethnography, but it is recognised that this research does not take an ethnographic approach. Ethnography as a research approach has a greater focus on cultural representations through using methods within what is broadly termed as fieldwork (Van Maanen, 1988). Auto-ethnography has its origins in anthropology but has developed into a variety of approaches which vary in their emphasis of the original meaning of the terms: self (auto), culture (ethno), and research process (graphy) (Ellis et al., 2010). The development of auto-ethnography in consumer research has led to a myriad of approaches which emphasise the: '...importance of studying at first-hand what people do and say in particular contexts' (Hammersley, 2006, p.4). Auto-ethnographic consumer research often focuses on the consumption experience, the interaction of the consumer and a product or service (Carù and Cova, 2008), due to its methodological ability to uncover and elicit the subjective construction of meaning (Hackley, 2015). Examples include the use of narrative auto-ethnography to explore materialism across cultures (Ger and Belk, 1996), collaborative auto-ethnography to understand consumption and cross-cultural identity (Tiwsakul and Hackley, 2012), and subjective personal introspection to explore consumer value (Holbrook, 2005). These studies use variations of auto-ethnographic based methods dependent on the type of subject, time covered, and/or degree of retrospectivity between an event occurring and the researcher capturing the event. The common aspect across auto-ethnographic studies is the use of the personal self as both subject and object, and the researchers' personal experience as a source through which to understand the consumption experience.

The use of the researchers' personal experience through self-observational techniques at the start of this study acts as a launching point through which to begin understanding the creation

of CV when consumers' use mobile payments. Additionally, self-observations allow the capture of the informant's everyday real-world experience, and the result is a first-hand account of activities as the observed and the observer are the same person (Rodriguez and Ryave, 2002). Observational techniques do range in terms of their degree of structure along a continuum from structured to unstructured. This first phase uses a systematic semi-structured procedure to minimise sources of bias and increase the transparency and reliability of the data collected (ibid). Across all observational studies, a wide range of design implications must be considered, such as the demands placed on the researcher, access to context and dialogue, and ethical concerns where observation occurs in a public setting (Carson et al., 2001; Gram, 2010). The following sections detail the phase A self-observation data collection and analysis procedures from an initial pilot study through to preliminary analysis which is subsequently used as input into the qualitative stage one phase B interviews.

5.1.1. Self-Observation Pilot Study

A pilot study was conducted prior to the main self-observation phase to determine how this technique could be used to explore the phenomena of CV. The focus of the pilot study was to firstly understand the practicalities of collecting data using self-observations such that the technique could be refined for the main phase (Carson et al., 2001). Secondly, the pilot study was also used to ensure that the Theory of Consumption Value (Sheth et al., 1991) was an appropriate theory through which to explore the context of the study, and thirdly to understand the types of retail activities that lead to a proximity payment method being used. The latter was used to further inform the sampling strategy and length of fieldwork in the main self-observation phase. Therefore, the pilot study focused on answering the following questions to

ensure that the self-observations in the main phase would be produce relevant and descriptive data to answer the studies research objectives:

1: What are the practical considerations of recording an observation directly after making a payment in the field?
2: Would a Single Question Used at Inducing Narrative (SQUIN) provide sufficiently rich data from which to answer the research objectives?
3: Is the customer value from using a MPP a multi-dimensional phenomenon as per the TCV?
4: What are the types of retail activities that lead to using a proximity payment method?

The pilot study was four weeks in length wherein after every time the researcher paid in person for a product or service an audio recording was made. This audio recording used a SQUIN (Wengraf, 2001) whereby the researcher asked themselves *'to describe the payment experience*' after every use of a payment method in the physical service encounter. The four-week pilot study was broken down into two equal two-week phases, in the first phase the informant used only traditional cash and card payment methods. Whereas, in the second phase the MPP Google Pay was used as the primary payment method. If MPP could not be used to make a payment, then a traditional payment method was used, and the payment activity was still observed. The four-week period resulted in a total of 87 audio recorded self-observations at an average of 3 observations per a day (Barnes, 2017, 2018).

Several practical considerations were identified during the pilot study, firstly the audio recordings were made using a handheld dictaphone. The use of both a dictaphone to record the observations and mobile phone for payments was not practical as the informant had to carry two handheld devices on their person. Therefore, for the main study it would be more practical to record the audio observations on a mobile phone. Secondly, when recording the observations

directly after exiting a store and standing in a high street the informant felt self-conscious speaking into the dictaphone. This was rectified part way through the pilot study by pretending to be having a phone conversation and resulted in the researcher feeling less self-conscious. The narrative monologue data that resulted from the SQUIN provided a rich description of the payment activity, as shown in Figure 5-1 below.

[Obs71_MPP] Popped into Moseley for a break sit outside and do some reading so went to Damascena. I have been there before so knew I could use my mobile payments for a drink. Phone was in my pocket so easy to get out, unlocked with my fingerprint and swiped it over. Actually, while waiting to be served Google Pay notified me that Google Pay was accepted but already knew that but nice little notification.

Figure 5-1: Example pilot study observation

The initial intention was to only collect audio data, but it became evident that visual data could also be collected in the form of mobile screenshots and photographs at the store point of sale in the service encounter. Therefore, after further consideration of how visual observations could be used photographs of the marketing material at the point of sale till and screenshots of the mobile application when paying with MPP were taken. This resulted in the decision to incorporate visual data into the main study alongside the audio recorded observation to increase the transparency of the results in the findings chapter. The pilot study data was analysed using thematic analysis (Braun and Clarke, 2012) to determine if CV in the payment activity is multi-dimensional as per the TCV for the main study. Preliminary thematic analysis demonstrated that four out of the five TCV constructs were evident in the data, those of: conditional, emotional, social, and functional value (Barnes, 2017, 2018). Therefore, the multi-dimensional TCV framework was deemed suitable for the main study and no other theoretical frameworks were considered hereafter.

Lastly, the pilot study was used to determine the length of time that would be required to collect observations in the main study. The retail activities that led to a payment activity being observed in the pilot study ranged in their frequency during the four-week period, as shown in Table 5-1 below. The most frequent retail activity observed was visiting a coffee shop, and a range of other activities happened multiple times during the four-week period. The least frequent was going to the chemist to pick up a repeat prescription and getting a ticket for public transport, both of which were only done once in the four-week period. Therefore, the pilot study data suggested that within a four-week period a suitable range of routine everyday retail activities could be observed in which the consumer uses a payment method. This information was used to determine the sampling strategy and length of fieldwork for the observations collected in the main stage which is discussed in the following Section 5.1.2.

Table 5-1: Proximity payment activity frequency

Activity	**Payment method frequency of use**	**number of observations in four-week period**
Food store: coffee shop	daily	34
Food store: supermarket	every two days	22
Food store: pub	twice a week	9
Non food_store: other e.g. Post Office	twice a week	9
Food store: restaurant	once a week	6
Non store: e.g. market, ice cream van	every two weeks	5
Non food_store: chemist	once a month	1
Non store: travel	once a month	1
	Total observations	87

5.1.2. Data Sampling Strategy

Although the aim of qualitative research is not to produce results which can be generalised to the wider population, it is important to design a sampling strategy which has a logical relationship between the sample selection techniques, research aim and focus (Saunders et al.,

2019). The result is data that can yield rich in-depth information about the issues that are important to the research (Patton, 2002). A transparent well-designed sampling strategy also ensures the data collected is relevant which can subsequently improve the quality of the research results (Carson et al., 2001). Qualitative research typically uses non-probability purposive sampling techniques which unlike quantitative probability sampling offers a set of guidelines rather than rules (Saunders et al., 2019). These guidelines aid the researcher in determining for example how many interviews to conduct or which groups in a study to focus on. Thus, credibility of often small but purposive samples lies in the articulation and explicit reasoning of why decisions were made to achieve adequate depth and detail in the sample chosen (Patton, 2002).

No definitive guidelines exist to determine the length of fieldwork studies and how long the consumers' use of MPP should be observed. Fieldwork studies can range in length from weeks, in the case of focused or rapid ethnography (Millen, 2000; Knoblauch, 2005), to years for anthropological based studies (Hammersley and Atkinson, 2007). In qualitative research the size of a sample is often justified by the point at which collecting additional data does not provide new information, termed the concept of saturation (Sandelowski, 2008). Whereby, additional data can be collected later in the study if new information or themes have not been found in the original data (Saunders et al., 2018). However, the collection of additional data may not be practical for fieldwork based research as waiting in the field for saturation is generally not an option (Guest et al., 2006). Therefore, a length of 12 weeks in total to collect self-observations was determined based on evidence from the pilot study in conjunction with the research purpose and what was practical with the available resources (Patton, 2002). The total twelve-week period was split into three four week phases, with a different priority payment

method in each phase. As per the evidence from the pilot study a four-week period for each phase would allow multiple situations where the customer uses a payment method to be observed. Additionally, these situations would include those done several times a day, such as purchasing a coffee, to those that occurred less frequently such as weekly or monthly. Therefore, to obtain a range of real-life activities that led to a proximity payment being used by the consumer, a period of four weeks was deemed suitably long enough to capture multiple daily and weekly purchase situations. This resulted in a data collection period which had sampling focus and could illustrate the key themes of the research, an approach which aligns with the a priori thematic saturation model (Saunders et al., 2018) where data is collected to exemplify pre-determined theoretical constructs.

The three four-week self-observation phases were determined based on the payment methods' type of mobile technology as this was particularly important to the context and objectives of the study. The type of mobile technology was a form of purposive critical case sampling from which logical representations could be made (Patton, 2002; Ritchie and Lewis, 2005)**.** For each four-week phase the priority payment method is detailed below:

- **Phase 1a:** no mobile technology: *Cash and card*: Priority payment method is cash or card, traditional payment methods contained within a physical wallet or purse
- **Phase 1b:** mobile NFC technology: *Google Pay*: A mobile payment application inherent to the mobile operating system Android which uses NFC technology
- **Phase 1c:** mobile non-NFC technology: *YoYo wallet*: A mobile payment application which uses QR code technology

Multiple phases of self-observation were designed to reflect that research suggests consumers use a range of payment methods and mobile payments do not replace card payments but act as

a substitute for cash payments (Trutsch, 2016; Wakamori and Welte, 2017; Greenacre and Akbar, 2019). Additionally, these phases of observations allowed comparison of the value phenomena between traditional (cash and card) and mobile payment methods, and between different mobile payment applications. The mobile payment applications observed were determined as informed by the literature review to include one MPP that used Near Field Communication (NFC) technology, i.e., Google Pay, and one MPP that used QR code technology, i.e., YoYo Wallet. The use of a priority payment method in each four week period allowed the informant to go about their daily lives should they encounter a situation where a particular payment method was not accepted. The data collected for each phase was done sequentially, as shown in Figure 5-2 below. To ensure the data collection phases contained activities that were as comparable as possible data was not observed in the month of December. As a seasonal holiday shopping and travel period December may have contained unusual circumstances (Reis et al., 2014) and introduced time error. Time error can exist when observations are conducted in a period that do not provide data that are typical of the total time period of interest (Saunders et al., 2019).

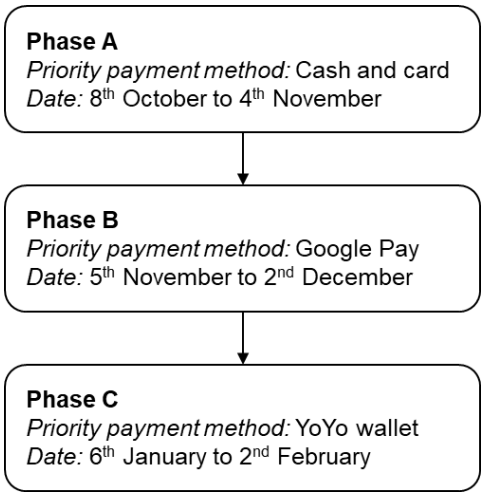


Figure 5-2: Self-observation data collection phases

5.1.3. Data Collection Procedures

This section details the data collection procedures used to collect the self-observational data in stage one. These procedures specify how the observational data was collected including when an observation occurred, the types of payment method observed, and what was recorded at each observation. The result is a set of procedures that ensure the data collected demonstrates reliability and the observational data collected focused on those activities related to the research aim. A systematic semi-structured approach was used which allowed for the qualitative data to be collected in a manner that ensured it was not detached from the social context and suited to the study of elaborate sequences of consumer behaviour (Gillham, 2008). Due to the importance of capturing the value phenomenon as soon after the payment activity as possible to minimise recall error (Elliott and Jankel-Elliott, 2003) event-contingent recording was used. Event-contingent recording prescribes that an observation is reported upon every time an event occurs that meets a predetermined definition. This contrasts with interval and signal-contingent recording (Wheeler and Reis, 1991), where pre-determined points to record the data are chosen by the researcher. The event definition for this research was:

- A payment method (cash, card, or mobile payment application) has been used in a physical environment

This definition allowed for all occurrences of a payment method to be observed in the physical service encounter. The definition also ensured that not only were the use of a payment method to purchase goods or services observed, but also observations occurred where for example a card payment method is used to withdraw cash at an ATM to make a subsequent cash purchase. In each event observation, audio and visual data was collected which provided multiple sources of evidence (Muncey, 2005). A mobile phone was used to record both observation formats after

practical considerations as previously discussed. The audio recordings used a narrative method termed a 'single question aimed at inducing narrative' (SQUIN) (Wengraf, 2001). The researcher asked themselves to '*describe the payment experience'* after every event which was intentionally vague as to allow free response. As this was the same question used in the pilot study any observer effect, such as when the informant behaviour alters from its natural state because a phenomenon is being observed, termed reactivity bias (Monahan and Fisher, 2010), was reduced through familiarity with the method A potential source of bias for which it was not possible to reduce through the pilot study was where the informant might have simply forgotten to observe an event (Rodriguez and Ryave, 2002). This form of methodological lapse could potentially bias the data through excluding certain activity types, although retrospective comparison of the number of events observed per a day in this phase (3 per a day) was comparable with those in the pilot study.

The visual data collected included both screenshots from the mobile phone when using MPP and photographs taken of marketing material at the point of payment that was visible to the researcher, see examples in Figure 5-3 and 5-4 below. These were collected at the researcher discretion so as not to disrupt the normal daily behaviour. The visual data were collected to illuminate the payment experience during the findings chapter and increase transparency of the research findings (Carson et al., 2001). Ethical consideration was taken to ensure that only the marketing material that was visible to the researcher at the time of the event occurring was captured. This meant no photos included human subjects as this would have required either their consent or amending the photos to obscure personally identifiable subjects (Wiles et al., 2008). The audio and visual image files were saved at the time of the observation on the mobile phone and each saved file name had the date and time of the observation included by default.

The file name at this time was also appended with the name of the store and payment method used to assist observation identification when each file was collated.

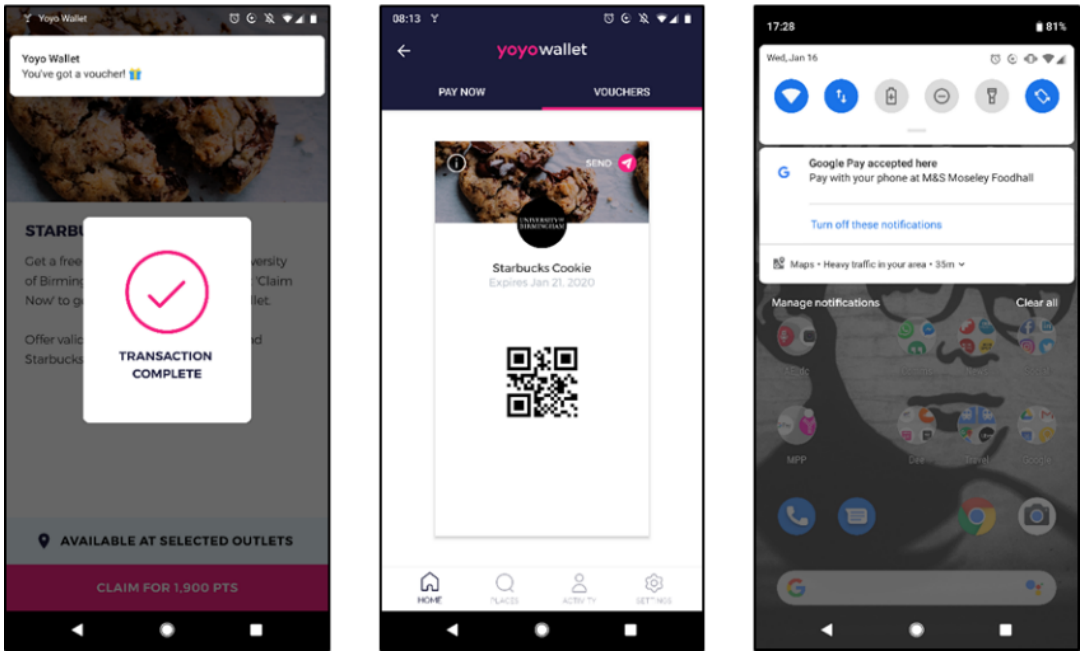


Figure 5-3: Example visual observations: Mobile phone screenshots

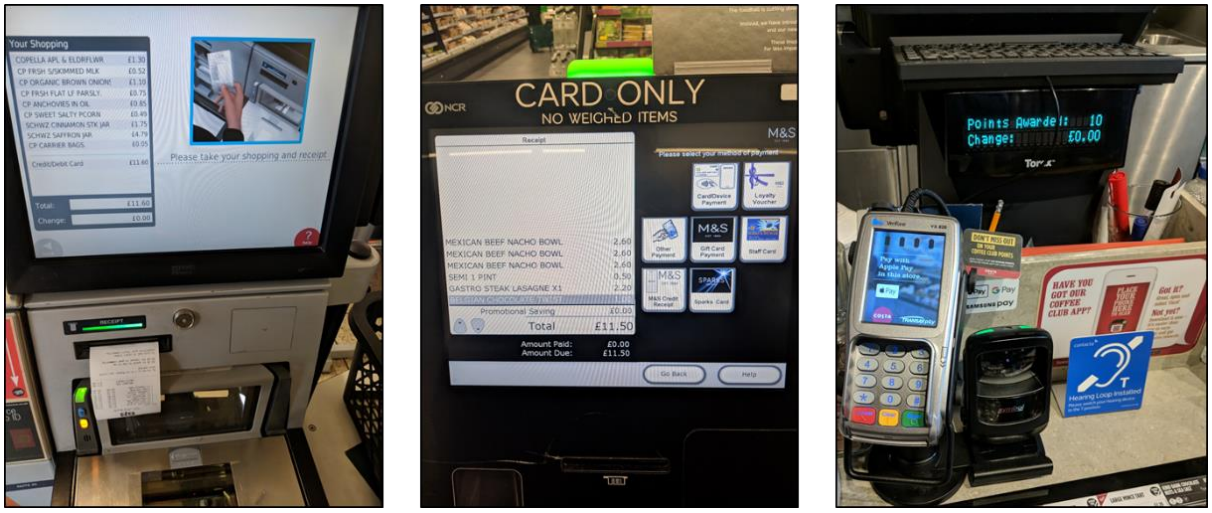


Figure 5-4: Example visual observations: Payment terminals

To ensure ethical management of the data files captured on the mobile phone the files were uploaded to the University of Birmingham research data storage facility on a regular basis which did not exceed four days from date of observation. Each file recording was named as per

a predetermined schema which ensured a unique identifier for each file and logged on an excel spreadsheet. A sample of the collated observation recording logs are shown in Appendix 5.1. For every payment event observed there is an audio recording shown by the file type *.mp3* and where visual data was also collected for a payment event these used the file types *.jpg* (photo) and *.png* (screenshot) respectively.

At the point of inputting each recording into the excel log supplementary observation labels were added, these included for each observation: (1) payment method, (2) company, and (3) retail category. The code details in the form of labels and label descriptions for these observation details are shown below in Table 5-2.

Table 5-2: Observation detail codes and labels

observation detail codes	labels	label description
(1) payment method	**trad_cash**	use of traditional cash payment method, either coins or paper notes
	trad_card	use of credit or debit card through either contactless or chip and PIN
	Google_Pay	use of Google Pay mobile phone application using payment directly from bank
	Google_Pay (points)	use of Google Pay mobile phone application using store loyalty points
	YoYo	use of YoYo mobile phone application using payment directly from bank
	YoYo (points)	use of YoYo mobile phone application using store loyalty points
(2) company	***"brand name"***	The retailers brand name as referred to by the consumer if not an Independent
	independent	An Independent retailer
(3) retail category	**food_store: "type"**	"type" may include supermarkets, coffee shops, specialist food stores
(categories devised from Office for National Statistics)	**non_food_store: "type"**	"type" may include department stores, chemist, clothing, and household goods stores
	non_store: "type"	"type" may include mail order, catalogue, travel tickets and market stores
	petrol stations	garage selling automotive fuel

The total number (*n*=200) of events observed in each phase is shown in Table 5-3 and a breakdown of the payment methods used in each phase shown in Table 5-4. Additionally, in each phase the observations occurred across a range of customer contact types. The different customer contact types included: face to face where an employee was present (technology facilitated), self-serve where no employee was present (technology generated), and where there was no point of sale technology such as a market stall (technology free), as shown in Table 5-5.

Table 5-3: Total observations by phase

Phase A: Traditional	72
Phase B: NFC: Google Pay	66
Phase C: non-NFC: YoYo wallet	62
Total	200

Table 5-4: Observations by phase and payment method

Observational phase / Payment method used	card	cash	Google Pay	Google Pay (points)	YoYo wallet	YoYo wallet (points)
Phase A: Traditional	57	15				
Phase B: NFC: Google Pay	7	8	50	1		
Phase C: non-NFC: YoYo wallet	4	8	30	1	16	3
Total	68	31	80	2	16	3

Table 5-5: Observations by phase and customer contact type

Observational phase / Customer contact type	Technology facilitated	Technology free	Technology generated (self-serve)
Phase A: Traditional	48	6	18
Phase B: NFC: Google Pay	43	4	19
Phase C: non-NFC: YoYo wallet	45	5	12
Total	136	15	49

5.1.4. Data Coding and Analysis Procedures

This section details the procedures used to transform the raw data collected from the self-observations into findings. These procedures are detailed as per the overview shown in Figure

5-5 below and at each step consideration was made to ensure no errors were made during transcription and analysis steps. Examples of such errors can include accidental alterations to the data during transcription (Poland, 1995) and overlapping codes within a theme if boundaries are not set (Braun and Clarke, 2012).

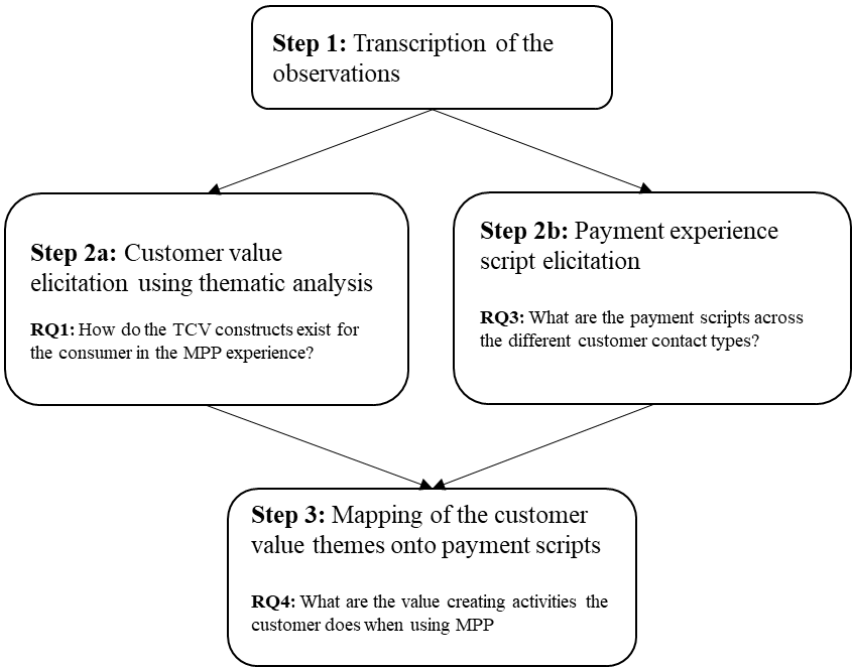


Figure 5-5: Overview of Self-observation transcription and analysis steps

Step 1: Data Transcription

As transcription involves a change in medium from spoken audio to written text issues of interpretation, accuracy, and trustworthiness can be introduced by the researcher (Kvale, 1996). Therefore, the researcher must aware that transcription, by changing the medium, introduces a degree of transformation and interpretation of the data (Gibbs, 2007). The transcription procedures used align with the research objectives and minimise potential sources of error and ethical issues where applicable to ensure the trustworthiness of the qualitative data (Poland, 1995). The self-observation audio recordings were transcribed in two passes using a personal computer audio player, in which the speed of the recordings could be adjusted, and Microsoft

Excel. The two passes were designed to minimise transcription errors, such as mistaking words for similar ones which may not make sense in the context of what is being said, or omission of words which can occur when going back and forth in the recording (ibid). A denaturalised transcription approach was used in this study as the research is not interested with the representation of speech, such as pauses or non-verbal activity, but the texts informational content (MacLean et al., 2004). An emphasis on informational content aligns with the objectives of the study and focus on the individuals' meanings and perceptions created during the payment activity rather than a dialogue between any two individuals. The first transcription pass orientated the researcher with the data through initial transcribing of the audio recordings using a back and forth and slowing down of the audio. In conjunction with transcribing the text any passages that required notation were identified. Specific notation was required for three situations, firstly in two observations individual names were mentioned which were anonymised. Secondly, where the informant repeated a question that they had been asked during the observation, a form of quoting an individual. A third situation arose in one observation where the recoding by the informant was interrupted as a conversation occurred between the informant and another individual. For these situations appropriate syntax was designed in preparation for the second pass, as shown in Table 5-6 below.

Table 5-6: Self-observation transcription syntax

Syntax	Purpose of notation	Example
"_" *(double quotation)*	Anonymise individual names	***(ob107)*** *[…] so popped in to see "employee" who runs it went to the till she knows what I […]*
'_' *(single quotation)*	Quoting an individual	***(ob006)*** *[…] and the lady asked if I 'was paying by cash or card' and there was one that only accepts card […]*
[conversation]	Conversation between informant and 3rd party individual	***(ob143)*** *[…] got round to paying and there was actually a difference between cash card and mobile [conversation] slight delay there while the beeping machine went off so […]*

The second transcription pass was designed to prepare the transcripts for analysis, and examples of the transcribed self-observations are shown in Appendix 5.2. The audio recordings were listened to at full speed and the following activities done for each observation as applicable:

- Notations amended as per the syntax designed above.
- Visual observations merged into the audio observation transcript where applicable.
- Checks for omission of words and corrections made.
- Checks for mistaken or misspelt words or phrases and corrections made.
- Checks that the 'payment type', 'retail category', and 'contact type'labels for each observation were correct

Step 2a: Thematic Analysis of Customer Value

Thematic analysis was used to understand how CV manifests in the MPP experience through the value constructs proposed by the Theory of Consumption Value (Sheth et al., 1991), and if inter-relationships exist between these constructs. Although, the origins of thematic analysis lie in psychology it has been extensively used in marketing for topics such as, understanding consumer preferences toward sustainability (Rishi et al., 2015) and decision making in social media marketing (Keegan and Rowley, 2017). As an analysis technique it offers a flexible set

of guidelines for systematically identifying, organising, and offering insight into patterns of meaning (Braun and Clarke, 2012). These patterns of meaning are termed ‘themes’ which are drawn out of the data across the data set. The technique offers a degree of flexibility in the way it can be conducted and therefore requires several choices to be made before beginning analysis.

These choices relate to the aims and objectives of the research and whether an inductive or deductive approach is most appropriate. An inductive approach to thematic analysis uses a bottom-up process to derive the codes and themes directly from the data at a latent or interpretive level (Boyatzis, 1998). In this approach the derived themes are more likely to closely match the original content of the data (Braun and Clarke, 2012). In contrast a deductive approach, termed top-down, is used when the researcher already has either concepts, topics, or ideas, which are brought to the analysis. Deductive thematic analysis has a greater constructionist orientation than an inductive approach and as such the themes are connected to the data at an objectivist semantic level (Boyatzis, 1998). Therefore, as the research questions specify the CV concepts through the TCV constructs an over-riding deductive thematic analysis approach is used in this study.

The research followed the six-step process, as shown below in Figure 5-6 but the transition between steps was not always linear, instead a back and forth process emerged particularly between step 3 (searching for themes) and step 5 (defining and naming themes).

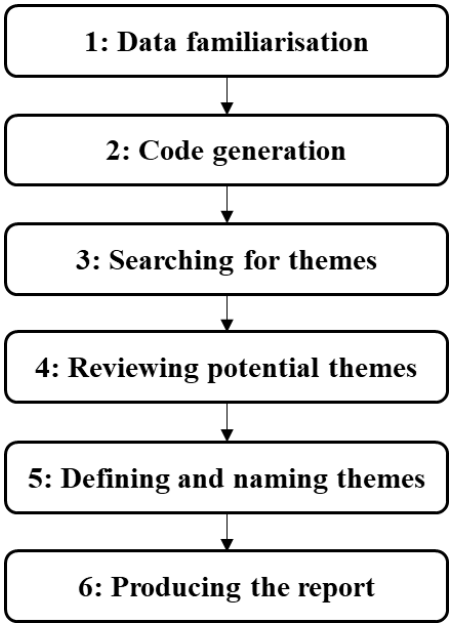


Figure 5-6: Six steps of thematic analysis (Braun and Clarke, 2012)

An initial familiarisation involved reading the transcribed data end to end in conjunction with the TCV construct theoretical definitions (Sheth et al., 1991). This enabled the researcher to develop initial notes as to how CV was evident in the data prior to generating codes. The code generation step was done line by line and where there was evidence of a TCV construct, the line was coded accordingly (FUNC, COND, EMOT). If there was evidence of a relationship between TCV constructs an additional code was added, for example [FUNC>EMOT] designated that emotional value is evident as a result of functional value. Alongside each code a memo was written which provided a note about how the observational text related to the theory driven code. After the first coding pass several questions arose which required a further review of the theory and literature. For example, the data mentioned a form of familiarity with certain situations when the informant knew that certain stores took particular payment methods, as shown in this observation:

> […] just went to one of the smaller shops near work I've been before I don't go a lot I knew they'd take card even though there a small independent place […] (ob27: Trad: Card)

In this example a conditional value code was deemed appropriate as the conditional TCV construct recognises the importance of learning that takes place from a prior experience, which is represented in the consumer as being familiar with a situation when making a choice (Sheth et al., 1991). There was also uncertainty as to how the location of the payment method on the researcher should be coded, either as functional or conditional value. Two recurring situations arose involving the location of the payment method, where it was located on the informant such as phone in hand, or where the payment method was located in terms of its container such as debit card in the wallet. After reviewing the literature, the location of the payment method was deemed to create conditional value as an: '…alternative acquires conditional value in the presence of antecedent physical […] contingencies that enhance its functional value' (Sheth et al. 1991, p.2). A further end to end coding pass was conducted to ensure consistency of the codes and amendments to the codes as required.

The following steps of thematic analysis 3 (searching for themes) to 5 (defining and naming themes) where conducted in a back and forth process rather than linear step by step. The initial searching for themes was done by filtering the data by TCV code and applying a primary and sub theme to the data to produce patterned meanings. The results were reviewed as potential themes and amendments made when themes were either too similar or overlapped. This process was a constant back and forth between the data and the emerging themes, by collapsing and clustering the themes and sub-themes, to produce coherent and meaningful patterns in the data (Braun and Clarke, 2012). The final themes were defined after reviewing the quality of each theme to ensure that it was meaningful and could not be collapsed further. For example,

originally the emotional value themes were deemed not meaningful as the use of negative and positive themes was deemed too simple and as a binary descriptor did not provide enough meaningful description. Therefore, after reviewing literature about customer emotions the emotional value themes were amended to 'situational attributed' (Tronvoll, 2011) acceptance condition and functional attribute themes. The functional value themes were also amended from the initial primary and sub-themes that came out of step 4, as shown in Appendix 5.3. The final themes are based on the sub-themes as these provided more meaningful descriptors than the original primary themes, for example the sub-themes 'audio and visual confirmation' form the 'confirmatory information' final theme. The conditional value themes were also developed from step 4 and due to the extensive number of themes the final themes were a result of the collapsed primary themes. For example, the primary themes 'familiarity with payment method' and 'familiarity with store' became the customer familiarity final theme, as shown in Appendix 5.4.

Step 2b: Payment Experience Script Elicitation

This section details the elicitation of the customer payment scripts from the self-observation data collected. The customer scripts identify the activity stereotypes (Bower et al., 1979) that occur when paying in person using traditional and mobile payment methods across differing customer contact types (Froehle and Roth, 2004). The scripts detail the activities that a customer does when using a payment method to pay for a product or service in person, these activities include the props they use such as a physical wallet or mobile phone, and the other actors they interact with. For example, the customer and store employee are human actors who interact during activities within the payment script. The typical activities in the script differ in action type between 'core', those actions which must occur for the successful completion of the script

and ‘peripheral’ actions (Stoltman et al., 1989). The latter do not have to occur for the script to be completed but are frequently occurring actions. For example, when paying with cash the customer must hand this over to the employee, but they might not always receive change in return if they have given the exact amount. When expected variations in the scripts were observed outside the typical core and peripheral activities these are represented as ‘branches’ which represent alternatives to normal procedures (Abelson, 1981). For example, the customer may be given a receipt without asking or being asked if they want a receipt which they can then choose to accept or decline. These activities, also termed script paths (ibid) can be anticipated in advance by both customer and provider but some activities can also be unexpected sources of variation. Unexpected variations in the script which may interfere with its execution often have corrective actions which do not prevent completion of the script entirely. These unexpected variations exist in two forms, firstly ‘obstacles’ existed where a precondition for an event is removed. For example, when an initial scan of the mobile phone over the payment terminal is not successful because the customer needs to enter additional security information. Secondly, if an event is not completed as expected this is described as an ‘error’, for example if a customer receives the incorrect change after paying with cash this error is caused by the employee. Additionally, each script was broken down into three sub-scenes, firstly the pre-payment scene from the point of the customer entering the retail environment to approaching the point of sale terminal. Secondly, the payment scene was from the point of approaching the point to sale terminal to leaving the point of sale terminal area. Lastly, the post-payment scene was from the point of leaving the point of sale terminal to leaving the retail environment, such as when having received a receipt and exiting the store.

Six customer payment scripts as shown in Figure 5-7 were elicited from the self-observations based on the type of payment method used and the customer contact type (Froehle and Roth, 2004) as discussed in the literature review. Where a script was not elicited this was either due to the payment method not being accepted, such as card or mobile payment methods not being accepted in technology free situations, or a payment method in a particular customer contact type not being used.

Customer contact type / **Payment method**	**Face-to-face** Technology free	**Face-to-face** Technology facilitated	**Face-to-screen** Technology generated
Traditional cash	**script 1**	*n/a*	*n/a*
Traditional card	*n/a*	**script 2a**	**script 3a**
MPP Google Pay	*n/a*	**script 2b**	**script 3b**
MPP YoYo Wallet	*n/a*	**script 2c**	*n/a*

Figure 5-7: Overview of the scripts by payment method and contact type

The resulting payment experience script 2c when the mobile payment method YoYo Wallet was used in a technology facilitated situation is shown below, firstly at the core activities level as a flowchart in Figure 5-8 and secondly the detailed script in Figure 5-9 below, the other detailed scripts are shown in Appendix 5.5.

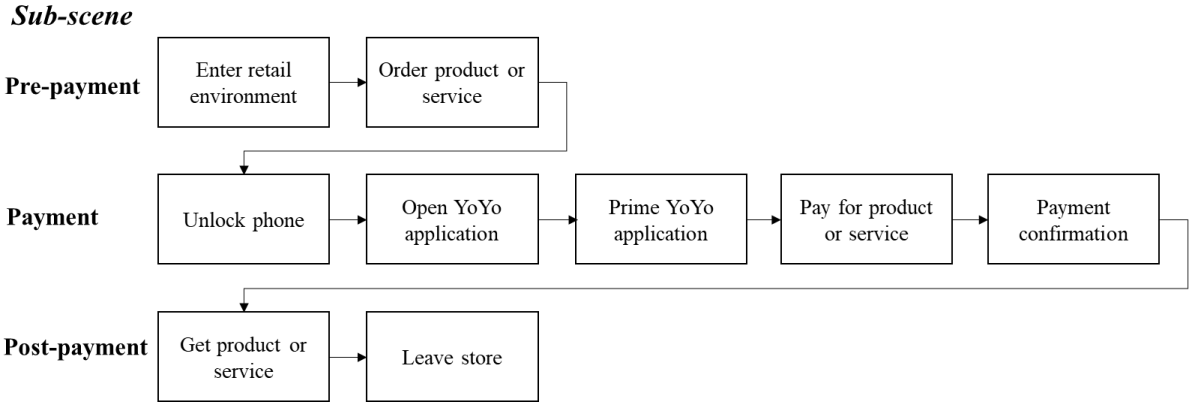


Figure 5-8: Script 2c core activities by sub-scene flowchart

Script 2c: Face-to-face: Technology Facilitated Customer Contact
Payment method: MPP YoYo Wallet
Scenario examples: coffee shop

sub-scene	action type	activity	*actor* | *prop* > *interaction*
	CORE	**Enter retail environment**	**customer**
PRE-PAYMENT	PERI.	Queue: check points on YoYo app.	customer | mobile
	PERI.	Confirmation of YoYo accepted: person in queue or marketing information	customer
	CORE	**Order product or service**	**customer>employee**
	CORE	**Unlock phone**	**customer | mobile**
	PERI.	Asked how like to pay	employee>customer
	PERI.	Confirm use voucher to pay	customer>employee
	CORE	**Open YoYo application**	**customer | mobile**
	CORE	**Prime YoYo application**	**customer | mobile**
	PERI.	Check amount to pay	customer | till
	Error	Charged incorrect amount	customer>employee
PAYMENT	*Branch*	*Loyalty voucher QR code*	*customer | mobile*
	Branch	*Payment QR code*	*customer | mobile*
	CORE	**Pay for product service** (scan QR code)	**customer | mobile |till**
	Error	*scanned wrong payment terminal*	*customer | mobile | till*
	Error	*employee amend till to pay with YoYo*	*employee | till*
	Error	*payment not confirmed try to scan again*	*customer | mobile |till*
	CORE	**Payment confirmation**	**customer | employee (verbal) / till (beep) / mobile (tick& beep)**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*employee>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*employee>customer*
	CORE	**get product or service**	**customer**
POST PAYMENT	**CORE**	**Leave store**	**customer**
	PERI.	Check receipt on phone	customer | mobile
	PERI.	Check loyalty in YoYo application	customer | mobile

Figure 5-9: Technology facilitated contact type: Script 2c_YoYo Wallet

Step 3: Mapping of the Customer Value Themes onto Payment Scripts

The final stage of the self-observation analysis mapped the CV themes in step 2a onto the payment experience scripts in step 2b. The mapping of the CV themes to the customer activity in the payment experience was a form of complementary analysis (Bazeley, 2018) which enabled further development of how the customer activities when using MPP create CV. This included determining if the CV creating activities when using an MPP compared to traditional payment methods were value increasing or value decreasing through for example the result of an obstacle or error in the payment script. Where applicable the comparison of the same customer contact type script for a traditional payment method and mobile proximity payment method enabled the filtering out of those value creating activities which were not specific to MPP. For example, when using self-serve tills several obstacles were observed which occurred in both Script 3a and 3b but these were not specific to the payment method being used, such as when buying alcohol. When buying alcohol at a self-serve till the informant had to wait for an employee to verify their age a form of obstacle in the script, and this occurred when both using traditional card and MPP. Conversely, if an activity in a script could be done when using traditional card payments but not when using an MPP this was also identified, such as when getting cashback using a traditional card payment in a technology facilitated customer contact type. Additionally, it was determined if each individual TCV construct were the result of an interaction in the service encounter or a previous service encounter. For example, functional value in the form of security for MPP existed in the service encounter when the researcher unlocked the mobile phone prior to paying. In contrast, certain TCV constructs were not a result of a direct interaction in the service encounter but brought to the service encounter from the informants' previous use of a payment method. For example, when the informant entered a store and knew that it accepted MPP conditional value in the form of familiarity was brought

into the service encounter from previous experiences. An example of the MPP CV themes mapped onto the technology generated payment activity scripts when using traditional card (3a) and MPP Google Pay (3b) is shown in Appendix 5.6.

5.2. Phase 2: Semi-Structured Interviews

The second phase of the qualitative stage used interviews to further refine the results of the analysis conducted on the self-observational data collected in phase one. The use of interviews as a form of method triangulation allowed the initial value creating activities and CV themes when the customer uses MPP to be refined through a broader sample of the population. Interviews are commonly used in research which studies the customers' experience in the service encounter (Hilton et al., 2013) as this method can focus on the participants' expression of their own experiences (Brinkmann and Kvale, 2015). A range of qualitative interview techniques exist from highly structured, which are used to a greater extent where the research purpose is explanatory, to unstructured when the research purpose is exploratory (Saunders et al., 2019). This phase uses semi-structured interviews as this allowed both the refinement of the existing results from phase one but also the uncovering of new activities and themes where applicable. The following sections present the process of this qualitative interview phase including, outlining, and justifying the sampling strategy, data collection procedures, and data analysis.

5.2.1. Sampling Strategy

Despite qualitative research using relatively small sample sizes compared to quantitative studies, a sampling strategy must be determined to identify the most appropriate criteria through

which to identify and approach participants (Miles et al., 2014). To identify interview participants which would have knowledge of using MPP in their daily lives a combination of purposive and snowball sampling was used. The use of snowball sampling is appropriate as per this study as it is difficult to identify those consumers' who use MPP and it ensured the participants had the specified characteristics as identified by predetermined sample criteria (Saunders et al., 2019). Initially, potential participants from within the researchers' professional network were approached and then a snowball technique used to ask if they could refer other suitable participants based upon purposeful sample criteria. Purposeful sampling as a non-probability sampling technique is frequently used in qualitative research when the research focus is to study a group in great depth (Patton, 2002). Thus, the sample criteria typically comprise identifying and selecting participants that are particularly knowledgeable and/or experienced with the phenomenon being studied (Creswell and Plano Clark, 2018). A range of purposeful sampling techniques exist which all emphasise the need of qualitative research to select information rich participants, and this phase uses homogenous purposeful sampling criteria. The use of a homogenous purposeful sample ensured that the interview participants had similar in-depth knowledge and experience with using MPP in their daily lives. The sample criteria for selecting suitable interview participants were:

1) Used an NFC MPP (e.g. Apple Pay, Google Pay, or Samsung Pay) at least once a week
2) Lived and/or worked in Birmingham

These sample criteria firstly ensured that the interview participants all used commonly accepted NFC MPP as this form of MPP was widely accepted in the first phase. Secondly, the criteria specified a frequency of using MPP of at least once a week. This MPP use frequency ensured that the participants all used MPP in similar situations such as supermarkets and coffee shops

as identified in the initial self-observation phase. Thirdly, the criteria specified that the participants lived and/or worked in Birmingham in the UK to ensure a geographical consistency between the two qualitative phases. Birmingham was chosen not only because of the researchers' familiarity with the location and practical benefits but also as it is the second largest region in the UK by population (ONS, 2019a). This meant the location provided consumers with ample opportunities to use MPP in their daily lives. However, it is recognised that Birmingham does not have as long a history of consumers using contactless payment methods for its public transport network as in London where the Oyster card has been in use for nearly two decades (TFL, 2013).

To determine an appropriate interview sample size guidelines were used both prior to conducting the interviews and during the data collection process. Previous research suggests that where a sample is drawn from a homogenous group of participants a minimum of 12 in-depth interviews should be sufficient (Guest et al., 2006). However, this may range depending on the nature of the study to upwards of a sample size of 25 participants (Saunders et al., 2019). Therefore, after 16 interviews had been conducted the data collected from the interviews were assessed to determine if the new data was repeating the CV themes from the first self-observation phase and data saturation had been reached. Data saturation as a form of informational redundancy (Sandelowski, 2008) is the point at which the data collected thereafter will not offer anything new and is redundant of the data already collected (Grady, 1998). As is common in a deductive approach which relies on applying pre-identified codes data saturation refers to the point at which the predetermined codes are adequately represented in the data (Saunders et al., 2018). As shown below in Figure 5-10 after 16 interviews all the

CV themes were evident in at least three interviews, and it was determined that data saturation had been reached.

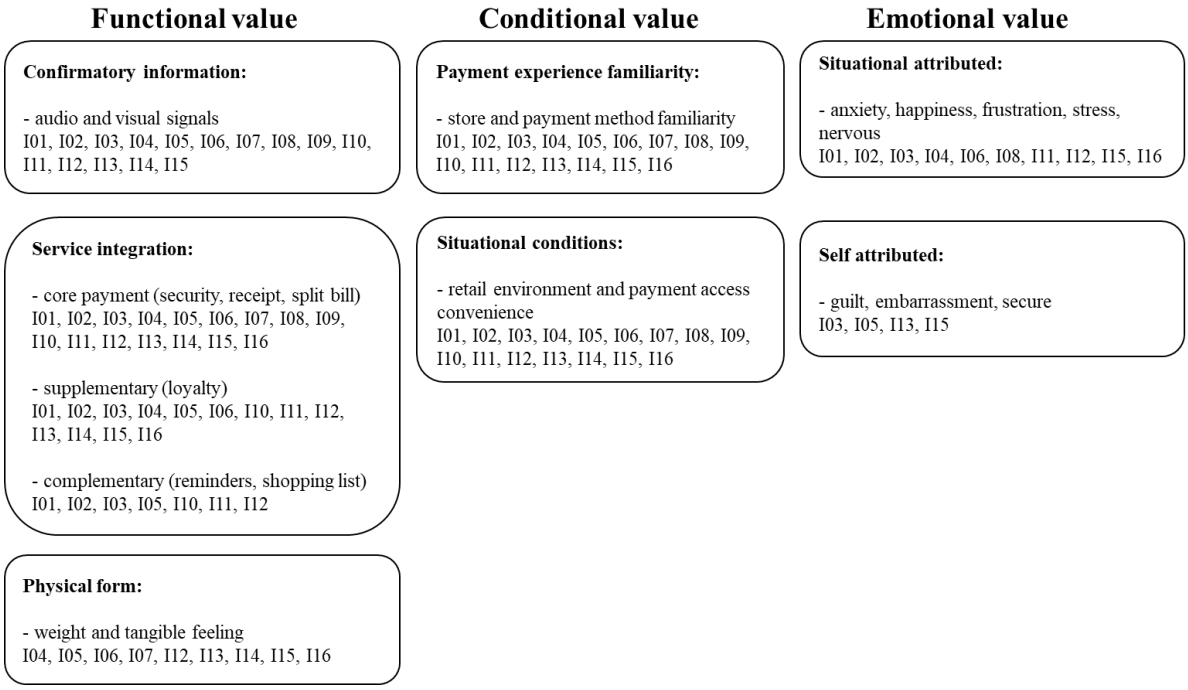


Figure 5-10: Illustration of interview data saturation per TCV construct and customer value theme

As an additional two interviews had been scheduled these were still conducted which resulted in a total of 18 interviews. The profile of the interview participants who used an NFC MPP at least once a week and live and/or work in Birmingham, UK is shown below in Table 5-7. The participants ranged in age from 21 to 51 years old, included 7 females and 11 males, and had diverse occupations. All the participants' used either Apple Pay, Google Pay, or Samsung Pay NFC MPP, and several participants also used a QR MPP, such as YoYo Wallet. All the participants used their NFC MPP at least weekly with 13 participants using the mobile payment technology daily and the participants had been using an NFC MPP for varied lengths of time, ranging from less than six months to more than two years.

Table 5-7: Profile of interview participants

Interview number	Age	Gender	Occupation	Approximate length of time using MPP	MPP applications used	Frequency of MPP use
I01	30	m	Oil services industry	1 to 2 years	Samsung Pay	several times a week
I02	24	m	Post graduate researcher	more than 2 years	Google Pay & YoYo Wallet	daily
I03	35	m	Head of operations	more than 2 years	Apple Pay	daily
I04	35	f	Post graduate researcher	less than one year	Apple Pay & YoYo Wallet	daily
I05	37	m	Director of digital agency	more than 2 years	Apple Pay & Starbucks	daily
I06	33	f	Hospitality supervisor	more than 2 years	Google Pay	daily
I07	34	f	Researcher	more than 2 years	Apple Pay	daily
I08	41	m	Freelance digital contractor	more than 2 years	Apple Pay	daily
I09	43	m	Paramedic	less than one year	Google Pay	daily
I10	26	m	Research support	1 to 2 years	Apple Pay	daily
I11	26	f	Career's advisor	more than 2 years	Apple Pay	daily
I12	32	m	Managing director	more than 2 years	Apple Pay	several times a week
I13	29	m	Software engineer	more than 2 years	Apple Pay	daily
I14	21	m	Tennis coach	1 to 2 years	Google Pay	several times a week
I15	51	f	University lecturer	more than 2 years	Google Pay	several times a week
I16	24	f	Academic support administrator	more than 2 years	Apple Pay & YoYo Wallet	daily
I17	42	m	Freelance digital contractor	more than 2 years	Apple Pay	several times a week
I18	39	f	Bike mechanic	more than 2 years	Google Pay	daily

5.2.2. Data Collection Procedures

The interview collection procedures described below were conducted after an initial piloting on three convenient participants. These pilot interviews ensured that any practical recording issues were minimised, the questions were understandable, and the researcher had a familiarity with

the process prior to conducting the interviews. The interview procedures were designed to provide a degree of standardisation in the process to increase the reliability of the results and reduce both interviewer and interviewee bias (Silverman, 2009). After the participants had been approached and their suitability as per the sample criteria confirmed, a suitable time and place that was convenient for the participant was scheduled. The interviews were conducted face to face in locations that the participant was familiar with which ensured they were comfortable (Saunders et al., 2019) and often they could relate their MPP use to the location of the interview. Although, it is recognised that online interviewing can be more convenient for participants and allows for more efficient data collection and transcription (Gruber et al., 2008). The interviews began with an initial explanation of the format of the interview and background of the research using an interview information sheet after which the participant was asked to sign a consent form, as shown in Appendix 5.7 and 5.8. At this point the audio recorder was switched on and the interview began as per the interview guide, as shown in Appendix 5.9.

The interview guide was designed with three main sections and the semi-structured format allowed the researcher to probe and discuss in further detail any areas deemed relevant. The first section covered background information about the participant including socio-demographic characteristics and their use of MPP in their daily life. The second and third sections focused on the value creating activities the participant did when using MPP. The second section referred to a technology generated (self-serve) situation and the third section referred to a technology facilitated (employee present) situation. In each of these sections the participant was asked to recall a recent situation in which they used MPP and detail the activities they did from entering through to leaving the retail environment. In each sub-scene (pre-payment, payment, and post-payment) as per the elicited scripts from the self-observation phase

probing questions were used to ensure the themes of the study were fully explored. The audio recordings ranged from between 28 to 61 minutes in length and were stored on the University of Birmingham secure servers within two days of the interview occurring. The interviews were transcribed using the same transcription procedures in the self-observation phase and two example transcripts are shown in Appendix 5.10 with all the interview transcripts available upon request.

5.2.3. Data Analysis Procedures

The interview data from phase B was used to refine the customer value themes and scripts elicited from phase A. This followed similar procedures to phase A in that firstly the customer value themes were reviewed and amended. This included the addition of new themes, such as a functional value mobile phone enabling attribute's theme. For example, MPP decreased their value compared to traditional payment methods when the phone had low battery levels as cash or card do not require any such enabling technology to enable them to be used. This functional value theme was deemed to exist outside the service encounter in the customers' sphere as they are responsible for a working mobile phone which can be used in the service encounter. The physical form functional value theme was removed as the interviewees did not consider for example that they missed the tactile nature of physical cash when using MPP. Additionally, further detail was provided about the use of receipts and that the MPP integrated receipt does not always act as a direct replacement for the physical receipt. This was noticeable when interviewees purchased a product which was of a reasonably high value and therefore it may need to be returned in the future. The scripts were refined, and changes included for example the addition of activities where the interviewee used the mobile phone in the pre-payment scene, such as for shopping lists. A greater range of loyalty schemes were also used by the

interviewees, including other mobile solutions other than MPP and/or physical cards. The refined CV themes were again mapped to the refined scripts and analysed to determine the value creating activities. These results provided the basis for the qualitative findings discussed hereafter in Chapter 6.

5.3. Ethical Considerations

Researchers have a responsibly to act ethically at all stages of the research process from ensuring participants are not deceived during data collection through to the accurate and transparent reporting of results by the researcher (Saunders et al., 2019). This section describes the ethical considerations that were undertaken in stage one which are particularly relevant to qualitative research, including permission and consent, confidentiality and anonymity, and data storage and transfer. At the research design stage prior to any data being collected the research was reviewed by and permission obtained from the University of Birmingham's (UoB) Social Sciences ethical review committee. This approval process required the researcher to become familiar with the UoB 'Code of Practice for Research 2017-2018' which provided advice about a broad range of ethical considerations. For example, that any data collected must be stored securely to prevent accidental loss and unlawful or unauthorised processing of personal data. Although, the nature of this research was not deemed particularly sensitive, the research was conducted in a manner which did not deceive the participants. For example, in the interview phase participants were fully informed about the research topic prior to being asked to sign a consent form and no data was captured before the interviewee recording begin as per marketing research ethical guidelines (ESOMAR, 2017).

In both data collection phases of this stage, consideration was made for how to collect, transfer, and store the data files. These data handling procedures minimised potential loss and/or access of the data by other parties aside from the researcher to maintain informant confidentiality. The data were collected on password protected devices and subsequently transferred onto secure servers at the UoB. To minimise any potential data loss the data were transferred within four days of data collection in phase A and two days in phase B. The universities secure servers are located within the European Union (EU) as per General Data Protection Regulations 2018 (GDPR) and backed up on a regular basis (BEAR, 2018). Additional steps were taken in phase B to ensure the data was kept confidential, firstly by not storing the code linking the interview data to the individuals' background information in the same file. Secondly, the interview participants' anonymity was maintained throughout the analysis process by not referring to them by name but by interview code. In both stages the audio to text transcription process included syntax for anonymising any personally identifiable information to minimise potential for deductive disclosure (Tolich, 2004), such as names of store employees or family members. This resulted in a clean dataset from which individual participants could not be identified (Kaiser, 2009) but still retained its original meaning so as not to: '…compromise the integrity and quality of the data' (Parry and Mauthner, 2004, p.144).

5.4. Methodological Limitations

This section details qualitative methodological limitations of the data collection and analysis procedures used in stage one. Firstly, due to the private and individual nature of using payment methods and that customers pay for products or services multiple times a day it was not possible to sample the entire population. Therefore, as is common in qualitative research purposive sampling methods were used which aligned with the studies need to explore the phenomenon

in-depth. A purposive sampling approach can inherently introduce selection bias and error (Saunders et al., 2019). The research design of stage one through using two qualitative methods with the interviews acting as method triangulation aimed to reduce potential bias and increase validity of the study (Denzin, 2012). However, it is recognised that despite the homogenous purposive sampling procedures used which allowed MPP users to be researched in-depth, bias may exist from two factors, location and the supermarkets used. The participants were from Birmingham (UK), which as its second largest city provides customers ample opportunities to use MPP in their daily lives. However, it does not have a long history of accepting contactless payment methods on public transport, such as London (UK). Additionally, differences were found between the POS terminals across retail stores, most evident was when consumers used supermarket self-serve tills. Despite, the participants using a range of different supermarket self-serve tills it was not possible to ensure all the variations of self-serve POS terminals were included. Therefore, it is acknowledged that selection bias could be deemed to exist in the qualitative research, but conversely practical trade-offs are an inherent part of research using non-probability purposive sampling techniques (Patton, 2002).

Secondly, the qualitative data from stage one was analysed manually rather than using Computer Aided Qualitative Data Analysis Software (CAQDAS), such as NVivo. The use of a CAQDAS does not reduce the need to carefully prepare the qualitative data but can assist the researcher during data analysis when condensing, displaying, and drawing conclusions (Miles et al., 2014). The use of manual coding in this study did allow a closeness between the researcher and the data to be maintained throughout the analysis process, whereby the researcher had full knowledge of the data. However, it is recognised that it was inefficient (Saunders et al., 2019) when writing up the analysis and retrieving suitable transcribed excerpts.

CHAPTER 6 - STAGE 1: QUALITATIVE RESEARCH FINDINGS

This chapter details the results of the analysis conducted on the qualitative data collected in stage one. The analysis identifies the value creating activities the customer does when using MPP and the resulting type of customer value (CV) these create as per the Theory of Consumption Value (TCV) (Sheth et al., 1991). The results describe how MPP create CV versus traditional payment methods (e.g., cash and bank/debit card), including value decreasing and value increasing activities. The analysis also provides evidence where applicable of the inter-relationships between the TCV constructs and if they exist in the joint or customer sphere (Grönroos and Voima, 2013). The value created in the joint sphere where the customer and focal provider (e.g., store employee and till terminal) interact is termed interaction value (Gronroos, 2017). In contrast, CV that is created outside of the interaction in the customers sphere is termed independent value (ibid).

The results of the analysis reveal the existence of three out of the five TCV constructs, that of functional, conditional, and emotional value but not epistemic value (e.g., novelty or curiosity) or social value. This aligns with the original TCV theory that states consumer choice to use a product or service is a function of multiple consumption values and that a consumers' decision may be a result of one or more of the value constructs (Sheth et al., 1991). An overview of the results from stage one is shown below in Figure 6-1.

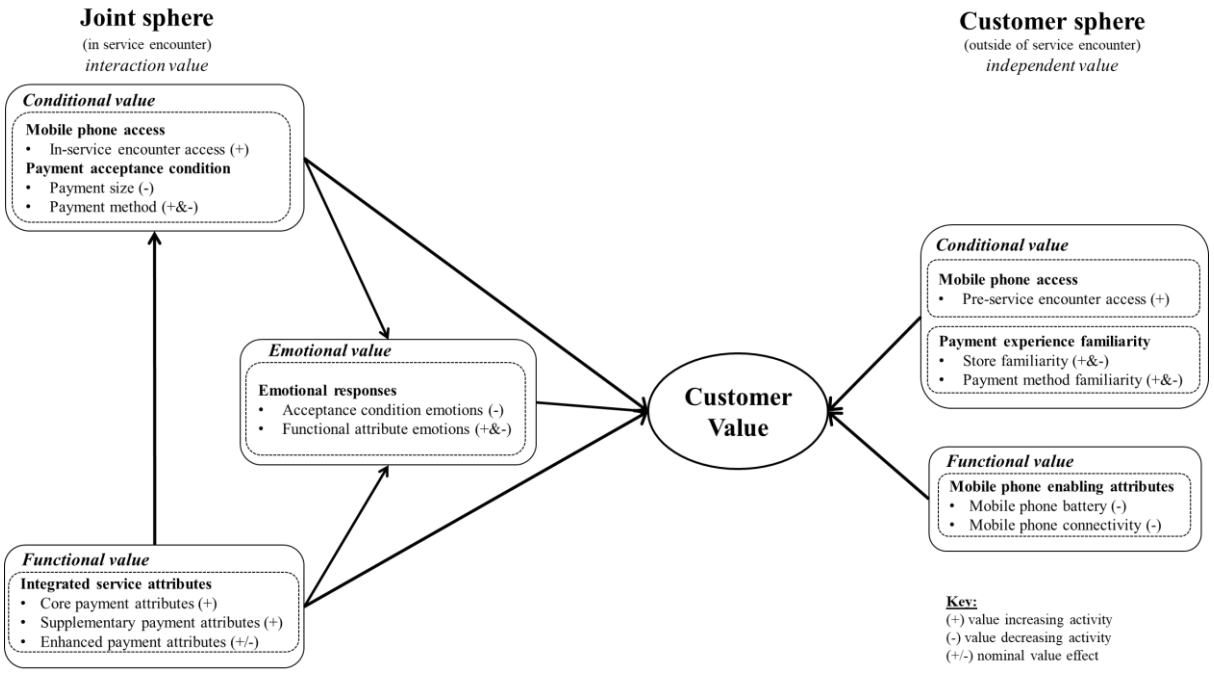


Figure 6-1: Overview of customer value construct themes and activities results

This chapter discusses each of the three value themes (functional, conditional, and emotional) in detail and is structured as per Figure 6-2 below:

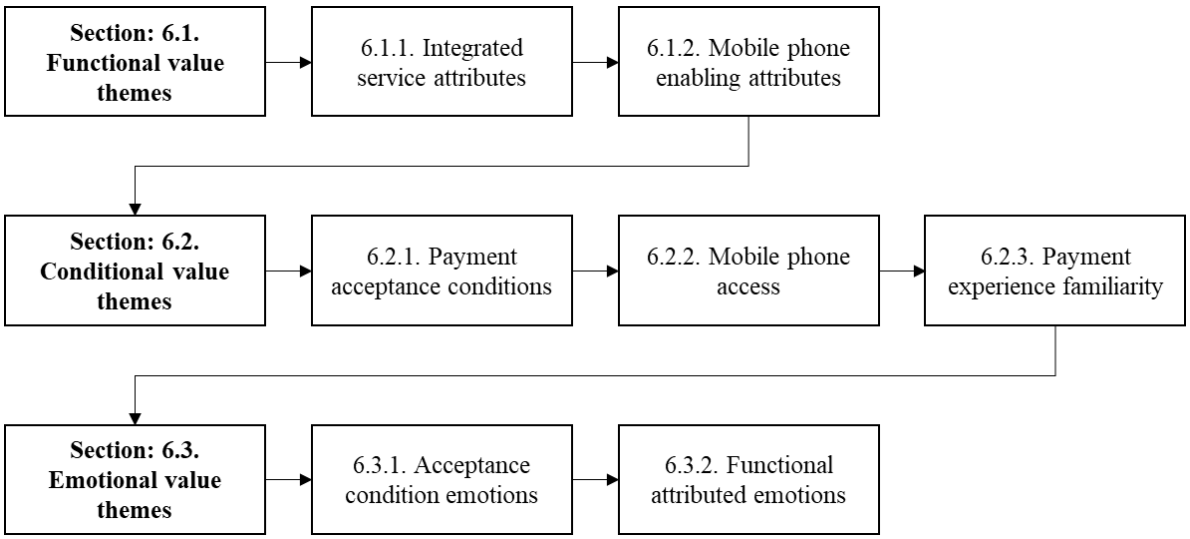


Figure 6-2: Chapter 6 structure overview

6.1. Functional Value Themes

MPP acquire functional value for the consumer through their ability to provide greater utilitarian attributes compared to traditional payment methods. These functional attributes can exist beyond the core act of paying and extend the boundaries of what is traditionally considered the payment experience. It was found that MPP functional attributes exist firstly in the joint sphere as a range of integrated services, which create interaction value and have a positive or nominal in their current format effect on the functional value created. Secondly, MPP functional attributes exist in the customer sphere as enabling attributes, which can have a negative effect on the functional value created. The functional value attributes identified based on the themes of integrated service attributes in the joint sphere and mobile phone enabling attributes in the customer sphere are discussed hereafter in Sections 6.1.1 and 6.1.2.

6.1.1. Integrated Service Attributes

MPP have a range of functional attributes that are integrated into the payment service. These integrated attributes offer the consumer the capability to do not only core payment activities but also supplementary services. A supplementary service is not essential to the act of paying but can increase the value of a service offering through the practice of bundling different services together (Bouwman et al., 2007), such as a store loyalty scheme. Additionally, MPP enhanced service attributes can reinforce the functionality of the core and supplementary payment services, such as a payment accepted reminder. It was found that these integrated service attributes vary both in terms of the degree of integration between different MPP applications and the degree to which customers choose to use them. They can also be provided by other mobile applications, such as 3rd party or store specific mobile applications, which gives the

customer alternative choices to certain MPP functionality. These functional attributes can exist in each of the payment script sub-scenes from when the consumer is using MPP in the queue in the pre-payment sub-scene, to paying at the till, and subsequently when leaving the store in the post-payment sub-scene. The core, supplementary, and enhanced MPP integrated service attributes are shown below in Figure 6-3 and discussed hereafter.

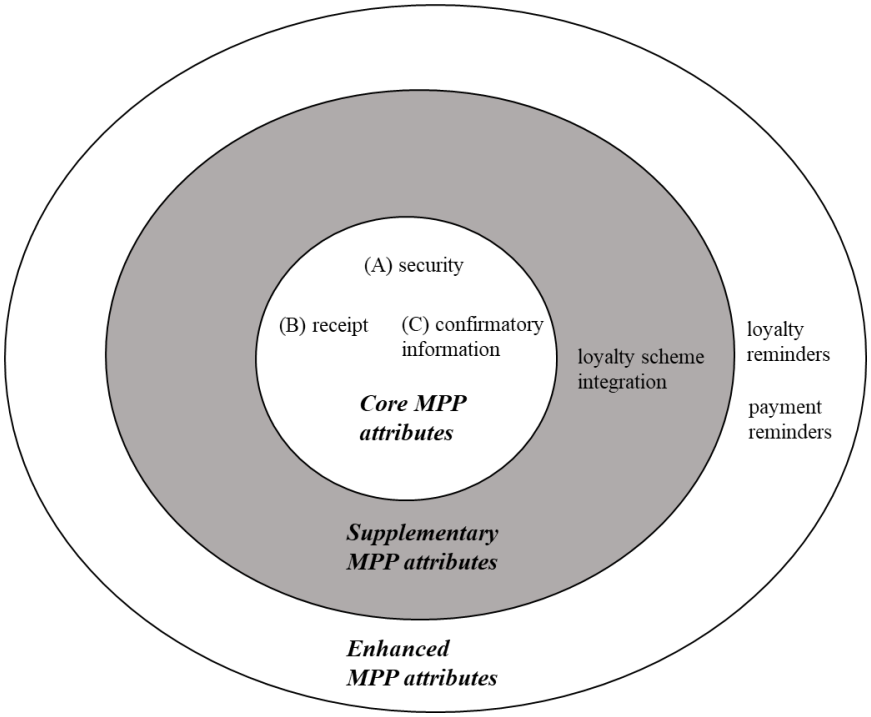


Figure 6-3: MPP integrated service functional attributes (Author's own)

6.1.1.1.Core Payment Attributes

The MPP integrated service attributes that are core to the act of paying allow the consumer to complete a payment and provide greater functional utility compared to traditional payment methods. The three core payment attributes which are essential to making a payment using MPP are security, receipt, and confirmatory functional attributes.

(A) Security

To perform a mobile payment the consumer unlocks the secure mobile phone in the payment script either when at the store till or prior to if queuing, through either fingerprint or face identification functionality depending on the mobile phone make or model. This security functionality built into MPP creates greater utilitarian value than traditional cash and card payment methods. When a consumer pays with cash or contactless card under the maximum payment limit there is no additional security functionality inherently built into the payment method. Despite the apparent increased security of MPP some customers will take additional security precautions when using both MPP and traditional payment methods which are further discussed in detail later in this section.

The interaction between consumer and mobile phone when using the fingerprint or face identification functionality unlocks the mobile phone prior to making a payment. This unlocking activity is familiar behaviour as it is required when accessing the phone for other mobile services. In some situations, the unlocking activity may occur just before making a payment at a till. Alternatively, if the consumer has been in a queue, they may already have unlocked their mobile phone to use other mobile services, such as checking messages. Due to the familiarity and regularity with unlocking the mobile phone this activity is predominantly performed without an issue. If issues are encountered, they are relatively easily resolved by the consumer without seeking additional help from other actors in the service encounter. As shown by this interviewee if the primary method of fingerprint or face identification fails, he may alternatively use his phone passcode to unlock the phone:

> […] with the iPhone X you just double tap like this and then face recognition gets it ready to pay. […] if it has not been read or for whatever reason I've looked away it might not have unlocked with my face, and it will ask here to enter passcode, and you look at it long enough and you enter its passcode which is a minor hindrance. (Int_05m)

The security functionality inherent in the mobile phone prior to making a payment gives the consumer a feeling of security compared to contactless card payments under £30. The feeling of security stems from the customer scanning their finger or face acting as a form of permission for a payment to be taken from the mobile phone as described by this interviewee:

> It is like double security because if you just use the card how many money they put on the machine it can deduct directly, but this one *{Apple Pay}* they still need my permission to deduct the money out […] I don't want people taking my money without my permission. (Int_04f)

In addition to the security on the mobile phone if the consumer uses a smart watch (e.g., Apple Watch) this provides additional security functionality through recognising their heartbeat. As described below because his Apple Watch is worn throughout the day it is permanently unlocked through heartbeat recognition:

> […] once it is on your wrist because of your heartbeat you don't have to do a facial recognition. If I double tap it, it will instantly have my card on and then that is the authorisation. It knows to keep it unlocked […] (Int_13m)

The mobile phone itself also has additional security through its ability to be backed-up to the cloud which creates a preference compared to traditional payment methods located in a physical wallet. As described by this interviewee because the mobile phone is backed-up he considers it to be more secure than traditional payment methods:

> For everyday I'm scared of pickpocketing and losing my wallet it's just a fear factor thing where I know my phone is backed up and secure enough, it's not going to be hacked as such where I believe my wallet could be truly hacked up there is no security in it. (Int_08m)

Despite the inherent security functionality built into MPP the consumer may also take additional security precautions in the service encounter. The use of MPP allows their physical wallet (or purse) to be stored in a secure place on their person. As described by this interviewee the use of MPP means she does not have to access her purse frequently and it is stored in a backpack:

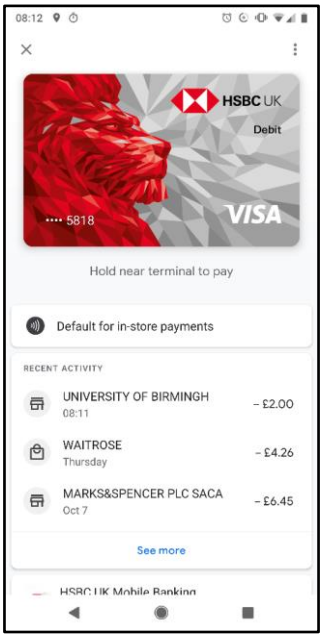
> I try not to take my purse out because it contain not only the cash that I say before but it also has my ID card the driving license or the personal things so I keep it quite in the deepest part of the backpack. (Int_04f)

Despite MPP providing additional security functionality compared to traditional payment methods consumers may also take additional security precautions. Examples of these include keeping the MPP application in a separate secure application folder on their mobile phone and having a specific bank account for all digital payments including MPP. Thus, if fraudulent activity were to occur the amount of money that could be taken would be minimised.

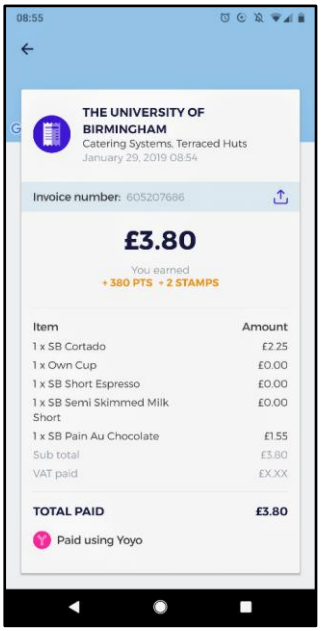
(B) Receipt

MPP provide a receipt notification which informs the consumer when a transaction has been made and allows them to view recent transaction history. This functionality details the monetary amount of the purchase paid for and additional information, such as store and/or location. The MPP can eliminate the need for a paper receipt as the payment information is integrated in the mobile payment application. Although, the degree of detail shown in the MPP receipt functionality varies between the mobile payment applications observed. In the MPP Google Pay a list of recent transactions acts as a receipt but this only exists at a total payment amount and does not provide itemised purchase information. The Google Pay receipt functionality shows the total amount of the purchase with limited additional information, including only the date and store purchased in, as shown in Figure 6-4 Visual observation 1 below. In contrast, the

MPP YoYo Wallet not only provides an overview of recent purchases but also an itemised receipt for each individual purchase. A concise overview details the purchase amount and location of where the purchase occurred. Additionally, an itemised receipt can also be accessed which details all individual items purchased within the total amount paid, as shown in Figure 6-4 Visual observation 2 below.



Visual observation 1: Receipt example in Google Pay (ob001s)



Visual observation 2: Detailed receipt example in YoYo Wallet (ob038s)

Figure 6-4: Receipt examples in Google Pay and YoYo Wallet

Additional to the MPP receipt notification, some consumers may also receive a similar notification from other sources, such as their bank, but this will depend on how the customer has set-up notifications on their phone. For everyday purchases, the level of payment detail provided by the MPP receipt is usually sufficient. Therefore, consumers often choose not to receive a physical paper receipt at the point of purchase. This decision is based on a range of factors, such as: the purchase being of a small monetary value, the type of item/s being purchased, or environmental reasons. The situations when the consumer chooses to take a paper

receipt rather than rely on the MPP receipt functionality includes when purchasing an item which might need to be returned, buying a coffee that has a free refill, a purchase which needs to be expensed, or concern about being stopped by store security. For example, when carrying items out of a supermarket that had not been placed in a bag, a paper receipt is placed in view of the store security guard by this interviewee:

> […] it might sound silly but I will visually put it on the products I am taking as I am trying to use less plastic bags and have it on view, because you always think the security guard is going to go, it's not in a bag so you must of nicked it. (Int_17m)

Although a paper receipt is often taken for high value purchases, such as electronic equipment, it is unclear if a store would accept an MPP receipt as proof of purchase. The receipt detail in Google Pay does state *'Google Pay provides these transaction details to help you keep track of your purchases. This doesn't replace your receipt from the store'*. One interviewee who had used the Apple Pay receipt to return purchases had differing experiences depending on the store employee. This suggests that it is possible to return purchases using the MPP receipt, but it may be a more complicated process than using a paper receipt, as described by this interviewee:

> […] do you know if you pay by Apple Pay it masks *{the card number}* uses a different number, so if you return something to the store and they say can you show me the card you paid on it won't match, the physical card won't match the card on the receipt. (Int_03m)

One situation did exist where a MPP receipt was required but not received at the point of purchase. When purchasing a bus ticket on National Express in the Midlands, the customer scans their MPP over the bus payment terminal but despite receiving confirmatory cues (e.g. visual tick) no MPP receipt appears. The receipt notification is received the next day because the bus system records how many journeys the consumer has done in a day and then charges

them the appropriate ticket for that day. This lack of timely notification did not prevent consumers from using MPP on buses but created a concern that they may not be paying the correct amount.

In most everyday situations the MPP receipt functionality is adequate and results in the consumer not requiring a physical paper receipt. This provides environmental benefits and can reduce the need for a physical wallet in which paper receipts can be kept. The MPP receipt functionality enables the consumer to view a transaction history in the post-payment script sub-scene, but this does require that they be aware that this functionality exists. Where customer concerns exist with the MPP receipt functionality is when buying certain product types and/or a large purchase amount, such as electronic equipment. The MPP receipt functionality does create emotional responses in the consumer which are discussed further in Section 6.3.2 on p.194.

(C) Confirmatory information

Every time a payment is made irrespective of the payment method being used the consumer requires a cue that the payment has been successful. This cue represents a confirmation point which occurs towards the end of the payment process and confirms that the correct monetary amount has been paid for a product or service. Traditional payment methods typically rely on the interaction between the consumer and payment terminal and/or employee for this confirmatory cue. In contrast, MPP functional attributes also provide cues from the mobile phone in the form of audio and visual cues. This represents a shift of information directly into the hands of the consumer and a potential decreasing reliance on the payment terminal and where applicable the employee within the physical service encounter.

When using any payment method (traditional or MPP) a successful payment confirmation is provided by the store payment terminal and/or employee. The store employee or self-serve till terminal may provide verbal cues to the customer that the correct amount has been paid, as described below when paying with a traditional card and MPP:

> […] saw the amount come up on the till, in the machine there was only one sort of point of sale card machine so that wasn't confusing, swiped it *{card}* over and the chap was quite friendly thanked me for the payment and off I went no receipt given […] (ob002t: Trad: Card)

> The machine says '*Thank you for shopping at Tesco'* the women's voice or computers voice, that is when I know they have received money and I am free to go. (Int_14m)

These cues are a result of an interaction between the consumer and the stores payment terminal but when using MPP the mobile phone provides its own built-in confirmatory cues. A similar audio *beep* or *ding* to that from the payment terminal is emitted from the mobile phone. Although, the volume of the audio cue may vary depending on the phone setting and can also be set to mute or vibrate. The MPP confirmatory audio cues predominantly occur when a payment has been successful but also operate in a similar manner when a payment has been unsuccessful. As described by this interviewee, the vibration can work in conjunction with the employee to confirm there has been a problem with the payment:

> It is mainly the phone that I will be looking at for that, I kind of rely on if it is not going through either my phone vibrates to say it has not worked or the cashier to say that it has not gone through. It has happened occasionally, but I think that is down to me not having the fingerprint on the sensor, so I have entered the PIN *{personal identification number}* rather than the Apple Pay system not working itself. (Int_10m)

The MPP audio cue is also reinforced by visual cues on the mobile phone screen. Firstly, if a payment has been successful a visual tick appears on the mobile phone and is followed with a virtual representation of the customers' bank card. As shown in the following observation the

virtual representation of a traditional bank card is personalised with the customers own bank and abbreviated account details:

> […] the amount came up on the little terminal I put it on and it sort of beeped and the tick came up on the screen on the phone (ob010s) so I knew it went through. (ob085t: Google Pay)

Visual observation 3: Google Pay card and tick payment confirmation (ob010s)

As per the audio cue, situations also exist where the MPP visual signal requires confirmation by the employee. For example, if the MPP visual cue fails to appear the employee can provide confirmation that the payment has been successful as shown in this observation:

> […] so put my phone over, didn't come up with a tick but she *{employee}* said that's ok, so I walked off to wait for my coffee […] (ob192t: YoYo Wallet)

Through placing the payment confirmation in the form of audio and visual cues when paying with MPP into the hands of the consumer this shifts the confirmatory cues away from the payment terminal and/or employee. Despite this shift, the MPP cues do not always directly replace existing till and employee cues. Instead, the MPP cues may complement existing cues and are viewed as an additional stage in the payment confirmation process. When the consumer also waits for the confirmation from the store till and/or employee this is because they view the

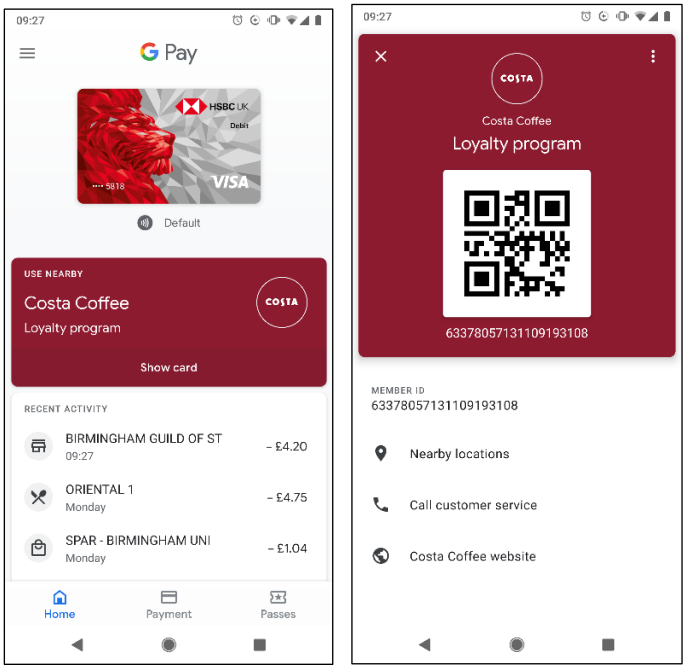
MPP cue as confirming the payment is being processed and not necessarily has completed successfully. Although some consumers rely solely on the MPP cues, for others the MPP signals simply complement existing cues from the point of sales terminal or employee where applicable. In some situations, if the confirmatory cues are not as expected the consumer will revert to the employee for confirmation. There is evidence that the MPP confirmation cues create emotional responses as discussed further in the emotional value construct Section 6.3 on p.189.

6.1.1.2. Supplementary Payment Attributes

Supplementary payment services occur when the customer pays for a product or service but are not essential for the payment to be completed. Thus, these are identified as 'branches' in the payment script which occur in the payment sub-scene just prior to paying for a product or service. Examples of supplementary services that are done during the act of paying across all payment methods include the customer getting cashback, splitting the bill, and using loyalty schemes. The supplementary service attribute that MPP provide allows the consumer to integrate retail loyalty schemes into the payment method, such as when purchasing a coffee to present and collect points from a digitally stored loyalty card. Despite this integration a range of other mobile phone options are also available to use a retail loyalty scheme, such as using a separate retail store mobile application or a 3rd party mobile loyalty card application. Thus, the result for those consumers that choose to use retail loyalty schemes is that some still use physical loyalty cards or a combination of physical and mobile phone loyalty scheme formats which can impact on their choice of payment method.

MPP differ in their approaches to integrating store loyalty schemes depending on the type of technology they use, either NFC (Near Field Communication) such as in Apple Pay and Google Pay, or QR (Quick Response) code as used in YoYo Wallet. The type of technology the MPP uses creates differing levels of integration and information available about the loyalty scheme. The loyalty schemes that can be added to an NFC MPP are a direct replacement to the physical loyalty card and must be manually added to the MPP. These require the scanning of a virtual form of the physical card prior to payment by opening the virtual loyalty card within the MPP. Despite this integration there is no other loyalty scheme information available to the customer in the MPP, such as how many points have been collected or if enough loyalty points have been collected to purchase free products. This is shown in the following observation which details the Costa Coffee loyalty scheme in the Google Pay MPP:

> […] put my points on my Costa card which is actually within the Google Pay wallet system (ob003s) scanned that (ob004s) on a separate scanner and then just swished my phone over the payment terminal […] (ob078t: Google Pay)



Visual observation 4: The Costa Coffee loyalty scheme in Google Pay application (ob003s & ob004s)

Although, having a loyalty scheme integrated into an NFC MPP does result in not having to carry the equivalent physical loyalty card, the consumer does have to scan the mobile phone

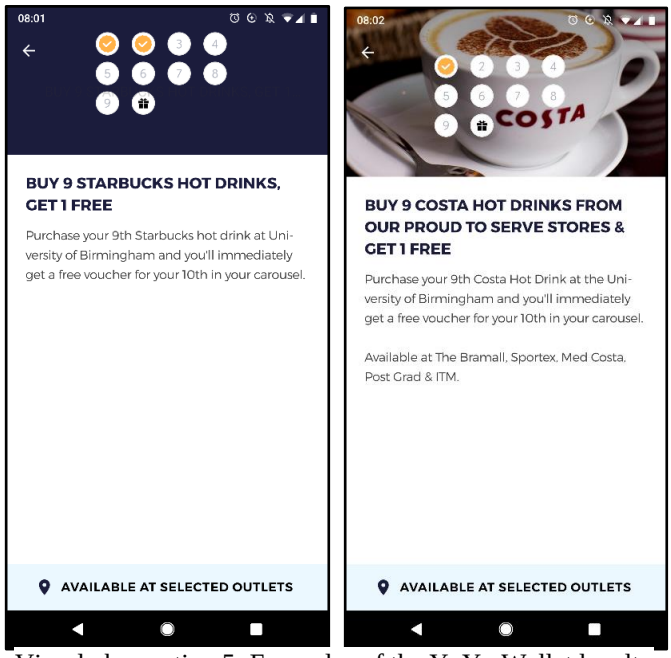
twice at the till. Additionally, the scanning of the loyalty code can result in technical difficulties represented as an 'obstacle' in the payment script and takes the customer longer to scan. Despite occasional technical issues the integration of loyalty schemes does provide enough benefit to not have to carry physical store loyalty cards, as shown by these interviewees:

> […] It's just easier. If you're going to pay, you can just flick everything up, scroll to the right loyalty cards you want, scan that and then pay straight away. (Int_01m)

> Yes, they're loaded onto the phone as well, actually. So I stopped carrying physical card store loyalty cards I just use the phone. I'll just flick it up on there *{flicks up on mobile phone}* and use that. (Int_12m)

In contrast to the partial loyalty integration with an NFC MPP, the QR MPP YoYo Wallet' loyalty scheme is fully integrated. This results in having to scan only once to collect loyalty points and pay and contains greater loyalty point information. As shown in the observation below the customer can see how many loyalty stamps have been collected and their progress towards collecting free products:

> I did notice that I've got two star two stamps on my Starbucks card (ob026s) and the app says I've got my stamp on my Costa card (ob027s). (ob148t: YoYo Wallet)



Visual observation 5: Examples of the YoYo Wallet loyalty scheme integration (ob026s, ob027s)

This greater loyalty integration results in the consumer being more aware of when they can receive a free product and what they can exchange the collected points for. Despite this increased loyalty information, consumers did experience issues with YoYo Wallet, such as not always knowing the specific stores that YoYo points can be used in. To use a loyalty scheme through their mobile phone, the consumer also has two other options. Firstly, if available they can use a stores own loyalty mobile application and these exist for a wide range of high street shops, such as: KFC, Boots, Subway, Nandos, and Costa. These store loyalty applications are separate to the MPP and do not have their own built-in capability to make a proximity payment. Therefore, they require the consumer to open two applications, the loyalty scheme and the MPP to pay. However, unlike MPP these loyalty applications do contain an updated loyalty point's balance. A second option also integrates loyalty cards into the MPP but through a 3rd party application. Two examples of these occurred in the interviews, one using an application called *Stocard* and the second through integration with the online bank *Starling*. The result of which is when paying using an NFC MPP the loyalty points are automatically updated, as described by this interviewee:

> The Clubcard is *{physical}* and I have made it digital through Stocard an app that I use and integrates with Apple Wallet. It is a standalone app that you scan all of your loyalty cards and it surfaces them. […] This Stocard app you just take a picture of it and it adds the card in, but then if I go to the app it embeds here and just surfaces them all *{shows loyalty cards in Apple Pay}.* (Int_12m)

These alternative mobile phone loyalty scheme options reduce the need for the customer to scan their mobile phone twice, once for loyalty and again to pay. However, they do not show the customers loyalty points balance in the MPP. Therefore, the consumer must check their store loyalty point balance through other methods, such as logging into their store loyalty account online. Despite the various forms of mobile phone loyalty schemes consumers may also use a

physical loyalty scheme card. The reasons for using physical cards range from not being aware that a loyalty scheme can be used in an MPP, to having encountered technical problems when attempting to put a loyalty scheme in an MPP. For some consumers they will have the same retail loyalty scheme in both physical card and mobile phone formats. This results in a choice when using a loyalty scheme just prior to payment between physical and digital formats.

The decision about which loyalty scheme format to use is influenced by a range of reasons, including if the consumer has their physical wallet on them and if technical problems have been encountered previously. If the consumer chooses to use a physical loyalty scheme which is in their physical wallet this can influence their choice of payment method. For this consumer when they decide to use a loyalty scheme that is a physical card, they will also use a physical bankcard to make the payment, and when the loyalty scheme is through their mobile phone the payment will be done by MPP:

> I think because I have got my wallet out, I would do things in both hands. Subway that is digital does it all from my phone, not my watch cause my watch can only offer one option. Tesco doesn't have the Clubcard *{mobile}* as I know of, so I use my wallet *{physical}* for both. (Int_13m)

In contrast, this consumer is not aware that a loyalty scheme could be added to their MPP but when using a physical loyalty card, they still choose to pay with their MPP:

> I give my loyalty card first and after I pay. If you give your loyalty card then why I don't grab my card as well because it is in the same purse I don't know why […] she *{employee}* ask me how I want to pay so I open my backpack, open my purse, take loyalty card and pay with my phone. It is weird as I have my cards there as well. (Int_06f)

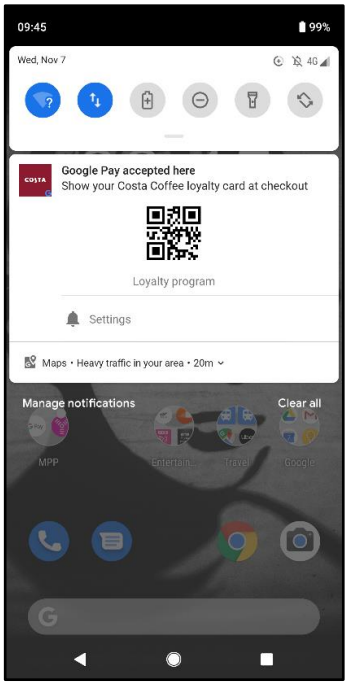
Despite MPP offering the capability to integrate supplementary loyalty services the functionality is limited. The customer also has a range of other options through which to use a

store loyalty scheme on their mobile phone. All these mobile phone loyalty options do though require the customer to have the knowledge that firstly they are available and secondly how to use them. Supplementary functionality in the form of integrated MPP loyalty services have inter-relationships with both emotional value which is discussed further in Section 6.3.2 on p.193 and conditional value which is discussed in Section 6.2.2 on p.184.

6.1.1.3. Enhanced Payment Attributes

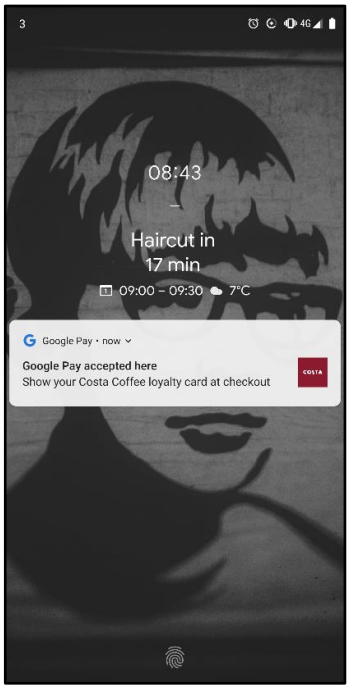
Enhanced service attributes that are integrated into MPP existed in the form of notifications that support both the core act of paying and supplementary loyalty services. These notifications are designed to reinforce the consumer experience, such as reminding them to use a loyalty scheme. Although, notifications may be switched off altogether and their ability to improve the customers' experience is limited. These limitations are predominantly due to notifications not being offered at an appropriate time in the service encounter or the offers contained within them not being relevant. Therefore, the consumer takes limited action on the notifications but suggest they would if they improved or enhanced their shopping experience. Reminder notifications included which stores accept an MPP and prompting the consumer to use a store loyalty scheme as shown in the observations below:

[…] unlocked my phone and actually it said Google Pay accepted don't forget to use your loyalty card (ob006s). (ob080t: Google Pay)



Visual observation 6: Google Pay reminder when phone unlocked (ob006s)

I had a couple of messages on my phone while I was in the queue saying, 'Google Pay accepted' (ob011s) and another one saying 'use Costa loyalty points'. (ob114t: Google Pay)

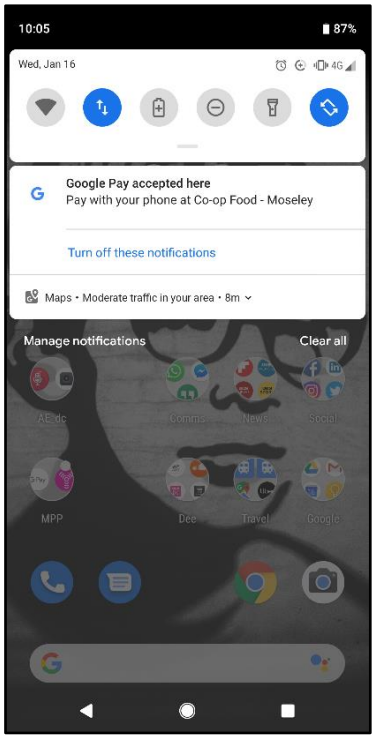


Visual observation 7: Google Pay reminder when phone unlocked (ob012s)

The reminder functionality only appeared intermittently, sometimes at an inappropriate time to be of use, such as when just walking past a store and not having any intention to go in.

Alternatively, notifications would appear between core activities in the payment script when making a payment and be deemed as interruptions to the payment process. For example, it had already been decided which payment method to use in the following observation:

> […] got my phone out my wallet I noticed there was a little notification saying 'Google Pay accepted at the Co-Op' (ob032s) I was in but pretty much not going to influence my decision I don't think really, already got my phone out to pay. (ob162t: Google Pay)



Visual observation 8: Google Pay accepted notification example (ob032s)

The loyalty scheme related notifications also had limited ability to provide an offer that was relevant to influence consumers' decisions. Despite the limitations of MPP notifications, they could create greater value if they were timely, and the functionality was extended beyond their current form. For example, this interviewee suggested firstly that a loyalty notification from MPP is preferable to a loyalty notification from the till terminal because of the difference in the relationship the customer has with their mobile phone compared to the store. Secondly, if the loyalty notification were when the customer is in the queue and not at the till this could remind them to use a loyalty scheme:

> The most useful time to remind would be while I am queuing for the self-serve till, if there was some sort of beacon technology they could put that was within a couple of metres of the queuing point that would be useful. The point your actually at the till might get in the way, you could put it before the actual payment and it prompts you but that would get really annoying and bother me […] If my phone prompts me to use it, it is my technology that reminds me to do something that is of benefit to me. When the till does it in my head physiologically, I'm thinking Tesco wants my data that's why you're prompting me that's why you won't let me skip to payment. (Int_12m)

For another interviewee it was suggested that the payment related notification functionality could be used to provide services that do not yet exist. These included the ability to notify the customer when they are in a store that they need to purchase an item, a form of intelligent shopping list notification. Additionally, MPP notifications could include functionality to assist customers keeping to a budget when shopping. For example, if the mobile phone could recognise an allocated budget and notify the customer when in a store that they may have already exceeded their daily budget for that day, as described below:

> If I think about my budget rationally, I need to save to pay off my kitchen I have some big ticket options which I need to commit to. It strikes me as truly bizarre with the amount of technology we have got, that at no point in the day does Google say to me, hey [*name*] how many coffees are we doing today. (Int_09m)

Therefore, the MPP notifications offered the customer only limited benefit due to the timing of when they appear in the service experience and their content. Despite current limitations there are potential uses for MPP notifications if they can be delivered at an appropriate time in the payment script and contain relevant information for the customer.

6.1.2. Mobile Phone Enabling Attributes

MPP do not have an inherent physical form but are a virtual representation of the consumers' physical card/s (i.e., bank and/or store loyalty cards) contained within an application on their

mobile phone. For the consumer to use MPP they must ensure that two enabling services are working. These enabling services are that the phone battery is charged sufficiently and that they have phone signal connectivity, either mobile network or Wi-Fi. Therefore, MPP have a greater dependency which is the responsibility of the consumer on the mobile phone than traditional payment methods do on a physical wallet (or purse). A physical wallet as a container to carry traditional payment methods and other items of daily necessity does not have any inherent payment method enabling functionality. The two mobile phone enabling functional attributes were found to have a negative effect towards the use of MPP. Despite these negative effects they did not change the consumer's overall preference for MPP but could result in them using traditional payment methods in certain situations. The two functional enabling attributes of the mobile phone exist in the customer sphere as independently created value and are discussed hereafter.

6.1.2.1. Mobile Phone Battery

For the consumer to use an MPP the mobile phone must be charged with enough battery power to complete the payment. The charging of the mobile phone is the customers' responsibility and is an activity done before entering and independent of a service encounter. When the mobile phone has low battery levels some consumers' may adapt their behaviour or resort to using traditional payment methods to complete the payment. As this interviewee describes because he often carries a physical wallet a low mobile phone battery level has rarely resulted in him not being able to complete a payment. However, a low mobile phone battery when he did not have his traditional bank card with him did result in having to return home to get his physical wallet:

> I've never been caught out, I've had it where I've not actually not been able to use my phone worrying about paying or had to decide have to go home and pickup wallet to go to the shop, but never got to the till […] it's not too much of a problem on a day to day thing as I usually have my wallet with me at the same time. (Int_10m)

Consumers' may also ensure their mobile phone does not run out of battery during the day through either conserving battery consumption or charging the mobile phone. To conserve the mobile phone battery, they may not use other mobile services until they have made a payment or customise their mobile phone settings. For example, this interviewee only turns on NFC just before making a payment:

> I always get my phone out swipe down, turn NFC on, and I've arranged my quick draw at the top to have NFC in there, because you can edit how it's all laid out. I've made NFC where I need it to be specifically for that purpose. Battery life I have no reason to have it on most of the time and because I've made it so simple to turn it on I don't need to go into like settings or anything […] (Int_02m)

To ensure the consumer can charge their mobile phone if the battery is low during the day this may require them to carry appropriate charging cables. If they are unable to or do not remember to charge their mobile phone an alternative is to turn the phone off altogether to ensure they can complete a payment when required. This was only evident when a customer needed to use MPP for travel purposes, such as local bus services. Where consumers have experienced low battery levels on regular occasions, a more permanent solution is to change their mobile phone. However, this only occurred for Apple iPhone users who have either switched or are considering switching to an alternative phone.

6.1.2.2. Mobile Phone Connectivity

For the consumer to complete MPP the mobile phone requires an internet connection through either a mobile phone network or a retail store's Wi-Fi. This contrasts with traditional payment methods that do not require a connection which is the responsibility of the consumer. However,

if a store till is electronic all payment methods do require the store till terminals to be working appropriately which may include an internet connection. Therefore, unlike traditional payment methods MPP have a connectivity dependency on the mobile phone. When in a store the consumer may encounter a lack of connectivity which can resort in them using a traditional bankcard to complete the payment. As described by this interviewee when she has a weak or no signal this results in her using a bankcard to complete the payment rather than using MPP:

> If say I am in the Topshop in the Bullring, their Wi-Fi isn't that strong it could mean you could have to try it again […] I don't really know how that all works, but that is the only issue I have had using Apple Pay is if the signal is not great and then I'll just use my card. (Int_11f)

The issue of MPP connectivity was only specific to certain stores and where it was identified as a problem the customers were familiar with the stores in which they had weak or no connection.

6.2. Conditional Value Themes

MPP create conditional value because of circumstances both in and outside of the service encounter. A set of circumstances place conditions on the consumers' choice to use MPP and it was found that these can increase or decrease the conditional value of MPP compared to traditional payment methods. These conditions can occur from circumstances in the service encounter during the customers' interaction with providers (e.g., retail store) or outside of the service encounter, such as when a consumer only leaves their home with a particular payment method. These circumstances create conditional value for the consumer based on the acceptance of and access to a payment method. However, conditional value is also influenced by the consumers' familiarity with the service encounter and use of MPP, as over time they become

familiar with the conditions that are placed on them. The consumers' familiarity with these conditions and the circumstances in which they occur result in individual customer knowledge in the customer sphere. Therefore, the consumer brings into each service encounter independent knowledge of these circumstances because of previous payment experiences, such as which payment methods are accepted at certain stores. The conditional CV themes are identified as that of payment acceptance, mobile phone access, and payment experience familiarity. These conditional CV themes and their value creating activities are discussed in further detail hereafter, as shown in the chapter structure overview below in Figure 6-5.

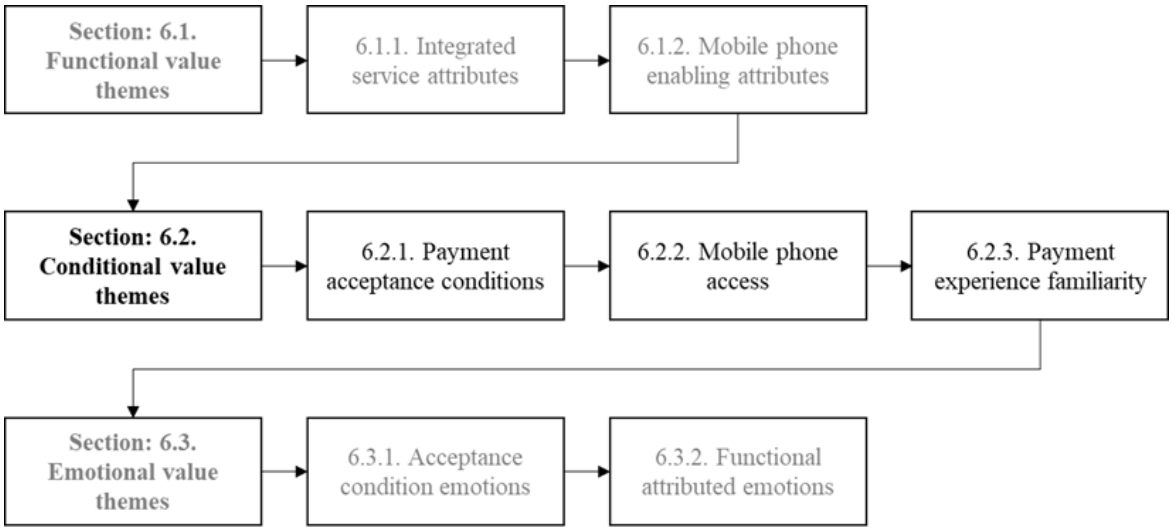


Figure 6-5: Chapter 6 structure overview: Section 6.2.

6.2.1. Payment Acceptance Conditions

Consumers of MPP can be forced to use traditional payment methods because of acceptance conditions in the service encounter. These payment method acceptance conditions are placed on them either by the store they are in or the monetary size of the transaction. In certain situations, the store only accepts certain types of payment methods which restricts their use of

MPP. Alternatively, in a store that accepts both traditional and MPP payment methods they may not be able to use MPP because of the monetary size of the transaction. Therefore, these acceptance conditions placed on the customer's choice of payment method can reduce the conditional value of MPP versus traditional payment methods. Additionally, if the consumer is in an unfamiliar store, they may look for confirmation in the environment before they use MPP from either other customers or signs.

6.2.1.1. Payment Method

The widespread acceptance of contactless payment methods results in the customer being able to use MPP in their daily lives, but conditions can exist which result in adapted behaviour or having to use traditional payment methods. The MPP Google Pay, Apple Pay, and Samsung Pay use the same NFC technology as contactless bank and debit cards. Therefore, where a shop accepts contactless payments, they will also accept NFC MPP as described by this interviewee:

> I get caught out more by not having cash than where someone doesn't take card but most of the time, if someone takes card, they take contactless and if they take contactless they take Google pay and I always have my phone on me. (Int_02m)

Where a shop does not accept contactless payment methods and requires the consumer to use either cash or a physical card with the customers PIN is uncommon. As described by this interviewee it is uncommon that a shop does not accept contactless payment methods:

> There is one other place Wing Wings the Chinese supermarket don't do contactless at all. […] and it was really infuriating as I drive five miles there did a load of shopping went to pay couldn't do any form of contactless so had to go all the way home get my card and go all the way back but I haven't been there since. (Int_18f)

If the consumer is forced to use traditional cash to purchase a product or service instead of traditional card or MPP, this is because it is the only payment method that is accepted. The types of shops in which this payment acceptance condition applies can include small independent retailers, e.g. markets, hairdressers, newsagents, and fast food restaurants. Although, situations existed that were cash only but now have the capability to accept traditional card and MPP. As described by this interviewee, cark parks are an example of a situation which was cash only but now accept other payment methods including MPP:

> […] apart from car parks but even with those now they never have mobile payments, tell a lie some of them do. For example, to come here today I parked in the Moor Street car park I know that their payment machines have a yellow thing on them so I will use the mobile to pay on them rather than get my card out but some car parks are cash. (Int_12m)

Despite the widespread acceptance of traditional cash, the effort involved to acquire it can cause consumers to change their shopping behaviour. The effort to plan and then acquire cash from a cashpoint before entering a cash only situation can result in them avoiding shops that only accept cash. As described by this interviewee she avoids a market that only accepts cash and has found alternative shops that provide similar products but accept MPP as described here:

> […] I don't go to the Bullring market anymore it is too much hassle to get the cash and go there […] For example I have found a shop, for me the purpose of going to the farmers market I want to get something that is fresh and get something from local suppliers and I found two shops that can accommodate that without getting cash. (Int_06f)

In contrast to an NFC MPP which can be used where contactless card payments are accepted, the MPP YoYo Wallet had limited acceptance. This limited acceptance was due to YoYo Wallet not being compatible with contactless shop point of sale (POS) terminals. Instead, YoYo Wallet uses QR code technology that requires the shop to have a separate POS terminal to the NFC contactless POS terminal. The white YoYo Wallet specific POS terminal becomes a point of

reference in the payment script that was used to determine that this mobile payment method was accepted in certain shops. As shown in the observation below:

> […] had a look at the counter and there was one of those white scanner readers (ob010p) so they obviously took it *{YoYo Wallet}* opened up the app put it over […] (ob141t: YoYo Wallet)

Visual observation 9: POS terminal scanners at the till example (ob010p)

In a situation where YoYo Wallet was not accepted the consumer can revert to using an NFC MPP to complete the payment. The use of YoYo Wallet was found to be restricted predominantly to University campuses and the coffee chain Café Nero. This restricted acceptance condition led to the consumer determining a limited number of shops that accept YoYo Wallet. This limited acceptance and association with specific shops is a similar situation to the conditions placed by stores that only accept traditional cash payments. Although, unlike cash only situations if a store does not accept YoYo Wallet less effort is required by the customer to use an alternative accepted payment method. This is due to the shops that do not accept YoYo wallet accepting contactless payment methods (traditional card and NFC MPP).

If the consumer is in a store that they are not familiar with, they may look for confirmation in the environment to confirm MPP are accepted in the pre-payment script sub-scene. The sources of this environmental confirmation are either other customers or store signs. When deciding

which payment method to use the consumer may look at which payment methods other customers in the same vicinity are using but this is not specific to MPP, as shown in these observations:

> […] also noticed a couple of people in front of me using YoYo Wallet so got to the till made my order had the app open […] (ob186t: YoYo Wallet)

> […] took quite a while quite a lot of fans in the pub I noticed everyone with cash there was no sign of any card payments […] (ob118t: Trad: Cash)

The consumer may also look for signs in the environment which confirm MPP are accepted. The signs they look for are either a contactless payment symbol or a symbol specifically related to the type of MPP they use, such as the Apple Pay logo. As described by these interviewees they specially look for the logo of the MPP they want to use for confirmation in an unfamiliar store:

> […] what made me use Apple Pay is they have a dangly point of sale saying we now take Apple Pay stickers over the till, that is the only reason why I switched […] (Int_08m)

> I think the logo, Apples logo prominence at the sales systems makes you think they are the only supplier in my head, but maybe I am just looking at that and maybe Android is an option but I haven't got that and therefore I'm not looking for it. (Int_17m)

For other consumers because they associate contactless payments with MPP, they look for the contactless payment symbol in an unfamiliar environment, as described by this interviewee:

> I see the contactless sign and as I said I used to work in the industry so I definitely for instance in a foreign environment I always check for the card symbols. Once I see them, I know they are accepting and then I will check for the contactless symbol, if there is a contactless symbol unless there is something wrong with their payments they will accept mobile payments. (Int_15f)

These payment method signs typically occur just prior to the act of paying and are located on or around the till terminal. The POS terminal screen itself can also include logos for the types of payment methods accepted. Although, at this stage in the payment process it can be too late to influence the choice of payment method as shown in this observation:

> […] their card reader has all sort of things they are promoting Google Pay Apple Pay, all seems a bit too late by then am pretty sure I've decided how I am going to pay by the time I get to the little […] (ob099t: Google Pay)

The payment acceptance conditions discussed are predominantly placed on the consumer by the shop they are in, but conditions can also be placed on the customer during the service encounter. In the service encounter payment acceptance conditions, such as choice of tills, can occur but these have a limited impact on the consumer' ability to use MPP. These conditions predominantly occur in supermarkets when the consumer must decide which self-serve till to use. For example, supermarket self-serve till terminals vary between those that only accept card payments (physical card and NFC MPP) and those which accept cash and card payment methods. Despite this choice the consumer is not restricted to using MPP as the different types of tills both accept contactless payment methods. As described by this interviewee a situation where the self-serve till only accepts cash is limited and has only occurred when she encountered a broken self-serve till terminal:

> Unless it says cash only I don't have to I know that they will be all card accepting, but sometimes very rare occasions their card till might be broken and may say cash only. (Int_15f)

Therefore, the conditions placed on the customer in the service encounter just prior to making a payment do not restrict the customer using MPP. Instead, the card only tills increase conditional acceptance value for traditional card and NFC MPP payment methods versus

traditional cash. The payment accepted conditions placed on the customer can result in an emotional response in the customer which is discussed further in Section 6.3.1 on p.190.

6.2.1.2. Payment Size

The monetary size of the payment can place a condition on the payment method the consumer wants to use. This payment size condition can occur when the transaction is below a minimum amount or above a maximum amount. A payment size condition can be placed on the consumer by the shop where a purchase must be over a monetary amount for the customer to use payment methods other than cash. Alternatively, a maximum monetary limit exists over which the consumer must use cash or non-contactless payment methods. These payment size conditions can in certain circumstances reduce the customers' use of MPP. This results in the consumer either adapting their behaviour to avoid a payment size acceptance condition or revert to using traditional payment methods.

(a) Minimum payment size

Where stores have a minimum transaction size under which MPP cannot be used this restriction also applies to traditional card payments. The only payment method that can be used under a minimum transaction size condition is traditional cash. If the consumer does not have cash on their person they may adapt their behaviour in two ways. Firstly, they may buy more to ensure the monetary amount of the transaction is above the minimum accepted in the stores and they can use either MPP or traditional card payment method. Secondly, the customers may actively avoid shops in which they have previously encountered a minimum acceptance limit as described by this interviewee:

> I avoid shops where you have a minimum spend of £5. We have two local shops you can left to one and right to the other, the one to the left is a £5 minimum payment the other one hasn't got one. I never go to the one that has a £5 minimum payment. I actually avoid shops that make it inconvenient for me to pay. (Int_18f)

When a store does not have a minimum acceptance condition for using MPP customers have paid for any amount with MPP, and as low as 12p for one interviewee. An exception to this is when the customer is shopping in an independent shop, as they have a concern that the use of MPP costs the retailer more than when paying with cash. As described by this interviewee, they are aware that there is a cost in the form of a payment processing fee when using MPP or physical cards:

> If is less than a pound less than a couple of pounds, I start to feel a bit nervous. I probably wouldn't worry too much if it was a massive company like Sainsbury's. I don't know what the card fee is, the card fee that they pay to the bank is, but if go into a little store and I bought something for 80p, and they are going to get charged, I would start to feel a bit guilty and try and find some cash but it is only for an independent retailer I'd worry. (Int_03m)

(b) Maximum payment size

The maximum limit for payment methods other than traditional cash acts as a condition from which the customer must choose between different payment methods depending on the situation they are in. The maximum amount allowed for a transaction when using an NFC MPP (e.g., Apple Pay and Google Pay) in the UK is set by individual stores and not by the MPP provider or the customers bank (Lloyds Bank, 2020; Visa, 2020). This contrasts with the upper limit for traditional contactless card payments which was set at £30 per a transaction in 2015 by The UK Cards Association (UK Finance, 2015) and raised to £45 in April 2020 (UK Finance, 2020b). In March 2021 the contactless card limit was raised again to £100 (UK Finance, 2021) but as this occurred after the data collection and analysis stages and is still being rolled out by stores,

the maximum contactless card limit is referred to as £30 hereafter. The supermarket Sainsbury' have a maximum MPP payment limit of £999 for Apple Pay and Google Pay (Sainsburys, 2020) but Asda had a £30 limit per transaction for MPP (Asda, 2020). The result of the maximum MPP limit being set by individual shops and the limit for contactless card payments having been in place for several years, is a range of different approaches by the consumer to paying for larger purchases.

For those consumers that are not aware of the difference between the MPP and contactless card limit they use their traditional physical card with PIN if the purchase is over £30. Therefore, if these customers enter a shop in which they expect to spend over £30 (e.g., a supermarket) they will do so with their traditional physical card, as described by this interviewee:

> There isn't particularly a minimum I kind of top out around the £30 mark mostly because I possibly need to do more research but I wasn't sure it was like a contactless card with a £30 limit, so I generally kept it like that. I don't know if there is one or not, but I just assumed it would be something so £30 or less is what I would go for with the Apple Pay. (Int_10m)

Alternatively, rather than using a traditional physical card for purchases over £30 some customers will either spend less or split the payment amount into two transactions under £30 each. This results in the customer being able to use MPP for transactions over £30 and not having to carry a physical card. This interviewee describes a situation where when shopping in a supermarket he is aware of a £30 limit for MPP and this results in him purchasing less:

> It's just been sometimes the items I've bought in a supermarket has been dependent based upon that perception of the £30 limit, I have not bought things because I have been concerned about not going over that amount. It's happened a fair amount of time I was in the Co-Op the other day and I picked up I think shopping for a couple of days' worth of food but decided to not buy a couple of treat like items because I was concerned about going over. (Int_10m)

In contrast, this interviewee will still purchase what they want while in a shop and if the total transaction amount is over £30, they will split the transaction into two payments in the payment sub-scene of the script:

> I have assumed the limit is £30, £30 is roughly where we are at. […] For example, if I was going to do a shop and it was going to go over £30 it conveniences me to do it by phone. While this sounds daft, I would probably do two £25 shops rather than be stressing about. (Int_09m)

When customers are aware that certain shops do not have a £30 limit for MPP they will spent up to £100 per a transaction using MPP. Although, there is confusion about who sets the MPP maximum payment limit e.g., bank, retail shop, or MPP provider (Apple, Google, or Samsung). A source of assistance with a shops MPP limit can be the store employee, who for this interviewee was able to confirm the shop accepts Apple Pay for transactions over £30:

> I remember going to some store in Mailbox or something and then I say to the lady my understanding at that time probably goes back eight months ago […] my understanding was that Apple Pay is the same with contactless, I did not bring anything I just have my phone, I just get back from the gym. I went to buy something that is more than £30 I say to her this is really nice, but I don't have my card with me, I say I'll come back later. She looked at my phone and but do you have Apple Pay I was like yeah but it is more than £30, no its fine with contactless it is only £30 but with your phone if you have Apple Pay you can pay more than that. (Int_07f)

6.2.2. Mobile Phone Access

The proximity of the mobile phone to the consumer creates conditional access value for MPP both before and during the service encounter. The location of the mobile phone on the customer will vary depending on the type of store they are in and the activity being done in their daily life. For example, in the service encounter the customer may be using their mobile phone prior to payment while in a queue for other activities, such as reading the news. The mobile phone being in the hand prior to the act of paying increases the conditional value for MPP compared to traditional payment methods located in a physical wallet which itself can be in a pocket or

bag. The activity the consumer is doing before they enter the service encounter can also create access value as this may cause them to only have their mobile phone on their person. For example, a consumer may have left their desk at work with only their mobile phone and not have access to their physical wallet. In both situations the degree of access value will vary depending on the activity being done prior to payment and the type shop the consumer is in as discussed hereafter.

6.2.2.1. In-Service Encounter Mobile Phone Access

When the consumer enters the service encounter with both a mobile phone and physical wallet, these can be in either a pocket or bag. For some consumers, both the mobile phone and physical wallet are in their trouser or jacket pockets. Alternatively, the mobile phone can be in a trouser or jacket pocket and the physical wallet is in a bag or backpack. The situation where the physical wallet is in a bag or backpack creates greater access convenience for MPP compared to traditional payment methods. As the mobile phone is easier to locate prior to the act of paying either in the pre-payment or payment script sub-scene. Despite this access convenience due to the location of the mobile phone, the activity the consumer is doing prior to the act of paying can also create conditional access value for MPP versus traditional payment methods. When the consumer is in the service encounter, they may already be using their mobile phone prior to the payment when queuing in the pre-payment sub-scene. This can result in the mobile phone already being in the customers' hand when they reach the stores till.

Consumers' use the mobile phone for a range of activities in store prior to reaching the till, including both shopping and non-shopping related activities. The range of shopping related

activities that the mobile phone is used for includes checking product reviews and as described by this interviewee, looking up recipe ingredients and shopping lists:

> Probably for a shopping list, keep a shopping list on my phone or if like a recipe that I'm cooking to double check what I need or double check prices. If there's something that I'm usually craving, like, maybe Ben and Jerry's, and I'll walk over and it'll be like Sainsbury's doesn't have it on offer I'm like, okay, well, does Tesco or Asda have it on offer. (Int_02m)

These mobile phone activities related to shopping are not integrated into the MPP and are done through other mobile applications or browsing online through the mobile phone. The consumer can also use their mobile phone prior to paying for a range of non-shopping related activities which predominantly occur when in a queue. Thus, the length of the queue and type of store till (self-serve or non-self-serve) can affect the degree of access value. When required to queue before getting to a store till the mobile phone is used for a range of non-shopping related activities. These can include listening to music or checking information in the form of news, messages, or social media. The queue also provides the consumer with an opportunity to get their MPP ready for payment and if applicable loyalty related activities. These increase the access value of MPP as the mobile phone is already being used by the consumer. Therefore, MPP can have a greater payment access value compared to traditional payment methods which are in a physical wallet. However, the access value of MPP can be decreased when using a self-service till. This is because when the consumer uses a self-serve till the mobile phone after queuing may go back into their pocket as they are required to scan and bag their shopping. Though, this will depend on the number of items being purchased, as described by this interviewee:

> In Morrison's it is either a quick lunch or a quick shop we never do a full shop there, it's usually a small basket I'm never carrying a carrier bag it's always something I can carry out. It's always about convenience I can juggle a load of stuff together and have my phone in my hand and make payment whereas with a wallet you can't carry all that. (Int_08m)

In a travel situation, MPP can also create access value due to the location of the customers' mobile phone compared to their physical wallet. For example, on the London Underground for this interviewee MPP creates access value because it is more convenient due to them carrying work related equipment, as described below:

> I use Apple Pay a lot because my phone is always in my pocket and if I am off and carrying heavy gear, the tube is a great example of that, my hands are full I'm going through the big gate to get on the tube and I am in a rush and I'm in the flow of people I don't want to stop get my wallet out and pay. (Int_12m)

6.2.2.2. Pre-Service Encounter Mobile Phone Access

MPP can also create conditional value for the consumer independently of the service encounter as they do not need to enter the service encounter with a physical wallet. The ability to pay with MPP allows them to leave their physical wallet either at home or during the day in another location. For example, when at work the ability to pay using MPP results in them not needing to carry their physical wallet when away from their desk at meetings, as described by this interviewee:

> […] at work in particular I'll usually just have my phone on me, my wallet is in my desk. Which is quite nice because if I have meetings over here rather than the business school and I know I've got to get lunch afterwards I don't have to go back and get my wallet. (Int_02m)

The consumer may also leave home with only their mobile phone. This can be either due to them doing an activity for which they may only need to make smaller purchases or for the whole day. The decision to leave their home with only their mobile phone may also be influenced by their type of employment, as described by this interviewee:

> I actually think I am more likely to adapt my behaviour than seek an alternative form of payment, for me now it is an habitual thing I don't take my wallet out, for work purposes it is really important that we don't have more clutter than we need so my phone is in my pocket which is simple. (Int_10m)

The result of leaving their home with only a mobile phone and not a physical wallet or purse can also be wider lifestyle changes. For example, this interviewee described how using MPP has led to a simpler lifestyle:

> It has saved me a lot of money this technology. I love handbags and I used to buy handbags a lot and people are how come you are not buying handbags anymore, I am not going around carrying bag anymore so I don't see the point. It shifted my behaviour. […] I think it is really straightforward my experience is really good and it is really life changing, literally life changing, I don't bring anything anymore with me. It is really weird it changed the way I dress as well, I am much more simple now, I am not worried you know sometimes if I leave the house I forget something because you have too much in your bag I don't do that anymore. For me if I can pay something, I will never forget something, if I am thirsty I will buy water, if I am hungry I will eat something. It changes everything. […] It makes it more efficient, everything easier, simpler. (Int_06f)

6.2.3. Payment Experience Familiarity

For the consumer to use MPP at least weekly they have had to become familiar with a range of circumstances which differ from the use of traditional payment methods. This familiarity with MPP includes learning both how and where to use the payment method, which accumulates and is brought into subsequent service encounters. The customer brings this knowledge with them to the service encounter as independent value which has been created over time. The knowledge required to use MPP is based on familiarity with both the store the consumer is in and the payment method itself.

6.2.3.1. Payment Method Familiarity

The consumer becomes familiar not just with how to use MPP over time but gains knowledge about how to deal with issues that may arise during the process of using MPP. This knowledge is then carried into future payment experiences and relates to two factors that differ from traditional payment methods. Firstly, how to select paying with MPP on a supermarket self-serve terminal and secondly, how to deal with unexpected technical issues that arise. When the consumer has scanned their shopping through a supermarket self-serve terminal, they are presented with a range of payment method options to select from. These till terminal payment options can range between stores but the consumer either looks for a contactless or card option to pay when using MPP, as described by this interviewee:

> Yes you put your shopping through and it asks if you want to use contactless, credit card and chip and pin, sometimes these days it doesn't actually say it just says contactless and it says below £30 contactless or chip and pin. (Int_05m)

Despite some stores automatically showing the contactless payment option by default on the self-serve till terminal screen, the option to choose to pay with MPP is not always clear and obvious. Therefore, the consumer must become familiar with the self-serve till terminal options for each store that they want to use MPP in to overcome these obstacles in the payment script. This familiarity occurs after the first few times of using MPP when self-serving in a supermarket as described by this interviewee:

> Actually it is not clear at all but I think by the time when I first use it I also look for mobile payments or Apple Pay but there is no kind of selection so I just ok I will try with the credit card and then I just do with the phone and it work well, so that is it. (Int_04f)

The consumer also becomes familiar with how to deal with unexpected situations (errors in the script) when paying with MPP. For example, in this observation when the mobile phone unexpectedly asks for a PIN number:

> […] then it asked for my phone PIN number never had that before, before I could pay with Google Pay I guess an extra security pay element which is reassuring there but yeah put my PIN number in my phone PIN number that I usually put to unlock it and it worked so that was all good […] (ob120t: Google Pay)

Similar situations occurred in which the consumer learns how to deal with unexpected circumstances, such as scanning the mobile phone across the payment terminal too quickly. As described by this interviewee despite the scanning issue being occasional, he knows how to resolve the issue to successfully complete the payment using MPP:

> Not really, occasionally it doesn't seem to recognise the phone straight away. […] It looks like the machine is ready, it looks like the phone is ready, but then it doesn't click, it doesn't register but that is rare, and it only takes a couple of seconds. Sometimes I'll come out of it and then go back in. (Int_03m)

These issues the consumer encounters and becomes familiar with do not decrease the CV of MPP enough for them to stop using the payment method altogether. However, in certain situations they can result in the use of an alternative payment method at specific stores where they have previously encountered issues when paying with an MPP on a regular basis.

6.2.3.2. Store Familiarity

The consumer becomes familiar with which individual shops they can use MPP in. The familiarity with which shops accept MPP is created predominantly through their association of

MPP with contactless card payments. As described by this interviewee, she expects to be able to use MPP in shops that accept contactless payments:

> I assume that if they accept contactless, I just use the words interchangeably. It's interesting at the checkout they go are you paying cash or card they don't go no phone. […] I just get my phone out but not to be awkward just in a habit to go it's not my card it's my phone. (Int_18f)

The result of this familiarity with stores that accept MPP is that consumers become accustomed to where they can and cannot use MPP in their daily lives. Although this can result in not being able to make a purchase when in an unfamiliar store. For example, this interviewee was unable to complete a purchase as the store did not accept contactless as expected:

> […] I was looking for trousers and there was a little shop in Kings Heath, I think it was an Indian shop and we think everywhere you can pay by contactless and I couldn't pay for what I wanted as I didn't have cash. (Int_06f)

6.3. Emotional Value Themes

The consumer experiences a range of predominantly negative emotions during the act of paying which differ depending on the type of situation they are in. These emotions occur in the consumer as a response to the process of using MPP. The concept of emotions occurring during the consumption process when using a service aligns with the expanded role of emotions occurring as a response to the attributes that compose the service (Richins, 1997; Oliver and Westbrook, 1993). Therefore, the emotional value that the consumer experiences during the act of paying are situational attributed emotions, most associated with obstacles or errors in the payment script. The situational attributed emotions are responses to either conditions that result in not being able to pay using MPP or the functional attributes of the MPP not working as expected. The same emotional response can be caused by both conditional and functional

situations, such as the becoming frustrated when a store only accepts cash (conditional) and when their mobile phone does not unlock (functional). Additionally, similar emotions can occur in the service encounter whether the consumer has paid using MPP or traditional payment methods. The emotions experienced when using MPP are identified within two themes, that of acceptance condition and functional attributed emotions and are discussed in further detail below as shown in the chapter structure overview below in Figure 6-6.

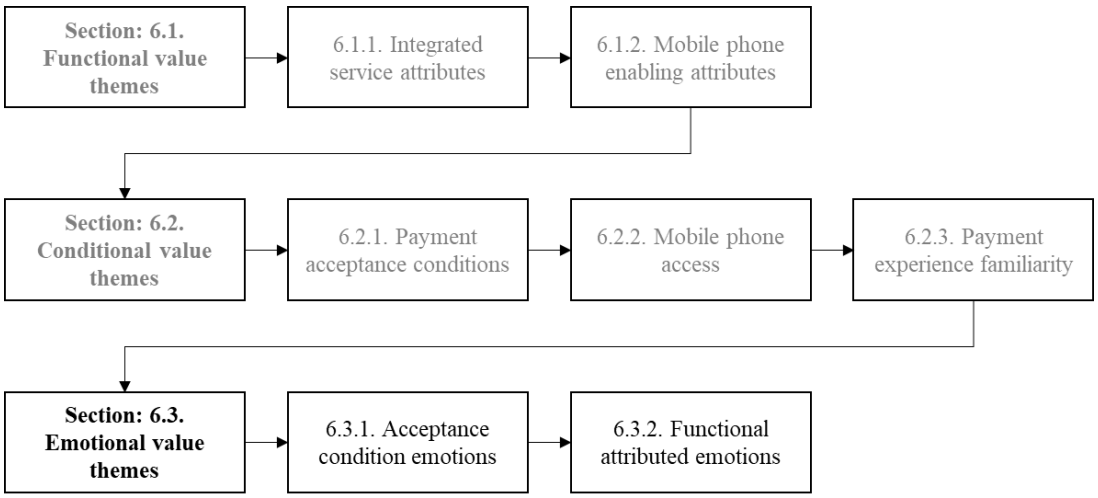


Figure 6-6: Chapter 6 structure overview: Section 6.3

6.3.1. Acceptance Condition Emotions

The conditions of payment method and payment size acceptance can both cause negative emotions in the consumer when attempting to pay with MPP. When they are not able to pay with MPP because of payment method acceptance conditions this causes a range of negative emotional responses. These negative emotional responses include annoyance, stress, and frustration. For example, when unable to use MPP due to a shop only accepting traditional cash payment method they can become annoyed and stressed. The consumer can also be frustrated when they cannot use the type of MPP payment method they want, as described by this interviewee:

> Do you know I was in Starbucks yesterday and I got frustrated. I couldn't pay with YoYo because I know that at this Starbucks *{does not accept YoYo Wallet}*, I could have bought the same thing and got a stamp and points. I was just that it's the same shop, getting the same coffee, and I got nothing extra from it. (Int_02m)

The payment size acceptance conditions also cause negative emotional responses in the consumer which can constrain their use of MPP. These emotions include being nervous when the monetary amount of the transaction reaches close to the maximum payment size accepted for MPP. This nervousness is because they want to avoid the payment being declined and the resulting emotional embarrassment this situation would create. As described by this interviewee, to avoid the embarrassment of a payment with MPP being declined he will pay with a traditional card payment method when the transaction amount is over £30:

> […] if it is below £30 but there is a lot of confusion about what's acceptable. That's bit of a sticking point as I end up not using it as because I'd rather not get embarrassed, so I go got to get my card out. (Int_05m)

The payment size acceptance condition can also make the consumer nervous when the transaction is a small monetary amount, which results in a guilty emotional response. Although, a guilty emotional response can occur when the consumer pays for a small transaction with either traditional card or MPP.

6.3.2. Functional Attributed Emotions

The functional attributes of MPP can cause an emotional response when the payment method either does not work as expected or does not have the desired functional attributes the consumer expects. However, in contrast to the conditional attributed emotions, the functional attributes of MPP can also create positive emotional responses. The range of emotional responses related

to the functional use of MPP include frustration, annoyance, irritation, embarrassment, happiness, and reassurance.

When the MPP functionality does not work as expected, this can result in a negative emotional response. If the mobile phone battery is low the consumer can become annoyed and worried that they may not be able to pay for subsequent purchases. For these interviewees, the sources of emotional frustration include the MPP not accepting their business bank account and the mobile phone security functionality not accepting the customer's fingerprint:

> Sometimes you get that thing where your thumb print fails to authenticate, I don't know if it is because your fingers are a bit grubby, or the sensor is a bit grubby, it takes a few attempts. On the very, very rare occasion where it just wouldn't accept my thumb and I was getting frustrated, I have put the code in or it has prompted me to put my code in after about four or fives misses. (Int_01m)

> The bank I use for business is pretty big now in the UK, they are not the fastest people at releasing features but Apple Pay has been a requested feature on their forums since they have gone live but it is not there so I can only assume that the path to becoming Apple Pay approved is not straight forward. That is a bit frustrating we also have a joint account and I haven't looked to add that as we only use it for bills. (Int_12m)

If the consumer is unfamiliar with a shop and/or in the early stages of using MPP, they can become confused and frustrated. These negative emotions often occur in situations which differ to when they pay with traditional payment methods, such as being confused with which self-serve till terminal button to press to pay with MPP. This unexpected situation can cause a degree of panic and anxiety, especially if the consumer has no other payment methods on them other than MPP, as described in these observations:

> […] it said I'd moved it too fast so sort of went a bit slower put it phone over the terminal again says still too fast so started to get a little bit anxious cause I'd only come out of the flat with just my phone […] (ob158t: Google Pay)

> […] unlocked my phone put my phone on the little payment terminal and it came up again on my phone asking for a PIN number which is actually a phone PIN number so as I've had this happen before I didn't sort of panic a bit like I did last time put my PIN number in then presented my phone again as it said 'back to the payment terminal' […] (ob126t: Google Pay)

When the consumer begins using MPP, they will encounter several experiences that are not familiar to them compared to paying with traditional payment methods. Therefore, they are more likely to encounter negative emotions when they first use MPP, and thereafter through familiarity with these situations negative emotional responses reduce, as described by this interviewee:

> […] the first few times I was like where is the Google symbol and a couple of places I got my card out, people must have been laughing, I didn't get if you do card you can always do Google Pay that didn't quite compute for me […] I think what is interesting about that is that the first experience is quite cumbersome […] (Int_09m)

An ongoing source of both positive and negative emotional responses are store loyalty schemes. The partial integration of loyalty schemes into MPP creates two situations from which negative emotional responses occur. Firstly, when a store loyalty scheme cannot be integrated into an MPP they become frustrated that not all their store loyalty schemes are in one place. As described by this interviewee who has a separate mobile store loyalty application to the MPP he uses:

> Boots is a separate app as I don't think it works in Samsung Pay. There's some that won't work in it I've tried, I've tried loading them in but they don't work so I have to use different means. […] a bit frustrating because it would be quite nice to have everything in, put everything in one place. (Int_01m)

Secondly, the customer can become irritated by having to scan the mobile phone twice at the point of payment and in a specific order, as described by this interviewee:

> Its irritating *{scan twice},* I'm never sure what order to do it in as well. I would prefer if it was integrated, but I don't want to integrate in terms of me putting my card into Costa, I prefer if it was integrated with my loyalty scheme and was a lot better with my Google pay. I've kind of given most of my life to Google anyway. (Int_02m)

When the consumer has enough loyalty points to receive a free product, this can create a positive emotional response. As described in this observation and interviewee the customer has a positive emotional response when they collect points and/or receive a product for free, such as happiness:

> […] so I could probably buy a coffee with my points at some point so anyway after all that sort of faffing around with my wallet and phone got my points but felt quite happy I've got a lot of points […] (ob072t: Google Pay)

> I'm not quite got there yet, don't go regularly, next time I'll get something for free, it will make me feel good. I'm like yes I love getting stuff for free. (Int_01m)

However, this positive emotional response is not specific to the use of MPP and mobile phone loyalty applications. Those consumers who use traditional payment methods and/or physical loyalty schemes can also receive free products from the points they have collected. An additional source of positive emotions is the MPP receipt functionality that shows the customer a visual representation of their physical bank card. This visual cue creates emotional reassurance that the payment has been successfully completed, as described in this observation:

> […] just had to wait a little minute up came the tick (ob028s) so that was reassuring it had gone through now I'm waiting for my coffee […] (ob148t: YoYo Wallet)

Although, a receipt is not received when using MPP to travel on a bus which results in suspicion. This suspicion is due to the consumer not being able to see the monetary amount that has been taken by the bus provider in the MPP, as described by this interviewee:

> […] the exception would be using contactless payments on the bus where a receipt is not offered at all. Which has always made me slightly suspicious with the card payments the buses advertise that if you use more than one payment over the day it will automatically go to what do they call it? A day pass. […] But without a notification to tell me how much I have actually been charged on my phone I can never be sure whether I have been overcharged […] (Int_10m)

The consumer also experiences a range of predominantly negative emotions during the service encounter from obstacles or errors in the payment script that are not specific to any one payment method. These negative emotions include frustration when they are not charged the correct amount by the employee and annoyance when using self-serve tills. For example, the self-serve till in a supermarket creates negative emotions when the till scales are too responsive, and they require assistance from the store employee. The emotions experienced from the use of MPP are predominantly negative and because of conditions placed on the consumer which result in them not being able to use MPP. In contrast to these conditional attributed emotions the functional attributed emotions often occur during the initial stage of using MPP. Therefore, as the consumer increases their knowledge about how to use MPP they can become more familiar with these situations and negative emotional responses are reduced.

This chapter presented the qualitative findings of stage one and detailed how MPP create CV as per the TCV and the value creating activities the consumer does in the process of using MPP. The following chapter 7 details the procedures used to design and administer the online survey for the quantitative stage two of the MMR design.

CHAPTER 7 - STAGE 2: QUANTITATIVE RESEARCH METHODOLOGY

The second stage of the mixed-methods research design used a structured cross-sectional survey to further develop the understanding of the results from the first qualitative stage. A cross-sectional design from which the target population is only investigated once in a specific period allowed the research objectives to be answered within practical time and cost constraints (Bryman and Bell, 2015). In contrast, a longitudinal or repeated cross-sectional design where data is collected several times over a period from the same target population to investigate changes over time (Gorard, 2013) is beyond the scope and resources of this study. A structured survey expands on the findings of the qualitative stage and enables the relationships between and effects of the value creating activities on the creation of customer value (CV) to be examined through using Structured Equation Modelling (SEM).

The use of SEM allows the interaction and independent value creating activities from the qualitative stage of the study to act as latent constructs where applicable. In contrast, to first generation statistical techniques which are conducted on observed variables, such as multiple regression analysis, SEM is conducted on unobservable variables, termed latent constructs (Fornell, 1987; Hair et al., 2017). As a second-generation statistical technique SEM has been used across a range of marketing research (Sultan, 2018; Blocker, 2011) and is suited to this study as the concept of CV and value creating activity constructs are multi-faceted and deemed not directly observable.

This study uses Partial Least Squares SEM (PLS-SEM) due to it being suited to the exploratory objective of the study and the predictive aim of this quantitative stage. The use of PLS-SEM contrasts with Covariance Based SEM (CB-SEM) which is used when the research objective is

confirmatory. For example, CB-SEM is used when examining previously specified hypothesis derived from established causal theories or previous studies conducted within the same context (Hair et al., 2010). This underlying difference in the two main SEM approaches is because CB-SEM is based only on common variance (covariance) which is confirmed with confirmatory factor analysis hypotheses for the measurement model, and applying reliability, convergent validity, and discriminant validity metrics (Hair et al., 2016). In contrast, PLS-SEM is based on total variance and confirmed with reliability and validity metrics only, and as there is no adequate global measure of goodness of fit it is less suited to theory testing and confirmation (Hair et al., 2017). Therefore, PLS-SEM has fewer restrictive assumptions and as in this study is suitable for data analysis during the early stage of theory development where the theoretical model and its measures are not well formed. The following sections discuss and justify the survey approach, sampling decisions, development and testing of the survey, and data preparation, prior to in Chapter 8 introducing the research model, hypothesis, and SEM analysis.

7.1 Survey Approach

A self-completed survey allowed a relatively large sample size to be collected across the United Kingdom. In contrast to self-completed surveys, researcher completed surveys either through telephone or face-to-face were not considered appropriate. Firstly, face-to-face surveys would have imposed greater financial and time constraints due to having to attend multiple locations. Secondly, although telephone surveys would have covered a greater geographical region research has found telephone respondents to be of an older demographic (Roster et al., 2004). Thirdly, as this research investigates consumers' who are using MPP, they are deemed to have a relatively high level of IT literacy. Therefore, a self-completed survey administered through

the internet (online) was deemed appropriate and preferred to other modes of self-completed surveys, for the following reasons:

- *Time constraints:* Unlike postal surveys which can take weeks to administer and for the individual to respond to (Saunders et al., 2019), online surveys have a relatively short response time. The setting up and distribution of an online survey can for example take days rather than weeks (Malhotra et al., 2012) and the data collected can be monitored as individual responses are received.

- *Data integration:* When an individual completes an online administered survey, the data is collected within the survey tool almost instantaneously. In contrast to paper based surveys there is no transfer of the data between formats or need for human intervention during the data collection process. This reduces potential data entry errors when inputting the data (Bryman and Bell, 2007). Online survey tools also provide a range of data exporting formats which allows the researcher a degree of flexibility in terms of the analysis tools used. The data integration benefits between response, data collection, and data analysis also result in lower costs versus other formats (Evans and Mathur, 2005).

- *Online formatting:* Online surveys offer the capability to differ the format of the questions depending on the type of device the individual is using to answer the survey. It is recognised that respondents who access online surveys through a mobile device has increased over the past decade compared to desktop devices and that the validity of mobile responses is as high (Sommer et al., 2017). However, surveys completed through mobile devices have been found to take longer to complete, due in part to the difficulty of reading questions and selecting responses on a smaller screen (Couper and Peterson,

2017). Therefore, it is important to configure the online survey to appear differently if the respondent is using a laptop or desktop versus a mobile phone.

- *Measuring attitude:* Online surveys have been used extensively in consumer behaviour research to measure individuals' attitudes, beliefs, and experiences (Creswell, 2014). These studies typically use Likert-type scale questions to measure consumers' attitude to a range of topics including their use of new technologies (Antioco and Kleijnen, 2010). Thus, online surveys are accepted as a suitable survey mode through which to explore consumers' value creating activities when using mobile payments.

Despite the advantages of using a self-completed online survey as with any mode of survey, there are potential weaknesses that must be considered by the researcher. Examples of these include, when contacting respondents using email that the survey may be perceived as junk mail, potential skewed attributes of the internet population, privacy and security issues, and the need to provide clear instructions (Evans and Mathur, 2005). A range of solutions exist to overcome these weaknesses and are considered at the appropriate stages of the survey design hereafter. This research uses the survey tool Qualtrics (www.qualtrics.com/uk/) to build and administer the online survey. The UoB has full access to this paid survey tool which meant no survey question or response limits were imposed and account management was available. As Qualtrics is a GDPR compliant survey tool this ensures that the respondents' data from the online survey is stored only in data centres located within the EU and that the data is processed in compliance with the regulations (Qualtrics, 2019).

7.2. Survey Development

The survey was designed and developed to ensure that the data collected demonstrated validity and reliability (Saunders et al., 2019) through minimising sources of non-sampling errors from the survey instrument (Malhotra et al., 2012). In contrast to sampling (non-response) errors which are attributed to sampling decisions when potential respondents included in the sample do not respond (Malhotra et al., 2012), the survey development stage focused on minimising response errors. Response errors occur when the answers given by a respondent are inaccurate, misrecorded, or misanalysed which results in measurement and processing errors (Stern et al., 2014). With a self-completed online survey where the researcher is not present, it is important for example that the questions are not too complex and as succinct as possible to avoid mis-interpretation by the respondent (Saunders et al., 2019). The online survey is informed by the understanding of the value creating activities and CV themes from the qualitative results in stage one. As shown below in Figure 7-1 (updated from Figure 5-5 p.128), following on from the qualitative stage of this study, the survey aims to examine the relationships and the size of the effects between the CV constructs. Thus, providing a clear purpose for the integration and interface between the qualitative and quantitative stages in this mixed-methods research design (Guest, 2013; Creswell, 2014).

The survey design process followed these four steps prior to collecting the final sample: (1) review of the qualitative stage results, (2) initial design of the survey, (3) pre-testing the survey instrument to ensure validity including an expert review by the researcher' supervisors, and (4) a pilot study to ensure the reliability of the questionnaire items and confirm the internal consistency of the construct items.

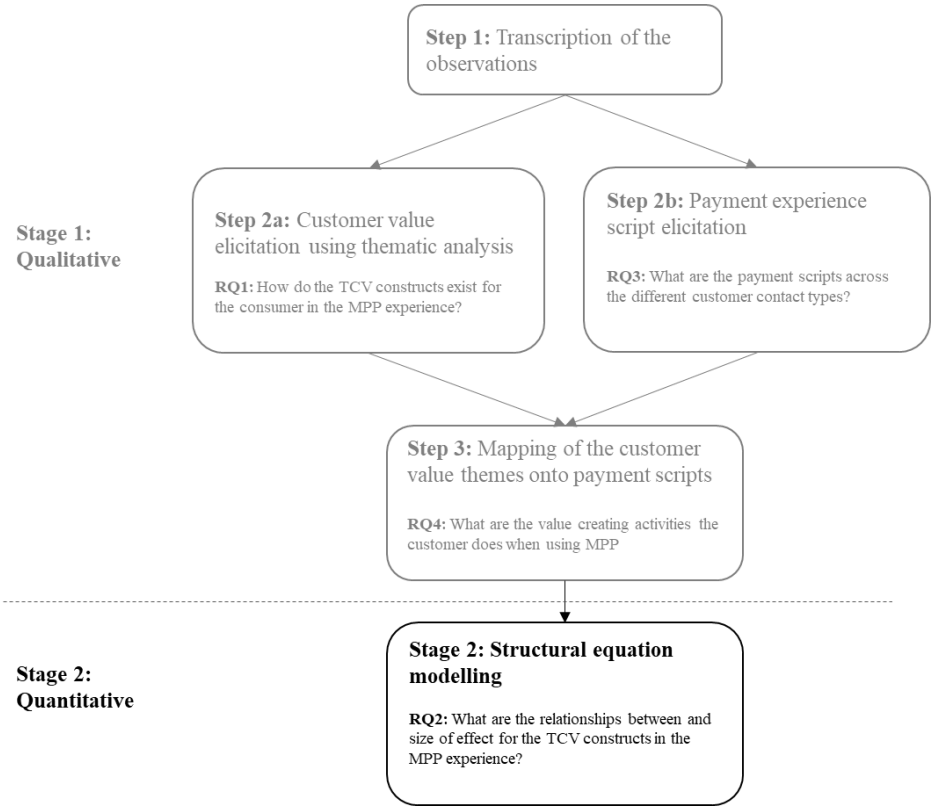


Figure 7-1: Stage 2: Research question overview

The survey instrument contained three main sections covering eight pages in length and the final survey is shown in Appendix 7.1. The first section of the survey (pages 1 and 2) detailed the background of the research and explained how the participants' data would be stored and used in line with the UoB ethical guidelines and GDPR. If the participant agreed to give consent for their data to be used for this research, then they were asked to confirm that they met the sample selection criteria as discussed further in Section 7.3 on p.208. At this stage if they did not meet the sample criteria of using an NFC MPP at least weekly they could not continue with the survey and were asked to close the browser window. The timing of the survey design (April 2020) and data collection (June 2020) coincided with the start of the global COVID-19 pandemic in 2020. It was unknown what impact at that time the pandemic would have on customers' use of payment methods or how long the pandemic would last. Therefore, to ensure

consistency with the data collected in stage one the respondents were asked to answer the survey questions in terms of their use of MPP *before* the COVID-19 lockdown in the UK (from 26th March 2020). Although additional header information was included on each page of the survey to remind the respondents of this it is accepted that the length of time between answering the survey and when the COVID-19 lockdown started could potentially increase response errors (Malhotra et al., 2012).

The second section of the survey (pages 3 and 4) asked the participants for socio-demographic information and MPP usage characteristics. This section was initially intended to be at the end of the survey to reduce survey fatigue but to implement the quota sampling in Qualtrics it was required to be placed earlier in the survey sections. The socio-demographic questions included the option *prefer not to say* in case the participant did not want to answer. The questions about the participants' use of MPP were developed from the qualitative stage and included an additional sample criteria question. Whereby, if the respondent did not use one of the NFC MPP listed they were not retained in the sample. The MPP usage sections questions covered a range of characteristics to firstly ensure that the sample had similar MPP usage characteristics to that from stage one in terms of the situations where consumers' use MPP. Secondly, certain questions in this section were subsequently used to segment the results using SEM multi-group analysis to determine if significant differences were evident across sub-groups of the data (Chin and Dibbern, 2010). These characteristics included gender, age, MPP operating system, length of MPP use, frequency of MPP use, and region in the UK.

The survey contained only closed questions as these are most suited for online self-completed surveys in comparison to open questions (Saunders et al., 2019). Although, closed questions do

not allow participants to answer in their own terms they do reduce the effort on the participants to process their answers (Bryman and Bell, 2007). The survey contained a mix of question response formats depending on the question, these were dichotomous and multiple-choice questions in sections one and two, and scale questions in section three. The only exception to this was the question asking the participants' age which allowed free text input as alternative formats would have resulted in a long list of options. To ensure an appropriate age was entered range criteria was used which only allowed the entry of values of 18 to 99.

7.2.1. Customer Value Construct Question Design

The third section of the survey (pages 5 to 8) contained questions relating to the participant's attitude towards using MPP and the customer value constructs. An initial measurement model with questionnaire items for each value construct was developed from the qualitative results in stage one, as shown below in Figure 7-2. The process of item generation and development is detailed hereafter including justification for the number of items per construct, links between interviewee verbatim from stage one and question items, and value construct definitions. The exogenous interaction and independent value constructs were measured using multiple observed questionnaire items to increase the accuracy of the estimations (Chin, 1998; Hair et al., 2016) and as: '…no single indicator can fully capture the full theoretical meaning' (Steenkamp and Baumgartner, 2000, p. 196) of the constructs in the study. The observed variables used to measure the value constructs are formative indicators as the direction of causality is from the measure to the construct and there is no reason to expect the measures to be correlated (Jarvis et al., 2003). This approach aligns with recommendations that CV should be operationalised as formative constructs formed by relevant positive and negative value types to maintain the multi-dimensional nature of CV (Lin et al., 2005; Leroi-Werelds, 2019).

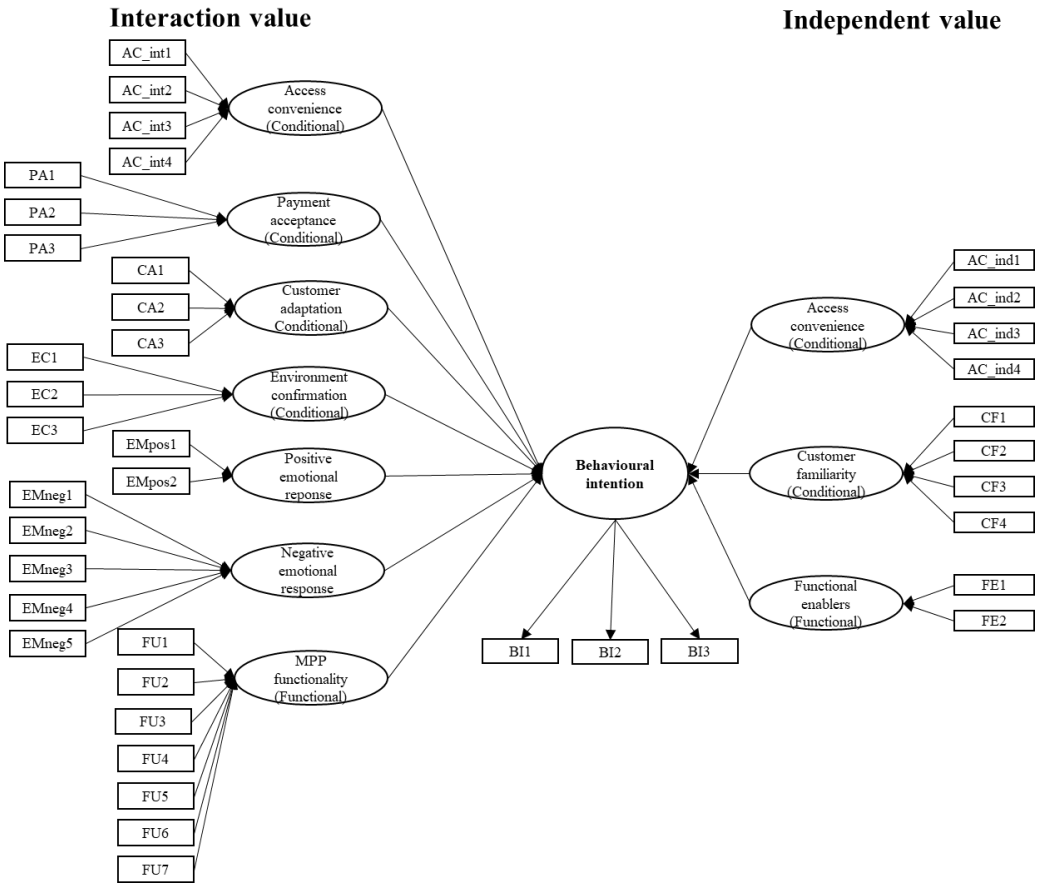


Figure 7-2: Initial measurement model

Additionally, the analysis technique used on the survey data (SEM-PLS) allows an unequal number of items per construct (Matthews and Hair, 2018). However, it is recommended not to have a construct measured by a single item due to effects on content and predictive validity (Diamantopoulos et al., 2012), and research in marketing typically have between 3 and 4 indicators per a formative construct (Ringle et al., 2012). The Functional construct which originally had 7 items was split into two constructs (Functional core and Functional non-core). This split of the MPP functionality in the service encounter reflects the difference between MPP functionality which is most likely to occur when paying (core) and that which is occurs more intermittently when paying (non-core). All the value construct questionnaire items were developed from participants verbatim in stage one. Examples of the link between the qualitative stage one findings and questionnaire items are shown in Table 7-1 below.

Table 7-1: Examples of link between qualitative stage one findings and questionnaire items

Value Construct	**Sample questionnaire item**	**Informants verbatim example**
Conditional access convenience (Interaction)	I use mobile payments because my phone is in my hand when I am about to pay	"I can juggle a load of stuff together and have my phone in my hand" (Int_08m)
Functional attributes	I use mobile payments because my bank account is securely protected with for example fingerprint or Face ID	"I know my phone is backed up and secure enough, it's *{mobile payment}* not going to be hacked as such where I believe my wallet could be truly hacked up there is no security in it." (Int_08m)
Emotional response	(Neg.) Using mobile payments can make me confused (Pos.) Using mobile payments can make me reassured	"if it is below £30 but there is a lot of confusion about what's acceptable." (Int_05m) "just had to wait a little minute up came the tick (ob028s) so that was reassuring it had gone through now I'm waiting for my coffee" (ob148t)
Conditional payment acceptance	I can use mobile payments for any monetary (£) amount no matter how small	"No matter how small if I go to Tesco I just tap my phone, it can be less than £1 shopping." (Int_16f)
Conditional customer adaptation	When I shop with mobile payments I avoid shops that charge a transaction fee for mobile payments	"I avoid shops where you have a minimum spend of £5. We have two local shops left to one and right to the other, the one to the left is a £5 minimum payment the other one hasn't got one." (Int_18f)
Conditional environment confirmation	When using mobile payments in an unfamiliar shop I look for signs around the till terminal that confirm mobile payments are accepted	"What made me use Apple Pay is they have a dangly point of sale saying we now take Apple Pay stickers over the till." (Int_08m)
Conditional customer familiarity	When using mobile payments I know which payment options on a self-serve till to choose	"Probably only because I have got used to it, I don't remember there being a specific Apple Pay on the screen." (Int_17m)
Conditional access convenience (Independent)	I use mobile payments because I can leave my workplace (e.g. desk or office) without a physical wallet or purse	"At work in particular I'll usually just have my phone on me, my wallet is in my desk." (Int_02m)
Functional enablers	When using mobile payments I am concerned about my mobile phone running out of battery power	"If I have just popped out for the day and not bothered taking my wallet with me that is when it *{low battery}* becomes more of a worry." (Int_10m)

The questionnaire items were designed to reduce common method bias through being clear, concise, avoiding vague concepts, and double-barrelled questions (Jarvis et al., 2003). A 7-point Likert scale *(1) Strongly disagree* to *(7) Strongly agree* was used to understand

respondents' attitude towards their use of MPP. This scale ensured there was symmetry of the items about a middle category *(4) Neither agree nor disagree* as it is important in SEM for the Likert scale to be perceived as symmetric and equidistant, as even though it is an ordinal scale it can approximate interval-level measurement (Hair et al., 2016). The two most common number of Likert scale points used in business research are 5 or 7-points (Malhotra et al., 2012). A 5-point scale is more commonly used if the researcher is concerned about survey response rates as it is easier for the respondent to process. However, research suggests that the results from either a 5 or 7-point Likert scale are comparable when conducting SEM (Dawes, 2008) and a 7-point scale was used because response rates were less of a concern due to using online panel for data collection.

An overview of the independent (exogenous) value constructs, their definition, and resulting questionnaire items are shown below in Tables 7-2 and 7-3. The outcome (endogenous) construct *Behavioural Intention* was derived from prior IT and consumer behaviour research (Venkatesh, et al., 2012). Behavioural intention has been used extensively as a measure of both service outcomes and when exploring the use of new mobile technology (Dagger et al., 2007; Koenig-Lewis et al. 2015). Prior research also suggests that customer' value perceptions have a positive influence and are an antecedent of customers' behavioural intention (Cronin et al., 2000). Therefore, the CV creating activities that occur when using MPP are proposed to have a direct relationship with behavioural outcomes (Eggert and Ulaga, 2002). This approach also recognises that no universally accepted scale for measuring CV exists (Leroi-Werelds, 2019) due in part to the complexity of operationalising CV in its entirety (Parasuraman, 1997). The question items for the behavioural intention construct are reflective and shown below in Table 7-4.

Table 7-2: Definition of interaction value constructs and questionnaire items

Interaction value constructs	**Value construct definition**	**Questionnaire items** (7pt Likert scale: strongly disagree to strongly agree)
Conditional access convenience (ACint)	The reduced time and effort expenditure (Berry et al., 2002) the customer acquires when initiating the mobile payment application in the service encounter.	*I use mobile payments because…* 1) my phone is in my hand when I am about to pay 2) my phone is easier to retrieve than my physical wallet or purse 3) my phone is quicker to retrieve than my physical wallet or purse
Functional core attributes (FUc)	The utilitarian attributes of the mobile payment application that relate to the core activity of paying in the service encounter.	*I use mobile payments because…* 1) the app provides receipt information of what I have bought 2) my bank account is securely protected with for example fingerprint or face ID 3) my personal bank information is not stored on the mobile phone 4) the app confirms when the payment has been successful (i.e. beep, ping, vibration)
Functional non-core attributes (FUnc)	The utilitarian attributes of the mobile payment application that relate to the non-core activity of paying in the service encounter.	*I use mobile payments because…* 1) I can store my loyalty cards in the app 2) the app notifies me when a shop accepts mobile payments 3) the app notifies me when I can use my shop loyalty schemes
Negative emotional response (EMneg)	The negative emotional customer responses when using mobile payments in the service encounter.	*Using mobile payments can make me…* 1) frustrated 2) confused 3) irritated 4) stressed 5) nervous
Positive emotional response (EMpos)	The positive emotional customer responses when using mobile payments in the service encounter.	*Using mobile payments can make me…* 1) happy 2) reassured
Conditional payment acceptance (PA)	The acceptance of mobile payment applications by stores.	*I can use mobile payments…* 1) in all the shops I want 2) for any monetary (£) amount no matter how large 3) for any monetary (£) amount no matter how small
Conditional customer adaptation (CA)	The adaption by the customer when using mobile payments	*When I shop with mobile payments I…* 1) avoid shops that cannot accept mobile payments 2) avoid shops that charge a transaction fee for mobile payments 3) reduce the amount of shopping I buy
Conditional environment confirmation (EC)	The confirmation the customer receives from the service encounter environment that mobile payments are accepted.	*When using mobile payments in an unfamiliar shop I look…* 1) to see if other people in the queue are using mobile payments 2) for signs in the queue that confirm mobile payments are accepted 3) for signs around the till terminal that confirm mobile payments are accepted

Table 7-3: Overview of independent value constructs and questionnaire items

Independent value constructs	**Definition**	**Questionnaire items** (7pt Likert scale: strongly agree to strongly disagree)
Conditional customer familiarity (CF)	The familiarity and knowledge the customer has acquired over time from using mobile payments.	*When using mobile payments I…* 1) know how to deal with technical issues 2) know which payment options on a self-serve till to use 3) know which stores accept the mobile payment app I use 4) associate the contactless payment sign with mobile payments
Conditional access convenience (ACind)	The convenience the customer acquires from the mobile payment application being easy to access outside of the service encounter.	*I use mobile payments because I…* 1) can leave home without a physical wallet or purse 2) can leave my workplace (e.g. desk or office) without a physical wallet or purse 3) do not have to carry a bag or backpack 4) do not have to carry a physical wallet or purse
Functional enablers (FE)	The mobile phone functional enablers that are the responsibility of the customer and are required for mobile payments to be used.	*When using mobile payments I…* 1) am concerned about my mobile phone running out of battery power 2) am concerned about my mobile phone having a weak phone signal or wi-fi connection

Table 7-4: Overview of behavioural intention questionnaire items

Outcome construct	**Definition**	**Questionnaire items** (7pt Likert scale: strongly agree to strongly disagree)
Behavioural intention (BI)	The customers' intention to continue using mobile payments in their daily lives. (Adapted from Venkatesh, 2012)	1) I intend to continue using mobile payments in the future 2) I plan to continue using mobile payments frequently 3) I will always try to use mobile payments in my daily life

7.3. Population and Sampling

The sample for this stage is drawn from the same population of interest in stage one as those consumers' who use an NFC MPP but the geographical boundary was expanded from Birmingham to the United Kingdom (UK). As identified in stage one consumers are able to use NFC MPP to pay across a range of daily activities in comparison to QR MPP which are not as

widely accepted. Of the NFC MPP solutions available to UK consumers, the market is dominated by Apple Pay, Google Pay, and Samsung Pay (UK Finance, 2020a). The frequency of NFC MPP use of at least once a week was retained to be consistent with the sample in the stage one interview phase as this would ensure that the survey respondents used MPP in similar everyday situations. The decision to expand the sample at this stage beyond Birmingham was taken as a broader sample allowed for regional comparison in the analysis. The UK geographical frame was chosen rather than specifically just England as smartphone adoption is high across all of the UK with seven out of ten adults (78%) using a smartphone (OFCOM, 2019). The smartphone is also the most common device to access the internet on the go in the UK (79% of all adults use the internet on the go) compared to the use of a tablet (39%) or laptop (36%) (ONS, 2019b). Mobile networks across the UK also offer customers relatively good connectivity to the mobile internet and in 2018 nearly three quarters (72%) of mobile connections were done over a 4G network (OFCOM, 2019). Although, regional differences do exist the levels of internet use through a smartphone are relatively high across the UK. For example, when comparing recent internet use, those adults that have used the mobile internet within the last three months, London and the South East has the highest proportion of recent internet usage at 93%. However, the region with the lowest recent internet usage is still relatively high, Northern Ireland at 87% (ONS, 2019a). Therefore, there is no justification to limit the population sample to just England or omit any of the other home nations from the sample.

Despite a large proportion of the UK owning a smartphone which has the capability to run NFC MPP it was not possible to identify a sampling frame. A sampling frame for this research would be a customer database that includes individuals' personal details, such phone number or email

address of those customers who have installed and use MPP. However, this customer information is not publicly available information and therefore probability sampling techniques were not feasible. The use of probability sampling techniques is appropriate when the research wants to generalise to a wider population and is more explanatory in its overall objective (Bryman and Bell, 2007). Therefore, as the target population is hard to reach, the exact population of those customers who use MPP unknown, and the objective of the research is exploratory, non-probability sampling techniques were used (Saunders et al., 2019).

A non-probability sample method accepts that researcher judgement may affect the sample selection process and result in bias. For example, these judgements can result in those participants that agree to participate in the research differing in characteristics to those that do not agree to participate (Bryman and Bell, 2007). Despite limitations non-probability samples are frequently used in business research and produce valid results (ibid), and this research draws its sample from online panel data using the provider Qualtrics. Data obtained from online panels' are considered a form of non-probability convenience sampling (Porter et al., 2019) of which a justifiable use is exploratory research (Ferber, 1977). Samples drawn from online panels are often used in research when the sample population is hard to reach (Walter et al., 2019) and research suggests that samples drawn from online panels are more representative of adult populations than for example student samples (Goodman and Paolacci, 2017; Peer et al., 2017). Despite the cost associated with online panel data it cannot be assumed that the resulting data will be high quality (Kees et al., 2017). Therefore, quality assurance measures, such as attention checks, were implemented during the design of the survey and the results screened and prepared accordingly (Porter et al., 2019) as discussed in Sections 7.4 on p.214 and 7.5 on p.218.

Notwithstanding the inherent convenience sample characteristic and associated cost of using online panel data its benefits included:

1) *Quota sampling:* Cases from a representative characteristic within the sample from which completed survey responses must be collected termed a quota were identified (Saunders et al., 2019). The use of quota sampling is commonly used as part of an online survey strategy to ensure that the sample represents the target population as the: '…variability in your sample for various quota variables is the same as that in the target population' (Saunders et al., 2019, p.317). Two quotas were used in the sample for this research, the first was a gender quota split of 50% male and 50% female. There is no evidence to suggest that the usage of NFC MPP should differ by gender from within the UK population and the percentage of females and males in the UK is roughly equal (males=49.4%, females=50.6%; ONS, 2019c). The second quota was on mobile operating system (OS), set at 50% Android (Google Pay and Samsung Pay) and 50% iOS (Apple Pay). The use of mobile OS in the UK in 2019 was split equally between Google' Android and Apple' iOS at 49.5% and 50% respectively (DeviceAtlas, 2019).

2) *Completed response charge:* Qualtrics only charge for completed responses that have passed agreed quality checks. These quality checks occur while the data is being collected and thus responses that do not meet quality checks are deleted during data collection and not at the end of the full data collection period. Examples of quality checks used during the data collection included, respondents which have not shown enough attention through incorrectly answering attention check questions or respondents which have answered the survey too quickly. An unacceptable survey completion time was calculated from the results of the pilot study to be less than half the average time to complete the survey (<3.5 minutes). The researcher was also able to once the survey completed review the responses

and replace those that were deemed not to be of acceptable quality. The use of such quality assurance measures to maximise data quality recognises that participants who are part of online panel data may be deemed non-naive participants or professional survey takers who frequently participate in online surveys (Porter et al., 2019; Kees et al., 2017).

3) *Low response rates:* Whereas low response rates are an important consideration when collecting survey data this is less applicable when using online panel data. Low survey response rates are a major issue for online research despite increased internet accessibility, and online surveys still have up to 12 per cent lower response rates than other survey modes (Daikeler et al., 2020). This results in researchers having to factor in these low response rates when considering how many eligible participants to contact, which will often be far greater than the final sample size (Malhotra et al., 2012). In contrast, when using Qualtrics online panel data the response rate and the percentage of persons eligible to participate in the survey, termed incidence rate, are factored into the cost estimate prior to launching the survey.

7.3.1. Sample Size

The size of the sample was predominantly governed by the type of statistical analysis used and as is common in business research involved both researcher judgement and calculation (Saunders et al., 2019). When considering what an acceptable sample size is prior to data collection it is important to recognise both the implications of too small and too large a sample size. If the sample size is too small then it may not be adequate to observe true relationships in the data and provide the statistical power from which hypothesis can be proven (Wolf et al., 2013). Conversely, large sample sizes not only increase financial costs if applicable but have

potential to magnify any survey bias that exists (Grandcolas et al., 2003). Therefore, a conservative minimum sample size was estimated prior to data collection and analysis. Business research typically uses a 95 per cent level of certainty by which if a sample were selected 100 times, a minimum of 95 of these would represent the characteristics of the target population (Field, 2009). The size of the target population for this research is estimated at 3,046,940 adults in the UK who make a payment using MPP at least weekly, as shown below in Table 7-5. As all samples include a margin of error, the minimum sample size of completed and screened responses for the estimated target population to achieve a 95 per cent confidence level with a margin of error of 5% would be n=384 (Saunders et al., 2019).

Table 7-5: Target population estimation

	n
UK total adult (over 18 years of age) population in 2018 (ONS, 2018)	52,403,344
16% of UK adult population registered for mobile payments (UK Finance, 2018)	8,384,535
79% of UK adult population registered for mobile payments that record a payment (UK Finance, 2018)	6,623,783
46% of UK adult population that record a payment at least weekly (UK Finance, 2018)	**3,046,940**

Additionally, SEM statistical technique also has its own specific sample size guidelines. A range of these guidelines were considered to determine an acceptable minimum sample size with a specific focus on those for PLS-SEM. Guidelines include the *10-times rule* which is commonly used due to its simplicity (Kock and Hadaya, 2018). The 10-times rule states that the sample size should be greater than 10 times the maximum number of inner or outer links that point to any latent construct in the model (Goodhue et al., 2012; Hair et al., 2011). In this research the greatest number of outer links that point to a latent construct is five for the number of indicators pointing to the negative emotional response construct. Therefore, this guideline

would result in a required sample size of 50 but this method is criticised because it results in: '…grossly inaccurate estimations of minimum sample size' (Kock and Hadaya, 2018, p.232).

An alternative sample size guideline to the 10-times rule is to use the inverse square root method (Kock and Hadaya, 2018). The inverse square root method produces a sample size which aims to achieve strong path coefficients at the population level and an acceptable level of statistical power. Statistical power refers to a statistical tests probability of avoiding false negatives which is estimated for a particular coefficient, usually at the statistical level of $p<0.5$ (Cohen, 1988; Goodhue et al., 2012). However, this method requires determining an expected path coefficient from previous research which is not available for this study. Therefore, using a guide of achieving minimum absolute significant path coefficients in a model of equal to or greater than an a-priori minimum $\beta=0.197$ a targeted sample size of 160 is required. Additionally, as this research tests the differences between group-specific path coefficients using Multi-Group Analysis (MGA) it is recommended that a minimum sample size is considered not just for the total sample but for each group (Hair et al., 2016). Therefore, the minimum sample size to ensure that each of the two predetermined quotas ($n=160$ for each of the two gender and operating system quotas) could be targeted would be $n=320$. To account for the potential loss of data after the data is collected through for example missing data or data cleansing a minimum sample of $n=400$ was determined, but a target of $n=500$ determined to also include for piloting of the survey at 10% ($n=50$) which is discussed in the following section.

7.4. Survey Pre-Test and Pilot Study

Prior to putting the survey live through the online panel it was pre-tested using five respondents who had participated in the qualitative interview stage and expert reviews from the researcher's

supervisors. The aim of pre-testing was to ensure that the survey question items were fully understood and the validity of the survey was not compromised due to incorrect terminology or wording (Sue and Ritter, 2012). The pre-test also allowed the overall formatting of the survey to be tested on other devices and operating systems aside from the researchers. Five interview participants were approached by email to ask if they would be willing to answer the survey and to note down any issues encountered. The feedback resulted in several changes listed below:

1) *Text size formatting:* The respondents felt the text overall was too small and it was increased in size from 8pts to 10pts across all pages of the survey.

2) *Back button:* One respondent wanted to go back to a question on a previous page but was unable to do so. Thus, back-button functionality was added to the survey to act as a safeguard to allow respondents who enter an incorrect response to return to an item on a previous page and update their response (Hays et al., 2010).

3) *Question amended:* Question block 17: *"When I use mobile payments I have to…*" was deemed unclear and amended to *"When I shop with mobile payments I have to…"*.

4) *Before COVID-19:* Several respondents felt the time period they were being asked to provide answers for could have been clearer throughout the survey. Thus, the "BEFORE COVID" text header was made clearer by increasing the size of and capitalising the font.

The survey was put live through the Qualtrics online panel and after 49 responses had been received (circa 10% of total sample size) it was put on hold. This number of responses was in line with pilot study sample size guidelines of a minimum between 10 and 30 respondents and/or 10% of final survey sample size (Fink, 2003). These initial responses were reviewed to gain an understanding of the data characteristics, construct validity, and distribution of the data. Additionally, an acceptable minimum time to complete the survey was agreed with Qualtrics of 3.5 minutes which was half of the average time to complete the survey. This minimum time

to complete the survey was subsequently used in the main survey below which any responses would not be counted towards the total completed responses.

The validity of the value constructs were reviewed using preliminary measures, a more detailed explanation and extensive use of validity measures of the full data sample is further explained in Chapter 8. Firstly, the reflective construct was tested for internal consistency using Cronbach' alpha. As a reflective variable the *behavioural intention* construct had an acceptable α>0.7 (α=0.928) (Hair et al., 2016). This ensured that the question items measuring the behavioural intention construct were inter-related as expected for a reflective variable. Secondly, the formative constructs were tested for multi-collinearity to ensure that the question items measuring the constructs were not correlated (ibid). The results shown below in Table 7.6 demonstrate that the mean Variance Inflation Factor (VIF) for the formative constructs were below the accepted limit of <5 (ibid).

Table 7-6: Formative construct VIF

Value type	Construct	Construct label	mean VIF
Interaction	Access convenience	ACint	1.85
	Functional core attributes	FUc	1.3
	Functional non-core attributes	FUnc	2.44
	Payment acceptance	PA	1.43
	Customer adaption	CA	1.11
	Negative emotional response	EMneg	4.34
	Positive emotional response	EMpos	1.72
	Environment confirmation	EC	2.76
Independent	Customer familiarity	CF	1.09
	Functional enablers	FE	1.74
	Access convenience	ACind	3.01

The distribution of the pilot data was assessed for normality despite PLS-SEM as a nonparametric statistical method not requiring normally distributed data (Hair et al., 2016). When data is extremely non-normal in its distribution this can impact on the significance of

relationships in the structural model (Henseler et al., 2012). Firstly, as shown in Table 7-7 below, Kolmogorov-Smirnov and Shapiro-Wilk tests indicated that the distribution of several constructs was significantly different from a normal distribution (p<0.05) (Field, 2009).

Table 7-7: Pilot data results of Kolmogorov-Smirnov and Shapiro-Wilk tests

	Kolmogorov-Smirnov			Shapiro-Wilk		
Construct	statistic	df	Sig.	statistic	df	Sig.
BI	0.130	49	**0.038**	0.928	49	**0.005**
ACint	0.124	49	0.057	0.957	49	0.073
FUc	0.117	49	0.088	0.968	49	0.193
FUnc	0.123	49	0.063	0.954	49	0.052
EMpos	0.173	49	**0.001**	0.922	49	**0.003**
EMneg	0.197	49	**0.000**	0.864	49	**0.000**
PA	0.151	49	**0.007**	0.961	49	0.107
CA	0.127	49	**0.048**	0.972	49	0.302
EC	0.126	49	0.051	0.955	49	0.061
CF	0.154	49	**0.005**	0.960	49	0.090
FE	0.104	49	0.200	0.965	49	0.154
ACind	0.120	49	0.076	0.961	49	0.108

NB: *Significant (p<0.05) test in bold*

The Skewness and Kurtosis tests for normality were conducted and the results shown below in Table 7-8. The results were within accepted levels of +/-2.58 (significance of p<0.01) indicating that the data was symmetrical in terms of its distribution (Hair et al., 2010).

Table 7-8: Pilot data Skewness and Kurtosis results

	Skewness		Kurtosis	
Construct	statistic	std.error	statistic	std.error
BI	-0.876	0.340	0.738	0.668
ACint	-0.387	0.340	-0.549	0.668
FUc	0.309	0.340	-0.231	0.668
FUnc	-0.241	0.340	0.019	0.668
EMpos	-0.641	0.340	1.539	0.668
EMneg	0.370	0.340	-1.331	0.668
PA	0.304	0.340	-0.399	0.668
CA	-0.349	0.340	0.582	0.668
EC	-0.397	0.340	0.149	0.668
CF	0.556	0.340	0.449	0.668
FE	-0.003	0.340	-0.853	0.668
ACind	-0.447	0.340	-0.447	0.668

7.5. Survey Data Preparation and Examination

This section discusses the steps taken to examine those data issues that can occur during data collection, including checking for suspicious response patterns, missing data, outliers, and data distribution (Hair et al., 2016). The result of these steps was that the sample was suitable for the statistical analysis techniques used in this research. The statistical technique PLS-SEM is a relatively robust technique and less limited by rigorous assumptions than other statistical techniques, such as requiring normally distributed data (Risher and Hair, 2017). Despite the relative robustness of PLS-SEM there are acceptable boundaries outside of which the data can distort the results of the multi-variate analysis (Hair et al., 2016). The result of the data preparation was that the original number of completed responses after the pilot study (n=475) was reduced to a final sample size for the analysis stage discussed in Chapter 8 of n=441.

Unengaged responses

Two checks were conducted to ensure the responses demonstrated that the participants were engaged with the survey. The first check recognises that the matrix (or grid) format used for the attitudinal Likert scales questions can increase unengaged responses (Saunders et al., 2019). However, matrix style questions are space efficient in terms of the overall question block design and save the respondent time compared to for example item-by-item questions (Toepoel et al., 2009; Dillman et al., 2014). Matrix format questions can be prone to respondents giving an identical answer in each block of questions or pages containing multiple blocks of matrix style questions, termed straight-lining (Herzog and Bachman, 1981). The impact of straight-lining on data quality is that it can reduce both the validity and reliability of survey responses through inflating: '…inter-correlations among the items within the battery [block] and thus, suppresses differences between the items' (Yan, 2008, p. 521). The standard deviation of battery (block)

method was used to determine those respondents that demonstrated straight-lining (Kim et al., 2019). The standard deviation was calculated for each response across each of the four pages that contained matrix style questions. This resulted in twelve responses being deleted for straight-lining at least one or more of the four pages in the survey that contained matrix format questions.

Secondly, it was expected that the respondents would use MPP in at least one of the physical service encounter situations listed in the *Where do you use your mobile payment app to pay? (choose all that apply)* question on page 4 of the survey. These situations were all identified from participants' use of MPP in the qualitative stage, included an 'other high street shops' option, and covered both different types of retail stores and travelling by public transport. However, five respondents answered that they did not use MPP in any of the options listed and were therefore deemed unsuitable responses and deleted. The remaining sample size after deletion of responses due to straight-lining and unreasonable responses was n=458.

Missing data

When participants leave a survey question unanswered this results in missing data values which reduces the data available for analysis and can lead to bias in the results (Hair et al., 2016). It is recommended that a reasonably acceptable level of missing values is less than 5% per an indicator for PLS-SEM (ibid). When missing values are below this level then missing value treatments can be used in the PLS-SEM analysis. For example, through replacing the missing values with the mean values of the valid indicators, as is the case in this research. As the attitudinal construct questions were mandatory in the survey, they had no missing values and one missing value existed in each of the household income and employment questions which

represented 0.22% of indicator values and therefore the level of missing data was deemed acceptable.

Outliers

Outliers are defined as cases which have unreasonable values making them distinct from other cases and therefore may affect data validity (Hair et al., 2016). The impact of outliers on data validity includes causing biased results through exerting undue influence over other parameters in a model (Field, 2009). Despite, the potential negative impact that outliers can have on data validity they may still be representative of observations made in the population and large samples will often contain a certain number of outliers. Two types of outliers were assessed, firstly univariate outliers which identifies when a case has an excessive value on an individual variable (Kline, 2016). To identify the univariate outliers the scores of the attitudinal constructs were standardised and the cases with standardised scores +/-3.29 identified as potential outliers (Tabachnick and Fidell, 2006). It was observed that only one case had outliers on more than one variable (case 71), as shown in Table 7-9 below. Through assessing the variables standard deviation and mean with and without the case, it was retained at this stage as this case did not affect the research findings.

Table 7-9: Univariate outlier cases

Univariate Outliers (standardised score > +/-3.29)		
Variables	Case ID	Standardised score (z)
BI	31	-4.105
	97	-4.105
	382	-3.806
ACint	210	-3.390
	71	**-3.390**
EMneg	291	3.368
FUc	23	-4.471
	44	-3.627
	71	**-3.627**
CF	260	-3.997

NB: *case with outliers on more than one variable in bold*

The second type of outliers that were assessed are termed multivariate outliers. In contrast to univariate outliers, multivariate outliers exist when a response case has excessive values on two or more variables (Kline, 2016). To assess multivariate outliers, the Mahalanobis distance (D^2) measure was used to determine the multidimensional gap between the case and the mean of each variable (Hair et al., 2014). The multivariate outliers were identified as those where the D^2 compared to a chi-square distribution with the same degrees of freedom is significant (p<0.001). The degrees of freedom (df) are represented as the number of measures within each variable with a significant (p<0.001) difference between D^2 and chi-square distribution. The underlying data was checked to ensure that none of these multi-variate outliers were a result of the data collection, through for example incorrect data entry. The cases with a D^2 greater than 25 were determined to be multivariate outliers and deleted (n=17), as shown in Appendix 7.2. Although, different cut-off points to determine acceptable levels of D^2 exist and are dependent on sample size it is suggested that even with a large sample (n=500) and five predictors per variable a D^2 above 25 is cause for concern (Field, 2009). Therefore, the cases with a D^2 greater than 25 were determined to be multivariate outliers and deleted (n=17) and the final prepared sample was n=441.

Normality

Tests that assess the normality of the data measure that the data collected have a normal distribution (Field, 2009). If data is normally distributed it will follow a bell shaped, symmetric curve around the mean (Hair et al., 2016), which for the attitudinal survey question using a 7-point Likert scale would be a mean value of 4. Although, normal distributions are preferred for many statistical techniques such as CB-SEM, PLS-SEM makes no assumptions about the data distribution as it is a nonparametric method. Therefore, PLS-SEM can be used with non-

normally distributed data but if the data is extremely non-normal this can decrease the likelihood that certain relationships are assessed as significant through inflating errors obtained from bootstrapping (Henseler et al., 2009). Thus, it is recommended to test for data normality such that the researcher is aware of the extent of non-normality if applicable when analysing the PLS-SEM results (Hair et al., 2016). As recommended the normality of the data is assessed through firstly, comparing the data with a normal distribution with the same standard deviation and mean as in the sample, using the Kolmogorov-Smirnov and Shapiro-Wilk statistic tests (Field, 2009). Then secondly, the symmetry of the distribution of the data is assessed using skewness and kurtosis measures (Hair et al., 2016).

The Kolmogorov-Smirnov and Shapiro-Wilk tests indicate normality if the results are not significant (p>0.5) from a normal distribution. However, using these tests with large sample sizes (n>100) can often produce non-significant results (Field, 2009). As shown in Table 7-10 below, all the attitudinal variables are significant and therefore the data is non-normally distributed.

Table 7-10: Results of Kolmogorov-Smirnov and Shapiro-Wilk tests for normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
Construct	statistic	df	Sig.	statistic	df	Sig.
BI	0.117	441	0.000	0.935	441	0.000
ACint	0.120	441	0.000	0.933	441	0.000
FUc	0.099	441	0.000	0.982	441	0.000
FUnc	0.075	441	0.000	0.978	441	0.000
EMpos	0.103	441	0.000	0.964	441	0.000
EMneg	0.196	441	0.000	0.855	441	0.000
PA	0.073	441	0.000	0.987	441	0.001
CA	0.082	441	0.000	0.987	441	0.001
EC	0.100	441	0.000	0.967	441	0.000
CF	0.064	441	0.000	0.983	441	0.000
FE	0.112	441	0.000	0.968	441	0.000
ACind	0.099	441	0.000	0.947	441	0.000

The second tests for normality compare the normal distribution with the symmetry of the data in the sample. The symmetry of the data is determined by how skewed the distribution of the data is using the *skewness* test and either flat or peaked the distribution of the data is using the *kurtosis* test (Field, 2009). If the value of the skewness and kurtosis tests are zero then the distributions are normal with negative and positive deviations demonstrating deviation from normally distributed data. The levels within which acceptable deviations from normally distributed data are considered is +/-2.58 (Hair et al., 2016). As shown in Table 7-11 below all the skewness and kurtosis results are within the accepted values of +/-2.58.

Table 7-11: Skewness and Kurtosis results at the construct level

	Skewness		Kurtosis	
Construct	statistic	std.error	statistic	std.error
BI	-0.829	0.116	1.077	0.232
ACint	-0.774	0.116	0.528	0.232
FUc	-0.357	0.116	0.102	0.232
FUnc	-0.311	0.116	-0.009	0.232
EMpos	-0.367	0.116	0.538	0.232
EMneg	0.746	0.116	-0.521	0.232
PA	-0.145	0.116	-0.117	0.232
CA	-0.128	0.116	-0.175	0.232
EC	-0.546	0.116	0.408	0.232
CF	-0.400	0.116	0.419	0.232
FE	-0.356	0.116	-0.420	0.232
ACind	-0.726	0.116	0.254	0.232

7.6. Ethical Considerations

Ethical considerations were made during all parts of the quantitative stage from initial design of the survey through to the analysis and reporting of the findings. The use of an online survey introduces different ethical codes of conduct that must be adhered to compared to stage one. However, the aim of the researchers' ethical conduct remains the same that of avoiding harm

to the respondents and that the researcher acts ethically, through for example not overstating the validity and value of the results (Evans and Mathur, 2018).

The online survey ethical considerations included firstly informed consent. As the researcher is not physically present when the respondent answers a survey the respondent must be fully informed before giving consent and continuing with the survey. To ensure the respondent had sufficient information to give informed consent the first page of the survey provided detailed information about the research topic, for what purpose the data would be used, and that the data was being collected in compliance with GDPR guidelines. Although the nature of the research topic itself was not deemed personally sensitive or potentially harming to the respondent, their right to decline to answer a question or withdraw was respected. For example, the socio-demographic questions and MPP usage survey questions did not force a response and those socio-demographic questions which could have been deemed more personal in their nature also had a prefer not to say option.

Secondly, the respondent's confidentiality and anonymity were maintained. The consent page in the first section of the survey informed the respondent that their data at an individual level would remain confidential and their identity anonymous. The survey did not ask for personally identifiable information such as email address and the responses collected had a system generated unique identifier which the researcher could not directly attribute to an identifiable individual. However, it is recognised that even if the researcher did not have the ability to attribute a system generated unique identifier to an identifiable individual due to the data trails left by computer activity complete participant anonymity can never be guaranteed (Whelan, 2007). Confidentiality was maintained through the researcher not sharing the data with any

other individuals or organisations and the results from the online survey are presented at an appropriate level of generalisation whereby individual identification is not possible (Saunders et al., 2019).

Thirdly, the data collected was managed ethically. As discussed, the use of the survey tool Qualtrics ensured that the data collection process adhered to GDPR guidelines. Thereafter it was the researcher' responsibility to ensure the data was managed appropriately and the data files were processed fairly and lawfully (Saunders et al., 2019). The management of the survey data included transferring the data between programs, storing, and processing. As the survey data was collected during the COVID-19 pandemic the researcher could not as originally intended use UoB provided computers and data storage facilities. Therefore, to ensure the data were stored and processed securely the researcher' home laptop and hard drive were used which no other person had access to and did not leave the researcher' home to prevent accidental loss. At no point during the data analysis stage was the online survey data stored on external online storage facilities as the location of such servers could not be guaranteed to be within the EU. Where the survey data was used in data analysis tools these have their servers within the EU and thus comply with GDPR guidelines.

7.7. Methodological Limitations

This section discusses methodological limitations of the quantitative stage in the mixed-methods research design. Despite PLS-SEM being suited to the nature of the study as it allowed for the prediction of unobserved variables (Hair et al., 2014), the statistical technique does have limitations and aspects of its procedures are relatively undeveloped, notably MGA and validation of formative constructs. Firstly, PLS-SEM is restricted in its use for theory testing

and confirmation due to no recognised adequate global measure of good of model fit (Hair et al., 2011). Although, developments have been made to establish suitable model fit criteria for PLS-SEM, these metrics are predominantly designed to assess the path model's explanatory power rather than its predictive power (Shmueli et al., 2019). Additionally, the PLS-SEM parameter estimates can contain PLS-bias, whereby they are not optimal in terms of bias and consistency (Hair et al., 2011). However, research comparing PLS-SEM and CB-SEM suggest that both techniques can contain degrees of bias, but this is often due to small sample sizes e.g., under 100. As the sample size increases so the resulting bias reduces with both SEM techniques (Sarstedt et al., 2016) and simulation studies show low levels of differences between the techniques (Reinartz et al., 2009).

Secondly, despite the extensive use of PLS-SEM in marketing research, it is less widely applied than CB-PLS and its procedures relatively underdeveloped and still emerging (Sarstedt et al., 2016; Ringle et al., 2012). For example, it is accepted that the quality of formative measurement models cannot be assessed using the same statistical evaluation criteria as reflective measurement models (MacKenzie et al., 2005), but debate exists about how to validate formative constructs beyond assessing for collinearity and significance (Cheah et al., 2018). It is suggested that formative constructs be assessed for convergent validity, the extent which a construct correlates positively with alternative measures of the same construct (Hair et al., 2016). Convergent validity can be determined using redundancy analysis from which the extent a formative construct correlates positively with a reflective construct establishes the validity of the construct (Chin, 1998). The use and design of appropriate reflective constructs for redundancy analysis that adequately captures the salient elements of the formative construct introduces problems for researchers. The design of suitable reflective constructs relies on either

established reflective measurement instruments or if not available constructing new items (Hair et al., 2016). The addition of multiple reflective indicators correspondingly increases the length of the survey which can lead to decreased data quality and lower response rates (Saunders et al., 2019). A solution to this problem is to use a global single-item that measures the essence of the construct for the purpose of redundancy analysis reflective (Hair et al., 2017). However, the design of single reflective items requires greater abstract thinking by the respondent and may need a description of the concept to minimise ambiguity (Cheah et al., 2018). Thus, the use of formative constructs is more demanding than reflective constructs and although procedures exist to test formative construct validity there is no common rule (Bagozzi, 2011; Ringle et al., 2012).

This chapter detailed the design and data collection procedures for the online survey used in the second stage of the sequential mixed methods research design. The following chapter 8 presents a descriptive profile of the survey sample and the analysis and findings of the online survey conducted using PLS-SEM.

CHAPTER 8 - STAGE 2: QUANTITATIVE RESEARCH ANALYSIS AND FINDINGS

This chapter presents the analysis and findings on the prepared online survey data (*n*=441) using PLS-SEM. As a statistical set of techniques PLS-SEM is used to predict the significance of the CV constructs and the size of their effect on consumers' behavioural intention to use mobile proximity payments in their daily lives. The statistical technique PLS-SEM is used in this study because it can predict the TCV constructs as unobserved variables and is more suited to exploratory research than CB-SEM, through for example less restrictive requirements for normal data distribution (Hair et al., 2014). The chapter introduces the descriptive profile of the sample from the online survey data in Section 8.1 and gives an overview of the research model and hypothesis in Section 8.2. The details of the multi-stage procedures conducted using PLS-SEM to ensure the resulting structural model demonstrates predictive validity (Hair et al., 2016; Becker et al, 2012) are discussed in Section 8.3. The results of the structural model supplemented with mediation and MGA analysis techniques are then presented in Section 8.4.

8.1. Descriptive Profile of the Sample

The samples demographic profile is shown below in Table 8-1. The gender split between male and female was roughly 50/50 (51%, *n*=227 / 49%, *n*=214) as per the quota criteria. The age of the respondents is shown grouped with the majority under 45 years of age (83%, *n*=364). London is the most represented region with 28% (*n*=125) of the responses, followed by the South East with 12% (*n*=55) of the responses. The majority of the sample is also employed (79%, *n*=347), either full-time, part-time, or self-employed, with students only accounting for 8% (*n*=36) of the sample.

Table 8-1: Online survey sample demographic profile

Socio-demographics		Number of responses	Percentage of responses (%)
Gender	Male	227	51.47
	Female	214	48.53
Age Group (Years)	18-24	99	22.45
	25-34	136	30.84
	35-44	129	29.25
	45-54	45	10.20
	55-64	15	3.40
	65+	17	3.85
Region	Wales	20	4.54
	Scotland	32	7.26
	Northern Ireland	11	2.49
	East Midlands	24	5.44
	West Midlands	37	8.39
	East of England	36	8.16
	London	125	28.34
	North East	23	5.22
	South East	55	12.47
	South West	21	4.76
	Yorkshire and The Humber	37	8.39
	Prefer not to say	20	4.54
Education	GCSE/O'levels/Diploma	61	13.83
	A-level or equivalent	133	30.16
	Undergraduate degree	165	37.41
	Master's degree	66	14.97
	Doctoral degree	10	2.27
	No formal education	2	0.45
	Prefer not to say	4	0.91
Employment status	Unemployed	23	5.22
	Full-time employed	246	55.78
	Part-time employed	68	15.42
	Self-employed	33	7.48
	Student	36	8.16
	Retired	12	2.72
	Homemaker	17	3.85
	Prefer not to say	5	1.13
	missing	1	0.23
Household annual income	< £15,000	32	7.26
	£15,001 to £30,000	114	25.85
	£30,001 to £50,000	143	32.43
	> £50,001	110	24.94
	Prefer not to say	41	9.30
	missing	1	0.23

The results of the survey questions relating to the use of MPP is shown below in Table 8-2. As per the 50/50 quota placed on operating system 52% (*n*=231) used an Apple iOS phone and the MPP Apple Pay.

Table 8-2: Mobile payment usage data

Mobile payment usage		Number of responses	Percentage of responses (%)
NFC MPP	Apple Pay	231	52.38
	Google Pay	162	36.73
	Samsung Pay	48	10.88
Mobile OS	Android	210	52.38
	iOS	231	47.62
Frequency using MPP	Several times a day	27	6.12
	Once a day	34	7.71
	4 to 6 times a week	85	19.27
	2 to 3 times a week	153	34.69
	Once a week	142	32.20
Minimum paid with MPP	< 50pence	25	5.67
	51p to 99p	76	17.23
	£1 to £5.99p	202	45.80
	£6 to £10	96	21.77
	I do not remember	42	9.52
Maximum paid with MPP	< £20	83	18.82
	£20-£30	132	29.93
	£31-£40	70	15.87
	£41-£50	59	13.38
	£51-£99	45	10.20
	>£100	25	5.67
	I do not remember	27	6.12
Length of time using MPP	< 6 months	122	27.66
	7-12 months	133	30.16
	1-2 years	114	25.85
	>2 years	72	16.33
Perceived maximum limit	£30	151	34.24
	£45	147	33.33
	Differs by shop	143	32.43
Store loyalty scheme	Physical (card or fob)	347	78.68
	NFC MPP	240	54.42
	3rd party app	226	51.25
	Other mobile app	123	27.89
Stores using MPP in (yes)	Supermarkets	373	84.58
	Coffee shops	333	75.51
	Other high street	279	63.27
	Clothes shops	257	58.28
	Pubs/Bars	240	54.42
	Public transport	236	53.51
	Petrol stations	227	51.47
	Chemists	198	44.90
	Markets	104	23.58
	Hairdressers	81	18.37

The Android mobile phone users used Google Pay 37% (*n*=162) and Samsung Pay 11% (*n*=48). The most frequent use of MPP was 2 to 3 times a week at 35% (*n*=153), with only 14% (*n*=61) using MPP at least once a day. The largest monetary amount that MPP had been used for was predominantly in the £20 to £30 range (30%, *n*=132), although 16% (*n*=70) of the sample used MPP for monetary amounts over £50.

There was marginal difference in terms of length of use between those that had used MPP for more than one year (42%, *n*=186) and those that had used MPP for less than a year (58%, *n*=255). There was an equal split when comparing what the sample thought the purchase limit was for MPP, with 32% (*n*=143) believing it differed by shop, compared to 34% (*n*=151) believing it was £30 and 33% (*n*=147) who thought it was £45. The sample used MPP across a range of stores with supermarkets (85%, *n*=373) and coffee shops (76%, *n*=333) being most common. Conversely, the sample used MPP in hairdressers (18%, *n*=81) and markets (24%, *n*=104) the least.

8.2. Overview of the Research Model and Hypothesis

The research model and research path model hypotheses that were designed following the results of the qualitative stage of this study are shown below in Figure 8-1 and Table 8-3.

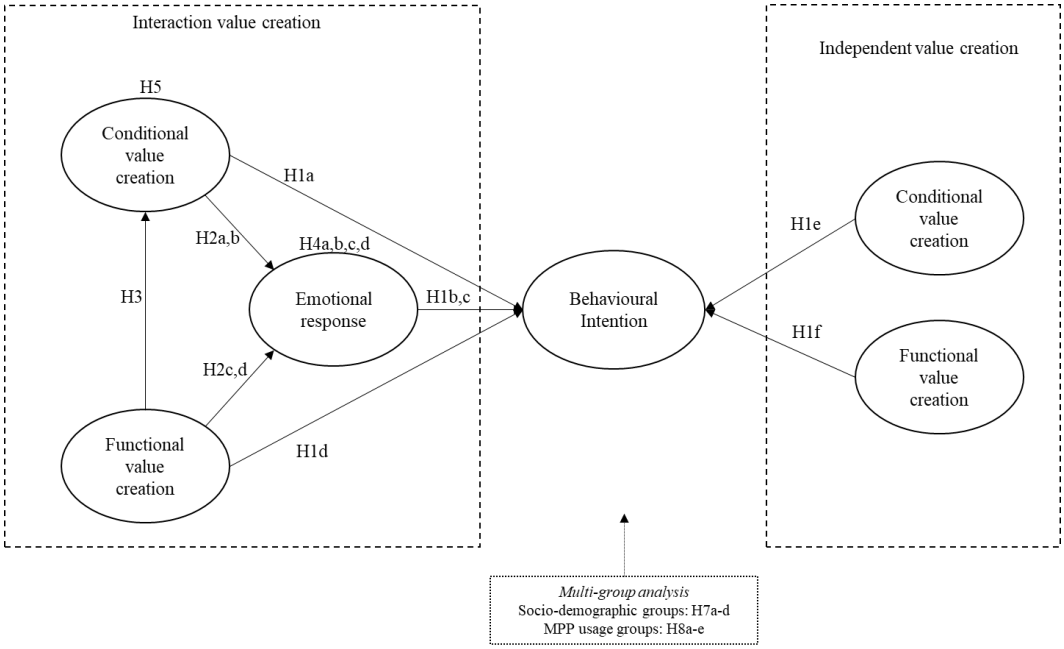


Figure 8-1: Research model

Table 8-3: Research path model hypothesis

H1a	Conditional value created in the service interaction has a significant positive effect on behavioural intention to use MPP (Chapter 6, Section 6.2.1 & 6.2.2)
H1b	Positive emotional responses in the service interaction have a significant positive effect on behavioural intention to use MPP (Chapter 6, Section 6.3)
H1c	Negative emotional responses in the service interaction have a significant negative effect on behavioural intention to use MPP (Chapter 6, Section 6.3)
H1d	Functional value created in the service interaction has a significant positive effect on behavioural intention to use MPP (Chapter 6, Section 6.1.1)
H1e	Conditional value created independently of the service interaction has a significant positive effect on behavioural intention to use MPP (Chapter 6, Section 6.2.3)
H1f	Functional value created independently of the service interaction has a significant negative effect on behavioural intention to use MPP (Chapter 6, Section 6.1.2)
H2a	Conditional value created in the service interaction has a significant positive effect on positive emotional responses (Chapter 6, Section 6.3.1)
H2b	Conditional value created in the service interaction has a significant negative effect on negative emotional responses (Chapter 6, Section 6.3.1)
H2c	Functional value created in the service interaction has a significant positive effect on positive emotional responses (Chapter 6, Section 6.3.2)
H2d	Functional value created in the service interaction has a significant negative effect on negative emotional responses (Chapter 6, Section 6.3.2)
H3	Functional value created in the service interaction has a significant positive effect on conditional value created (Chapter 6, Section 6.1.1)
H4a	Negative emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention (Chapter 6, Section 6.3.1)
H4b	Positive emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention (Chapter 6, Section 6.3.1)
H4c	Negative emotional responses in the service encounter mediate the relationship between functional value and behavioural intention (Chapter 6, Section 6.3.2)
H4d	Positive emotional responses in the service encounter mediate the relationship between functional value and behavioural intention (Chapter 6, Section 6.3.2)
H5	Conditional value in the service encounter mediates the relationship between functional value and behavioural intention (Chapter 6, Section 6.2.2)

The research model uses latent constructs which are represented by a mix of lower order constructs (1st order) and higher order (2nd order) constructs due to the multi-dimensional nature of the CV creating constructs. The use of higher order constructs (HOC) reduces the number of path model relationships, allows the exogenous (independent) lower order constructs (LOC) to be summarised, and is a means of reducing potential collinearity amongst the construct indicators (Sarstedt et al., 2019). For example, as shown in Figure 8-2 below, the conditional value HOC in the service interaction consists of four composite LOC. The composite LOC derived from the qualitative stage of the research themselves contain multiple observed indicators which represent questions from the online survey as discussed in Chapter 7.

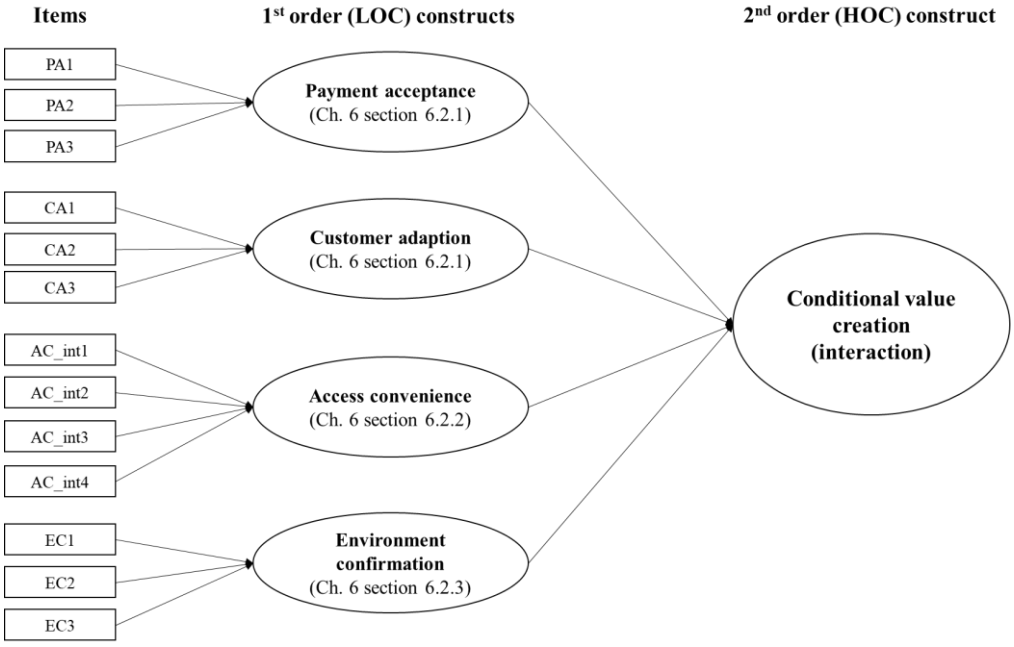


Figure 8-2: Example of Higher Order Construct: Conditional value (interaction)

The HOC in the research model are defined as a formative-formative type IV model (Becker et al., 2012) as the indicators represent different aspects of the LOCs, which in turn themselves represent different aspects of the HOCs. The formative nature of the relationships between measurement items and LOCs, and in turn LOCs and HOCs, indicates the direction of causality,

assumes that all the indicators have an impact on each construct, and that the indicators are not correlated (Jarvis et al., 2003). This contrasts with reflective indicators for which the direction of causality flows from the construct to the indicator which results in expected multicollinearity and items that are interchangeable (Mackenzie et al., 2005). A range of approaches exist for creating HOC all of which introduce additional procedural complexity into the measurement model assessment prior to assessing the structural model (Cheah et al., 2019).

To create the HOC within the research model, a disjoint two-stage approach is used due to the unequal number of observed items per each LOC construct (Sarstedt et al., 2019). The procedures for creating HOC exist within two over-riding approaches, that of the repeated indicator and two-stage approach (Ringle et al., 2012). The repeated indicator approach and variations of, such as the extended repeated indicator approach, is deemed relatively easy to apply and allows for the LOC and HOC to be combined in one model (Sarstedt et al., 2019). In contrast, two-stage approaches do not consider all LOC and HOC in one nomological network which results in a less parsimonious model (Wetzels et al., 2009). This is due to the two-stage approach firstly including all the LOC from which the HOC latent variable scores are created, after which a separate model using the latent variable scores as formative HOC indicators in stage two is built (Hair et al, 2016). When using a two-stage approach particular consideration must be taken to assess not just the LOC measurement model in the first stage but also the HOC measurement model in the second stage before the structural model is assessed (Sarstedt et al., 2019). Despite both the embedded and disjoint two-stage approaches producing similar results for formative-formative type IV models this research uses the latter. This is because the disjoint two-stage approach allows the structural model to be assessed entirely in the 2nd stage rather than across both 1st and 2nd stages (ibid).

The following sections detail the stages taken to produce the structural model using the disjoint two stage approach. The first step includes, initial assessment of the LOC measurement model, creation of the HOC using latent variable scores, and assessment of the 2nd stage measurement model. This is followed by assessment of the structural model and discussion of the results of the analysis, as detailed in the steps shown below in Figure 8-3.

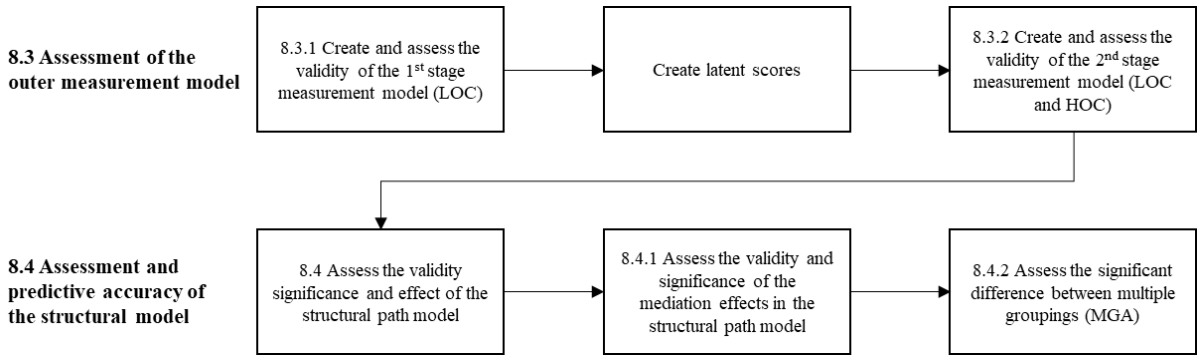


Figure 8-3: Overview of the detailed steps taken to produce the structural path model

8.3. Assessment of the Outer Measurement Models

As the overall measurement model uses both formative and reflective indicators different procedures are required to determine the validity of the measurement model (Garson, 2016). For example, it is appropriate to test the convergent validity of the reflective indicators that represent the reflective behavioural intention (BI) construct using composite reliability (Becker et al., 2012). These measures determine that the reflective indicators represent the construct adequately and a degree of convergence of the indicators is expected. In contrast, the indicators of each formative construct should display less convergence and therefore it is important to test for multicollinearity through their variance inflation factors (VIF) (Hair et al., 2016). A VIF of greater than 4 (Garson, 2016) indicates that the associated variable indictors are collinear and highly correlated with other indicators in the model, and therefore may need redefining. When

using the measurement model assessment criteria, judgements on whether to keep or retain certain indicators that do not meet the required criteria are taken by the researcher (Cenfetelli and Bassellier, 2009; Diamantopoulos et al., 2012). The following sections detail the results of the outer measurement model assessment as appropriate for the reflective or formative indicator types and the decisions taken where appropriate to maintain or delete the indicators.

8.3.1. 1st Stage: Outer Lower Order Construct Measurement Model Assessment

As per the first stage in the disjoint two stage approach the lower order construct indicators were assessed (Sarstedt et al., 2019). As shown in Figure 8-4 below, all the LOC constructs have formative indicators expect the BI construct which has reflective indicators.

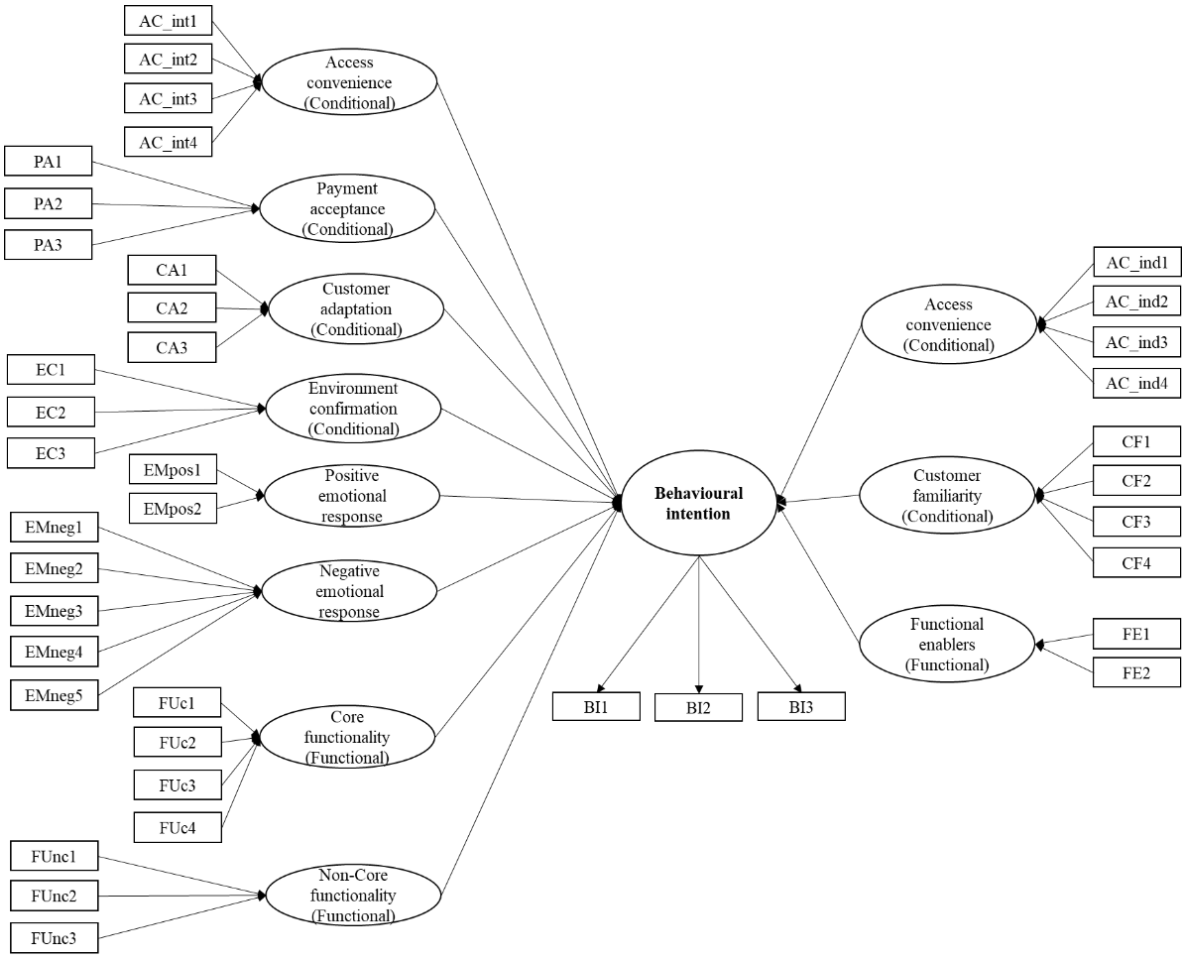


Figure 8-4: 1st stage: Outer LOC measurement model

Reflective indicator assessment

To determine the validity of the reflective BI construct, the consistent PLS algorithm was run with bootstrapping set on the factor weighting scheme with subsamples set at 5,000. The results shown below in Table 8-4 firstly confirm that the outer loadings connecting to the latent construct (BI1=0.825, BI2=0.849, BI3=0.778) are above the minimum acceptable levels (>0.70) (Henseler et al., 2012). The standard of above 0.70 represents a level at which the explained variance is greater than the error variance and the variance in the indicator is explained by its construct (Garson, 2016).

Table 8-4: Reflective construct indicator validity data

Reflective construct	Indicator	Outer Loadings	AVE	CR	CA (α)
Behavioural Intention	BI1	0.825	0.66	0.85	0.857
	BI2	0.849			
	BI3	0.778			

Secondly, the average variance extracted (AVE) is above the minimum accepted level of 0.50 (*AVE*=0.669) which confirms the convergent validity of the latent variable (Bagozzi and Yi, 1988; Fornell and Larcker, 1981). As the indicators of a reflective construct are alternative approaches to measure the same phenomena it is expected that they should converge (Hair et al., 2016). Thirdly, the internal consistency reliability of the reflective indicators are assessed using composite reliability and Cronbach's alpha. A lack of internal consistency reliability between the indicators can result in redundant indicators (Rossiter, 2002). This can occur for example when the only difference between indicator questions is slight rewording (Hair et al., 2016). The results confirm that the indicators demonstrate internal consistency reliability with a composite reliability as appropriate for exploratory models of greater than 0.60 (Chin, 1998) (*CR*=0.858) and Cronbach's alpha below 0.90 (α =0.857) (Hair et al., 2016).

Formative indicator assessment

To determine the validity of the formative latent construct indicators, results were obtained from the PLS algorithm and bootstrapping set on the factor weighting scheme with the latter subsamples set at 5,000. The results of the formative indicator assessment are shown below in Table 8-5 and discussed hereafter.

Table 8-5: Formative LOC construct indicator assessment

Formative constructs	Indicators	Outer Weights	T-Values	Outer Loadings	T-Values
Interaction value 1st order constructs					
Access convenience (ACint)	**ACint1**	**0.214**	**0.682**	1.597	**0.729****
	ACint2	**0.204**	**1.729**	2.695	**0.863****
	ACint3	**0.688**	**1.558**	2.705	**0.971****
Functional_core (FUc)	FUc1	0.553	5.067**	1.270	0.821**
	FUc2	0.412	3.876**	1.263	0.742**
	FUc3	***-0.124***	***1.131***	1.032	***0.043***
	FUc4	0.349	3.161**	1.292	0.705**
Functional_non_core (FUnc)	FUnc1	0.946	6.8**	1.413	0.955**
	FUnc2	**0.364**	**1.604**	1.623	**0.600****
	FUnc3	**-0.284**	**1.237**	1.816	**0.430****
Payment Acceptance (PA)	PA1	0.690	5.26**	1.318	0.797**
	PA2	-0.338	2.387*	1.230	0.128
	PA3	0.624	5.036**	1.216	0.791**
Customer Adaptation (CA)	***CA1***	***0.609***	***1.057***	2.177	***0.320***
	CA2	***0.547***	***1.056***	3.173	***0.459***
	CA3	***-0.965***	***1.131***	2.074	***-0.574***
Environment confirmation	***EC1***	***-0.344***	***1.879***	1.501	***0.088***
	EC2	**0.358**	**1.311**	1.457	**0.760****
	EC3	0.809	3.516**	1.196	0.936**
Positive emotions (EMpos)	EMpos1	0.798	11.113**	1.225	0.949**
	EMpos2	0.350	3.662**	1.225	0.692**
Negative emotions (EMneg)	**EMneg1**	**-0.057**	**0.265**	1.196	**0.749****
	EMneg2	0.405	2.263*	2.050	0.885**
	EMneg3	0.439	2.099*	1.880	0.901**
	EMneg4	**0.007**	**0.034**	3.412	**0.806****
	EMneg5	0.333	1.977*	2.299	0.851**
Independent value 1st order constructs					
Customer familiarity (CF)	**CF1**	**0.179**	**1.592**	1.414	**0.589****
	CF2	0.547	4.98**	1.501	0.854**
	CF3	**0.084**	**0.737**	1.457	**0.554****
	CF4	0.493	4.599**	1.196	0.773**
Functional enablers (FE)	***FE1***	***0.998***	***1.121***	1.278	***0.561***
	FE2	***-0.936***	***1.039***	1.278	***-0.470***
Access Convenience (ACind)	**ACind1**	**0.311**	**1.721**	3.187	**0.894****
	ACind2	0.715	4.111**	2.841	0.972**
	ACind3	**-0.137**	**0.840**	2.372	**0.597****
	ACind4	**0.146**	**0.682**	3.034	**0.741****

*p<0.05
**p<0.01
Bold: non-significant outer weight and significant outer loading
Bold italic: non-significant outer weight and non-significant outer loading

Firstly, the indicators were checked for multicollinearity using the Variance Inflation Factor (VIF) criteria. The formative indicators were not expected to be highly correlated as they were designed to measure different aspects of the construct they pertain to measure. The VIF scores were all below the accepted level of 4 (Garson, 2016) which indicates that multicollinearity issues amongst the formative indicators did not exist. Secondly, the significance and relevance of the formative indicators were assessed to examine if the indicators contribute to forming each construct they pertain to. The contribution of each indicator to its construct was initially assessed through the indicators outer weight, which expresses the indicators relative contribution to forming the construct (Hair et al., 2016). If the indicators outer weight was a value of less than ±0.5 or its t-value not significant, it was further examined to determine if the indicator should be retained or deleted from the outer measurement model.

To determine if the formative indicators with a non-significant or less than ±0.5 outer weight should be deleted or retained, their outer loadings were examined and consideration made for whether the conceptual nature of the construct would be altered when deleting an indicator. Despite a formative indicator with a non-significant outer weight not having an empirical impact on model estimations, it may alter the constructs content validity if deleted (Garson, 2016). The items: ACint1, ACint2, ACint3, FUnc2, FUnc3, EC2, EMneg1, EMneg4, CF1, CF2, FE1, ACin1, ACind3, and ACind4 were all retained as their outer loadings were high (>±0.5) or significant (p<0.01). In contrast, those formative items that had a non-significant outer weight and non-significant outer loading were considered for deletion. The two indicators FUc3 and EC1 were deleted due to non-significant and small (<±0.5) outer loadings (FUc3=0.043, EC1=0.088). The deletion of these items resulted in the LOC FUc and EC retaining three and two indicators each. None of the three indicators (CA1, CA2, CA3) for the LOC customer

adaptation (CA) had significant outer loadings. The LOC CA forms the HOC conditional value (interaction) which has three other LOC (ACint, PA, and EC) thus it was determined that deleting the LOC CA construct would not theoretically impact the research model.

The functional enablers (FE) independent value construct had two items which both had non-significant outer loadings and to delete both items would result in no independent functional value HOC being present in the structural model. Therefore, to maintain the independent functional construct in the research model the item FE1 was retained as it had an outer loading >±0.5 (FE1=0.561) and FE2 was deleted as it had an outer loading <±0.5 (FE2 =-0.470). The deleted LOC items and their corresponding survey questions are shown below in Table 8-6.

Table 8-6: Deleted indicator item questions

Item	Lower order construct	Higher order construct	Item survey question
FUc3	Functionality non-core	Functional value (interaction)	I use mobile payments because my personal bank information is not stored on the mobile phone
CA1	Customer adaptation	Conditional value (interaction)	When I shop with mobile payments, I avoid shops that cannot accept mobile payments
CA2	Customer adaptation	Conditional value (interaction)	When I shop with mobile payments, I avoid shops that charge a transaction fee for mobile payments
CA3	Customer adaptation	Conditional value (interaction)	When I shop with mobile payments, I reduce the amount of shopping I buy
EC1	Environment confirmation	Conditional value (interaction)	When using mobile payments in an unfamiliar shop, I look to see if other people in the queue are using mobile payments
FE2	Functional enabler	Functional value (independent)	When using mobile payments, I am concerned about my mobile phone having a weak phone signal or wi-fi connection

Lastly, the discriminant validity of the latent variables were assessed to determine if the indicators of latent variables that theoretically should not be related to each other are observed

as not related to each other. The item-to-item and item-to-construct correlations for the remaining latent variables were assessed using the indicator weights for the individual formative indicators. These scores in turn serve as the basis for calculating item-to-item and item-to-construct correlations and evaluating discriminant validity (Ravichandran and Rai, 2000). As shown below in Table 8-7 the intra construct item correlations are greater than inter-construct item correlations. For example, the square root of the Average Variance Explained (AVE) for the LOC customer familiarity is 0.70 and greater than the absolute values of the latent variable correlations. This confirms that the constructs exhibit discriminant validity and therefore do not overlap to such an extent that they are related.

Table 8-7: Intra and inter item construct cross correlations

Construct	Measure Type	1	2	3	4	5	6	7	8	9	10	11
ACind	Formative	**0.81**										
ACint	Formative	0.38	**0.86**									
BI (3)	Reflective	0.46	0.52	**0.88**								
CF (4)	Formative	0.36	0.33	0.49	**0.70**							
EC (5)	Formative	0.24	0.21	0.25	0.38	**0.89**						
EMneg	Formative	-0.18	-0.27	-0.43	-0.24	-0.12	**0.84**					
EMpos	Formative	0.36	0.39	0.49	0.40	0.32	-0.19	**0.83**				
FE (8)	Single	0.14	0.09	0.08	0.17	0.22	0.14	0.09	**1.00**			
FUc	Formative	0.33	0.47	0.43	0.43	0.23	-0.22	0.41	0.12	**0.76**		
FCnc	Formative	0.21	0.26	0.25	0.30	0.18	-0.12	0.27	0.16	0.44	**0.69**	
PA	Formative	0.24	0.26	0.34	0.28	0.10	-0.14	0.27	-0.09	0.18	0.12	**0.65**

*Square root of AVEs reported along diagonal in bold. The nondiagonal elements represent the correlations

8.3.2. 2nd Stage: Outer Mixed Construct Measurement Model Assessment

The assessed and retained measurement indicators were then used to create the latent variable scores for the HOC where applicable by running the PLS algorithm set with the factor weighting scheme. The latent variable scores were merged with the original .csv data file in MS Excel and imported into Smart-PLS to complete the second stage of the disjoint approach. As shown in

Figure 8-5 below, three HOC were required as these had multiple LOC, that of conditional and functional value in the interaction and conditional value independent of the interaction. The 2nd stage measurement model was assessed which required where applicable the LOC to act as formative indicators to the HOC and followed the same validity procedures used in stage 1 (Sarstedt et al., 2019).

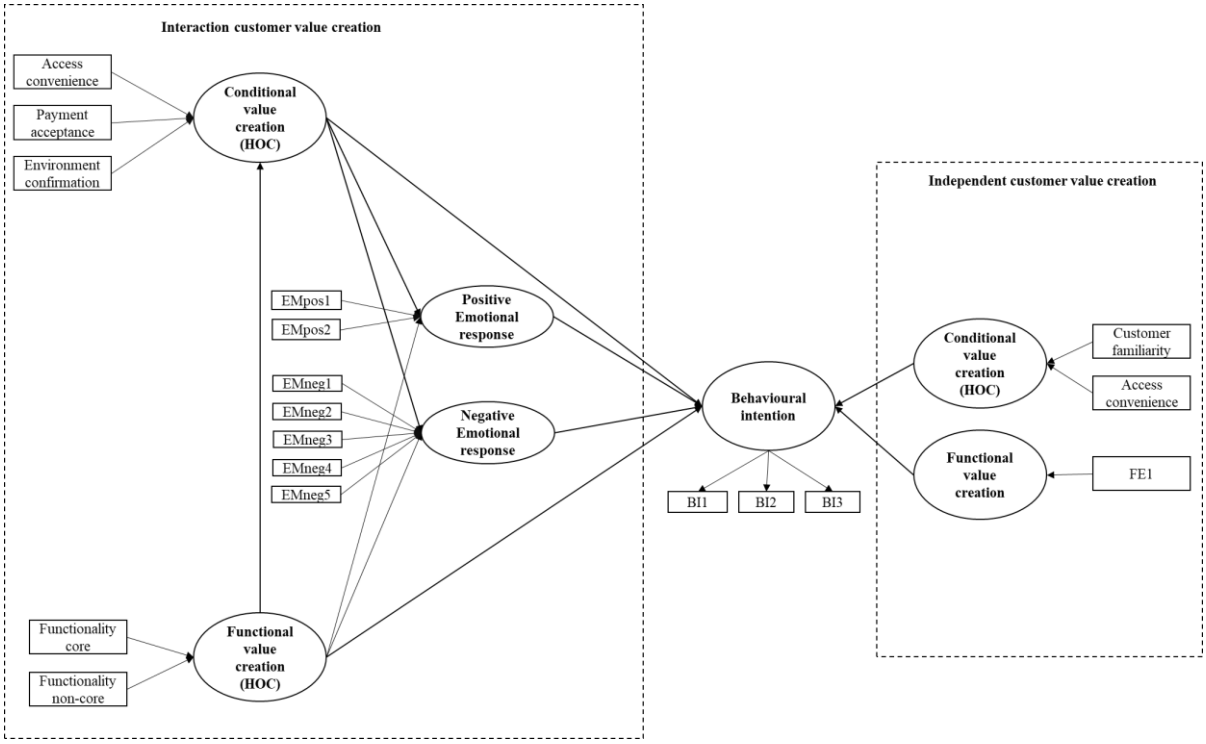


Figure 8-5: 2nd stage measurement model with mixed (LOC and HOC) constructs

As shown below in Table 8-8 below, the *behavioural intention* reflective construct retained its validity as per the outer loadings (>0.7), AVE (>0.50), composite reliability (CR) (>0.6), and Cronbach's alpha (CA) (<0.7) results.

Table 8-8: 2nd stage reflective construct validity data

Reflective construct	Indicator	Outer Loadings	AVE	CR	CA (α)
Behavioural Intention	BI1	0.871	0.77	0.91	0.857
	BI2	0.931			
	BI3	0.843			

The indicators of the formative LOC and HOC constructs all exhibited validity, through the same formative indicator assessment criteria as in the 1st stage, as shown below in Table 8-9.

Table 8-9: 2nd stage formative indicator assessment results

Formative constructs	Indicators	Outer Weights	Outer Loadings (sig.)	VIF (Outer)
Interaction value constructs				
Conditional value	Access convenience (ACint)	0.756**	0.900**	1.112
	Payment acceptance (PA)	0.292**	0.517**	1.072
	Environment confirmation	0.327**	0.516**	1.049
Functional value	Functionality core (FUc)	0.896**	0.984**	1.239
	Functionality non-core (FUnc)	0.200*	0.594**	1.239
Positive emotions	EMpos1	0.749**	0.927**	1.225
	EMpos2	0.415**	0.736**	1.225
Negative emotions	**EMneg1**	**0.087**	**0.810****	3.412
	EMneg2	**0.374**	**0.873****	2.299
	EMneg3	0.521*	0.938**	3.764
	EMneg4	**-0.073**	**0.801****	3.528
	EMneg5	**0.216**	**0.799****	2.150
Conditional value	Customer familiarity (CF)	0.638**	0.843**	1.153
	Access convenience (ACind)	0.576**	0.802**	1.153
Functional value	FE1	1.000	-	-

*p<0.05
**p<0.01
Bold: non-significant outer weight and significant outer loading

Lastly, the discriminant validity of the 2nd stage constructs were assessed to determine if the indicators of latent variables that theoretically should not be related to each other are observed as not related to each other (Trochim, 2006). The item-to-item and item-to-construct correlations for the remaining latent variables were assessed using the indicator weights for the individual formative indicators. These scores in turn serve as the basis for calculating item-to-item and item-to-construct correlations and evaluating discriminant validity (Ravichandran and Rai, 2000), as shown in Table 8-10 below.

Table 8-10: 2nd stage Intra and inter item construct cross correlation

Construct	Measure Type	1	2	3	4	5	6	7
Behavioural Intention (1)	Reflective	**0.88**						
Independent functional (2)	Single Item	0.08	**1.00**					
Independent conditional (3)	Formative	0.58	0.19	**0.67**				
Interaction conditional (4)	Formative	0.57	0.11	0.54	**0.67**			
Interaction functional (5)	Formative	0.44	0.14	0.48	0.49	**0.81**		
Interaction NEG emotion (6)	Formative	-0.43	0.13	-0.25	-0.29	-0.23	**0.85**	
Interaction POS emotion (7)	Formative	0.49	0.09	0.47	0.48	0.43	-0.21	**0.84**

*Square root of AVEs reported along diagonal in bold. The nondiagonal elements represent the correlations between the latent constructs.

The 2nd stage intra and inter item construct cross correlations demonstrate that the intra construct item correlations are greater than inter-construct item correlations. This confirms that the constructs exhibit discriminant validity and therefore do not overlap to such an extent that they are related.

8.4. Assessment and Predictive Accuracy of the Structural Model

To assess the PLS-SEM structural model the PLS algorithm was run with the path weighting scheme to obtain the models path coefficients and quality criteria. To obtain the significance of the path coefficients, bootstrapping was run with the path weighting scheme set at 5,000 subsamples and a significance level of 0.05. The structural model was assessed through a range of criteria including overall model fit and the significance and effect sizes of the paths within the model (Hair et al., 2016). The use of goodness-of-fit measures to determine how well the model fits the empirical data when using PLS-SEM has been a subject of academic debate (Henesler, 2017; Hair et al., 2016). The concept of a structural models' goodness-of-fit stems from factor-based SEM which follows an explanatory modelling perspective, but PLS-SEM follows a prediction modelling perspective (Shmueli, 2010). As explanation and prediction are considered two distinct concepts within statistical modelling the compatibility of goodness-of-

fit measures for PLS-SEM have been questioned (Sarstedt et al., 2017). Therefore, the goodness-of-fit measures, termed model fit criteria, should act only as an indicator and used in conjunction with additional structural model criteria which allow the researcher to explore the predictive properties of the structural model (Hair et al., 2016).

The overall model fit results shown below in Table 8-11 demonstrates that the structural model is within acceptable criteria. The Standardized Root Mean Squared Residual (SRMR) is below the accepted threshold cut-off of <0.08 (SRMR=0.074) (Hu and Bentler, 1999). The use of the Normed Fit Index (NFI) has also been recommended as a model fit criteria but thresholds are only available for covariance based (CB) factor and not PLS path models (Henseler et al., 2015). Therefore, although the result of NFI=0.905 is above the acceptable model fit cut off >0.90 (Bryne, 1994) this result should be used with caution.

Table 8-11: Results of model fit criteria

Model fit criteria	estimated model
SRMR	0.074
NFI	0.905

The predictive capabilities of the model were first assessed using the coefficient of determination (R^2) and cross-validated redundancy (Q^2) of the endogenous constructs (Hair et al., 2016). The endogenous latent constructs in the model are those that are affected by other constructs, these are *behavioural intention, conditional, negative,* and *positive emotional response* constructs. Conversely, the exogenous latent constructs in the model only impart an effect on other constructs in the model. Although, the higher the R^2 within a range of 0 to 1 the greater the predictive accuracy, acceptable levels do differ depending on the context of the study (Sarstedt et al., 2017). The R^2 values of 0.75, 0.50, and 0.25 are generally considered substantial,

moderate, and weak in marketing research (Hair et al., 2011). These acceptable levels can differ for example between consumer behaviour research where an R^2 of 0.20 is considered high, to research that aims to explain customer success drivers where an R^2 above 0.75 is expected (Hair et al., 2016). The Q^2 of the endogenous constructs also indicate the predictive capabilities of the model calculated using a blindfolding procedure (Geisser, 1974) and is a measure of how well the path model predicts the originally observed values (Hair et al., 2016). The Q^2 values of 0.02, 0.15, and 0.35 indicate that an exogenous construct has a small, medium, or large predictive relevance (ibid). As shown in Table 8-12 below, the endogenous outcome construct *behavioural intention* has both a moderate R^2 and a large Q^2. This confirms that as the model's outcome construct *behavioural intention* predicts 51% (R^2 =0.511) of the variance within the path model.

Table 8-12: Results of R2 and Q2 values

Endogenous latent constructs	R^2	Q^2
Behavioural Intention	0.511	0.382
Conditional value (interaction)	0.240	0.098
Negative emotional response	0.095	0.064
Positive emotional response	0.280	0.191

The remaining three endogenous latent constructs (interaction conditional value, negative emotional response, and positive emotional response) are affected by other constructs in the model and themselves affect the *behavioural intention* outcome construct. Therefore, although the Q^2 values are small (0.064, 0.098) and medium (0.191) and the R^2 values moderate (0.280) and weak (0.240, 0.095) these are deemed acceptable in the context of the research and structural model (Hair et al., 2011; Hair et al., 2016). The detailed results of the structural path model provide evidence for the research hypothesis and the effect size of these paths, as shown in Figure 8-6 and Table 8-13 below.

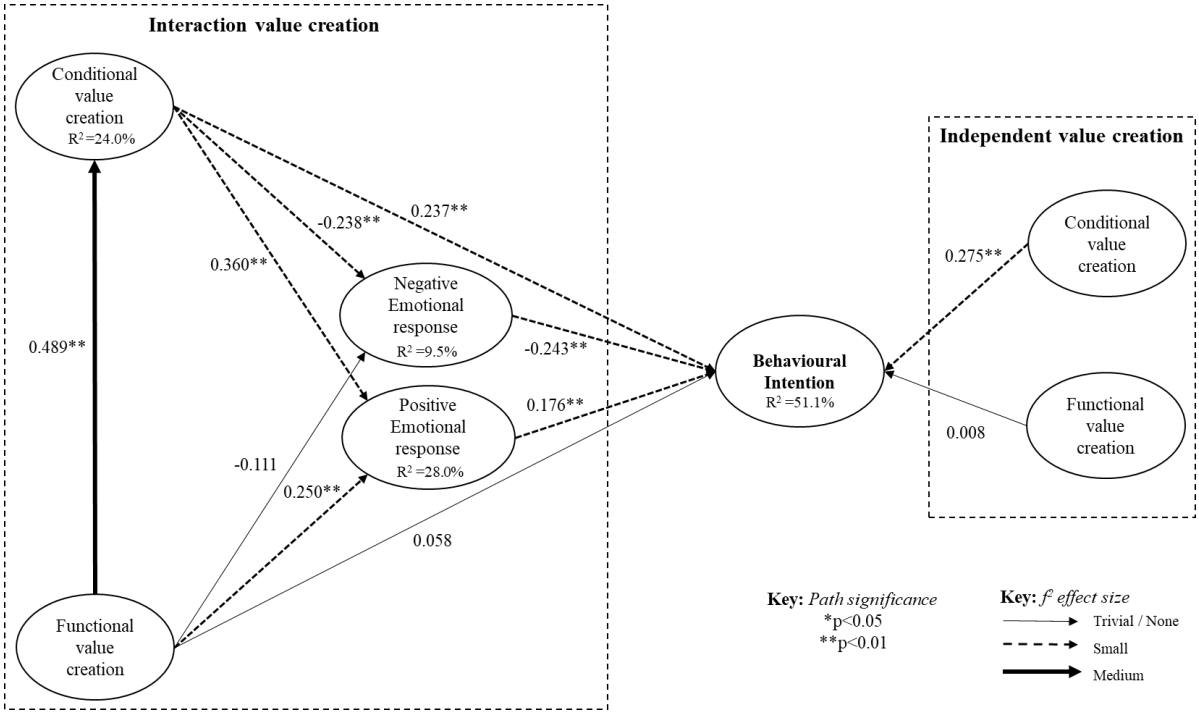


Figure 8-6: Structural path model

Table 8-13: Structural path model hypothesis results

Hypothesis and path	Supported	Path coefficients	Std. deviation	t-value	VIF (inner)	f^2
H1a Conditional value (inter.) → Behavioural Intention	Yes	0.237	0.052	4.545**	1.710	0.067(S)
H1b Positive emotional (inter.) → Behavioural intention	Yes	0.176	0.044	3.993**	1.463	0.043(S)
H1c Negative emotional (inter.) → Behavioural intention	Yes	-0.243	0.045	5.391**	1.165	0.103(S)
H1d Functional value (inter.) → Behavioural Intention	No	0.058	0.049	1.173	1.500	0.005(T)
H1e Conditional value (indep.) → Behavioural Intention	Yes	0.275	0.052	5.298**	1.678	0.067(S)
H1f Functional value (indep.) → Behavioural Intention	No	0.008	0.042	0.187	1.018	0.000
H2a Conditional value (inter.) → Negative emotional	Yes	-0.238	0.059	4.070**	1.315	0.048(S)
H2b Conditional value (inter.) → Positive emotional	Yes	0.360	0.048	7.425**	1.315	0.137(S)
H2c Functional value (inter.) → Negative emotional	No	-0.111	0.059	1.881	1.315	0.010(T)
H2d Functional value (inter.) → Positive emotional	Yes	0.250	0.051	4.894**	1.315	0.066(S)
H3 Functional value (inter.) → Conditional value	Yes	0.489	0.044	11.133**	1.000	0.315(M)

Effect size (f^2): <0.02 (Trivial), 0.02 (Small), 0.15 (Medium), 0.35 (Large)
*p<0.05
**p<0.001

The inner VIF values of the paths are all below a value of 4 which confirms that no collinearity issues exist in the structural path model (Hair et al., 2016). Thereafter, the strength of the path's relationship (path coefficient), the significance of the path relationships (t-value), and the effect size of the paths (f^2) in the structural path model were assessed as described below.

The three path relationship hypotheses H1d, H1f, and H2c do not have significant path coefficient t-values (p>0.05) and are therefore not supported. This result confirms that functional value both in the interaction (H1d) and independent of the service interaction (H1f) does not exert a significant influence on consumers' behavioural intention to use MPP. Additionally, functional value in the interaction does not significantly influence customers negative emotional responses (H2c) in the service interaction but does exert a significant small positive influence on customers positive emotional responses (H2d) (β =0.250, f^2=0.066).

The remaining hypotheses are supported, and the largest effect is the positive influence of functional value on conditional value in the interaction (H3) (β =0.489, f^2=0.315). The largest outer weight LOC contribution to the functional HOC value (interaction) construct is *core functionality* (β =0.896) compared to *non-core functionality* (β=0.200). Conditional value in the interaction exerts a small positive influence on customers behavioural intention to use MPP (H1a) (β =0.237, f^2=0.067). The largest outer weight LOC contribution to the conditional value (interaction) construct is *access convenience* (0.756) compared to *payment acceptance* (0.292) and *environment confirmation* (0.327). Conditional value in the interaction significantly influences with a small effect both customers negative emotional responses (H2a) (β =-0.238, f^2=0.048) and positive emotional responses (H2b) (β =0.360, f^2=0.137).

The emotional responses in the interaction exert influences on consumers' behavioural intention to use MPP but with only small effect sizes. The positive emotional responses exert a positive influence on behavioural intention (H1b) (β =0.176, f^2=0.043) with the indicator outer weight contribution *happiness* having a greater contribution through its outer weight (0.749) to the construct than the indicator *reassurance* (0.415). The negative emotional responses exert a negative influence on behavioural intention (H1c) (β =-0.243, f^2=0.103) with the indicators of *irritation* (0.521) and *confusion* (0.374) having the largest outer weight contributions to the construct.

Conditional value independently of the interaction does exert a small positive influence on behavioural intention to use MPP (H1e) (β =0.275, f^2=0.067). The contribution of the outer weight LOC towards independent conditional value is roughly equal between both *customer familiarity* (0.638) and *access convenience* (0.576).

8.4.1. Mediation Analysis

As described in the qualitative results, it was expected that in the service encounter the value constructs and emotional responses would not just directly affect customers' intention to use MPP but also have mediating effects. A mediating effect occurs when a mediator variable governs the underlying process of the relationship between two constructs (Lowry and Gaskin, 2014). This analysis determines both if mediation exists and if applicable the type of mediation that is present in the structural model. There are three types of mediation, complementary (a form of partial) mediation exists when the indirect and direct effects of the mediating construct are both significant and their effects point in same directions (Zhao et al., 2010). If the indirect and direct effects of the mediating construct are both significant but their effects point in

opposite directions, this is termed competitive mediation (a form of partial) (ibid). In contrast, when the indirect effect of the mediating construct is significant, but the direct effect is not then this is termed in-direct only or full mediation (Zhao et al., 2010; Baron and Kenny, 1986). The mediators in the structural model were considered simultaneously using the bootstrapping procedure in contrast to for example the causal step approach (Baron and Kenny, 1986). As the model contains multiple mediators a bootstrapping approach is recommended to alternative mediation procedures due to its ability to retain greater statistical power, calculate specific indirect effects which control for all other mediators, and maintain an accurate Type 1 error rate (Preacher and Hayes, 2008; MacKinnon et al., 2002)

The results below in Table 8-14 support the hypothesis (H5) that conditional value mediates the relationship between functional value and behavioural intention in the service encounter. The direct effects between functional value and behavioural intention are not significant (β=0.008, t=0.187) whereas the direct effects between functional value and conditional value (β=0.489, t=11.133), and conditional value and behavioural intention (β=0.237, t=4.545) are significant. Therefore, conditional value in the service encounter mediates the relationship between functional value and behavioural intention indirect-only.

Table 8-14: Mediation results for H5: Conditional value in the service encounter mediates the relationship between functional value and behavioural intention

Path	std. coefficients β (t-values)	
	total effects	direct effects
Functional value (interaction) → Conditional value (interaction)		0.489(11.133)**
Conditional value (interaction) → Behavioural Intention		0.237(4.545)**
Functional value (interaction) → Behavioural Intention mediated by Conditional value (interaction)	0.304(5.717)**	0.008(0.187)

*p<0.05
**p<0.001

The results below in Table 8-15 support the hypothesis (H4a) that negative customer emotional responses mediate the relationship between conditional value and behavioural intention in the service encounter. The direct effects between conditional value and behavioural intention (β=0.238, t=4.545), conditional value and negative emotions (β=-0.238, t=4.070), and negative emotions and behavioural intention (β=-0.243, t=5.391) are significant. Therefore, negative emotional responses partially mediate the relationship between conditional value and behavioural intention, and as the mediated effect and direct effects point in opposite directions this is competitive mediation.

Table 8-15: Mediation results for H4a: Negative emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention

Path	std. coefficients (t-values)	
	total effects	direct effects
Conditional value (interaction) → Negative emotions		-0.238(4.070)**
Negative emotions → Behavioural Intention		-0.243(5.391)**
Conditional value (interaction) → Behavioural Intention mediated by Negative emotions	0.358(7.063)**	0.238(4.545)**

*p<0.05
**p<0.001

The results below in Table 8-16 support the hypothesis (H4b) that positive customer emotional responses mediate the relationship between conditional value and behavioural intention in the service encounter. The direct effects between conditional value and behavioural intention (β=0.238, t=4.545), conditional value and positive emotions (β=0.360, t=7.425), and positive emotions and behavioural intention (β=0.176, t=3.993) are significant. Therefore, positive emotional responses partially mediate the relationship between conditional value and behavioural intention, and as the indirect and direct effects are both positive this is complementary mediation.

Table 8-16: Mediation results for H4b: Positive emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention

Path	std. coefficients (t-values)	
	total effects	direct effects
Conditional value (interaction) → Positive emotions		0.360(7.425)**
Positive emotions → Behavioural Intention		0.176(3.993)**
Conditional value (interaction) → Behavioural Intention mediated by Positive emotions	0.358(7.063)**	0.238(4.545)**

*p<0.05
**p<0.001

The results below in Table 8-17 do not support the hypothesis (H4c) that negative customer emotional responses mediate the relationship between functional value and behavioural intention in the service encounter. The direct effects between functional value and behavioural intention (β=0.058, t=1.173) and the direct effects between functional value and negative emotions (β=-0.111, t=1.881) are not significant, and negative emotions and behavioural intention (β=-0.243, t=5.391) are significant. Therefore, negative emotional responses do not mediate the relationship between functional value and behavioural intention through either a direct or indirect effect.

Table 8-17: Mediation results for H4c: Negative emotional responses in the service encounter mediate the relationship between functional value and behavioural intention

Path	std. coefficients (t-values)	
	total effects	direct effects
Functional value (interaction) → Negative emotions		-0.111(1.881)
Negative emotions → Behavioural Intention		-0.243(5.391)**
Functional value (interaction) → Behavioural Intention mediated by Negative emotions	0.304(5.717)**	0.058(1.173)

*p<0.05
**p<0.001

The results below in Table 8-18 support the hypothesis (H4d) that positive customer emotional responses in the interaction mediate the relationship between functional value and behavioural intention in the interaction. The direct effects between functional value and behavioural intention (β=0.058, t=1.173) are not significant, and the direct effects between functional value

and positive emotions (β=0.250, t=4.894) and positive emotions and behavioural intention (β=0.176, t=3.993) are significant. Therefore, positive emotional responses in the interaction mediate the relationship between functional value and behavioural intention indirect-only.

Table 8-18: Mediation results for H4d: Positive emotional responses in the service encounter mediate the relationship between functional value and behavioural intention

Path	std. coefficients (t-values)	
	total effects	direct effects
Functional value (interaction) → Positive emotions		0.250(4.894)**
Positive emotions → Behavioural Intention		0.176(3.993)**
Functional value (interaction) → Behavioural Intention mediated by Positive emotions	0.304(5.717)**	0.058(1.173)

*p<0.05
**p<0.001

When controlling for all other significant mediators in the model and comparing their specific indirect effects, conditional value in the service encounter has the largest mediating effect (β=0.116, t=4.065) on behavioural intention to use MPP, as shown below in Table 8-19.

Table 8-19: Mediation hypothesis summary of results

Mediation hypothesis	**Hypothesis supported?**	**specific indirect effects** *std.coefficients (t-values)*	**Mediation type**
H4a: Negative emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention	Yes	0.058 (3.437)*	Competitive
H4b: Positive emotional responses in the service encounter mediate the relationship between conditional value and behavioural intention	Yes	0.063 (3.599)**	Complementary
H4c: Negative emotional responses in the service encounter mediate the relationship between functional value and behavioural intention	No	0.037 (1.709)	*n/a*
H4d: Positive emotional responses in the service encounter mediate the relationship between functional value and behavioural intention	Yes	0.044 (31.146)*	Indirect-only
H5: Conditional value in the service encounter mediates the relationship between functional value and behavioural intention	Yes	0.116 (4.035)**	Indirect-only

In comparison, the significant specific indirect effects of emotional responses on behavioural intention are relatively small (Negative emotional responses β=0.058, t=3.437, Positive emotional responses β=0.063, t=1.709 and β=0.044, t=3.146).

8.4.2. Multi-Group Analysis

Multi-group analysis (MGA) is used to test whether the differences between path coefficients in the structural model are significantly different between categorical groups within the sample (Hair et al., 2016). As a moderating effect, the categorical grouping variables divide the data into subsamples from which the same structural model is estimated for each distinct group (Sarstedt et al., 2011). Partial Least Squared MGA is a non-parametric bootstrap based multigroup analysis technique that compares differences between two groups and is not recommended for more than two groups (Hair et al., 2016). The compared groups in this analysis are based on socio-demographic categories as identified in the literature review and MPP usage categories as identified from the qualitative stage of this research. For example, in mobile payment adoption research the customers' gender (groupings: male/female) has a moderating effect on intention to use new mobile payment solutions (Liebana-Cabanillas et al., 2014). The socio-demographic grouping variables include: gender, age, education, and income, and the MPP usage grouping variables include: phone operating system, loyalty scheme format, frequency of MPP use, length of MPP use, and knowledge of maximum MPP limit.

To ensure validity of the MGA results, the measurement invariance of the sample was assessed following the measurement of invariance of composite models (MICOM) procedures (Henseler et al., 2015). These procedures confirm whether measurement invariance is established and: '…whether or not, under different conditions of observing and studying phenomena,

measurement operations yield measures of the same attribute' (Horn and McArdle, 1992, p. 117). If measurement invariance is not established the group specific model estimations are invalid and not dissimilar due to distinctive content and the meanings of the latent constructs across the groups (Henseler et al., 2015). Examples of measurement variance include different meanings that the alternative grouping respondents attribute to the phenomena and cross-national differences that might emerge from culture specific response styles, rather than the true differences in the structural relations (ibid). The result of measurement variance among groups is measurement error due to a discrepancy between what is meant to be measured and what is actually measured (Hult et al., 2008). The MICOM procedures contain three steps, step one determines configural invariance, step two determines compositional invariance, and step three determines equal means and variances. The latter two steps use the permutation algorithm, a randomisation procedure which is a distribution free test as it does not require parametric assumptions of the data sample (Chin and Dibbern, 2010). Therefore, a permutation test based on randomisation is valid when using non-random samples (Edgington, 1987). The following sections detail the results of the MGA and measurement invariance analysis of the socio-demographic and MPP usage groupings on the previously discussed structural model.

Socio-demographic groupings

The results of the socio-demographic grouping hypotheses are shown below in Table 8-20. These results include if significant path differences exist between the groups (MGA) and the validity of those results using the MICOM procedures. The MGA results of H7a, H7c, and H7d could not be validated as measurement invariance was not established through either compositional or configural variance, and the results of the MGA and MICOM procedures are detailed in Appendix 8.1, 8.2, and 8.3. Therefore, it could not be confirmed that the moderating

effect of groupings by gender, education, and household income either do or do not have significant differences between the path relationships in the structural model.

Table 8-20: Socio-demographic grouping hypothesis and results

Socio-demographic grouping hypothesis	Group A	Group B	Sig. path diff. between groups?	Measurement invariance?
H7a Male MPP users have significantly different structural path model results to female MPP users	Gender is male (*n*=227)	Gender is female (*n*=214)	No	No *(compositional variance)*
H7b_i MPP users of age 34 and under have significantly different structural path model results to MPP users of age 35 and over	18 to 34 years old (*n*=235)	Over 35 years old (*n*=206)	No	Yes: Partial invariance
H7b_ii MPP users of age 24 and under have significantly different structural path model results to MPP users of age 25 and over	18 to 24 years old (*n*=99)	Over 25 years old (*n*=342)	No	Yes: Partial invariance
H7c Users of MPP who have attended University have significantly different structural path model results to users that have not attended University	Has not attended University (no formal education, GCSE or equivalent, A-level, or equivalent) (*n*=196)	Has attended University (Undergraduate degree, Master's degree, Doctoral degree) (*n*=241)	Yes	No *(configural variance)*
H7d Users of MPP with a low or medium household income have significantly different structural path model results to users who have a high household income	Household income under £30,000 per annum (*n* =146)	Household income over £30,001 per annum (*n*=253)	Yes	No *(compositional variance)*

The results of the MGA H7b_i and H7b_ii which relate to the age of the MPP customer were both valid as partial measurement invariance was established as shown in Appendix 8.4 and 8.5. Partial measurement invariance allows the comparison of the standardised coefficients of the structural model to be compared across groupings (Henseler et al., 2015). In contrast, full measurement invariance in which equal mean values and variances have also been established allows the data across grouping to be pooled together for additional reporting beyond path differences (ibid). H7b_i and H7b_ii did not have significant differences between the age

groupings, as shown in Table 8-21 and 8-22 below. Therefore, it is established that age does not moderate the structural path model of value creating activities to use MPP.

Table 8-21: H7b_i MGA significant path results: MPP users of age 34 and under have significantly different structural path model results to MPP users of age 35 and over

H7b_i	Group A (18to34 *n*=235) vs Group B (>34 *n*=206)			
Path	Path Coefficients-diff.	CI 18to34 (2.5% - 97%)	CI >34 (2.5% - 97%)	*p-value*
IND_COND -> BI	-0.103	0.104 : 0.360	0.188: 0.466	0.295
IND_FUNC -> BI	-0.070	-0.127 : 0.062	-0.083 : 0.166	0.390
INT_COND -> BI	0.069	0.121 : 0.387	0.030 : 0.345	0.508
INT_COND -> NEG_EMOT	0.022	-0.386 : -0.084	-0.422 : -0.042	0.849
INT_COND -> POS_EMOT	0.023	0.235 : 0.470	0.181 : 0.484	0.818
INT_FUNC -> BI	0.100	-0.007 : 0.231	-0.137: 0.158	0.304
INT_FUNC -> INT_COND	-0.008	0.357 : 0.603	0.379 : 0.606	0.928
INT_FUNC -> NEG_EMOT	0.004	-0.23 : 0.070	-0.291 : 0.088	0.971
INT_FUNC -> POS_EMOT	-0.057	0.075 : 0.343	0.123 : 0.426	0.583
NEG_EMOT -> BI	-0.018	-0.349 : -0.151	-0.398 : -0.082	0.849
POS_EMOT -> BI	0.000	0.082 : 0.280	0.039 : 0.304	0.990

Table 8-22: H7b_ii MGA significant path results: MPP users of age 24 and under have significantly different structural path model results to MPP users of age 25 and over

H7b_ii	Group A (18to24 *n*=99) vs Group B (>24 *n*=342)			
Path	Path Coefficients-diff.	CI 18to24 (2.5% - 97%)	CI >24 (2.5% - 97%)	*p-value*
IND_COND -> BI	0.031	0.047 : 0.498	0.148 : 0.381	0.800
IND_FUNC -> BI	-0.081	-0.201 : 0.100	-0.059 : 0.120	0.371
INT_COND -> BI	0.153	0.121 : 0.598	0.077 : 0.305	0.249
INT_COND -> NEG_EMOT	-0.199	-0.588 : 0.254	-0.317 : -0.037	0.210
INT_COND -> POS_EMOT	0.117	0.179 : 0.631	0.220 : 0.441	0.330
INT_FUNC -> BI	-0.060	-0.163 : 0.209	-0.040 : 0.188	0.589
INT_FUNC -> INT_COND	0.036	0.330 : 0.658	0.376 : 0.578	0.671
INT_FUNC -> NEG_EMOT	0.306	-0.266 : 0.582	-0.301 : -0.026	0.169
INT_FUNC -> POS_EMOT	-0.237	-0.173 : 0.287	0.173 : 0.399	0.073
NEG_EMOT -> BI	0.076	-0.361 : 0.030	-0.379 : -0.168	0.497
POS_EMOT -> BI	-0.112	-0.080 : 0.287	0.099 : 0.306	0.292

MPP usage groupings

The results of the MPP usage grouping hypotheses are shown below in Table 8-23. These results include if significant path differences exist between the groups using MGA and the validity of

those results using the MICOM procedures. MGA could not be run for H8c due to the small sample size of group A (uses MPP daily *n*=61) which resulted in a singular matrix error. The MGA results of H8b and H8e could not be validated as measurement invariance was not established due to configural variance as shown in the MICOM results in Appendix 8.6 and 8.7.

Table 8-23: MPP usage grouping hypothesis and results

MPP usage grouping hypothesis	Group A	Group B	Sig. difference between groups	Measurement invariance?
H8a iOS (Apple) phone users have significantly different structural path model results to Android phone users	iOS (Apple) phone users (MPP equals Apple Pay) (*n*=231)	Android phone users (MPP equals Google Pay or Samsung Pay) (*n*=210**)**	No	Yes: Partial measurement invariance
H8b Users of mobile phone format loyalty schemes have significantly different structural path model results to physical format loyalty schemes	Uses only mobile phone format loyalty schemes (integrated in phone: MPP, third party, other) (*n*=328)	Uses only physical format loyalty schemes (*n*=85)	Yes	No *(configural variance)*
H8c Daily MPP users have significantly different structural path model results to non-daily MPP users	Uses MPP daily (several times a day, once a day) (*n*=61)	Does not use MPP daily (once a week, two to three times a week, four to six times a week) (*n*=380)	n/a *(Group A too small)*	n/a
H8d Customers who have used MPP for less than one year have significantly different structural path model results customers that have used MPP for more than one year	Use of MPP is less than one year (six months or less, seven to twelve months) (*n*=255)	Use of MPP is more than one year (one to two years, more than two years) (*n*=186)	No	Yes: Partial measurement invariance
H8e Customers who believe the maximum limit for MPP differs by store have significantly different structural path model results to those that associate the MPP maximum limit with the contactless payment limit	Users believe the maximum limit for MPP differs by store (*n*=143)	Users believe the maximum limit for MPP is either £30 or £45 (*n*=298)	Yes	No *(configural variance)*

The results of the MICOM analysis for H8a confirmed partial measurement invariance and the MGA rejected the hypothesis that significant differences existed in the structural path relationships between operating systems, as shown in Appendix 8.8. Therefore, it was

established that the phone operating system the customer uses (iOS or Android) does not have a moderating effect on the structural path model of value creating activities to use MPP for. Similarly, the results of the MICOM analysis for H8d confirmed partial measurement invariance and the MGA rejected the hypothesis that significant differences existed in the structural path relationships dependent on the length of time the customer had used MPP, as shown in Appendix 8.9. Therefore, it was established that the length of time the customer uses MPP for (less than one year or greater than one year) does not have a moderating effect on the structural path model of value creating activities to use MPP.

This chapter examined through using PLS-SEM the relationships and effect size of the CV constructs when using MPP in the service experience. The following chapter 9 discusses the results of both the qualitative and quantitative stages of the study through the overall aim and objectives of the research.

CHAPTER 9 - DISCUSSION: HOW MOBILE PROXIMITY PAYMENTS CREATE CUSTOMER VALUE IN THE SERVICE EXPERIENCE

This chapter discusses the research findings in terms of their contribution to the research aim of exploring how mobile proximity payment (MPP) create customer value (CV) in the service experience. The discussion synthesises the findings from the qualitative and quantitative stages and establishes a relationship between theory and results through delivering an interpretation of the research findings and literature review. The chapter begins by introducing and discussing a model of CV creation in the service experience in Section 9.1. A detailed discussion of the elements of the value creation model answers the research objectives of this thesis:

1. How does customer value manifest as an outcome in the MPP service experience?

2. How do the customer activities in the process of using MPP create customer value?

This is followed by discussing and proposing the concept of post adoption in-use barriers in Section 9.2. The introduction of in-use barriers that exist post adoption suggests that after a technological innovation has been adopted constraints exist which prevent consumers increased use of MPP.

9.1. A Model of Mobile Payment Customer Value Creation in the Service Experience

The research findings were used to develop a model of mobile payment CV creation in the service experience, as shown below in Figure 9-1 (full page version in Appendix 9.1). The model explains why consumers choose to use MPP, e.g., Apple Pay, through the CV that is

created from using the mobile service in their daily lives relative to traditional payment methods, e.g., cash and card.

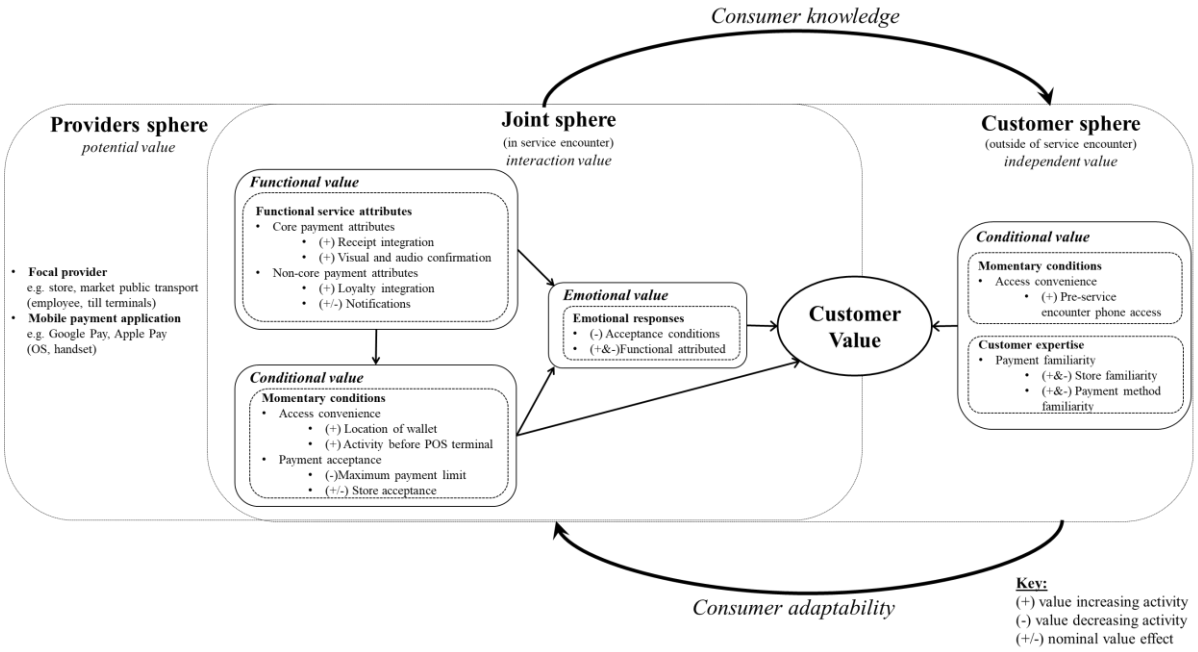


Figure 9-1: MPP customer value creation model overview (Author's own)

The model contains the three G-VMM spheres (Gronroos and Voima, 2013) and details the customer value creating activities the consumer does when using MPP. Firstly, the provider sphere contains those providers the consumer interacts with when using MPP. Though it is the consumer who through using the service determines the real value of MPP, the multiple firms that the consumer interacts with when using the service are detailed in the provider sphere and deemed value facilitators (Grönroos, 2017). This includes both the focal provider in the interaction, such as a supermarket employee and/or store terminal, and the providers that enable them to use the MPP application, such as mobile handset manufacturer and mobile network provider. Secondly, in the joint sphere interaction value is created when the consumer uses MPP in the service encounter through the functional, conditional, and emotional value constructs in the model. The value creating activities when using MPP are considered from the point of

entering to the point of exiting the service encounter. These value creating activities include any direct interaction between the consumer and providers' resources and processes in the service encounter. Section 9.1.1 discusses the interaction value creating activities in the joint sphere and the relationships between the value constructs. Thirdly, in the customer sphere independent value through the conditional value construct is created outside of the service encounter and independently of the service providers. Section 9.1.2 discusses the conditional value creating activities in the customer sphere in the form of momentary conditions and customer expertise. The value creating activities include both those activities that increase and decrease the CV of MPP. The value decreasing activities can have a negative effect on the consumers' use of MPP and cause them to revert to using traditional payment methods but not to the point where they stop using MPP altogether (e.g. maximum payment limit). Additionally, the functional value in the customer sphere as functional enablers (e.g. phone battery and connectivity) which had a negative effect on MPP use is not included in the model because it did not have a significant effect on behavioural intention (H1f) in the structural model (Chapter 8, Section 8.4, p.248).

The model also proposes relationships between the joint and customer spheres from which CV emerges through an ongoing process of consumer knowledge and adaptability as the consumer becomes familiar with using MPP in their daily lives. Firstly, from the joint sphere to the customer sphere is knowledge that the consumer gains when using the MPP which results in a level of expertise, as discussed in Section 9.1.3.1. Secondly, from the customer sphere to the joint sphere is adaptability which allows the consumer to adjust their behaviour to the changes in processes required to use MPP, as discussed in Section 9.1.3.2.

9.1.1. Interaction Customer Value Creation in the Joint Sphere

The Grönroos-Voima Value Model (G-VVM) defines the joint sphere broadly as where the consumer directly interacts with the provider from which value is created in this interaction (Grönroos and Voima, 2013). As a broad definition, it accepts that for certain products and services this may include multiple providers, but it does not distinguish between them in any way. This research considers the joint sphere as akin to the service encounter, the physical environment in which the MPP is consumed (Smith and Colgate, 2007) to pay for a product or service. Paying for products or services using MPP as found in this research typically occurs in either physical stores or when using public transport. Thus, from the consumers' perspective the focal provider when paying is the provider of the product or service being purchased. As Grönroos (2017) proposes, in the joint sphere: '…the customer uses resources provided by the firm and integrates them with other needed resources' (p.6). In this research, the consumer integrates the resources from the focal provider with the resources of the MPP when paying. Therefore, the resources from the focal provider and the mobile service providers' only have potential value until the consumer integrates them (Grönroos and Voima, 2013).

Despite the scope of the joint sphere being defined by when the customer pays, its boundaries vary depending on the type of product or service being purchased. The act of paying occurs when the consumer uses a payment method at a point of sale (POS) terminal, be that in a store or on public transport. However, the use of MPP can extend both prior to and after the POS terminal. The degree to which the use of MPP extends prior to the POS terminal will depend primarily on if the consumer must queue before the sales terminal during which they may prepare to pay. In contrast, the boundary of the joint sphere after paying extends less to intermittent checking of the purchase receipt through the MPP. Therefore, the boundary of the

joint sphere is predominantly limited to when the customer pays but can extend prior to and after paying in certain situations. In the joint sphere, MPP accumulate value from three of the original five TCV value constructs (Sheth et al., 1991) that of functional, conditional, and emotional value, as shown below in Figure 9-2.

This research confirms as per Sweeney and Soutar (2001) that the CV constructs in the joint sphere are inter-related and not independent (Sheth et al., 1991). The results of the structural model in stage two found that the functional value in the joint sphere does not have a significant relationship with intention to use (H1d) but fully mediates (indirect only) through conditional value (H5), and this path has the largest effect within the model. This finding confirms that it is the integration of functional attributes in the MPP (e.g., store loyalty schemes) that creates conditional value (e.g., access convenience) for the consumer when paying in the service encounter. As is consistent with previous research into the mediating effect of emotions in services (Li et al., 2009; Song and Qu, 2017), the emotional responses in the joint sphere have a mediating effect on the creation of CV albeit with small effects. Whereby the negative (H4a) and positive (H4b, H4d) mediating emotional responses act as competitive and complementary mediators (Zhao et al., 2010). The detailed conditional, functional, emotional value creating activities in the joint sphere and their effect on the use of MPP compared to traditional payment methods are discussed hereafter.

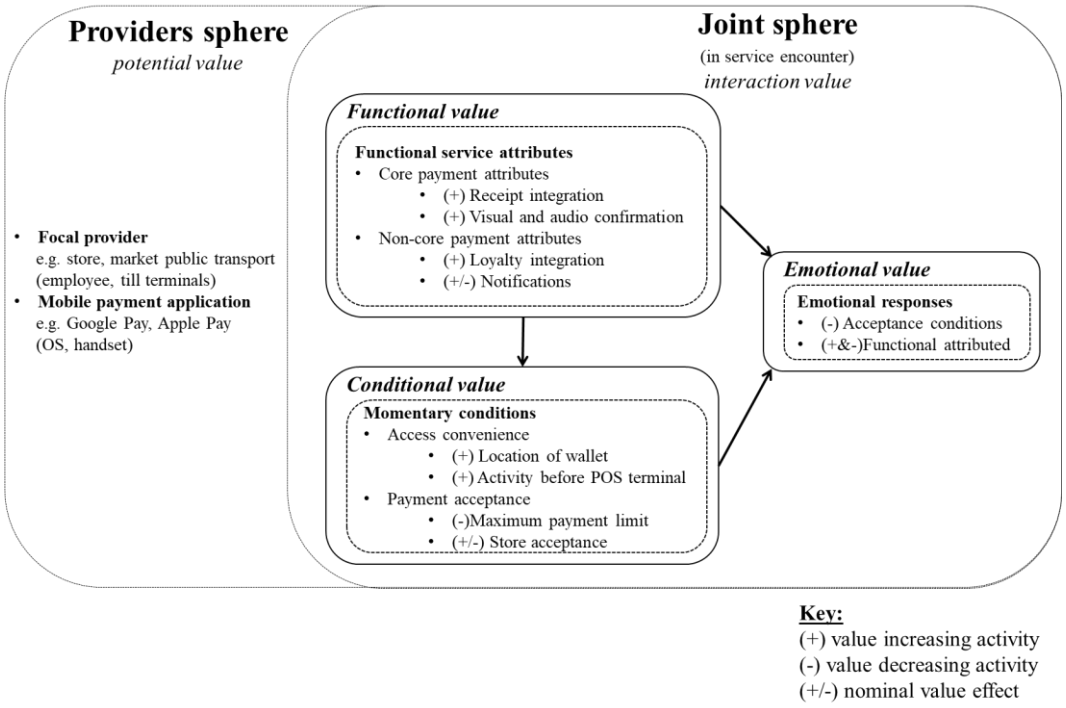


Figure 9-2: Customer value creation in the joint sphere element of Figure 9-1

9.1.1.1. The Creation of Functional Value from Service Attributes

As a utilitarian service the central purpose of MPP is to enable the consumer to complete transactional tasks with their mobile phone. This research demonstrates that MPP provide the consumer with a greater range of functional attributes associated with tasks when paying compared to traditional payment methods. These functional attributes represent a bundling of services that are related to both the core act of making a payment and other related activities during the act of paying, termed non-core attributes. This aligns with the description of functional value by Sheth et al. (1991) who proposed that functional value results from an alternative product or service's inherent ability to perform utilitarian purposes. In contrast to previous TCV research, the price of the product or service is not included as a dimension of functional value (Kim et al., 2011; Goncalves et al., 2015) as MPP bundle all their functional attributes within the mobile application at no financial cost. Despite MPP having a greater

number of functional attributes than traditional payment methods, the degree of functional value MPP create varies and customers may not use all the attributes. The degree of functional value created is also dependent on the situation the customer is in when using MPP. This situational dependency (discussed further in Section 9.1.1.2 on p.269) results in the consumer choosing either to only use selected MPP functional attributes, use alternative mobile services which enable them to complete the same task, or continue to use traditional physical solutions in conjunction with MPP. The MPP functional attributes and their ability to create functional value compared to traditional payment methods is split into core functional attributes or non-core functional attributes and discussed in detail below.

The core functional attributes of MPP not only replicate the capability of traditional payment methods to enable the consumer to complete a payment but also replicate activities directly associated with the act of paying. These associated payment functionalities allow them to conduct value increasing activities directly within the MPP, such as checking a receipt. However, the consumer does not always use these associated payment attributes in the MPP as a replacement to the same activities that are done by the focal provider. For example, when using MPP, they may check the receipt in the MPP, only check the receipt given to them by the focal provider, or not require any form of receipt. Therefore, the degree of functional value will vary depending on whether the consumer chooses to use the associated payment functional attributes at all, as a replacement to, or to supplement the same associated payment activities delivered by the focal provider. Consequently, MPP do provide a greater number of core payment functional attributes compared to traditional payment methods, but their functional value is limited, as outside of the ability to pay using the mobile phone consumers may still rely on the focal provider for these activities.

The MPP functional non-core attributes allow the consumer to complete or enhance tasks that are related to paying but not essential for the payment to be completed. These non-core attributes include the supplementary activity of replicating physical store loyalty cards stored within the MPP. Loyalty card integration can increase the functional value of MPP as it allows both collecting and redeeming loyalty points from within the same mobile application. However, the use of this type of functional attribute only applies where a store has a loyalty scheme, the consumer is a member of the scheme, and the scheme is integrated into MPP. Additionally, consumers may not integrate all their store loyalty schemes into MPP and use a physical loyalty card or use other mobile applications which can achieve the same task. The other loyalty mobile applications include third party and/or store specific applications that provide the same or greater functionality as that in the MPP. In these situations, the consumer can still complete the payment and collect store loyalty scheme points, but they do require the customer to open two mobile applications. Therefore, the supplementary activity of replicating physical store loyalty cards within MPP can in some circumstances create more functional value by reducing the number of mobile applications that has to be opened. However, the consumer does have a range of other options which achieve the same outcome of collecting and/or redeeming loyalty points either through their mobile phone or by using physical cards.

This research found that additional MPP non-core attributes also existed which aim to enhance payment related activities but their ability to create functional value was nominal. These enhanced attributes in the form of notifications prompted the consumer that a store accepted MPP or of a store's loyalty offers, but they did require the phone notification settings to be switched on. Therefore, not all MPP users would receive these related notifications and for those that did they were often dismissed due to functional limitations. These limitations are due

to providing neither a beneficial outcome for the customer and/or an accurate service, such as the notifications that inform the customer a store accepts MPP. The loyalty related notifications were frequently dismissed as not being relevant and in some situations, this resulted in the consumer turning off their notification settings. The nominal beneficial value to the consumer of MPP notification functionality aligns with Woodruff (1997) and Smith and Colgate (2007) who state that for functional value to exist a product or service must have the key facets of both appropriate performance and outcome.

This research suggests that the ability of MPP to create functional value for the consumer derives from bundling a range of services that replicate the tasks done when paying. These services extend the role of MPP beyond just that of enabling a payment through integrating a range of payment related services into a bundled service. It is this bundling that creates a point of difference (Anderson et al., 2006) for MPP compared to traditional payment methods. However, despite MPP offering various functional attributes not all MPP users will utilise them. Consumers may only use a selection of the core and non-core functional attributes that the MPP provides. Therefore, those MPP functional attributes not used are potential value produced by providers which is unconsumed by the consumer (Priem, 2007). The evidence in this research also suggests that the functional value created by MPP stems predominantly from the core payment attributes and the supplementary attribute of integrating loyalty schemes, and not the enhanced attributes in their current format. This contrasts with previous research into bundled mobile services that found enhanced services were more relevant than supplementary services. Bouwman et al. (2007) when researching navigational mobile services which were bundled as additional paid services found that enhanced services (e.g., traffic information) were more relevant to the user than supplementary services (e.g., audio book). Instead, this study found

that although the purpose of enhanced services in MPP is to reinforce the core functionality of making a payment, in their current format it is the supplementary services (e.g., loyalty integration) and not the enhanced services (e.g., notifications) that were more relevant for MPP users.

9.1.1.2. The Creation of Conditional Value in Momentary Conditions

This research suggests that MPP create conditional value in the joint sphere from momentary conditions (Belk, 1975) which represent situational factors that influence the consumers' choice of whether to use MPP or not. Therefore, the conditional value for MPP in the joint sphere is temporary in its nature and exists within specific situations (Holbrook, 1999). In contrast, to Sheth et al. (1991) the specific situations from which MPP acquire conditional value are not seasonal events or emergency situations but frequently occurring everyday situations. These everyday situations represent a point in time and space from which conditional value emerges when consumers use MPP in two forms, that of access convenience and payment acceptance which are discussed in detail below.

Access convenience

This research finds that the CV created for MPP predominantly stems from the access convenience compared to traditional payment methods. The findings suggest that convenience from the use of MPP exists when the consumer starts to initiate the service because the mobile phone is at a closer proximity than their physical wallet. This finding contrasts with previous research that suggests the convenience of mobile payments occur during their use, through for example enabling a faster processing of the payment transaction (Gao and Waechter, 2017).

Research into mobile services has found that convenience is a core benefit and exists through requiring the consumer to expend less effort and saving time (Hedman, et al., 2017; de Kerviler et al., 2016). For ubiquitous mobile services which are not spatially constrained and allow consumption of the service anytime anywhere (Weiser, 1991), such as mobile banking, convenience exists in the form of portability (Collier et al., 2013). However, MPP are spatially constrained to a physical location where the payment takes place either in a store or on public transport. Paying with MPP is also part of a broader service experience that can affect the consumers' perception of how convenient the MPP is. For example, if the consumer uses a self-service till in a supermarket this could influence their perception of the speed of the service compared to if they had to queue at a non self-serve till no matter how quick the payment element of the overall process was. This research confirms that convenience is the core benefit to explain why consumers use MPP, but that it is created at the point where the service is initiated, termed access convenience (Berry et al., 2002).

The conditional value created from the access convenience for MPP reduces the effort that must be expended prior to the act of paying before the consumer reaches the POS terminal. This access convenience increases to varying degrees the value of MPP versus traditional payment methods and stems from two situations which make the service more convenient to use, and therefore exists within what is termed the use dimension of convenience (Brown, 1990). Firstly, the location of the consumers' mobile phone in comparison to their wallet on their person creates conditional value for MPP. Most commonly this occurs when their wallet is in a bag and the mobile phone in a pocket prior to reaching the POS terminal. The result is that it requires less effort and is quicker for the consumer to access their mobile phone than traditional payment methods. In some situations, the consumer may have their mobile phone in hand which can

further increase the access convenience for MPP. If the phone is in hand prior to the act of paying this is influenced by the second use situation of what the consumer is doing before paying. Two activities can influence if the mobile phone is in hand prior to paying, firstly if the consumer has been using their mobile phone while shopping, this increases the likelihood that their phone will be in hand when they reach the POS terminal. Secondly, if the consumer must queue at the till, they may already be engaged with their mobile phone for various activities, such as checking messages or news. After having paid for a product or service MPP can also maintain greater access convenience compared to traditional payment methods. This is because the mobile phone often does not have to be returned to a physical bag and may be either kept in hand or returned to a coat or trouser pocket. When both the mobile phone and wallet are carried in a bag or rucksack the use of MPP can allow them to keep their wallet in a more secure and less convenient location, such as in the bottom of a bag or in an inside pocket of a bag or a coat. Thus, the degree of access convenience the consumer acquires from using MPP will vary depending on temporary situational factors which precede the act of paying, termed momentary conditions (Belk, 1975).

As a result of these momentary conditions which precede the act of paying, convenience is not an inherent service characteristic of the MPP application itself. For example, MPP do not create a quicker swipe of the POS terminal compared to a physical contactless card per se. MPP create convenience in the form of reducing the effort expended through a class of convenience which Yale and Venkatesh (1986) termed handiness. The notion that the mobile phone as the container that payment services exist within is closer at hand to traditional payment methods suggests that it is the mobile-in-hand antecedent state which creates the predominant benefit for MPP. In contrast to previous mobile payment research, this evidence suggests that convenience is

more comprehensive than just when the customer directly interacts with the mobile application. In IT based mobile payment research convenience in the form of ease of use (Davis, 1989) and effort expenditure (Venkatesh et al., 2012) focuses on the use of the mobile application. However, this research finds that convenience is only a benefit when the notion of the transaction is expanded to include the activities the consumer does both prior to and after the direct use of the MPP application.

Payment acceptance

A payment method also acquires conditional value if it is widely accepted by the stores a consumer frequents in their daily life and if it does not apply any restrictions on the size of transaction they can complete. If stores either do not accept or limit the size of transaction with a particular payment method this reduces its conditional value. The result of these restrictions is that the consumer cannot use the payment method they want to, be that MPP or traditional payment methods. Therefore, they must revert to an alternative payment method to complete a transaction. This research suggests that MPP accumulate minimal or in some situations less conditional value compared to traditional payment methods due to acceptance conditions. However, the effect of acceptance conditions imposed on the consumer is dependent on three factors: the type of technology the MPP uses, the consumer's knowledge, and their willingness to adapt to the situation. The two main sources of conditions imposed on the consumer related to the acceptance of payment methods that of store and transaction size acceptance, are discussed below.

MPP acquire conditional value if they are accepted in the stores and if applicable public transport consumers' use in their everyday life. Therefore, if a store does not accept MPP as a

payment method, the consumer must choose to either leave the store and may decide to avoid that store in future or revert to using traditional payment methods. This research found that the store acceptance of MPP was dependent on whether the store had the required technology to accept the two main types of MPP. For MPP which use NFC technology (e.g., Apple Pay) there was widespread acceptance among both retail stores and public transport. This widespread acceptance is due to the NFC MPP using the same technology as contactless cards which the focal provider already has installed at the POS. Despite this widespread acceptance for NFC MPP, its conditional value is not greater than but equal to traditional contactless bank and debit cards. In contrast, QR MPP (e.g., YoYo Wallet) were not widely accepted in retail stores and not accepted on any public transport. This created a limited number of stores that the consumer could use QR MPP in and some considered stopping their use of this type of MPP. A consideration to stop using QR MPP demonstrates potential active innovation resistance (Nabih et al., 1997) with the lack of acceptance acting as a functional value barrier (Talke and Heidenreich, 2014). In situations when the consumer had expected to use a QR MPP, but it was not accepted by a store, they could always revert to paying with either NFC MPP or traditional payment methods to complete the transaction. Only in a limited number of situations were neither MPP nor traditional card payment methods accepted. In these cash only situations the consumer would through prior knowledge adapt their behaviour, to either avoid the store or pre-plan to ensure they had enough physical cash before entering the store.

If a store accepts MPP additional constraints can be placed upon its use in the form of limits to the transaction size. A limited number of stores would impose a minimum limit for both MPP and traditional cards under which the consumer would incur a minimum transaction fee. In contrast, a perceived maximum limit for MPP reduced its conditional value, whereby if a

transaction were over a certain amount the consumer would switch to paying with traditional card. The perception of a maximum limit for MPP was due to associating the upper limit for NFC MPP with that of traditional contactless cards. This association meant that when consumers expected their transaction to be greater than the contactless card limit, they would either revert to using their traditional card with PIN or adapt their behaviour. For example, through reducing their shopping or splitting their transaction into two, this adaptation of behaviour is discussed further in Section 9.1.3.2. In many stores the maximum payment limit for MPP is different to the limit for contactless cards, for example up to £999 in Sainsbury's. The lack of knowledge that the MPP limit is different to that of contactless cards and an association with the contactless card limit is further discussed in Section 9.1.3.1. Therefore, although MPP should acquire greater conditional value through having a higher maximum payment acceptance limit than traditional contactless cards, in many situations it does not.

9.1.1.3. The Role of Emotional Responses in the Joint Sphere

Emotional value in the joint sphere exists as a range of negative and positive emotions the consumer experiences from using MPP as triggered discrete emotional responses. These emotional responses are discrete because they are core human emotions (Izard, 2007) which are stimulated by reactive triggers in the experience (Bagozzi et al., 1999). This contrasts with feelings or moods which either motivate a particular behaviour or have a strongly motivating quality, such as when an individual's desire for arousal during shopping is a strong motive for compulsive purchasing (Dawson et al., 1990). The marketing context of this research treats the positive and negative emotions the consumer experiences when using MPP as mutually independent and thus able to co-exist in the service experience (Sandstrom et al., 2008). For example, when negative emotions are experienced in the form of frustration from MPP

functionality not working as expected, they do not conversely experience positive emotions such as joy when the functionality does work as expected. The effect of negative emotional responses will also depend on if these fall within or outside of the individuals' tolerance zone (Johnston, 1995) when evaluating the in-process service performance.

The emotional responses evident in this research are attributed to reactions from the functional and conditional value creating activities that occur when using MPP. Previous research into the role of consumer emotions in the service experience has identified that negative emotions are the result of unfavourable service experiences (Tronvoll, 2011). The resulting effect of negative emotional responses to unfavourable service experiences has predominantly focused on how negative emotions trigger complaining behaviour which may leave a mark on the consumer in future uses of a service (Edvardsson et al., 2005). This research does not find evidence that the negative emotions experienced when using MPP result in complaints. However, the effect of negative emotional responses can result in the consumer changing their behaviour and in extreme situations avoiding stores that do not accept MPP, a form of relationship exit (Hirschman, 1970). Despite positive emotional responses occurring, for example when the consumer sees a representation of their bank card in the MPP which creates emotional reassurance, the emotional responses are predominantly value decreasing. The value decreasing effects of the emotional responses to functionality and conditional acceptance conditions and their influence on consumer behaviour when using MPP are discussed in detail below.

The negative emotions experienced during the use of MPP attributed to functionality do not prevent the consumer from paying. However, there is evidence that the consumer experiences greater negative emotions attributed to the functionality of using MPP during initial stages of

use. When consumers begin paying with MPP they must learn not just how to use the mobile payment application but also how to pay with MPP at the stores' POS terminal. Therefore, the switching of payment methods from traditional to mobile can act as a situational trigger (Roos and Friman, 2008), a change in the use of services and cause negative emotions. These negative emotions include frustration and confusion which are triggered at self-serve checkouts when the consumer must learn the steps required to pay using MPP. These emotional responses are compounded as the self-serve POS terminals are not standardised across different stores. Overtime as the consumer uses self-serve POS terminals the negative emotional responses reduce as their familiarity with the different store processes increases. Negative emotions also occur as a reaction to the functionality not working as expected or requiring the customer to exert more effort than they would expect, such as when the phone does not unlock with fingerprint or face ID. However, in this case the negative emotional responses of frustration and irritation are not strong enough to prevent MPP use. Therefore, despite MPP functionality creating negative emotional responses, these do not prevent the consumer from using the service and the additional effort that must be made to rectify a problem is deemed acceptable. Thus, the negative emotions associated with the MPP functionality are deemed to exist within the consumers' tolerance zone (Johnston, 1995) as they do not cause switching to traditional payment methods.

In contrast, the emotions triggered from the MPP payment acceptance conditions can cause switching payment methods and changing the stores visited. For example, if the consumer believes the maximum payment limit for MPP to be associated with that of contactless cards and the amount of shopping they have is near this amount it can trigger the consumer to experience forms of fear (Diener et al., 1995), such as nervousness and anxiety. These emotions

are due to the consumer not wanting to become embarrassed if the total transaction amount is greater than the accepted MPP limit. Therefore, the emotional response can be strong enough to affect switching to traditional payment methods, such as a traditional bank card using their PIN instead of contactless. This situation will continue through ongoing transactions until they acquire the knowledge that the maximum limit is not associated with contactless card payments but differs by store. This confirms previous research into consumers' experience of avoiding embarrassment in the service encounter (Liljander and Strandsvik, 1997). Whereby if the strength of emotional fear they experience is outside of their tolerance zone (Johnston, 1995) and to avoid being embarrassed in the act of paying the consumer may switch payment methods away from MPP.

An emotional response to the conditional payment conditions imposed by acceptance conditions can also cause the consumer to avoid future transactions in stores which do not accept MPP. Although, this condition can also apply to traditional card payments and is often when the only payment method accepted is cash. This payment method acceptance condition can cause the consumer to become annoyed and frustrated that they cannot use their preferred payment method. The result of these emotional responses is that either the consumer continues to use a cash only store but adapts their behaviour to ensure they have cash on their person in future situations, or avoids cash only stores in future transactions. This later example is a form of planned switching (Roos and Friman, 2008) whereby the emotional response forms part of experienced reactional triggers to the conditional situation. Thus, if the emotional response is strong enough and suitable alternative stores exist, then the consumer may decide to exit the relationship they have with stores that do not accept MPP.

Therefore, the role of emotional responses when consumers' use MPP varies from having minimal influence when functionality does not work as expected, to a greater influence when reinforcing the effect of value decreasing payment acceptance conditions. The effect of negative emotional responses will also depend on if the emotional responses they experience fall within or outside of the consumers' tolerance zone. During the ongoing use of MPP the greatest influence of negative emotional responses is when consumers are conducting larger transactions and approaching what they believe the MPP maximum payment limit is. In this situation the emotions experienced serve to reinforce the consumers' behaviour to switch from using MPP to traditional payment methods. Therefore, this research confirms that situations where the consumer responds with negative emotions to payment acceptance conditions are the most critical (Liljander and Strandvik, 1997) as these cause switching away from using MPP.

9.1.2. Independent Customer Value Creation in the Customer Sphere

The customer sphere exists outside of where the customer directly uses MPP in the service encounter when paying for a product or service. Thus, CV in the customer sphere is created independently of the direct service interactions with providers' processes and termed independent value creation (Grönroos, 2011). The structural model confirmed that functional value in the customer sphere although evident in stage one in the form of enabling attributes (e.g., battery) does not have a significant relationship with intention to use (H1f). Whereas conditional value was found to have a significant relationship with intention to use (H1e). Therefore, the type of CV created as per the TCV constructs (Sheth et al., 1991) in the customer sphere is evident as conditional value only as shown below in Figure 9-3.

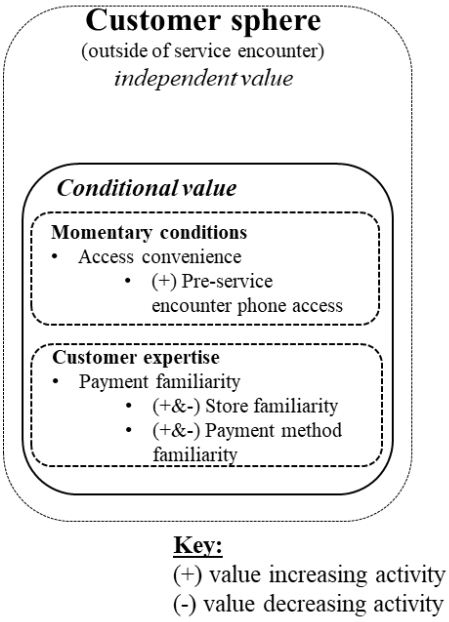


Figure 9-3: Customer value creation in the customer sphere element of Figure 9-1

In the customer sphere, MPP accumulate conditional value because of specific sets of circumstances. Although, compared to conditional value in the joint sphere these circumstances include not only choices between MPP and traditional payment methods but the knowledge the consumer has gained through previous experiences (Howard and Sheth, 1969). Thus, the conditional value creating activities exist as two distinctly different forms. Firstly, as access convenience in momentary conditions which stems from the consumers' interaction with the mobile phone outside of the service encounter, which increases the CV of MPP compared to traditional payment methods, as discussed in detail in following Section 9.1.2.1. Secondly, as a mental outcome of the interaction from the joint sphere in the form of consumer expertise as discussed in detail in Section 9.1.2.2 on p.282. This form of conditional value reflects that consumers' knowledge of using MPP develops to a point where they can pay using MPP in their daily lives and that the CV created from their use of MPP emerges through the experience (Helkkula et al. 2012; Voima et al. 2010).

9.1.2.1. The Creation of Conditional Value in Momentary Conditions

MPP create greater access convenience in momentary conditions (Belk, 1975) for the consumer compared to traditional payment methods as they allow them to carry on their person only a mobile phone and not a physical wallet. The decision to only carry a mobile phone on their person is influenced by the types of service encounters and purchases that they intend to make and occurs in the customer sphere before entering the service encounter. Thus, this form of access convenience relates to the time and effort expenditure to initiate the payment service (Berry et al., 2002) but is a result of the decision about which payment methods the consumer should carry on their person. This contrasts with access convenience in the joint sphere which occurs from the location of the payment methods that the customer is carrying on their person. The result of the customer only carrying a mobile phone and MPP contained within is that they expend less effort by not having to carry on their person a physical wallet and if applicable an associated bag. This access convenience emerges from temporary states which precede the conditional value creation, termed momentary conditions (Belk, 1975). These momentary conditions occur predominantly because of two use situations, when the consumer leaves their workplace during the day and/or when they leave their place of residence.

The decision by the consumer in these situations to only carry on their person a mobile phone will depend on their familiarity with the stores they intend to visit. For example, if the consumer leaves their work environment during the day for food and/or coffee they know that the stores they use accept MPP and the size of the transaction will be relatively small. Only in limited situations was it evident that the consumer would leave their residence on a regular basis with only their mobile phone. The evidence suggests that this only occurs when the consumer knows that the maximum payment limit for MPP differs by store and they only shop in stores which

accept MPP. In these limited situations where the consumer predominantly leaves home with only their mobile phone, this can also result in them making changes in their daily lives. These changes that result from no longer carrying a physical wallet or purse include not carrying a physical bag and/or changing the way they dress. These changes are evidence of the consumer de-cluttering and simplifying their daily life because using MPP reduces the number of physical objects that need to be carried, a reduced consumption style (Shaw and Newholm, 2002). Therefore, not only do MPP create convenience outside of the service encounter, but mobile technology can have wider influence beyond the intended goal of the service.

The evidence that MPP create access convenience for the consumer before they enter the service encounter confirms that the value creation process can begin in the customer sphere independent of the focal provider (Grönroos, 2017). However, this form of independent conditional value in the customer sphere is dependent on the knowledge the consumer has gained from previous service interactions in the joint sphere. This knowledge enables them to determine payment acceptance related factors (e.g., maximum limit) before they decide if they only need to carry their mobile phone. Therefore, MPP can create greater access convenience than traditional payment methods in the customer sphere, but this is dependent on the consumer determining that the risk of not being able to pay using MPP is minimal. The existence of the MPP creating access convenience in the customer sphere also provides evidence that value created in the customer sphere is invisible to the providers (Mickelsson, 2013). This form of independent conditional value is not directly linked to the MPP service provider but exists in the consumers' lifeworld outside of the interaction in the joint sphere (Medberg and Heinonen, 2014). The integration of payment services in the mobile phone supports and allows the consumer to only carry on their person a mobile phone. Thus, the creation of convenience is

not inherent in the MPP per se but enables the consumer to control how they expend their resources (Farquhar and Rowley, 2009).

9.1.2.2. The Creation of Conditional Value from Customer Expertise

As the consumer uses MPP in their daily lives, they become familiar with the payment method and its associated service related tasks which creates a level of expertise (Alba and Hutchinson, 1987). This expertise not only allows them to pay with MPP successfully, unconsciously, and with minimal effort (Barrutia and Gilsanz, 2012) but also reduces uncertainty (Gefen, 2000). However, consumers have differing levels of expertise which can result in just using MPP to replicate traditional payment methods. Whereas consumers with higher levels of expertise use MPP to replicate traditional payment methods and other activities traditionally contained within the physical wallet. Therefore, the degree of expertise the consumer has with MPP can lead to differing levels of CV from MPP compared to traditional payment methods. There are two areas of expertise that the consumer becomes familiar with when using MPP over time to a point where the customer has sufficient entrenched knowledge (Moreau et al., 2001). These two areas of expertise are familiarity with the stores in which they use MPP and with how to use the MPP functional attributes.

Firstly, the consumer develops a familiarity with different payment related characteristics of the stores they use MPP in. These store characteristics include which stores accept MPP, if the store imposes any restrictions on MPP use, and how to use MPP with the store specific POS terminal. Through familiarity with these store specific characteristics the consumer gains expertise which is then subsequently used in future physical service encounters. It is only in unfamiliar purchase scenarios they must determine if MPP are accepted, for example by looking

for signs in the store to confirm the accepted payment methods. Additionally, for those stores that the consumer knows accept MPP they also become familiar with store specific MPP characteristics, such as how to pay using MPP. The greatest difference between stores payment systems that they must become familiar with is when using NFC MPP compared to a traditional card on supermarket self-serve terminals. However, after an initial learning process at the POS terminal the use of different stores self-serve tills overtime becomes an automatic process. The familiarity and expertise developed with these store specific characteristics increases the value of MPP but only to a point where they use MPP with the same unconscious expertise as traditional payment methods. In contrast, the familiarity the consumer has with the restrictions a store imposes on their use of MPP can reduce the value of MPP compared to traditional payment methods, such as when the maximum MPP limit is perceived to be the same as traditional contactless cards.

The second area of expertise required to use MPP is familiarity with the functional attributes of the service compared to traditional payment methods. The familiarity with the MPP functional attributes varies and when levels of expertise are low only the core functional attributes are used. Lower levels of expertise still allow the consumer to pay with MPP, but they may not use all the core functional attributes, such as the receipt functionality. Thus, the functional value that accumulates from using MPP is limited to replicating traditional payment methods. In contrast, a consumer with higher levels of expertise can use both core and non-core functional MPP attributes. Thus, the MPP becomes more than just a service that imitates traditional payment methods, and the consumer conducts activities traditionally found in their wallet, such as loyalty cards. Therefore, those consumers which have a greater expertise with the MPP functionality can perform more payment related tasks using their mobile phone, which increases the CV for MPP compared to traditional payment methods.

The evidence in this research demonstrates that the consumer develops expertise with MPP through a familiarity with both store specific and payment method specific characteristics (Söderlund, 2002). This expertise enables them to use MPP in their daily lives and reduces uncertainty with the use of the payment method (Gefen, 2000). However, despite consumers' having enough familiarity with MPP to use this technological service in their daily lives their level of expertise with MPP can remain low. The result of this lower level of expertise is that in certain situations it prevents using MPP and they may only use the MPP functional attributes that replicate the core payment related tasks. These are due to associations with their existing knowledge of traditional contactless cards and their ability to adapt to the new tasks required to use MPP which are discussed in the following Section 9.1.3. The creation of expertise with using MPP as independent value in the customer sphere confirms that value emerges through an accumulation of the consumer's individual experiences (Grönroos and Voima, 2013). Additionally, this study suggests that for utilitarian services, such as mobile payments, there is no evidence of independent value in the customer sphere being created collectively through social value creation processes (Grönroos, 2017; Holmqvist et al., 2020).

9.1.3. The Relationship between the Joint and Customer Spheres

As is evident in this research, CV is created from both interactions in the service encounter where the customer uses MPP (joint sphere) and outside of the service encounter (customer sphere). The creation of CV is a dynamic concept which accumulates overtime from the consumers' ongoing interactions with using MPP through their behavioural and mental processes (Heinonen and Stanvik, 2015). Therefore, CV emerges from the ongoing use of the mobile payment technology and accumulates from a dynamic process of value increasing and value decreasing activities (Grönroos and Voima, 2013). This research proposes that the

creation of CV emerges through an ongoing process of knowledge accumulation and adaptability, which link the value creating activities the consumer does in the joint and customer spheres. This contrasts with the joint and customer spheres being linked through processes of anticipation prior to the interaction and social sharing after the interaction in the case of luxury services (Holmqvist et al., 2020). Although, for both luxury and utilitarian services value is experienced through their use of a service which is related to previous, current, and future experience, through a circularity of service experience and customer value (Wikstrom, 2008; Helkkula and Kelleher, 2010). As the consumer becomes familiar with using MPP in their daily lives' this knowledge creates a degree of expertise which allows them in future interactions to adapt their behaviour towards using MPP rather than traditional payment methods. Firstly, consumer knowledge is influenced by their existing knowledge from using traditional payment methods and supplementary knowledge from external sources (Moreau et al., 2001), as discussed hereafter in Section 9.1.3.1. Secondly, consumer adaptability that is brought into the joint sphere enables them to both maximise the benefits of and minimise disturbance to (Beaudry and Pinsonneault, 2005) their use of MPP in the service encounter, as discussed in Section 9.1.3.2 on p.288.

9.1.3.1. Consumer Knowledge from the Joint Sphere

The evidence in this research suggests that CV emerges overtime through a combination of knowledge accumulated from using MPP in the service encounter and existing knowledge from using traditional payment methods. The knowledge with which to use MPP develops from the interactions the consumer has with MPP and focal providers in the joint sphere as expertise in the customer sphere. This knowledge accumulation process is initially influenced by their existing knowledge of traditional payment methods which act as familiar domains from which

knowledge is transferred to the use of MPP (Gentner, 1989; Moreau et al., 2001). For example, the action of swiping the payment method over a POS terminal when paying in person is the same for both a traditional contactless card and MPP. These similarities between payment methods provide a base from which the knowledge required to use MPP is created, but differences also exist between the use of MPP and traditional payment methods for which the consumer cannot transfer existing knowledge. The result of these differences is that the consumer must gain supplementary knowledge from external sources (Moreau et al., 2001) to increase their expertise, from for example signs in the store. Therefore, the knowledge of existing payment methods influences the knowledge about how to use MPP and enables the transfer of knowledge between the base (traditional payment method) and the target (MPP) (Rogers, 2003). However, despite existing knowledge of payment methods providing a frame of reference from which to accumulate knowledge of MPP, overtime this can also impede their expertise. This is evident when the consumer believes the maximum payment limit of MPP to be the same as contactless cards which can cause them to switch payment methods. The similarities and differences between MPP and traditional payment methods and their impact on knowledge accumulation is discussed hereafter.

The similarities when paying in person with MPP and the contactless card serve as a frame of reference which enables the transfer of existing knowledge to the use of MPP. The evidence in this research suggests these similarities are most prominent between NFC MPP applications (e.g., Apple Pay) and contactless cards. The similar processes result in the consumer being able to map the actions required to use NFC MPP across from their existing knowledge of using a contactless card. The actions that are mapped from the contactless card to the NFC MPP exist as schema, memory structures that comprise knowledge of expected sequences (Abelson,

1981). These similarities in the schema between NFC MPP and contactless card include using the same POS terminal, a similar action of swiping over the POS terminal, and being accepted in similar stores. The effect of these similar actions is that they exist within a familiar frame of reference for the consumer and the actions are relatively easy to map from the base to the target (Rogers, 2003). Therefore, these similarities enable enough knowledge to accumulate from ongoing interactions in the joint sphere to a point where they can use MPP to pay in their daily lives.

In contrast, where differences in the process exist between NFC MPP and traditional payment methods, the consumer does not have a frame of reference that can be relatively easily mapped from existing payment methods to using MPP. Examples of differences in the payment process include how to use store specific self-serve machines, using non-core MPP functional attributes, and store specific maximum transaction size limits. These examples represent objective knowledge in the form of product category information (Park et al., 1994) that must be learnt. The consumer may learn and acquire the knowledge about these differences from multiple sources including store employees, store POS information, and self-learning. In the case of QR MPP greater differences exist compared to the consumers' traditional payment method frame of reference, such as the QR MPP using different POS terminals to contactless cards. The result is that QR MPP have a larger deviation from the already established payment process and that a greater amount of supplementary knowledge (Moreau et al., 2001) is required to increase expertise with this MPP variant. Therefore, because the NFC MPP has greater similarities with the process of traditional payment methods the evidence in this research suggests it is easier for the consumer to learn how to use NFC MPP than QR MPP. However, if additional supplementary knowledge is not created about the differences between NFC MPP and

traditional payment methods this can limit the consumer's expertise and in turn reduce the level of CV that MPP accumulates.

9.1.3.2. Consumer Adaptability from the Customer Sphere

As the consumer becomes familiar with using MPP and their expertise increases this allows them to adapt their behaviour towards using the mobile payment method in the service encounter. This adaptability facilitates appropriate behavioural adjustments the consumer must make in response to the changing conditions when using MPP. The process of facilitating the enactment of appropriate adaptive behaviours (Gwinner et al., 2005) through adaptability links the flow of expertise in the customer sphere to the interactions done when using MPP in the joint sphere. Previous research has focused on how providers can manage the customer experience by adapting their service delivery systems, such as employee engagement or managing consumers to improve benefits e.g., satisfaction (Zomerdijk and Voss, 2011). However, the evidence in this research suggests that to use MPP in their daily lives the consumer must also adapt their behaviour to realise benefits.

The adaptability the consumer brings into the joint sphere enables them to both maximise the benefits of and minimise disturbance to their use of MPP in the service encounter (Beaudry and Pinsonneault, 2005). The consumer maximises the benefits of using MPP through adapting their behaviour to opportunities which arise to use MPP. For example, if in a queue with their phone in hand this situation presents as opportunity to use MPP rather than traditional payment methods located in a wallet and MPP acquires greater access convenience. As the consumer becomes familiar with this situation in the queue, they adapt their behaviour to future opportunities, and this increases the access convenience value of MPP. In limited situations,

this adaptability extends outside of the service encounter into the customer sphere, where opportunities exist to take advantage of access convenience benefits before the service encounter.

Consumer adaptability also allows changing behaviour in response to disruptive events that occur when using MPP (Beaudry and Pinsonneault, 2005). These disruptive events can be viewed as a threat to their ability to use MPP, such as when MPP functionality does not work as expected or having to adjust to new procedures when using a self-serve till. It is through their adaptability to these disruptions that the consumer adjusts their behaviour to minimise disturbance to the process of paying with MPP. This form of adaptation has a greater focus on solving problems (Pulakos et al., 2000) that may be encountered when using MPP and reducing any resulting negative consequences. If customers are unable to adapt to disruptive events they encounter when using MPP this can result in them switching to traditional payment methods, such as if the store does not accept MPP. However, overtime the consumer may adapt their behaviour to minimise this disturbance by not visiting such stores in the future. Where consumers' encounter repeated disturbance such as frequent non-acceptance of QR MPP, this can lead to a decline in the use of this form of MPP. In contrast, the disruptive events from NFC MPP functionality not working as expected were intermittent and did not impact the use of MPP.

To use MPP in their daily lives the consumer must change their behaviour to the new situations and processes required to use MPP compared to traditional payment methods. The evidence in this research suggests adaptability, an ability to respond to changing conditions, allows the consumer to adjust their behaviour towards using MPP. These adjustments are a result of both

opportunities which allow them to maximise benefits and to minimise disturbances from disruptions (Beaudry and Pinsonneault, 2005) in their daily lives.

9.2. How Post Adoption In-Use Barriers Prevent the Increased Use of MPP

Research into customers' use of new innovations predominantly focuses on the adoption of innovations as a binary outcome decision to adopt or not. This results in research which either concentrates on how an innovation is adopted and accepted amongst customers over time (Rogers, 2003; Jahanmir and Cavadas, 2018), or why customers reject new innovations and the reasons for resisting change (Heidenreich and Spieth, 2013; Chaouali and Souiden, 2019). For example, customers may demonstrate resistance to innovations because its use disrupts their daily routines, or it is not socially accepted to use in the customers' culture (Ram and Sheth, 1989). Research suggests that customer resistance is created by a range of barriers at the persuasion stage of adoption within two over-riding categories (Talke and Heidenreich, 2014). Firstly, functional barriers exist when for example an innovation does not offer a superior performance than existing alternatives (functional value barrier). Secondly, psychological barriers exist for example when a lack of information creates uncertainty in the customer (psychological information barrier) (Ram and Sheth, 1989). It is accepted that innovation resistance exists on a continuum and certain customers will not be inclined to trial an innovation and thus demonstrate passive innovation resistance. Whereas customers who are of a disposition to trial new innovations may after an initial period stop using an innovation through demonstrating what is termed active innovation resistance (Talke and Heidenreich, 2014). Where customers decide to adopt and continue to use a new technology, research suggests that the user has overcome barriers to resistance (Ram and Sheth, 1989). In mobile banking for example, the most significant barrier that the technology must overcome is the ability to provide

customers with a greater performance in the form of a functional advantage in comparison to existing alternatives, termed the value barrier (Laukkanen, 2016). However, the evidence in this research suggests that in-use barriers exist after adoption although customers using mobile proximity payments (MPP) at least weekly are considered adopters and the innovation has demonstrated enough value to warrant its use in their daily life.

As per existing research into technology adoption and customer resistance to innovations and as shown below in Figure 9-4, customers (1) may not trial MPP because they exhibit passive innovation resistance. The sources of passive resistance can be due to either an individual inclination to resist changes and/or a satisfaction with the status quo (Talk and Heidenreich, 2013) and thus the customer continues to use traditional payment methods.

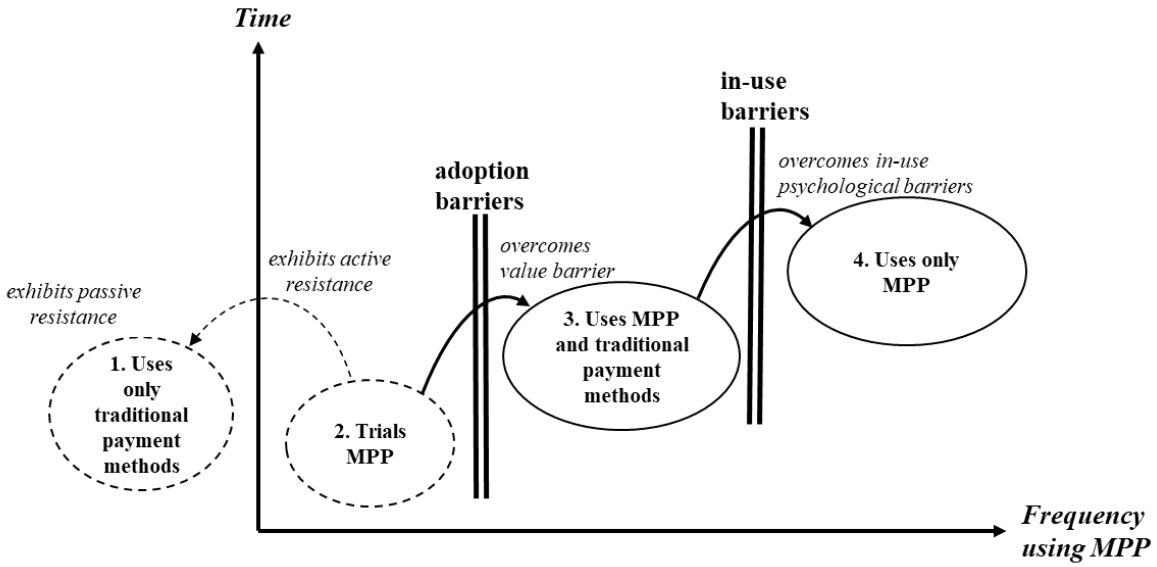


Figure 9-4: MPP post adoption in-use barriers (Author's own)

Those customers that (2) setup and trial MPP may return to just using traditional payment methods and exhibit active resistance due to adoption barriers existing which prevent them using MPP. For example, a functional usage barrier was evident when using QR MPP as this

form of MPP was not widely accepted which prevented consumers using it in the stores they wanted to Therefore, these consumers demonstrated active resistance through having stopped using QR MPP due to situation specific functional usage barriers.

Where the consumer does not demonstrate resistance and overcomes the adoption barriers they use (3) MPP and traditional payment methods in their daily life. In this research NFC MPP were used at least weekly and therefore these applications are deemed to have created enough CV that the value barrier had been overcome. However, there is evidence that after the consumer adopts MPP, in-use barriers exist which prevent them from (4) only using MPP and not having to use traditional payment methods in their daily life. Therefore, this study suggests that after consumers have been persuaded to adopt NFC MPP, in-use barriers exist which constrain their increased use of the mobile payment technology.

Two distinct groups of MPP users were evident in this research, those that always carry on their person a physical wallet and a mobile phone, and those often only carry on their person a mobile phone and not a physical wallet. For those consumers who always carry both a mobile phone and physical wallet two forms of psychological barriers were evident, an information barrier and a functional risk barrier (Talke and Heidenreich, 2014). Psychological barriers occur when an innovation conflicts with the customers individual usage patterns or its use is deemed too risky (Ram and Sheth, 1989). The result of these two psychological barriers is that the consumers' use of MPP is constrained and they need to carry traditional payment methods on their person. Firstly, the psychological information barrier creates customer confusion about the MPP maximum payment limit which constrains the use of MPP to smaller transaction sizes. This constraint which prevents the use of MPP for larger transactions over £30 is due to a lack

of knowledge (Kuisma et al., 2007) and their existing frame of reference with contactless cards. Secondly, a psychological functional risk barrier exists for MPP customers who carry a physical wallet whereby they are concerned that MPP may not be accepted in certain situations. The functional risk of MPP not being accepted typically occurs either when the customer is in an unfamiliar situation or when there is a risk they may reach the maximum accepted limit for MPP. Therefore, the functional risk barrier at this stage is related to performance uncertainty during consumption of the service and not as Ram and Sheth (1989) proposed due to concerns that the service itself may be unreliable or not fully tested. The result of these barriers is that consumers carry both MPP and traditional payment methods on their person in their daily lives.

The second group of consumers often only carry a mobile phone and not a physical wallet when they enter a service encounter. The decision that they only need a mobile phone on their person may have occurred during or at the start of the day. In the former scenario, when leaving for example a workplace during the day to purchase lunch, they know that the store accepts MPP, and they are unlikely to spend over £30 in any one transaction. Therefore, there is minimal risk that the scenarios in which they want to use MPP in is not accepted and the monetary amount of the transactions is unlikely to be large. In the later scenario, where customers leave home with only their mobile phone to pay, they have firstly reduced the functional risk of MPP not being accepted by only shopping in stores that accept MPP. Secondly, they have overcome the information barrier through learning that the maximum payment limit for MPP varies by store and is often far greater than £30. Therefore, this research proposes that after adoption MPP consumers encounter in-use barriers which must be overcome to further increase the usage of the service. If these psychological information and functional risk barriers are overcome the result is an increased use of MPP and a reduction of reliance with traditional payment methods.

The proposed in-use barriers are more applicable to incremental and continuous innovations, such as MPP, which seek to redistribute the share of an existing market rather than in the case of radical innovations which aim to expand a market (Montaguti et al., 2002). Additionally, the in-use barriers are compounded for MPP because the technology is not viewed by the consumer as a direct replacement for traditional payment methods and MPP cannot yet replace all the activities the customer uses a physical wallet for, such as identity cards. Therefore, MPP are for most consumers a supplementary payment method which are used in conjunction with traditional payment methods and will not become a direct replacement until the in-use barriers discussed have been overcome.

The following chapter 10 concludes the thesis by summarising the research findings and presenting the theoretical and managerial contributions, research limitations, and avenues for future research.

CHAPTER 10 - CONCLUSION

This chapter concludes the thesis by synthesising the research findings and presenting the research contributions, limitations, and suggestions for future research. The thesis has explored through using a mixed method research methodology how technology in the form of mobile proximity payment (MPP) services create customer value (CV). The chapter begins by summarising the research findings in Section 10.1, followed by presenting the theoretical research contributions in Section 10.2, and managerial contributions in Section 10.3. The limitations inherent in the research are then discussed in Section 10.4 and followed by suggestions for future research in Section 10.5.

10.1. Revisiting the Research Aim and Objectives

As discussed in Chapter two (Section 2.4.1 on p.31) previous research into mobile payment services has predominantly focused on the adoption of technological services through using Information Technology (IT) based frameworks. In contrast, this study through a CV perspective using the Grönroos-Voima Value Model (Grönroos and Voima, 2013) and Theory of Consumption Value (Sheth et al., 1991) provided detailed research findings into how MPP services create CV in the service experience. A CV perspective recognised that value is only created by the consumer when they use a mobile payment service and allowed the research to explore how and why consumers' use MPP. A summary of the research findings is presented below, firstly how does CV manifest as an outcome in the MPP service experience in Section 10.1.1, and secondly, how do the customer activities in the process of using MPP create CV in Section 10.1.2 on p.299.

10.1.1. How Does Customer Value Manifest as an Outcome in the MPP Service Experience?

This study revealed that compared to traditional payment methods (cash and card) MPP create CV through three of the five Theory of Consumption Value (TCV) (Sheth et al., 1991) constructs, that of functional, conditional, and emotional value. The existence of three value constructs aligns with the TCV that states a consumers' choice decision to use a product or service may be influenced by one or more of the five value constructs. The non-existence of the other two TCV constructs (epistemic and social value) reflects in part both the type of service MPP is and the stage the consumer was at when using MPP in this research. MPP is a utilitarian and practical service that is designed to allow the user to complete transactions and thus not to be shared socially or to arouse feelings. Additionally, as the consumers in this research were using MPP at least weekly, any novelty or curiosity (epistemic value) that may have existed in the early stages of adoption was no longer evident. The CV created from the three TCV value constructs explains why consumers choose to use MPP in comparison to traditional payment methods and these value constructs make differing contributions in any given situation. The three value constructs also exist at differing points across the service experience. Firstly, in the service encounter (joint sphere) when the consumer uses MPP to pay for a product or service where functional, conditional, and emotional value constructs exist. However, the value constructs in the service encounter are not independent as originally stated in the TCV but are inter-related (Sweeney and Soutar, 2001). Secondly, outside of the service encounter in the customer sphere conditional value exists.

In the service encounter conditional value existed in several forms, the most prominent and value increasing was through creating greater access convenience than traditional payment

methods. Previous research into mobile services has found that convenience is a core customer benefit and exists through requiring the customer to expend less effort and saving time (Hedman, et al., 2017; de Kerviler et al., 2016), such as by enabling a faster processing of the payment transaction (Gao and Waechter, 2017). In contrast, this study suggests that the convenience benefit exists not when the consumer is at the POS terminal but when they start to initiate the mobile payment service before reaching the POS terminal. This reduction of effort expenditure when the consumer initiates MPP is not use convenience as previous research suggests but access convenience (Berry et al., 2002). Conditional value in the service encounter also existed in the form of specific store characteristics which placed conditions on the consumers' use of MPP. These payment acceptance conditions were value decreasing, most notably as consumers typically associated the maximum payment limit for MPP with that of contactless cards despite it differing by store. This condition resulted certain consumers reverting to traditional payment methods when the transaction they were making was of a larger monetary amount.

When consumers use MPP in the service encounter the functional value of the mobile service exists by providing them with a greater number of integrated service attributes than traditional payment methods. However, these differentiations in the offering of MPP and traditional payment methods, termed a point of difference (Anderson et al., 2006), do not in isolation lead to the creation of CV for MPP compared to traditional payment methods. Firstly, this research found that consumers may not use any of the non-core functional service attributes and only use a limited number of the core functional service attributes. Therefore, although the functional value of MPP does create a point of difference compared to traditional payment methods through the bundling of both core and non-core attributes many of these functional attributes

are not used by the consumer. The functional attributes that are not used represent potential value produced by providers which is unconsumed by the customer (Priem, 2007). Secondly, the functional value of MPP does not have a direct effect on the creation of CV but an indirect effect on CV through its inter-relation with the conditional value construct in the service encounter. Emotional value existed in the service encounter as emotional responses attributed to both conditional and functional value. Whereby, as aligned with previous research (Liljander and Strandsvik, 1997) those emotional responses attributed to the maximum payment size condition could cause the consumer to revert to paying with traditional card to avoid the embarrassment of MPP not being accepted. In contrast, the emotional responses attributed to MPP functionality fell within the consumers tolerance zone (Johnston, 1995) and did not predominantly cause reverting to traditional payment methods.

Outside of the service encounter in the customer sphere there was no functional value created and only the conditional value construct existed. The conditional value existed in two forms, firstly the MPP created access convenience for the consumer as it allowed them to leave certain situations with only their phone and not have to expend greater effort to carry a physical wallet or bag. Therefore, the creation of customer value could begin in the customer sphere before interactions in the joint sphere. Secondly, conditional value existed outside of the service encounter in the form of expertise the consumer had with both store and payment method specific characteristics of using MPP. As the consumer uses MPP in their daily lives they become familiar with the associated service related tasks and this expertise not only allows them to pay with MPP successfully but also reduces uncertainty. However, consumers' have differing levels of expertise which can result in them just using MPP to pay for a product or

service and not using the full range of functional attributes. The reason for consumers having differing levels of expertise is discussed in the following Section 10.1.2.

10.1.2. How Do the Customer Activities in the Process of Using MPP Create Customer Value?

When using MPP the consumer does a range of value creating activities across the service experience. The result of these activities is that they not only pay with MPP but over time CV accumulates to a point where the consumer uses the mobile payment service with relative frequency (at least once a week). The prominent value increasing activity the consumer does is when the mobile phone in their hand just prior to using the MPP in the service encounter, such as when using other mobile services in a queue (e.g., messaging). It is this antecedent state in a momentary condition (Belk, 1975) which creates the greatest value for MPP through creating access convenience. This research found that the customer does value creating activities in the service encounter not just at the POS terminal when making a payment, but both prior to and after the POS terminal. Therefore, MPP extends the boundaries in the service encounter of what is traditionally considered the act of making a payment.

To use MPP frequently in their daily lives the consumer must learn to operate MPP and then subsequently use this knowledge in the form of expertise to future service encounters. Therefore, CV does not exist at a singular point in time but emerges from the ongoing use of the mobile payment technology and accumulates from a dynamic process of value increasing and value decreasing activities (Grönroos and Voima, 2013). This research proposes that the creation of CV emerges through an ongoing process of knowledge accumulation and adaptability which link the value creating activities the customer does inside and outside of the

service encounter. As they become familiar with using MPP in their daily lives' this knowledge creates a degree of expertise in the customer which allows them to adapt their behaviour towards using MPP rather than traditional payment methods in future interactions. However as discussed previously, firstly consumer knowledge is influenced by their existing frame of reference from using traditional payment methods. Therefore, to further increase the CV of MPP after initial use supplementary knowledge is required from external sources (Moreau et al., 2001), such as signs in the store. Secondly, the adaptability that the consumer brings to the service encounter facilitates appropriate behavioural adjustments the consumer must make in response to the changing conditions when using MPP. These behavioural adjustments enable the customer to both maximise the benefits of and minimise disturbance (Beaudry and Pinsonneault, 2005) to their use of MPP.

10.2. Theoretical Contributions

This research contributes to existing knowledge on CV creation by exploring customers' use of mobile payment services and their behaviours in a real-world context. Although, the concept of CV and its creation is not new, this research uses this core marketing concept firstly, as an alternative to existing research into the use of payment technology. Secondly, to provide an understanding as to how CV creation exists where mobile services interact with the physical service environment. The main theoretical contributions of this study are discussed below.

(1) Development of a 'Model of mobile services value creation'

A core contribution of this study is the development of a model of mobile services value creation in the service experience (Figure 9-1). The concept of CV is a key if not the core concept in marketing (Cronin, 2016), but it also remains a somewhat elusive concept despite a

wide range of theoretical and empirical research (Gallarza et al., 2011). The model contributes towards the value creation research priority in service marketing (Ostrom et al., 2015) that calls for research to better understand the value creation process where customer technology interacts with the physical environment. The customer perspective that underpins the model also shifts the discussion on value creation away from a specific element of the real-world context in which technology is used. Research into customers' use of technology services tends to focus on either specific use scenarios (e.g., travel or retail) or technology types within these scenarios (e.g. self-serve or non self-serve). Therefore, through exploring how customers use MPP in their daily lives the model encompasses any real-world use situation in which the mobile service is used and is not limited to a specific scenario technology type, e.g., self-serve only.

The model also demonstrates that CV creation extends beyond what is visible to providers, both within and outside of the service encounter. While it has been acknowledged that CV is created when a service is consumed by the customer (Holbrook, 1994), the consumption of technological services has predominantly focused on customers' direct interaction with technology providers. This model proposes that in the service encounter the boundaries when the customer begins and finishes consuming the mobile payment service extends to a greater degree than has previously been considered. The customers' consideration to use MPP can begin in unfamiliar situations before entering a store, or in familiar situations when the decision to use MPP begins at the point of approaching the store POS terminals. Outside of the service encounter the model demonstrates that MPP can begin creating value when the customer is deciding which payment methods they need to carry on their person before entering the service encounter. Therefore, the model identifies that many of the activities the customer does when using MPP are not visible to technology providers of mobile payment services.

The model also contributes to existing knowledge on how CV accumulates and emerges over time. It is widely accepted that CV is not created in a linear fashion but emerges during the use of a service and accumulates over time (Grönroos, 2017; Khalifa, 2004). This research proposes that CV accumulates through a process of learning how to use the mobile technology and then applying this knowledge to future uses. The consumer knowledge obtained can be applied in future interactions and used to adapt subsequent behaviour to using MPP in different situations. For some customers, this process of CV accumulation will only occur to a point where they replace traditional payment methods with MPP in specific situations. However, for other customers this process will continue to a point where they no longer use traditional payment methods and only pay with MPP. Despite the contributions of this model, it is acknowledged that the model is more suited to utilitarian services which are outcome orientated than experiential services (e.g., mobile games).

(2) Revealing the importance of the 'mobile in-hand' momentary condition

When Belk (1975) first recognised the effect of situational variables on customer choice he used the example of cash in-hand as a momentary condition. This momentary condition acted as an antecedent state which influenced the customers' decision to use cash rather than individual traits of the customer (ibid). This study finds that in today's society for customers' that are using MPP, the decision of which payment method to use is also greatly influenced by momentary conditions, but from the antecedent state of where the mobile is located on their person. Therefore, what the customer is doing on their mobile phone prior to paying for products or services greatly influences their decision about which payment methods to use. This reveals the importance of the mobile phone in influencing consumer decisions through what is termed the mobile in-hand effect. The influence of the mobile in-hand effect as an antecedent

state and class of convenience termed handiness (Yale and Venkatesh, 1986) is expected to exist beyond just payments and across other aspects of today's society.

(3) Introducing the concept of post adoption 'in-use barriers'

This research identifies that after the consumer has adopted MPP barriers exist which constrain their use of the technology, and in certain circumstances causes the consumer to revert to using traditional payment methods, termed in-use barriers. The concept of in-use barriers develops on previous research into consumer resistance to new technology (Talke and Heidenreich, 2014; Ram and Sheth, 1989) as discussed in Section 2.4 on p.29, and further shifts the conversation of technology adoption away from a binary decision to adopt or not. It does this by recognising that where customers have adopted a new technology, they still face psychological barriers (information and functional risk) which constrain their increased use. In the case of mobile payments, these in-use barriers constrain the customers' further use of the technology which results in the need for many customers to still carry on their person traditional payment methods in addition to a mobile phone. As mobile technology through smartphone saturation becomes commonplace so the services contained within them as incremental innovations become increasingly used by customers. However, research often focuses both on radical innovations that mainstream customers have yet to adopt (e.g., virtual reality) or overlooks that for many users of mobile services the benefits are not fully realised.

(4) Demonstrating how a customer value approach can be applied to technology use

This study set out to use an alternative theoretical perspective to the Information Technology (IT) theories which have dominated the mobile payment research to date (Dahlberg et al., 2015). The findings demonstrate how a CV perspective to technology use is a suitable alternative to

IT approaches when researching how and why customers use a new technology. A CV perspective broadens the view of technology from purely an object a user interacts with to an object that is immersed in customers' daily life which creates a greater relevance. IT based models commonly suggest that for mobile payment services to be adopted the service must be easy to use or free from effort through for example the constructs of ease of use (TAM) and effort expectancy (UTAUT) (Baptista and Oliveira, 2016). However, in contrast to when smartphones were introduced and mobile applications varied in their design, there is now a greater degree of standardisation within the supply side mobile ecosystem (Kaa and Greeven, 2017). This standardisation of the supply side mobile ecosystem combined with increased consumer knowledge of how to use mobile applications results in services that are intuitive and easy to use, through for example common design standards (Shaw and Sergueeva, 2019). Consequently, the ease of use construct within IT adoption models has become either a weaker (Choi, 2018) or non-significant (Shaw and Sergueeva, 2019) predictor of mobile service adoption. The evidence in this research suggests that of the MPP applications explored their design and the lack of effort required is not a benefit that explains why consumers use them. Where MPP create a benefit compared to traditional payment methods is that they require less effort to be expended because of the location of the mobile phone compared to a physical wallet (or purse). Therefore, the effort expended to use a MPP is an important factor to explain why consumers use MPP from a CV perspective, but it is not related to the design of the mobile application as is common in IT based research.

This research also found that MPP have a range of features in the form of functional attributes which is less evident in IT research. The features of MPP allow the consumer to not only make a transaction using their mobile phone but also other activities related to paying. When

researching mobile payment services IT research predominantly focuses on the core capability of the service, that of providing the consumer with the capability to make a payment. Thus, the additional features that are included in these services are not considered in relation to individual outcomes (Thong and Venkatesh, 2011). Additionally, whereas IT based adoption research seeks to achieve greater explanatory power through adding additional constructs to already established models, the variables used in this research are created abductively from the qualitative data through an iterative back and forth process between the data and analysis. This resulted in the themes and variables maintaining a closeness to the consumers' actual use of MPP and not constructs which are treated as black boxes of system usage (Straub and Burton-Jones, 2007; Todd and Benbasat, 1987). Therefore, the use of a CV perspective resulted in a contextually relevant understanding of the factors that explain how and why consumers' use MPP and contributes to: '…the challenge that mobile payment adoption is not in rigor but in relevance' (Dahlberg et al., 2015, p.11). However, it is recognised that a CV perspective is more suited to incremental innovations which substitute rather than replace existing services. This is because of the individualistic and relativistic nature of CV which requires a comparison between similar types of services used by the consumer.

10.3. Managerial Contributions

A major contribution of this research is to demonstrate that a CV perspective to technology use can offer the providers of mobile payment services practical recommendations. Through focusing on those consumers that have adopted MPP this study provides recommendations which reduce their reliance on traditional payment methods, and identifies those situations when these consumers have to revert to using traditional payment methods. The effect of these recommendations is to increase both the situations in which MPP are used and the monetary

size of MPP transactions. These recommendations can be used by managers of the providers of mobile payment applications (e.g., Apple and/or Google) to increase customers use of MPP or those companies that are considering entering the MPP market. However, it is recognised that MPP services exist within a complex value network, and co-ordination and co-operation within the value network is required to deliver the mobile payment service, as discussed in Chapter 2 Section 2.2 on p.15. Through focusing on those customers' that are using MPP in their daily lives, this research provides practical recommendations for how providers can increase the monetary value and frequency of MPP transactions. The recommendations listed below are aimed at increasing the use of MPP for those customers that are using the mobile technology frequently (e.g., at least once a week). The overall result of these recommendations is an expected reduction in the customers' reliance on traditional card payments through using MPP to pay for larger transaction sizes and increasing their use of both existing MPP payment and non-payment related functionality.

1. Communicate existing MPP core functionality

This research found that customers only use a selection of the core payment functionality that are contained in MPP. The current marketing focuses on MPP being faster and simpler than traditional payment methods and promotes security and privacy (Apple, 2021; Google, 2021). Therefore, MPP providers (e.g., Apple) should attempt to increase the customers' awareness and use of existing MPP core functionality (e.g., receipt functionality) for frequent MPP users. An increase in the use of core functional attributes would firstly reduce unconsumed functional value and secondly, where applicable reduce the customers' reliance on those functional attributes that are also provided by the focal provider (e.g., store employee).

2. Develop existing non-core enhanced functionality

In their present format the non-core enhanced functional attributes (e.g., notifications) were deemed not to create functional value for the customer and are unconsumed functional value. However, the findings in this study suggest that the use of notifications could provide the customer with benefits in the service encounter, if they occurred at an appropriate time and provided the customer with an appropriate outcome (Woodruff, 1997). For example, if the notifications were able to remind the customer to use a loyalty card just before they reach a stores POS terminal or where applicable that a stores maximum payment limit is not the same as contactless card. Therefore, the non-core enhanced functional attributes should be developed further with a focus on how these can enhance the core payment functional attributes at an appropriate time in the service encounter.

3. Develop supplementary functionality which exists outside of the service encounter

At present functional value only exists in the service encounter and no functional value is created outside of the service encounter. Therefore, an opportunity exists for MPP providers to develop functionality which is supplementary to the core payment attributes and exists outside of the service encounter. This supplementary functionality would have to encompass the consumers' broader daily life and could include budgetary functionality (Hirschman, 1982). Budgetary functionality would allow the customer to manage and control their spending across different payment situations and create functional value in the customer sphere. The extension of MPP to include budgetary functionality would expand its role in the customers' daily lives outside of individual interactions in the service encounter and increase the relationship between the MPP provider and customer.

10.4. Limitations

This section details the limitations of the study beyond those already discussed in the methodological Sections 5.4 on p.147 and 7.7 on p.225. These limitations are related to two areas, that of the scope of the study and the dynamic evolving nature of consumer behaviour and the payment sector. It is recognised that the findings in this study cannot be generalised to other countries outside of the UK due to firstly, differing adoption rates of MPP and traditional payment methods. For example, Scandinavian countries have historically higher MPP adoption rates than other European countries (Deloitte, 2019) and outside of Europe, Southeast Asia has higher adoption rates than the United States of America (USA) (Enberg, 2019). The use of traditional payment methods also differs by country, for example in 2018 just 3% of bankcards had contactless capabilities in the USA versus 64% in the UK (Kearney, 2018). Secondly, cultural differences exist between countries which explain in part why customers use differing payment methods. For example, Italy has the highest use of cash in Europe which has been linked to low levels of computer literacy (European Commission, 2020) and a large shadow economy (Seitz, 2018).

The mixed methods research design used in this study collected data from a cross-sectional snapshot of consumers' behaviour. It is recognised that this limits the findings to a particular time, and both technology adoption and consumer behaviour are fast-moving and evolving areas of study. Since the conception of this study the use of MPP has increased in the UK, with the adult UK population who are registered to use MPP having increased from 2% in 2016 to 18% in 2019 (UK Finance, 2020a). The mix of payment methods customers' use in the UK has also been influenced by the COVID-19 pandemic. For example, the pandemic has magnified the decline of cash as a share of total payments in the UK (Bank of England, 2020). A decline

in the use of cash suggests consumers may now be using with a greater frequency contactless payment methods. However, there is no evidence yet that the pandemic has caused a switch between contactless payment methods (e.g., from contactless card to MPP). Thus, the study of consumer behaviour especially that relates to technology use is a dynamic and constantly changing area of research. Additionally, consumer behaviour research is a multi-faceted area comprising researchers from multiple fields such as economics, psychology, and sociology (Holbrook, 1987). It is even proposed that customers have become increasingly unpredictable, contradictory, and unmanageable despite businesses best efforts to seduce and coax them (Gabriel and Lang, 2015).

10.5. Suggestions for Future Research

As an exploratory study, several avenues for future research became apparent based on both the limitations discussed and opportunities to expand on the findings of this study. Firstly, the findings of this research suggest that technology such as the mobile phone has the capability to influence consumers' daily lives to a greater extent than has previously been considered. The research found that for certain consumers the use of MPP leads to reduced consumption of other non-payment related elements of their daily life. Previous research into reduced consumption styles tends to focus on consumers who decide to simplify their consumption because of ethical concerns about a perceived problem (Shaw and Newholm, 2002), such as reducing waste due to environmental problems. In contrast, the evidence of reduced consumption from using MPP in this study was not initially driven by ethical concerns. Thus, the extent and forms of influence that mobile technology has outside of the service encounter and on broader daily routines is an area for future research.

Secondly, the research findings demonstrated that certain functional attributes bundled into MPP are not used by the consumer. Thus, further research should be conducted into the relationships between the services that form a bundle, that of core, supplementary, and enhanced services. Particularly as this study found that in contrast to previous research it is the supplementary services (e.g., loyalty integration) and not the enhanced services (e.g., notifications) that were more relevant and in their current format enhanced services did not offer benefits to the consumer. This is especially important when technology companies which were historically considered hardware companies are increasingly looking to increase their revenue from services (Bedi, 2020). Thirdly, this research proposed the concept of in-use barriers which exist after adoption of MPP. This concept should be further investigated not only for MPP but other technological services to determine if in-use barriers exist across different technologies and the forms these barriers take. Thus, further expanding the understanding of consumers' use of new technologies after adoption and moving away from viewing adoption simply as a binary yes/no decision (McMaster and Wastell, 2005). Finally, this research focused on mobile proximity payments, but it is evident that remote and proximity mobile payments are converging. For example, MPP such as Google Pay can now be used to pay for products or services remotely. It is also expected that the areas of mobile payments and mobile banking will converge in the future (Deloitte, 2020). Therefore, from the customers' perspective future research should consolidate around the consumers' daily lives and include their use of both mobile payments and mobile banking rather than treat these as separate research streams.

APPENDICES

Appendix 5.1: Observation recording log examples

		file_details					observation_details		
file#	phase	filename	date	time	filetype	payment_method	company	retail_category	contact type
3	1a_traditional	OB_TR_081018_1830	08-Oct-18	18:30	mp3	trad_card	Spar	food_store: supermarket	**FtoF:TFaCC**
5	1a_traditional	OB_TR_091018_0924	09-Oct-18	09:24	mp3	trad_card	Boots	non_food_store: chemist	**FtoF:TFaCC**
6	1a_traditional	OB_TR_091018_1716	09-Oct-18	17:16	mp3	trad_card	Marks and Spencer	food_store: supermarket	**FtoS:TGCG**
93	1b_Google_Pay	OB_GP_071118_0948	07-Nov-18	09:48	mp3	Google_Pay (points)	Costa	food_store: coffee_shop	**FtoF:TFaCC**
151	1b_Google_Pay	OB_GP_291118_0940	29-Nov-18	09:40	mp3	trad_card	Virgin	non_store: travel	**FtoS:TGCG**
152	1b_Google_Pay	OB_GP_291118_0952	29-Nov-18	09:52	mp3	Google_Pay	Paperchase	non_store: other	**FtoF:TFaCC**
153	1b_Google_Pay	OB_GP_291118_0953	29-Nov-18	09:53	mp3	Google_Pay	Tescos	food_store: supermarket	**FtoF:TFaCC**
154	1b_Google_Pay	OB_GP_301118_1729	30-Nov-18	17:29	mp3	Google_Pay	Co-Op	food_store: supermarket	**FtoF:TFaCC**
172	1c_YoYo_Wallet	OB_Yo_070119_0815	07-Jan-19	08:15	mp3	YoYo	Starbucks	food_store: coffee_shop	**FtoF:TFaCC**

Appendix 5.2: Selected examples of transcribed self-observations

[OB_TR_081018_1830] (00:47) I was just heading home and realised I needed some milk for my coffee in the morning popped into the Spar in the student Guild. Milk, crisps, chocolate bar, not much only about £2.74 I think. No cash on me pulled out my wallet so used my card had to actually call the guy over think he was stacking shelves but yeah put the card in not given a receipt all worked ok and off I went so pretty quick.

[OB_TR_091018_0851] (00:46) Just bought my morning coffee from the Costas near mine so it was only my usual £2 Cortado but I've got a Costa card which happens to be on my phone, so I had to get my phone out find the Costa card scan that on a barcode reader and then pay on the usual payment terminal. Got my card debit card out of my wallet just checked the amount on the terminal as I tend to do and swished it over and it beeped while the girl made my coffee.

[OB_TR_091018_0924] (01:07) Just went to Boots to pick up my usual repeat prescription it is only a small Boots but obviously you have to ask for your prescription and they have to find it I think get it signed off by the pharmacist so bit of a wait before you can you actually get it and then pay. Then when I went to pay £8.80 so no cash on me got my wallet out just swiped my card over and quickly left so bit more interaction with the employees in their than yesterday and obviously you have to wait to get your prescription, but payment was nice and easy. Oh and I got a, they gave me a receipt as well, don't know what I'm going to do with the piece of paper really didn't get one of those at all yesterday anyway.

[OB_TR_091018_1716] (01:14) Just popped into M&S on my way back because I know they have things reduced at this time only got a couple of bits just over a couple of pounds. Tend to use the self-serve tills but I guess as there is not generally a queue although it's quite confusing their self-serve tills some are for cash only some you can only weigh items so little bit of a queue. The lady asked if I was paying by cash or card and there was one that only accepts card free, but I was almost forced to use my card got everything out put everything through the till chose the card option to pay. Got my wallet out put my card over the little machine that is next to the big self-serve screen and it asked if I wanted a receipt at the end to which I said no so yeah it worked quite well sometimes different types of sort of self-serve options does get a bit confusing.

[OB_TR_121018_1525] (01:19) Just popped out to the local One-Stop store as the weathers awful. Just popped out to get some milk but somehow ended up spending £6 5pence. Took my wallet with me because I know the shop, so I know take contactless and credit and debit cards and I remember. Actually, I was ended up buying milk few biscuits and then there was one person in front of me and the lottery machine stares at you however many million pounds for the Euro tonight and somehow, I ended up, I thought I will buy one. Then obviously had to pay so got my wallet out of my pocket took the card out swished it over. I remember looking for the actual amount on the machine and so that is why I realise I ended up spending a bit more. So, I walked out of their thinking is it a little bit too easy to use obviously the lottery machine suckered me in to buying a ticket tonight.

[OB_GP_051118_0813] (01:26) Just got my morning coffee from Starbucks at work it was quite nice did not have to, I got to my desk but did not have to actually find my wallet to use Google Pay, just sort of had my phone on me which I always tend to mostly to have anyway. So got to the till put my order in with my own cup, opened up my unlocked my phone, found the Google Pay app, actually not sure if I needed to find the app or it will automatically go through. It is quite nice there is a picture of my bank card on the app and it said how much it was, seemed to be a lot of potential places I could scan it over, but I went for the usual terminal although there's several other similar looking terminals at the till beeped it over and it said 'approved' on the app on my phone before it did actually on the terminal. It all went through a small amount of £2 and then it did not offer me a receipt but in the actual Google Pay app I get a little amount paid [ob79] and where it was paid so it's quite nice.

[OB_GP_061118_0938] (01:03) Got my morning coffee actually from the Costas as I came in a different way into work this morning. Just a little bit of a queue was actually having a look on my phone which was in my pocket, so it was very convenient before I ordered and thought about using my points on my Costa points the card is on my actually within Google Pay and but then I needed a teacake didn't have enough points for a teacake and coffee. So I made my order remembered to put my points on my Costa card which is actually within the Google Pay wallet system [ob87] scanned that [ob86] on a separate scanner and then just swished my phone over the payment terminal and up came the tick and the picture of my card [ob85] so I knew it had all gone through.

[OB_GP_071118_1008] (01:21) So just did bit of a larger shop I guess than normal for me at the Co-op not used Google Pay there and I was not sure if it would come above sort of conscious of the £30 limit, but it was about just over £20 in the end. So got to went to one of the self-serve tills sort of put all my shopping through then it asked how I wanted to pay there wasn't a sort of mobile payment option it was almost just cash or card. So chose the card option and the card machine said pay with contactless so I put my phone over and it worked there was no real paraphernalia you see at some of these terminals about different payment methods seems to be the opposite here at the Co-op, so it all went through. A receipt came out, a bit of paper, I just sort of stuffed in with my shopping it will probably just go straight in the bin, the my Google Pay little tick sign came up so it's all gone though so it's all fine.

[OB_GP_101118_0842] (01:24) Just bought my morning coffee on the way into work actually from the Costas in Moseley so I think I have been in there before I know they accept Google Pay. Little bit of queue one person in front of me, little wait had time to find my Costa card in the app [ob97] and unlocked my phone obviously before that so the chap seemed to know what I usually have, probably a sign I go in there too much and so I put he said 'have I got my points card' and I waved my little phone [ob98] in front of one of the barcode QR code readers that beeped and then he went back to the till put the amount through the till and I waved my phone on top of the point of sale terminal which I noticed by the side of it there was adverts for Google Pay, Apple Pay, Samsung Pay, all sorts of things and on the terminal itself there is a lot of other, sort all of the options you can pay for on there the terminal, when actually all I want to do is just double check the amount which would be nice but yeah it all worked ok got my coffee and I'm off.

[OB_GP_011218_1239] (01:02) Popped into TKMaxx just a small one and just started on my Christmas shopping, really didn't get much just a couple of bits. Got to the till bit of a queue and then put everything through unlocked my phone, put my phone on the terminal. Not been to TKMaxx but sort of assumed a big chain they would accept Google Pay. No real signs, none I could see on the till, put my phone over the machine, up came the tick, I sort of held it to try and see. So I didn't have to put a PIN number in or anything as I seem to be doing more often or not now. I did hold over for longer maybe I have been trying to move it too quickly so yeah payment worked and off I went.

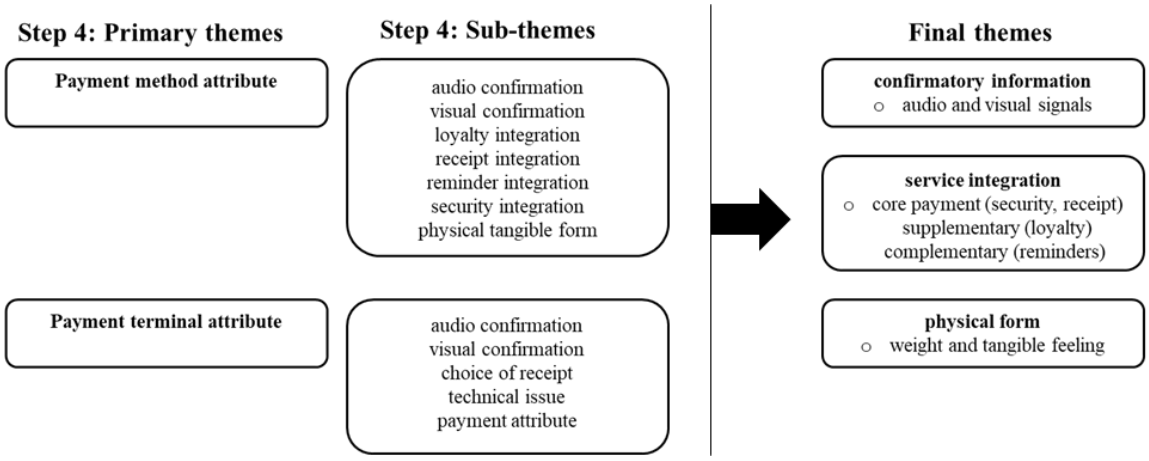
[OB_Yo_080119_0803] (00:58) Just bought my morning coffee from Starbucks at work still have not found my reusable cup. Got to the counter, chap recognised me, actually said the usual, asked where my reusable cup was so I mentioned it had disappeared hoping it will return. He gave me sort of the discount for reusable cup anyway which was nice of him. Opened up the YoYo Wallet app found the little button to pay, put it over the white QR code reader, it's a different one to the usual payment card reader and it seemed to go through. Up came the little tick today [ob173] that was nice sort of reassuring and waiting for my coffee [ob174].

[OB_Yo_090119_1131] (01:08) Just went in my local Co-Op in Moseley, did my shop got to the self-serve till put everything through and then was thinking ah how I am going to pay, can I use YoYo Wallet. Didn't see a sign for it and there didn't seem to be one of those white boxes that I'd seen last couple of days, but I had my phone in my pocket, so got my phone out and the little notification came up 'Co-Op accepts Google Pay' [ob180]. So I thought ah I'll use that so opened up Google Pay app, selected card on self-serve machine, swiped my phone over, up came the tick ,and off I went and I've got obviously bit of a dilemma as YoYo Wallet maybe isn't accepted in Moseley where I do some of my shopping, so I guess I might have to resort back to Google Pay for some of my purchases.

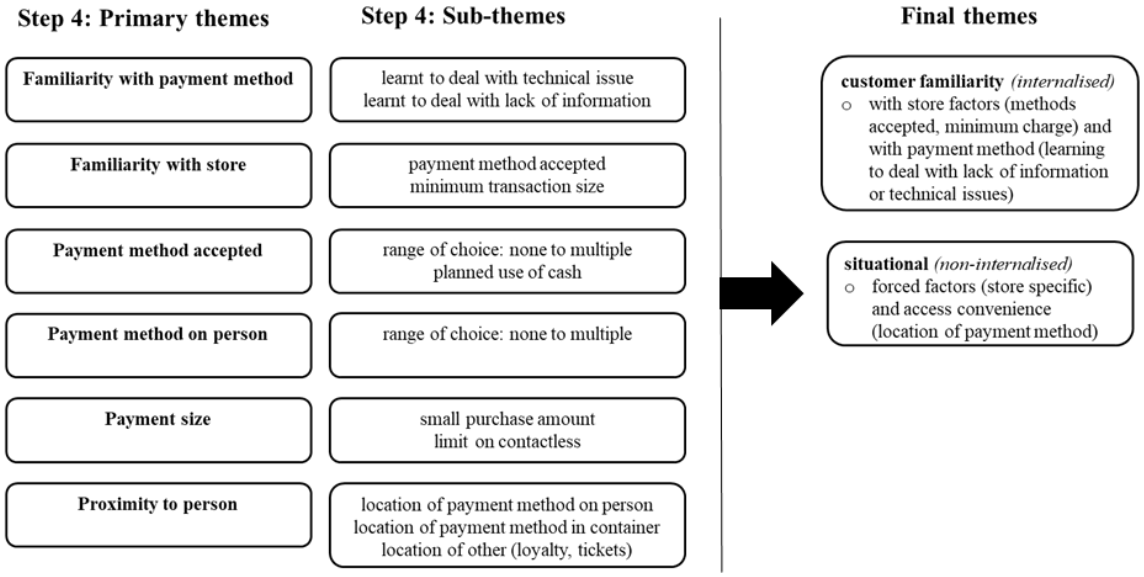
[OB_Yo_090119_1721] (00:43) Just bought a couple of chocolate bars from the Spar in the Uni. Little bit of a queue and I was looking around to see whether they accepted this YoYo Wallet because I thought they would just like some of the other places in Uni but they don't. So I had my phone at hand just in my pocket I was looking at something while in the queue, opened up Google Wallet, when it came to pay swiped it over the machine, quite familiar with the machine, up came the tick and off I went.

[OB_Yo_110119_1242] (01:07) Just went to get a chocolate bar from the vending machines in one of the buildings near work. I pretty much made the decision how I was going to pay when I was leaving my desk which has sort of wallet phone everything. Took my phone with me also had a look in my wallet see if I had any change, do not think I have looked in my wallet for ages in terms of cash. There was a little bit of cash and some change so took a pound coin I sort of expected the vending machine to only accept coins I think I have used it before. You may have been able to pay with card or similar but there was no YoYo wallet, so I took my pound coin, put it in selected my KitKat, out it came, got ten pence change which is in my pocket. I've got to remember to put that back in my wallet, so yeah I mean it was relatively convenient but I'd pretty much made the decision quite early of how I was going to pay.

Appendix 5.3: Functional theme development example



Appendix 5.4: Conditional theme development example



Appendix 5.5: Customer payment activity scripts from Stage 1: self-observations

Script 1: Face-to-face: Technology Free Customer Contact
Payment method: Traditional cash
Scenario examples: market stall, hairdressers, takeaway

sub-scene	action type	activity	*actor | prop > interaction*
	CORE	**Enter retail environment**	**customer**
	CORE	**Order product or service**	**customer>employee**
PRE-PAYMENT	**CORE**	**Receive product or service**	**employee>customer**
	PERI.	Find payment container	customer | wallet
	CORE	**Find payment method**	**customer | wallet**
	CORE	**Hand over payment**	**customer>employee**
	CORE	**Payment put into till** (cash box or till)	**employee |till**
PAYMENT	PERI.	Receive change	employee>customer
	Error	*incorrect change received*	*customer>employee*
	PERI.	Put change in payment container	customer | wallet
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*employee>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*employee>customer*
	PERI.	Put receipt in container	customer | wallet / bag / pocket
POST-PAYMENT	**CORE**	**Leave retail environment**	**customer**

Script 2a: Face-to-face: Technology Facilitated Customer Contact
Payment method: Traditional card
Scenario examples: coffee shop, chemist

sub-scene	action type	activity	*actor | prop > interaction*
	CORE	**Enter retail environment**	**customer**
PRE-PAYMENT	PERI.	Queue	customer
	CORE	**Order product or service**	**customer>employee**
	PERI.	Find payment container	customer | wallet
	CORE	**Find payment method**	**customer | wallet**
	PERI.	Other payment related services	customer
	Branch	*Payment: split bill / cashback*	*customer>employee*
PAYMENT	*Branch*	*Loyalty scheme: paper or mobile based*	*i: customer | wallet(paper)>employee* *ii: customer | mobile(app)>employee*
	PERI.	Asked how like to pay	employee>customer
	PERI.	Check amount to pay	customer | till
	Error	Charged incorrect amount	customer>employee
	CORE	**Pay for product or service** (swipe card)	**customer | card>till**
	CORE	**Payment confirmation**	**customer | employee (verbal) / till (beep)**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*employee>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*employee>customer*
	CORE	**Put payment method back in payment container**	**customer | wallet**
	CORE	**Receive product or service**	**customer**
POST PAYMENT	PERI.	*Bag shopping*	*customer | shopping bag*
	CORE	**Leave retail environment**	**customer**

Script 2b: Face-to-face: Technology Facilitated Customer Contact
Payment method: MPP Google Pay
Scenario examples: coffee shop, chemist

sub-scene	action type	activity	*actor | prop > interaction*
	CORE	**Enter retail environment**	**customer**
PRE-PAYMENT	PERI.	Queue	customer
	CORE	**Order product or service**	**customer>employee**
	PERI.	Mobile notification: payment and/or loyalty information	customer | mobile
	CORE	**Unlock phone**	**customer | mobile**
	Branch	*Use loyalty scheme: paper or mobile based*	*i: customer>employee | wallet(paper)* *ii: customer>employee | mobile(app)*
	PERI.	Asked how like to pay	employee>customer
	PERI.	Check amount to pay	customer | till
	Error	Charged incorrect amount	customer>employee
	CORE	**Pay for product service** (swipe phone)	**customer | mobile>till**
PAYMENT	*Error*	*swiped too quick over terminal*	*customer | mobile>till*
	Obstacle	*requried to enter PIN into app*	*customer | mobile*
	CORE	**Payment confirmation**	**customer | employee (verbal) /** **till (beep) / mobile (tick& beep)**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*employee>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*employee>customer*
	CORE	**Receive product or service**	**customer**
POST PAYMENT	PERI.	Bag shopping	customer | shopping bag
	CORE	**Leave store**	**customer**
	PERI.	Check receipt on phone	customer | mobile

Script 3a: Face-to-screen: Technology Generated Customer Contact
Payment method: Traditional card
Scenario examples: supermarket

sub-scene	action type	activity	*actor | prop > interaction*
	CORE	**Enter retail environment**	**customer**
	PERI.	Queue	customer
	CORE	**Choose self-serve tills**	**customer**
PRE-PAYMENT	*Branch*	*Till based on type of shopping: weighed items or not*	*customer (>employee)*
	Branch	*Till based on type of payment method*	*customer (>employee)*
	CORE	**Scan shopping through till**	**customer | till**
	Obstacle	*Tagged or age restricted item*	*customer>employee | till*
	Obstacle	*Find plastic bag*	*customer>employee | plastic bag*
	PERI.	Asked how like to pay	till>customer
	CORE	**Choose payment method option**	**customer | till**
	PERI.	Find payment container	customer | wallet
	CORE	**Find payment method**	**customer | wallet**
	PERI.	Check discount applied	customer | till
PAYMENT	**CORE**	**Pay for product** (swipe card)	**customer | card>till**
	CORE	**Payment confirmation**	**customer | till (beep)**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*till>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*till>customer*
	PERI.	Bag shopping	customer | shopping bag
POST PAYMENT	**CORE**	**Leave store**	**customer**

Script 3b: Face-to-screen: Technology Generated Customer Contact
Payment method: Google Pay
Scenario examples: supermarket

sub-scene	action type	activity	*actor | prop > interaction*
	CORE	**Enter retail environment**	**customer**
	PERI.	Queue	customer
	CORE	**Choose self-serve tills**	**customer**
PRE-PAYMENT	*Branch*	*Till based on type of shopping: weighed items or not*	*customer (>employee)*
	Branch	*Till based on type of payment method*	*customer (>employee)*
	CORE	**Scan shopping through till**	**customer | till**
	Obstacle	*Tagged or age restricted item*	*customer>employee | till*
	Obstacle	*Find plastic bag*	*customer>employee | plastic bag*
	PERI.	Asked how like to pay	till>customer
	CORE	**Choose payment method option**	**customer | till**
	Obstacle	*Mobile payment option not clear*	*customer | till*
	PERI.	Mobile notification: payment and/or loyalty information	customer | mobile
	CORE	**Unlock phone**	**customer | mobile**
	PERI.	Check discount applied	customer | till
	CORE	**Pay for product** (swipe phone)	**customer | mobile >till**
PAYMENT	*Error*	Swiped too quickly retry	*customer | mobile >till*
	Obstacle	*requried to enter PIN into app*	*customer | mobile*
	CORE	**Payment confirmation**	**customer | till (beep&verbal) / mobile (tick& beep)**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*till>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*till>customer*
	PERI.	Bag shopping	customer | shopping bag
POST PAYMENT	**CORE**	**Leave store**	**customer**
	PERI.	Check receipt on phone	customer | mobile

Appendix 5.6: Example of MPP customer value themes mapped to customer scripts 3a and 3b

Script 3a: Face-to-screen: Technology Generated Customer Contact
Payment method: Traditional card
Scenario examples: supermarket

sub-scene	action type	activity	actor | prop > interaction
PRE-PAYMENT	CORE	**Enter retail environment**	**customer**
	PERI.	Queue	customer
	CORE	**Choose self-serve tills**	**customer**
	Branch	*Till based on type of shopping: weighed items or not*	*customer (>employee)*
	Branch	*Till based on type of payment method*	*customer (>employee)*
	CORE	**Scan shopping through till**	**customer| till**
	Obstacle	*Tagged or age restricted item*	*customer>employee | till*
	Obstacle	*Find plastic bag*	*customer>employee | plastic bag*
PAYMENT	PERI.	Asked how like to pay	till>customer
	CORE	**Choose payment method option**	**customer| till**
	PERI.	Find payment container	customer | wallet
	CORE	**Find payment method**	**customer | wallet**
	PERI.	Check discount applied	customer | till
	CORE	**Pay for product** (swipe card)	**customer | card>till**
	PERI.	Payment receipt	customer | receipt (paper)
	Branch	*Given a receipt without asking*	*till>customer*
	Branch	*Asked if want a receipt (accept or decline)*	*till>customer*
POST PAYMENT	PERI.	Bag shopping	customer | shopping bag
	CORE	**Leave store**	**customer**

Script 3b: Face-to-screen: Technology Generated Customer Contact
Payment method: Google Pay
Scenario examples: supermarket

sub-scene	action type	activity	actor | prop > interaction	*MPP Customer Value themes maped to activity*
PRE-PAYMENT	CORE	**Enter retail environment**	**customer**	***COND: Familiarity (+):*** knows stores that accept MPP
	PERI.	Queue	customer	***FUNC: Loyalty (+):*** points in MPP and ability to check ***SOCIAL: confirmation(+):*** 1) notice other people using MPP 2) notice MPP marketing material
	CORE	**Choose self-serve tills**	**customer**	***FUNC: (-)*** unable to do cashback
	Branch	*Till based on type of shopping: weighed items or not*	*customer (>employee)*	
	Branch	*Till based on type of payment method*	*customer (>employee)*	***COND: Store acceptance(-)*** till only accepts certain payment method
	CORE	**Scan shopping through till**	**customer | till**	***EMOT: Confusion (-):*** how loyalty points updated [FUNC] (script 3 only)
	Obstacle	*Tagged or age restricted item*	*customer>employee | till*	
	Obstacle	*Find plastic bag*	*customer>employee | plastic bag*	
PAYMENT	PERI.	Asked how like to pay	till>customer	***FUNC: Loyalty: (-+)*** MPP have varying degrees of integration
	CORE	**Choose payment method option**	**customer | till**	***EMOT:Confusion (-):*** Too much marketing material information at POS (payment or loyalty information)
	Obstacle	*Mobile payment option not clear*	*customer | till*	***COND: Familiarity (+):*** become familiar with MPP error ***EMOT:Confusion (-):*** unclear which button option to use on POS
	PERI.	Mobile notification: payment and/or loyalty information	customer | mobile	***FUNC: Reminders (+):*** Different reminders e.g. loyalty and acceptance notifications ***COND: Convenience (+):*** MPP no need to find physical wallet
	CORE	**Unlock phone**	**customer| mobile**	***FUNC: Security (+):*** fingerprint unlock
	PERI.	Check discount applied	customer | till	***EMOT:Happy (+):*** Free product loyalty points >[FUNC] (script 3 only)
	CORE	**Pay for product** (swipe phone)	**customer | mobile >till**	***EMOT:Guilt (-)*** small payment amount >[COND]
	Error	Swiped too quickly retry	*customer | mobile >till*	***COND: Familiarity (+):*** become familiar with MPP error ***EMOT:Anxiety (-):*** Technical issue >[FUNC]
	Obstacle	*required to enter PIN into app*	*customer | mobile*	***COND: Familiarity (+):*** become familiar with MPP obstacle ***EMOT:Frustration / panic (-):*** Technical issue >[FUNC]
	CORE	**Payment confirmation**	**customer | till (beep&verbal) / mobile (tick& beep)**	***FUNC: Confirmation information (+):*** audio 'beep' and visual 'tick' ***EMOT:Reassurance*** (+): payment confirmation >[FUNC]
	PERI.	Payment receipt	customer | receipt (paper)	***FUNC: Receipt (+):*** Paper receipt not needed ***EMOT:Frustration (-):*** lackof integration paper given goes in physical wallet (receipt or loto
	Branch	*Given a receipt without asking*	*till>customer*	***FUNC: Physical form (-+):*** no change received no tangiable feeling ***EMOT:Sad(-):*** no tangiable feeling >[FUNC]
	Branch	*Asked if want a receipt (accept or decline)*	*till>customer*	
POST PAYMENT	PERI.	Bag shopping	customer | shopping bag	
	CORE	**Leave store**	**customer**	***FUNC: Receipt (+):*** Not fully detailed but enough information ***EMOT:Reassurance(+):*** receipt >[FUNC]
	PERI.	Check receipt on phone	customer | mobile	

Appendix 5.7: Interview information sheet

Interview Information Sheet

This research is being carried out by Julian Barnes and contributes as part of a University of Birmingham Doctoral (PhD) programme in the department of Marketing.

Title of research:

Exploring mobile proximity payment use from a customer value perspective

Research overview

This research is exploring how mobile proximity payment solutions, for example Google or Apple Pay, are used in the United Kingdom. This involves understanding how customers currently use these services in an everyday retail environment.

The scope of the study is only interested in those payment methods where you pay in person, for example when buying a coffee. It is not required to discuss any personal financial information that may be deemed sensitive.

Interview overview

The interview will last no more than 1 hour in total. There will be up to 40 minutes for the interview itself which will cover a discussion of your experience of everyday payment methods, and at the end there will be time for any questions you may have and to reflect on the discussion.

To aid later transcription and analysis it is preferred that an audio recording be taken during the interview. This will be encrypted directly at the end of the interview and you will be provided with a copy if you wish. The data will be regarded as confidential and access will be limited to the interviewer and stored securely on University of Birmingham secure servers for a period of 10 years. All research data collected will be analysed and used for a final report that may contain anonymous excerpts from the interview, where anonymous excerpts are included you will be assigned a pseudonym and any identifying details will be changed appropriately.

Participation in the research is voluntary and you may choose not to answer any questions you do not wish to answer. You have the right to withdraw from the interview at any time and may request your interview to be withdrawn up to 3 months from the date of interview.

Contact details (email and phone number) are provided below should you have any questions following the interview, require clarification or wish to give feedback at a later date. If you wish to be provided with a copy of your data please use the contact details below, the data may be used in addition to the Thesis for academic conference and journal paper purposes.

Do you have any questions?

Before the interview begins I need your formal consent to proceed and University of Birmingham regulations require you to read and sign a consent form.

Contact information:

Principal researcher: Julian Barnes / jxb381@student.bham.ac.uk / 07951174945

Academic supervisor: Dr Sheena Leek / S.H.LEEK@bham.ac.uk / 0121 4146226

Appendix 5.8: Interview consent form

Consent form

Title of research: Exploring mobile proximity payment use from a customer value perspective

Fair processing statement

This information is being collected as part of a research project concerned with the customer value of mobile proximity payments by the Department of Marketing in the University of Birmingham.

- The information which you supply and that which may be collected as part of the research project will be entered into a filing system on the University of Birmingham secure servers and will only be accessed by the researcher.
- The information will be retained by the University of Birmingham and ESRC (Economic and Social Research Council) and will only be used for the purpose of research, and statistical audit purposes.
- By supplying this information you are consenting to the University of Birmingham storing your information for the purposes stated above.
- The information will be processed by the University of Birmingham in accordance with the provisions of the General Data Protection Regulation (GDPR) 2018. No identifiable personal data will be published.

Statements of understanding/consent

- I confirm that I understand the study involves an interview which will be digitally recorded, I understand the data will be used for completion of a PhD and academic articles, and I have had the opportunity to ask questions if necessary and have had these answered satisfactorily.

- I understand that my participation is voluntary and that I am free to withdraw within 3 months of the interview date without giving any reason. If I withdraw within 3 months of this interview my data will be removed from the study and will be destroyed.

- I understand that my personal data will be processed for the purposes detailed above, in accordance with the General Data Protection Regulation (GDPR) 2018.

Based on the above, I agree to take part in this study.

Name, signature and date

Name of participant……

Date…… Signature…….

Name of researcher obtaining consent……

Date…… Signature…….

If you have any feedback or questions following the interview please use this contact information:
Julian Barnes / jxb381@student.bham.ac.uk

Interview guide: Exploring mobile proximity payment use from a customer value perspective

Interviewer: *Julian Barnes*

Interviewee:

Interview number:

Date:

Location:

Sequence overview

a) Take interviewee through 'Interview Information Sheet'
b) Ask interviewee to sign 'consent form', two copies, one for researcher, one for interviewee
c) Interview overview and reminder of scope
d) Begin recording

Section 1: Interviewee background information

Section 2&3: Mobile payment value creating activities

2: Technology generated scenario *(self-serve)*

3: Technology facilitated scenario *(employee present)*

Interview overview: The interview is split into two sections, in the first section we will go through some background information about yourself and how you use mobile payment in your everyday life. In the second section we will go into detail about the activities you do when shopping and paying using mobile payments.

Reminder of scope: When I talk about mobile payments I am referring to applications such as: Google Pay or Apple Pay which allow you to pay in person in a store instead of using your debit card or cash. This may also include specific store applications which may also allow you to pay in a store, such as Costa Coffee or Starbucks apps. You may also use when paying in person other related services, such as loyalty cards, which may be for example in paper or mobile app. formats. All of these are relevant to the research please go into as much detail as possible, there is no right or wrong answer, and it is about understanding how you use mobile payments in your everyday life.

Do you have any further questions at this stage before we begin discussing your payment background information?

[Begin recording]

Section 1: Participant background information

To begin with I'm going to ask some background questions:

(i) Age (years):
(ii) Gender: M / F
(iii) Type of employment:
(iv) Location (work / home):

Next I'd like to discuss your use of mobile payment applications:

(i) What type of mobile payments do you use?

(ii) How long have you been using them?

(iii) How often do you use them?

(iv) What shops do you use mobile payments in?

Do you use the self-serve tills in those shops?

a. Self-serve (Tech Gen.) [Store a]:

b. Non self-serve (Tech Fac.) [Store b]:

(v) Do you use mobile payments for any purchase amount?

(vi) Do you use mobile payments for travel? (bus / train)

(vii) Where on you do you keep your phone?

(viii) Do you also carry a physical wallet or purse?

(ix) Where on you do you keep your wallet/purse?

(x) What store loyalty schemes do you use?

(xi) What formats are those loyalty schemes: (mobile / paper / card)?

(xii) Do you carry cash in your wallet / purse?

(xiii) Is there anything about physical cash that you miss?

Notes

Section 2&3: Mobile payment value creating activities

Explain: In the next two sections we're going to discuss the activities you do when using mobile payments. I am interested in the activities when you use your mobile phone which could be at any stage of your shopping. In both sections I'll ask you to begin describing the activities you do when you enter a store or retail environment right through to when you leave. During this I may ask some additional questions which we may discuss in further detail.

Section 2: Technology generated scenario (*self-serve)*

Explain: This section focuses on the scenario when you use mobile payments to make a purchase but do not interact with an employee, typically these scenarios are called 'self-serve'. Taking the example of [store a] I'd like to discuss in detail what you do from the point of entering the store all the way through to leaving the store.

Activity progression questions	*Probing questions*
What happens next	Can you tell me more about that {activity}?
…and after that…	Can you describe what {activity} involves?
What do you do after that	How does {activity} make you feel?
What did you do then?	Why do you choose that {option}?
	What do you mean why you say {x}?

1. Pre-payment questions

To begin with can you describe what you do after entering the store?

- SHOPPING: Do you use your mobile phone when you do your shopping? {>probe}

- QUEUE: What do you do while waiting in the queue?
  Looks at other people in queue:
    - What do you notice them doing? {>probe}

  Uses phone: (loyalty, social media)
    - Does the phone tell you anything related to your shopping? {>probe}

  Looks at store / marketing information:
    - How does that help you? {>probe}

- TILL CHOICE: How do you decide which till to use?
  Does anything in the store help you decide which till to choose? {>probe}
  Do you encounter any problems at this stage? {>probe}

- SCAN SHOPPING: Do you encounter any problems at this stage?
  How do you resolve that problem? {>probe}
  What would you of liked to have happened? {>probe}
  Who might you get help from? {>probe)

Notes

2. Payment scene questions

…so you have scanned your shopping and are ready to pay…what do you do next?

- UNLOCK PHONE: How do you unlock your phone? (security){>probe}
  Does the mobile payment require you to do anything else on your phone before you can pay? {>probe}
  Do you do any other activities at this stage?
  (Loyalty / cashback: mobile and not mobile){>probe}
  Do you check the amount on the till? {>probe}

- CHOOSE PAYMENT OPTION: Which payment option on the till terminal do you chose?
  - Is that option clear for you?{>probe}
  - Do you notice anything else on the till at this stage?{>probe}

- PAY FOR PRODUCT:
  - LOCATE MOBILE: Where is your mobile located on you at this stage?{>probe}
    - How convenient is that for you? {>probe}
  - INTERFERENCES: Have you ever encountered any problems at this stage?{>probe}
    - How did you react to that? {>probe}
    - How did you resolve that problem? {>probe}
    - What did you expect to happen? {>probe}
    - What would you of liked to have happened? {>probe}
  - SIZE: Do you use mobile payments for any purchase amount in this store?{>probe}
  - CONFIRMATION: How do you know that the payment has been successful?{>probe}
    - Do you notice any other {sounds / visual} at this point? {>probe}
  - RECEIPT: What type of receipt do you get at this stage? {>probe}
    - Does the mobile payment receipt give you all the information you need? {>probe}
  - OTHER PAPER: Do you have other things you might need to put in your wallet/purse at this stage? {>probe}
  - OTHER FUNC: Do you ever receive free products through using store loyalty schemes? {>probe}
  - LOYALTY:
    - Do you ever receive free products through using store loyalty schemes? {>probe}

Notes

Section 3: Technology facilitated scenario

Explain: This section focuses on the scenario when you use mobile payments but also have to interact with an employee to make a purchase. Taking the example of [(store b)] you use I'd like to again discuss in detail what you do from entering the store all the way through to leaving the store.

Activity progression questions	*Probing questions*
What happens next	Can you tell me more about that {activity}?
…and after that…	Can you describe what {activity} involves?
What do you do after that	How does {activity} make you feel?
What did you do then?	Why do you choose that {option/activity}?
	What do you mean why you say {x}?

1. Pre-payment questions

To begin with can you describe what you do after entering the store?

- QUEUE: What do you do while waiting in the queue?
  - Looks at other people in queue:
    - What do you notice them doing? {>probe}
  - Uses phone: (loyalty, social media)
    - Does the phone tell you anything related to your shopping? {>probe}
  - Looks at store / marketing information:
    - How does that help you? {>probe}
- ORDER:

Notes

3. Post-payment scene questions

…so now you have paid…what do you do next?

- LEAVE STORE: Do you check your mobile phone when you leave the store? {>probe}
  - What do you look at on your phone when you leave the store? {>probe}

Notes

4. Further questions *(if not discussed above)*

[COND value]

- Are there situations in {store a} when you don't use mobile payments?{>probe} *(payment amount / need cashback)*
- What do you do if a similar store to {store a} doesn't accept mobile payments? {>probe}

[FUNC value]

- Does your phone provide payment or loyalty related notifications? {>probe}

Notes

5. END SECTION: Do you have anything else you would like to add to this section about when you pay with mobile in stores like {store a}

Notes

2. Payment scene questions

...so now you have ordered....what do you do next?

- UNLOCK PHONE: How do you unlock your phone? (security){>probe}
  - Does the mobile payment require you to do anything else on your phone before you can pay?{>probe}
  - Do you do any other activities at this stage?
    (Loyalty / cashback: mobile and not mobile){>probe}
  - Do you check the amount on the till? {>probe}
  - Does your phone provide payment or loyalty related notifications? {>probe}
    How do these help you? {>probe}
- PAY FOR PRODUCT:
  - LOCATE MOBILE: Where is your mobile located on you at this stage?{>probe}
    - How convenient is that for you? {>probe}
  - INTERFERENCES: Have you ever encountered any problems at this stage?{>probe}
    - How did you react to that? {>probe}
    - How did you resolve that problem? {>probe}
    - What did you expect to happen? {>probe}
    - What would you of liked to have happened? {>probe}
  - SIZE: Do you use mobile payments for any purchase amount in this store?{>probe}
  - CONFIRMATION: How do you know that the payment has been successful?{>probe}
    - Do you notice any other {sounds / visual} at this point? {>probe}
  - RECEIPT: What type of receipt do you get at this stage?{>probe}
    - Does the mobile payment receipt give you all the information you need?{>probe}
  - OTHER PAPER: Do you have other things you might need to put in your wallet/purse at this stage? {>probe}
  - LOYALTY: Do you ever receive free products through using store loyalty schemes? {>probe}

Notes

3. Post-payment scene questions

...so you now you have paid...what do you do next?

- GET PRODUCT
- LEAVE STORE: Do you check your mobile phone when you leave the store?
  - What sort of things do you look at on your phone after leaving the store? {>probe}

Notes

4. Further questions (if not discussed above)

[COND value]

- Are there situations in {store b} when you don't use mobile payments?{>probe}
  (payment amount, tipping, split bill)
- You know that {store b} will accept mobile payments but what do you do if a similar store doesn't accept mobile payments? {>probe}

Notes

5. END SECTION: Do you have anything else you would like to add to this section about when you pay with mobile in stores like {store b}

Notes

6. Further questions:

- Are there any other situations other than those we have discussed where you use mobile payments?
- Are there any other situations other than those we have discussed where you can't use mobile payments but would like to?

Conclude interview:

That is the end of the interview:

- Are there any further comments you would like to make at this stage?
- Do you have any friends or family that I could also interview for my research?

Appendix 5.10: Two transcribed interviews (I06 and I12)

Interview number: I06
Date / Time: 03/10/2019 14:30
Length of interview: 41mins
Location: Muirhead Tower, Birmingham
Audio file: I06_031019.mp3

[I] (interviewer) Can I ask your age please?

[P] (participant) 33

[I] The type of employment?

[P] I'm a supervisor in hospitality and accommodation service

[I] You work in the University and live in Birmingham as well?

[P] Yes.

[I] What type of mobile payments apps do you use?

[P] Google.

[I] That is Google Pay?

[P] Yes because I have the Android phone.

[I] How long have you been using Google Pay?

[P] I think three years maybe four years.

[I] How often do you use Google Pay?

[P] When I go to the shops like often.

[I] Would that be daily or weekly?

[P] Daily.

[I] What type of shops do you use mobile payments in?

[P] Mostly supermarkets or when I have to buy some things Savers or Superdrug.

[I] Chemists?

[P] Yes those type of shops.

[I] Are there any shops you don't use mobile payments in?

[P] Clothing shops.

[I] Why would that be?

[P] Maybe because I put some money, some cash on the side at home. When I go out I take some cash in case or they don't accept card.

[I] The shops that don't accept card what examples of those are there?

[P] Like beautician shops or hair dressers, they don't use, it's a bit annoying because if you don't have the cash you have to remember to take the money, I think mainly I use the phone because I am too lazy to take the money and I would spent more.

[I] Spend more if I had the cash?

[P] I think so but it is a bit strange, I think it is the opposite, because you automatically don't notice and do the.

[I] Swipe action?

[P] Yes, instead if you have cash you don't do automatically but from my point of view it's like that you spend more in cash than in card.

[I] Almost the reverse, your suggesting there is more effort involved when you pay with cash?

[P] Yes but then you don't want to give it to them.

[I] Just touching on the hairdressers as mine is the same they only accept cash.

[P] I think there might be an economic reason for that of course.

[I] Does that mean you have to plan to get cash?

[P] Yes usually because I am working here there is a cashpoint machine downstairs but sometimes I forget or it a bit stressful, I have to take cash where I am going but now my hairdresser he got a machine now but they charge you as well.

[I] For using it?

[P] Yes 99pence, it is not for free, I think it is a bit annoying.

[I] You said annoying and stressful how does that make you feel?

[P] I bit annoyed and the stressful because if you don't have you have to think tomorrow if I go there I got to take the money.

[I] So you have to remember?

[P] Yes.

[I] Going back the shops you use mobile payments in, do you use the self-serve tills in the supermarket?

[P] Yes mostly because I can go to Sainsburys.

[I] The chemist I assume would be, they don't have self-serve tills?

[P] No.

[I] Do you tend to do this on your own or with friends?

[P] On my own.

[I] Do you use your mobile payments for any purchase amount?

[P] I think so.

[I] No maximum amount where you wouldn't use mobile?

[P] Yes, £30 I think, after £30 you can't use it and it happened one day we go up over £30 we have my purse in the backpack in the car, so for that my god it is the one restriction.
[I] You went to pay for more than £30 but you didn't have your purse on you?

[P] Yes this is bit of a restriction.

[I] Which shop was that?

[P] It was in Lidl.

[I] Did you try and pay with your phone?

[P] No I just say sorry.

[I] How did it make you feel?

[P] A bit stupid, seriously you go to a shop with your purse, I feel a bit stupid and there was a massive queue so a bit embarrassed as well.

[I] Is there a minimum amount where you wouldn't use your Google Pay?

[P] No.

[I] You said you keep your purse in your backpack.

[P] Yes.

[I] Whereabouts do you carry your phone?

[P] That's why it is easier because, this one is another problem, we always have our phone with us, the phone is more important than anything else, my phone is in my pocket.

[I] Do you use store loyalty schemes where you can get points?

[P] No.

[I] You don't use any of those.

[P] Or maybe yes but not in the phone but the card, and sometimes I am so lazy to take my loyalty card out.

[I] That is a physical card?

[P] A physical card.

[I] Is that in your purse?

[P] Yes, sometimes I don't take it.

[I] You don't have them in your Google Pay?

[P] No and I don't know why. I didn't think about it.

[I] What sort of loyalty cards do you have?

[P] I have a lot because every shop that you go they give you but I don't use it. Most I use is Superdrug or Boots.

[I] You mentioned Sainsbury's.

[P] Yes my boyfriend got, we share the Nectar card.

[I] You have a Nectar card but not on your.
[P] Not on my phone, he got on his phone but it doesn't work sometimes I don't know why.

[I] We are going to talk about two scenarios and the actual activities you do when you go to pay but we will start off asking you to describe the activities you do when you enter the store for both scenarios. The first one we will talk about self-serve, you said Sainsbury's. Can you describe what you do after you enter Sainsbury's?

[P] I go round the shop I don't have, sometimes I don't know what I have to buy the first thing that I saw maybe this with that I can make for tea tonight. I go round the shop pickup food or something else, mostly food of course, and after I go to the self-service machine.

[I] When you do your shopping do you use your mobile phone at any point while you are walking around the store?

[P] Sometimes but never related to the shop.

[I] You get the till, do you have to queue?

[P] No because it is massive the new one in Selly Oak.

[I] I went up there the other day and the old one it was closed.

[P] The new one it is good it is big, there is no really queue.

[I] Just before you get to the till do you notice any information at that stage around the tills?

[P] Around the till honestly no, I just go, or I check if sometimes they take only cash.

[I] Sometimes the self-serve tills are cash only?

[P] Yes cash only.

[I] Every store seems to be slightly different. You choose which till to use because some are cash and some are card?

[P] I don't check first I'll go straight and then go ah its only cash and I have to move.

[I] You get the till what do you do next?

[P] Put the groceries in the basket to scan and then after to pay with the phone, press pay with contactless and I pay with the contactless.

[I] On the screen in terms of that choice of how to pay it says contactless not mobile?

[P] Yes it says contactless.

[I] You know that is Google Pay?

[P] Yes.

[I] Is that something you have learnt?

[P] Yes because I am not English so I didn't know if it mean I can pay with the phone or not before I ask if I can pay and afterwards my boyfriend explain because I am really old fashioned. He explain me I can pay straight with the phone, after that he put my credit debit card in the phone and since that.

[I] He setup your Google Pay?

[P] Yes he is more technological and before that I didn't have the contactless in my card so I have to the old style put the PIN in and everything.

[I] Do you ever encounter any problems at this stage when you are going to pay?

[P] With the phone?

[I] With the phone, or the screen, or the till?

[P] No it always works.

[I] You said you don't have to queue, do you have to unlock your phone?

[P] No because with phone you don't need to unlock you can just put but it doesn't work sometimes, sometimes you have to unlock I don't know why but sometimes it goes straight through.

[I] That is odd I always unlock it but maybe I don't need to.

[P] Probably but I think I notice it as a mistake because I put the phone and I pay and it works.

[I] Would you unlock your phone by fingerprint or face?

[P] BY fingerprint.

[I] When it hasn't worked is that easy to fix?

[P] Yes and it clear on what to do.

[I] You didn't need to get any help from the staff?

[P] No sometimes when I need help to scan the grocery but not with the phone, but I think it is maybe the machine they have because I work in Starbucks, sometimes when they pay with Apple or Google Pay I don't think it is the phone I think it is the connection.

[I] You said you sometimes have to get the staff member over is that to do with scanning the shopping?

[P] Yes sometimes just the scan.

[I] You can't do anything about that yourself?

[P] No and it appear the red light on top of the till and then they come.

[I] Your phone is located in your pocket?

[P] Right now no because it is a low battery, that is another thing I am a bit annoyed about that it has not charged well, I have to take my card from my purse.

[I] Does that happen very often when you have a low battery?

[P] No just this week, but now I have my bus ticket in my phone so I have to turn off the phone to turn it on when I am on the bus otherwise it is not going to work. Can you imagine if I didn't have my card with me just the phone and I have to pay the ticket with my phone, this one is something really bad.

[I] Just before you go to pay your phone would be in your pocket?

[P] Yes.

[I] Does the £30 limit apply to Sainsbury's?

[P] I think it is everywhere.

[I] Do you ever do big shops of more than £30 in Sainsbury's?

[P] No because when I do the big shop, as I work here sometimes I eat at the Uni I have to throw away a lot of stuff, so I go to the shop when I need.

[I] How do you know the payment has been successful?

[P] Because appear a message of Google Pay with my card.

[I] On the phone?

[P] Yes appear your card saying payment successful or something like that.

[I] Do you get any other information from the till?

[P] Yes from the till it say payment done.

[I] It that a visual or someone speaks?

[P] No just visual written on the till.

[I] Do you get a receipt at this stage?

[P] I ask always for the receipt just incase I need to change something and complain.

[I] You always get the paper receipt?

[P] Yes always.

[I] Where does the receipt go?

[P] Just in the grocery carrier bag.

[I] Do you get a receipt on your phone as well?

[P] No I don't why is that possible?

[I] Yes some form of receipt is possible.

[P] Oh yes but I never check from the Google Pay, I always just check from the [paper] receipt I just use the Google Pay just to pay.

[I] You don't look at it for anything else?

[P] No I check from the bank, maybe it is easier from Google Pay I didn't know.

[I] Do some machines give you a receipt automatically or a choice?

[P] They give me the choice and I always put yes to get the receipt, just maybe it is beeping when I go out from the shop.

[I] You don't use your Nectar card at this stage?

[P] No.

[I] But you have a joint Nectar account, do you get free things through that?

[P] Not free discount, paper orange voucher like 20% for these grocery item or maybe £4 off from Game, I know this because my boyfriend likes gaming so he uses it most of the time.

[I] If you were in Sainsbury's and you had the voucher?

[P] He does it straight for Game.

[I] Would you use the voucher before you pay?

[P] Yes before you have to scan it.

[I] Is there anything else about self-serve about how you pay you would like to say?

[P] Poundland does self-serve as well but it is a bit weird because they talk to you the machine 'hello goodbye'.

[I] How does that make you feel when the machine talks to you?

[P] The first time that I heard it when it was Halloween and it does 'hoho ahhhhh' I was like what it was a bit weird, they change the machine for Christmas, for Halloween, and everyday is a normal voice.

[I] Does that voice help you?

[P] No it just says 'hello goodbye' so no not really.

[I] Do you check your mobile phone when you leave the store?

[P] No.

[I] Not at all?

[P] No although sometimes but it is not in self-serve, the machine say the payment didn't come through and on my phone it say came through. When you pay on your phone it appear that you paid but the till say it hasn't so I check and show that it has.

[I] That is just to confirm have you have paid?

[P] Yes.

[I] Are there any self-serve situations where you don't use mobile payments?

[P] No I prefer self-serve because no queue. Also I do a lot in Asda.

[I] Is there self-serve very similar to Sainsbury's?

[P] Yes it is. Is a big queue.

[I] More of a queue in Asda?

[P] Yes.

[I] What do you do while your in the queue in Asda?

[P] Nothing just waiting and check when the first people are going.

[I] Do you ever look at other people in the queue?

[P] Yes because sometimes they do stupid things.

[I] Like?

[P] Sometimes they scan and they don't pay, they wait lot but it is written press, it is funny I think, you just have to press.

[I] These people don't know how to use it?

[P] Yes.

[I] How does that make you feel when your watching other people being slow?

[P] Not slow but funny how they are acting they look down and I think just press, I don't laugh but smiling at the situation.

[I] Do you ever get any notifications on your phone related to payment?

[P] Yes all the time.

[I] What sort of things do you they say?

[P] Your payment was successful, there's the sound and the tick.

[I] Any other notifications?

[P] No.

[I] That is self-serve, exactly the same scenario but where there is an employee present. Lets use Superdrug. Do you do the same wonder around the store when you enter Superdrug?

[P] No because I know what I need I go there for specific things.

[I] Do you use your phone when you're shopping?

[P] Yes I like to see the deals and the same in Boots.

[I] On your phone how do you know the deals?

[P] They send you an email with the loyalty and money off or sometimes I just check online if there are some discounts.

[I] So you have the loyalty physical card and they send you email offers?

[P] Yes.

[I] Are there no self-serve tills in Superdrug?

[P] No.

[I] Do you have to queue?

[P] Yes sometimes depends what time you go.

[I] Do you notice any of the marketing information when you queue?

[P] Yes when they have the deals or discounts with the perfume or makeup or soap because they are near the till and always chocolate.

[I] It is mostly offers you notice?

[P] Yes.

[I] Will you use your phone while you are in the queue for any purpose?

[P] No.

[I] Would it be in your pocket then?

[P] No in my hand ready to pay.

[I] You have already got it out.

[P] Yes.

[I] You get the till and the employee then puts.

[P] Yes I give my loyalty card first and after I pay. If you give your loyalty card then why I don't grab my card as well because it is in the same purse I don't know why.

[I] This is interesting, you have got your loyalty card out of your purse but not your card. The order of events then is the lady at the till.

[P] Yes she ask me how I want to pay so I open my backpack, open my purse, take loyalty card and pay with my phone. It is weird as I have my cards there as well.

[I] You have a range of options to pay in Superdrug?

[P] I can pay with cash or card, but I pay with phone.

[I] Does anything unexpected happen at this stage?

[P] No.

[I] How do you know how many loyalty points you have?

[P] It is in the receipt, the paper receipt.

[I] The confirmation is the same on your phone as previously?

[P] No I don't have anything in my phone about loyalty.

[I] Sorry the confirmation that the payment has been successful?

[P] Yes the tick and sound on my phone.

[I] Do you get anything from the till?

[P] Authorised.

[I] The size of payment in Superdrug is never more than £30?

[P] No never.

[I] You keep the receipt as that has the loyalty points on it. Where do you keep the receipt?

[P] Pocket or carry bag.

[I] Then you keep them at home?

[P] Yes to check.

[I] You don't read it there and then?

[P] No in there no, but they tell you have this points and sometimes if you don't check they ask if you want them to remove £2.

[I] When you go to pay you use your card then they will ask you if you want to take money off through your loyalty?
[P] Yes exactly.

[I] Everyone is different, every loyalty system.

[P] Yeah you know YoYo a lot of people I think they don't know you have the card that you scan before for the points, it works only if you have YoYo, I don't know why they scan for the points and then pay with the card because it doesn't work and I try to explain.

[I] Why not just download the app?

[P] Exactly because that card is connected, not really a loyalty just for points.

[I] It is good offers though.

[P] I know but they don't get.

[I] Do you check your phone when you leave the store?

[P] No, do a lot of people check?

[I] It depends what it tells you, different methods for different phones. For example if I get the bus past M&S it tells you Google Pay accepted here, lots of different things.

[P] No I don't.

[I] You know that these stores accept Google Pay?

[P] I never ask honestly it because it is the contactless sign so it is automatically. I know why people ask because it is different for the Apple Pay, Apple Pay have a different system from the Google and not a lot of store accept Apple Pay, I don't know why maybe it is slow for the transaction, it is the same for American Express some stores don't accept, but with Apple Pay there are more problems I remember, when I was working at another place it almost never come through I don't know why. It's easy with Google Pay.

[I] Apple always does things differently. As long as it says contactless you know it is accepted?

[P] Yes I saw the little sign.

[I] Is there anything else you would like to add? Any other situations aside from those discussed where you use mobile payments?

[P] No, I also notice the machine, chocolate machine.

[I] Vending machine?

[P] Yes they have the, you can pay also there I didn't know that.

[I] You have never used those though?

[P] Once and there I had a problem I couldn't pay and I try twice.

[I] You tried to pay with Google Pay?

[P] Yes, the first one didn't come through the second did.

[I] Any other situations where you can't use mobile payments but would like to?

[P] Also there is a little shop,, I was looking for trousers and there was a little shop in Kings Heath, I think it was an Indian shop and we think everywhere you can pay by contactless and I couldn't pay what I wanted as I didn't have cash.

[I] How did that make you feel?

[P] A bit annoyed I thought jesus why didn't I have with me any cash.

[I] You didn't buy them?

[P] No I didn't.

[I] That concludes the interview, do you have any other comments?

[P] No but it is really interesting.

Interview number: I12
Date / Time: 06/11/2019 12:00
Length of interview recording: 53mins
Location: York's Café, Birmingham.
Audio file: I12_061119.mp3

[I] (Interviewer) Can I take your age please?

[P] (Participant) 32

[I] How would you describe your type of employment?

[P] Managing Director of a sole limited company.

[I] Is that film?

[P] Yes film and video production.

[I] You live and work in Birmingham?

[P] Yes.

[I] Does your work take you outside of Birmingham?

[P] Yes all over the place, all over the UK occasionally abroad if I am lucky.

[I] What type of mobile payments do you use?

[P] I use Apple Pay and I have one card plugged into it which is my Nationwide current account that's it.

[I] Do you have anything else in your Apple Pay?

[P] I suppose it is all classed as being part of my Apple Wallet, I just have that one payment method. I have two current accounts, one with Nationwide and got another business current account with tied Mobile First Banking, business banking I love it however they are not Apple Pay certified.

[I] You can't use your Apple Pay with your business account?

[P] No which is kind of a little bit frustrating. I use Apple Pay a lot because my phone is always in my pocket and if I am off and carrying heavy gear, the tube is a great example of that, my hands are full I'm going through the big gate to get on the tube and I am in a rush and I'm in the flow of people I don't want to stop get my wallet out and pay. So instead of using my business account which I should for that as it is a business expense I will just use my personal one and mobile payment because it is quicker and convenient.

[I] How long have you been using Apple Pay?

[P] As long as it came out I have been an iPhone user since the iPhone 4, in fact I leapfrogged one and had the iPhone 7. Probably four years maybe, three or four years.

[I] How often do you use Apple Pay?

[P] I'd say not quite daily, almost daily, every other day.

[I] In terms of the types of shops that you use mobile payments in is it a broad range?

[P] Yes a lot of coffees, lunches, transport is great, use it on and off the tube.

[I] That is in London?

[P] Yes, to be honest I'd always prefer to use it if it is under £30, generally if it is under £30 I'll use mobile payment, I'll refrain from getting the card out as much as possible.

[I] Any particular coffee shops?

[P] Here York's, its more what is close.

[I] In terms of supermarkets do you use any of the self-serve tills?

[P] I do yes, I do a lot of grabbing lunches in between places, on the love a lot.

[I] You tend to use the self-serve tills in those places?

[P] Yes generally go for the self-serve.

[I] Are there any particular supermarkets you use the self-serve in?

[P] Yes Tesco, we have a big Tesco's near use and almost by default I have my arms full and have too much and think really don't want to queue and no bag or anything. To be honest that is it, there are Tesco's everywhere.

[I] You said you use the tube in London, do you use the bus in Birmingham?

[P] No not really most times I have a lot of gear so I am driving to places, London is the exception as I get the train, depends how much I have with me I guess.

[I] You touched on a maximum of £30 is there a minimum and that is the maximum £30?

[P] Yes to my knowledge I can't use it over that but it may have changed now, if I could spent over £30 I would, if the limit was £40 I probably would.

[I] If the amount was over £30 how would you pay?

[P] I'd get my card out and chip and PIN.

[I] Is there a minimum amount when you use your Apple Pay?

[P] No, me and *[name]* have conflicting views about this, there is no minimum if something was 3p I would use Apple Pay or a card contactless payment for it. My wife has this thing that if it is under a £1 or £2 she feels weird paying with a card so she will scrabble some cash together. What is even stranger is she will add something to her basket because she feels uncomfortable.

[I] Why do you think that is?

[P] I have no idea maybe it is a throw over from cash, I just have no problem even if it was 5p whatever the lowest transaction was buying an apple in Tesco. It probably predates contactless I would be happy paying with a card, maybe it comes from that small local stores that have a minimum of £2.50 on a card, she feels uncomfortable spending less than that on a card.

[I] Have you ever encountered that minimum and tried to use Apple Pay and not been able to?

[P] No generally not actually, I guess maybe I have on very rare occasion like a corner shop or something like that. In that case actually because I never have case what I have had to do is make it up to like £2.50.

[I] Where do you keep your phone on you?

[P] Front pocket.

[I] Do you also carry a wallet most of the time?

[P] Yes I do.

[I] Where do you keep your wallet on you?

[P] If I have got a bag which I generally do 80% of the time have it is in the front pocket of the bag if not it is in the back pocket.

[I] What sort of things do you keep in your wallet?

[P] I can show you as I am very proud of my wallet. It is a leather fold over and it has got this for just cards, it is literally like a card holder, it has got this fold over flap for cash.

[I] You press something and the cards pop out?

[P] Yes it's called for the benefit of audio it's called SECRID, its RFID shielded.

[I] It has a security so now one can automatically scan it?

[P] Yes no one can clone it. As I pay for everything on card and generally don't have cash, it is mainly just for cards and stops me clogging it up with receipts that I was terrible for with a wallet.

[I] That SECRID little wallet has bankcards, does it have any IDs?

[P] Yes it does I have two bankcards, National Trust card very middle class, Brewdog membership card, and couple of other store cards, but actually store cards I have an app for that now to use with Apple Pay.

[I] What store loyalty schemes do you use?

[P] I have got a Tesco Clubcard, Nectar card, my John Lewis card which is actually less of a loyalty card scheme but is ready handy because if you use it to pay at John Lewis it stores all your receipts digitally so I don't have to have a paper printed receipt and it keeps them indefinitely. I have used it before I had to have a proof of purchase and claim on their warranty.

[I] Are they physical cards?

[P] They are but the Clubcard is and I have made it digital through Stocard an app that I use and integrates with Apple Wallet. It is a standalone app that you scan all of your loyalty cards and it surfaces them.

[I] That is an interesting way of doing it, a lot of these apps are separate from Apple Pay.

[P] This Stocard app you just take a picture of it and it adds the card in, but then if I go to the app it embeds here and just surfaces them all.

[I] The interviewee is showing me all the cards that are in the Stocard app is also in Apple Pay. Are there any loyalty cards that you keep as paper cards?

[P] The National Trust one I keep that when we do day trips as you need it to get into places so that is a physical card that I use. What other ones do I have in my wallet that is a children's play centre in Northampton that you have to have a card for and become a member. The only two that I have as a physical card in my wallet now are National Trust and the play centre.

[I] How often would you go to the National Trust?

[P] Every other week we will have a day out at the weekend and we rinse the membership.

[I] We will come onto the next section, in the next two sections we will discuss the activities you do when you are using Apple Pay. These could be at any stage of your shopping, in both sections I will ask you to describe the activities you do when you enter the store or retail environment right through to when you leave and we may get into a discussion in various sections. In the first scenario we will talk about self-serve so you use Tesco's where you don't interact with an employee. Can you describe what you do when you enter Tesco's?

[P] I'll typically park and run in, I'm typically running in to Tesco as I want to get it over as quickly as possible, I'm often popping in for, it's always essentials we do a lot of our shopping online now doing Ocado every three or four weeks.

[I] That is a big shop online?

[P] Yes a big shop online and we were a bit late to the game with that we only started doing that in last twelve months before that we use to go and do a big shop but we don't now, I'm generally running in for things a basket full no more than that and race round. Then I'll generally what always happens is the way our Tesco's is laid out you have got the doors which are on the left hand side you go in and the way the store is designed you end up in the furthest right hand corner so I'm coming out to the tills as far away from the door, so I have to walk, what happens is I look at the tills and look at the queues and end up at the self-serve tills which is back closest to the door again.

[I] Do you use your phone while you're doing your shopping?

[P] Yes, I'll have shopping lists on it, I'll have shopping lists which I tick as I go.

[I] The shopping list would be a little app?

[P] Yes so I used to use Apple Reminders but we have actually got a smart speaker at home with Google Assistant build in so I'm adding stuff to the Google Assistant shopping list so I use that now.

[I] How do you feel using Google Assistant as an Apple fan?

[P] I love it and I very nearly as my contract is nearly up for renewal and I thought should I just get a Pixel as all the business is now linked up, Drive, Gmail, and I'm seeing everything is better designed but I still can't quite get away with the phone, maybe next year. Google Assistant makes more sense for me to use as I can ask it what my schedule is, it can add things to my schedule.

[I] You create the shopping list through the Google Assistant then when you are in Tesco's you are looking at that?

[P] Yes I'll pick stuff up from it.

[I] You said you probably noticed the queue while you are shopping, is there a queue at the self-serve tills?

[P] Yes there is, my perception is that it is shorter actually thinking about it it probably never is shorter but it moves at a faster rate so I'll always go for it even though there is a queue I'll be done quicker.

[I] What do you do while you're in the queue?

[P] Get my phone out what everybody does, get my phone out, and probably check work email that is what I am generally doing.

[I] Do you notice any of the information around you at that stage?

[P] Generally no, what I am looking for is the green lights and red lights above the tills, if I am looking up I'm looking at that and if the person in the front of queue is paying attention.

[I] Do they not always pay attention?

[P] No cause they are on their phone, exactly what I'm doing.

[I] Do you ever chivvy them along?

[P] I have done that in the past as I would like to get out of Tesco's as quickly as possible.

[I] Do you have to make a choice between self-serve tills?

[P] I am conscious that some are card only or have that on the screen when you get there, it is not something that I think about because I know I am always going to pay on card I am never going to pay with cash in some way I feel smug I am paying with card and can use any of them.

[I] That is the only differentiator?

[P] Yes.

[I] You get to the till can you take me through what you do then?

[P] Yes I usually carry stuff as I refuse to get a basket, I'm just pouring everything onto the thing and putting it into the bagging area. We have a loads of plastic bags at home but I generally bad at remembering them. I scan stuff put it into the bagging area and then pay.

[I] When scanning do you have any problems at that stage?

[P] I've got better the self-scans have made me a better scanner.

[I] What has changed?

[P] I used to look where the barcode was and oput it face down, I don't do that now I move it around and it scans, its more intuitive now than you think it is.

[I] Everything scans ok?

[P] Yeah apart from things like fruit, things you need to weigh and select. I generally don't have a problem with it now, it used to take longer than it does now.

[I] Do you ever have to get the store assistant over to help you?

[P] On occasions the bagging area weight thing is probably the one break, other than if you get something that requires age verification, that bagging area weight thing sometimes you scan it as you should put it in and take your hand off that is the one joke in society the whole bagging area thing is frustrating.

[I] The employee comes over and helps you out?

[P] Yes puts a code in.

[I] That just resets it and you can carry on?

[P] Yes over rides it.

[I] You have scanned everything in, do you check the amount on the till?

[P] This is an area where me and my wife differ a lot, I'll always look at the total that I am paying for is it under £30 can I pay contactlessly or do I have to put my card in. I'm not very good at looking at how much individual items cost, *[name]* is very good that is cheaper elsewhere, she will just consciously now the price of things, I am just not very good at that I just check it in the basket and just look at the total.

[I] Then ou go to pay where is your phone at this stage?

[P] It is in my front pocket so when I have scanned the last item I am getting it out when I am tapping the finish and pay, some of them just thinking about it ask you to select contactless payment some of them just don't. Generally I have authenticated it with my thumb and I'm holding it over as I am quicker getting it out of my pocket and getting it ready while I'm hitting finish and pay, some of them it will just beep and scan and do, some of them Tesco's one actually because it forces you to scan your Clubcard which I always forget. Your press finish and pay and it will say scan your Clubcard it won't automatically let me pay until I have selected no Clubcard or scan your Clubcard and then it prompts you to do.

[I] A couple of points, have you had to unlock your phone after you have got it out of your pocket?

[P] Yes.

[I] No problems with that?

[P] Because it is touch ID and a double tap it is all done with one hand so that is usually quite quick.

[I] In terms of the loyalty Clubcard is that on the same part of the till as where you pay?

[P] Actually no it is not done via NFC it is done via a barcode scan off the screen, you have to flip your phone round and find the barcode which never works quite as well with phones. The STOCARD app interestingly controls your brightness when you open a loyalty card it whacks up your brightness up full if it is not already to I guess make it easier to recognise.

[I] Interesting they know that the brightness effects the ability to read the code.

[P] If I am in a real rush sometimes I just won't bother I will skip past it, skip the loyalty card thing and just pay. I try to remember *[name]* tells me off 'did you use the Clubcard yes'.

[I] When you have to choose the payment option on the till it says you said contactless?

[P] Yes I never quite understand why, why it asks you to differentiate between a contactless payment and a card payment which some of them do. It says contactless you see the little three contactless symbol icon and then it will have debit/credit card payment which I've quite understand, I'm sure I've hit the debit/credit card payment before accidently and used contactless anyway because it doesn't differentiate if it is below an amount. I don't understand why it does that from a user experience point of view.

[I] You associate that contactless sign with Apple Pay?

[P] Yes because I use Apple Pay I just associate it with mobile payments because I use those more than payments with a card.

[I] How do you know a payment has been successful?

[P] I'll stand and look at the screen and wait for the authorised and get out of there.

[I] That is the till terminal?

[P] Yes the actual chip and pin contactless machine, wait for the authorised on that.

[I] Do you have any notifications on your phone at that stage?

[P] Yes I know you get the audio and haptic notification that you have paid, little vibration and the 'ding' audio notification that you have paid for something as soon as I here that noise I put the phone away. Then I'm grabbing my stuff and waiting for the screen.

[I] The end confirmation for you is the till although you have the ding on the phone?

[P] Yes perhaps rightly or wrongly this might be something of a misconception but I think that the audio notification from the phone is effectively telling me that I have passed the details over not that it has been successful, I will wait in case there has been a problem with it.

[I] Do you get a receipt at this stage?

[P] If I am paying for something unless, staying with the Tesco example I am buying consumables food and stuff I don't really want a receipt for that because I am going to eat it and I am quite bad for keeping the receipt I just don't wait the paper. I will always say no if I am offered the receipt especially if it is under £30 unless it is for clothing or small electronic item which might be faulty or not fit and I might need to return it I generally always will reject the receipt. The fact that the till automatically print it out I which it would give you the option, some do I always opt for the no option, if it does print I just leave it.

[I] If you do get the receipt you leave it behind or you don't get one. Why don't you want the receipt?

[P] I just don't really want a receipt for a bag of apples or stick of chewing gum I don't think it is necessary I know I am not going to return those items, also the environmental reason I don't know why they just print them off, I know there must be a lot of people like me who don't want one. Then on a practical level it just clogs up my pockets that is why I have a tiny little wallet now because I can't put receipts in it. My previous wallet I just used to shove it in and it just clogged my wallet up, or clogged my pockets up and went through the wash and everything got covered in little bits. If there is ever an option for higher value items to have a receipt emailed to me I will always take that option which is why I love the my John Lewis because it stores the receipt digitally and it's just more paperwork that I don't need.

[I] Do you get information in Apple Pay?

[P] It records the total transaction amount about where you spent it and what time you spent it but it doesn't give you a break down. I think if I needed to prove I had paid for something that would be enough, obviously I could probably if in dire straits I might be able to use it to return something. If I bought a pair of headphones using my mobile payment for £29.99 using contactless and I hadn't got the receipt and they were faulty I really wanted to take them back I dare say I could how them that and show them my statement that I had paid for it.

[I] It gives you enough information for your everyday type of purchases?

[P] Yes.

[I] You finish your payment does everything work for the payment?

[P] Sometimes you get that thing where your thumb print fails to authenticate, I don't if it is because your fingers are a bit grubby, or the sensor is a bit grubby, it takes a few attempts. On the very very rare occasion where it just wouldn't accept my thumb and I was getting frustrated, I have put the code in or it has prompted me to put my code in after about four or fives misses.

[I] Your phone passcode?

[P] My passcode PIN to get into the phone, to unlock it, and I have physically opened Apple Wallet from the app as opposed to using the quick thumbprint method.

[I] You haven't not been able to pay in any situations?

[P] No.

[I] You have paid and you pack up and leave?

[P] Yes.

[I] Do you check your mobile phone when you leave at any stage?

[P] No I think because of the nature of the low amount and the fact I am using it as it is quicker I am just getting on with what I am doing in the day, phone goes back in the pocket, sandwich in the bag and I keep going, I never look back at the purchase history or check it has gone through.

[I] Are there any situations where you don't use mobile payments in that self-serve?

[P] If my phone battery has gone, that is the one occasion, that is the one thing I am always conscious of and Apple devices and their less than satisfactory battery life. I guess because of that conscious around battery life of the phone I have surrounded myself with a plethora of things, I've got charge cables everywhere, three in the car in case one gets picked up. I've got this pebble thing which is like a short charge cable for an iPhone, usb3 and lightning either end but in the middle there is a square part with a tiny battery in. You use it as a cable in your pocket but once its finished once the phone battery is full there is a tiny battery which charges up, so that if you are ever out and about you undo one end and plug it into your phone and it will do 50% of your phone it will give a boast.

[I] You carry a backup battery in some form?

[P] Because of all my camera gear generally a lot of the batteries have a usb out on it if I am out and about I can give my phone a top up. I have collected these things because I rely on my phone so much for my business, for payments, for everything, I will generally always carry my wallet on me but there are occasions were I will think for work I will get to a place we will do some filming and go out and about I will leave my wallet as I know I have my phone and the battery life becomes more of a concern.

[I] Are there any stores you use which don't accept mobile payments?

[P] No if I think right back to when I first started using it there were at that point I was probably using it less frequently as it wasn't quite so omni present but now everywhere has a contactless machine so accepts Apple Pay.

[I] Is there nowhere you have to use cash?

[P] No apart from car parks but even with those no they never have mobile payments, tell a lie some of them do for example to come here today I parked in the Moor Street car park I know that their payment machines have a yellow thing on them so I will use the mobile to pay on them rather than get my card out but some car parks are cash.

[I] I guess that will change. Do you ever get any payment or loyalty related notifications on your phone?

[P] Yes I do what that STOCARD app is quite good at doing and it is not for every loyalty card just for some I guess the bigger ones it has got proximity. When you are in proximity of the store you will get a 'don't forget to use your loyalty card' it does that with Tesco it does it with, does it do it with John Lewis as well, and Ikea

family card when your near an Ikea it does it. The one I used to get which I was quite impressed the first time it did it and then after that it just bothered me was Starbucks, I used to have I don't have anymore, when I used to work at National Express I had a My Starbucks card and then I put that in the app the Starbucks reward app. Anytime I pulled up on the train any second I got near New Street I would get a notification don't forget to buy this don't forget to buy this, it wasn't prompting me to use the loyalty card it was prompting me to buy a coffee which I guess is the same thing but it bothered me.

[I] Do those notifications help you in anyway?

[P] It kind of I guess the thing is I am not, thinking of Tesco's as an example, interestingly then I haven't thought about this until now. If I am going into Tesco and generally I will have a shopping list of a couple of things it will prompt me when I walk into the store 'don't forget to use your loyalty card' but that is actually the wrong time to prompt me because I am thinking about getting stuff then, I will dismiss it unlock the phone and that will be it. What I actually need is prompting is at the till so I can remember it that is where I actually just want, I am close to getting out the store, so that is when I need prompting but it never prompts you at that point. I probably wouldn't say, the thing that has probably made me use it more, I have only had that STOCARD app installed for two months since I switched to that wallet, it is more the allure of being a tech person that makes me use it than, I just like to use technology because I find it interesting. The fact that the STOCARD app is new and shiny and I have all my cards in it, it is quite nice to just see how it works, rather than the notification that reminds me it is the allure of tech that reminds me.

[I] If they could remind you at the time before you paid how early would be useful for you?

[P] The most useful time to remind would be while I am queuing for the self-serve till, if there was some sort of beacon technology they could put that was within a couple of metres of the queuing point that would be useful. The point your actually at the till might get in the way, you could put it before the actual payment and it prompts you but that would get really annoying and bother me, but that is like dead time in the queue.

[I] You said that they have the 'would you like to have your Clubcard' on the till?

[P] Yes I guess they want your data. I actually find that annoying.

[I] The till?

[P] The part where it prompts you before payment. For some reason thinking out aloud and this sounds ridiculous but in a way I find it more annoying that the till prompts me to use it than my phone. If my phone prompts me to use it it is my technology that reminds me to do something that is of benefit to me, when the till does it in my head physiologically I'm thinking Tesco wants my data that's why your prompting me that's why you won't let me skip to payment, you are making me physically stop my journey of paying for my goods and click yes or no, rather than just accepting my payment and thinking he doesn't want to use his Clubcard he just wants to pay because you want my data, it is that important to you that you are going to stop my payment process.

[I] They are going to get your data either way.

[P] Which is why it is stupid but there is some sort of subconscious level of my phone reminding me don't forget to use your loyalty card is different to Tesco give us your data and our tills asking you don't pay yet give us your data. It feels like I'm in control with my phone because I can turn those notifications off the till asking me is just getting in my way, they should be thinking about user experience and not.

[I] In terms of the loyalty for Tesco's do you get free stuff or money off?

[P] Yes we have one Tesco Clubcard and it is in *[name]* name but I have it on my app so she sees all that and gets them in the post, they have a really confusing loyalty scheme, you can boast your points I don't really understand it.

[I] This is Tesco's?

[P] Yes you accumulate points that equal monetary value but for their partner organisations you can boast your points and make them worth more. If you want to get 2 for 1 at Legoland you can use your Tesco points and if you have £10 worth of Tesco points you can boast it so they are worth £20 instead of £10.

[I] Do you often use the points?

[P] *[name]* uses them it's one of those things you never look at you just accumulate but never look at.

[I] At the point of payment you wouldn't redeem your points?

[P] That is a really interesting question because I've never even thought to look for it, if you were to take me to a till and after that you have scanned your items and tapped finish to go to pay, you have that plethora of buttons I just want to pay, if you were to take show me that there was one there that said 'redeem your Clubcard points' I would be totally shocked I would like maybe I should redeem my points because it is money off they are a good thing I should be using them but I never look. My perception is you only use them, you use them through an online portal to book something else rather than have it as physical money to get money off your shopping but you probably can I am a person that doesn't really pay much attention to anything else.

[I] Is there anything else you would like to add to the self-serve experience where you use Apple Pay?

[P] No I don't think so other than it is convenient.

[I] You don't generally have problems?

[P] No it is easy.

[I] The final section we will go through a similar scenario discussion but this time where there is an employee present. A coffee shop is probably shall we talk about Yorks?

[P] Or more frequently is probably Starbucks in New Street or more frequently now is the Café Ritazza at Birmingham International as I tend drive there and go into London. It is actually just easier with gear.

[I] Probably Starbucks but Café Ritazza might come in a little bit. A similar scenario again can you describe what you do when you enter Starbucks?

[P] Starbucks then in New Street I will walk in the first thing I am thinking about, actually because I am not carrying goods to differentiate it to Tesco the phone is out and ready almost I have got the phone in my hand before I've ordered I'm kind of ready to pay because it is quick.

[I] Does that happen when you walk in?

[P] I guess when I hit the queue.

[I] Do you tend to have to queue?

[P] Yes it's always like one or two people unless it is really early train and it is quiet. I walk in I know what order I have same every time generally and then I have authenticated with my thumb while I have ordered and I am holding it over I'm kind of holding it waiting?

[I] What do you do in the queue?

[P] Because it is shorter I guess because I know what order I'm having I know the process, to pay for it you walk to the circle thing at the end and you wait it is quite functional process driven so the phone is out I'm ready to pay almost to get it.

[I] Any problems ordering?

[P] No actually no problems ordering.

[I] Is it a similar payment terminal to Tesco's?

[P] Yes.

[I] Any problems at that stage?

[P] No it is always quick and easy. Actually this isn't particular to Starbucks but thinking out aloud, perhaps some of the older contactless terminals you have the green light on the top that show you it have been accepted, some of those are quite small on the older terminals and your phone blocks them. I'm peering over waiting for the, I guess when I am paying by mobile I am looking for my phone to give me the notification but I am also looking for the terminal to go green that it have gone through. Some of the newer terminals have a bigger screen and have the green on the top and maybe have an audio give you a notification it has gone through I am looking for two.

[I] Is it similar to previously the noise on the Apple Pay is not a confirmation it has been successful but going through as you said earlier?

[P] Yes because in that scenario because I'm interacting with a person I will wait for the person to tell me that yep that is fine or that has gone through, I wouldn't just wait and walk off I would wait for the person. Thinking about it even if the thing said authorised I would be looking for them for some visual nod or that is fine you can go now sort of thing, when it is a person it is strange there are almost the unwritten rules about interacting with another human even though this whole thing is digital I am still waiting for them to go yep off you can you can leave you have paid for it.

[I] The confirmation is the same?

[P] Yes the same, do you mean on the phone?

[I] Yes on the phone.

[P] Yes I still wait for the haptic feedback and the audio and green light but now I am also waiting for the person to say that is fine. There was an example I was visiting [name] in hospital and they had a bit of laminated bit of A4 next to the card machine saying please don't walk off after you have paid please wait and because I was visiting a few times I got used to it. The first time it literally felt like hours but in reality it was probably 20 or 30 seconds, when you are buying a chocolate bar and a sandwich you just want to pay and go and they are making awkward I'm sorry it takes forever the internet connection is awful, other than that it is generally like a nod from the cashier and I'm away.

[I] Do you get a receipt at this stage?

[P] Yes because it is a person I am generally offered they will say do you want a receipt rather then give it to me. Again something I've never thought about it until right now is whether the fact I have paid on my phone effects whether they ask me if I want one or not, I don't know because generally for those transactions I am paying on my phone so I don't know.

[I] They generally offer you a receipt?

[P] Yes they do.

[I] Do you take a receipt?

[P] I say no.

[I] You don't do the Starbucks loyalty scheme?

[P] Not anymore strangely I am not having a coffee I generally take my little coffee thing from home rather than get one to take on the way.

[I] But you do use Starbucks?

[P] Yes I do if I haven't had time or I'm on the way back from somewhere.

[I] Why do you think you don't use their loyalty scheme?

[P] The main reason is because you have to add money to it you pay through their card, it's like Disney dollars.

[I] Like a top-up?

[P] You buy some mickey mouse money and use that to pay, I don't like the idea I would rather pay straight out of my account I know you get points for it, from memory you have to have quite a lot of coffee. When I was having a coffee a day and topping up my Starbucks rewards card at the end of the month I might have enough for one free coffee and I was having two coffees a day, now it is much more infrequent and I just don't see the benefit.

[I] You have paid you get your coffee do you use your mobile phone when you leave the store?

[P] I guess so, if I sit down generally I am with someone like meeting the client or meeting someone else I am shooting with I won't look at my phone as I think it is rude to that if I am with people. The one exception to that if I am coming back from London and waiting for a train and I am a bit early I will get a coffee and sit down and get my phone out and check emails and or whatever.

[I] In those coffee situations there are no situations where you don't use Apple Pay?

[P] No.

[I] Is there anything else you would like to add, is the Rizatta very similar?

[P] Yes really similar much smaller one.

[I] Do you ever encounter any problems compared to Starbucks?

[P] No I don't.

[I] Just to touch on the tube at the start, you mentioned you use Apple Pay on the tube, how do you find that experience?

[P] Yes really good, really quick, my phone is always in my pocket. If I'm in London I'm generally working three things I am carrying I generally have to go to the wide gates. If you come out of Euston there is a bottle neck and everyone is going quite quick in there so last thing you want to do is be the guy who stops gets his backpack off to get his card out to pay or whatever. I'm obviously not going to queue as I know the price is the

same whether I use my phone or contactless, so that is a brilliant little evolution of tech that makes that whole tube experience so much better I don't think of getting tickets now.

[I] Do you get a notification once you have used it at the gate that lets you in?

[P] Yes a little, I wait for the red and the green light, the green light lets me through. It's really bad I never look at how much it was cost I probably should, I am generally never going further than a few stops from Euston I know it's going to be less than a fiver. On rare occasions if I am travelling a bit lighter or maybe it is a bit quieter I will stop and get my wallet out or if I think enough ahead and not rushing I will actually get my business card out I've done that a couple of times. Where as the train pulls into Euston I get my business card out and put it into my front pocket where my phone is because really it is a business event and I should be expensing it and claiming it.

[I] A business bankcard?

[P] Yes I should be doing that but if I am in a rush and the train is late and I am worried about getting there on time I just get to the gate and I haven't thought about paying until 30 seconds so I just use the most convenient which is my phone.

[I] That concludes the interview are there any other situations around Apple Pay or further comments you would like to make?

[P] I kind of guess it was supported a bit wider, I don't know whether Apple Pay have, how difficult it is to become an Apple Pay partner. The bank I use for business is pretty big now in the UK, they are not the fastest people at releasing features but Apple Pay has been a requested feature on their forums since they have gone live but it is not there so I can only assume that the path to becoming Apple Pay approved is not straight forward. That is a bit frustrating we also have a joint account and I haven't looked to add that as we only use it for bills. The other thing and this pertains to Apple Wallet more than Apple Pay that I use it for all the time is things like add to Apple Wallet like train tickets I always do that if I can or try not to use the email ones, if I book on the Trainline I use that and cinema tickets I use that as well.

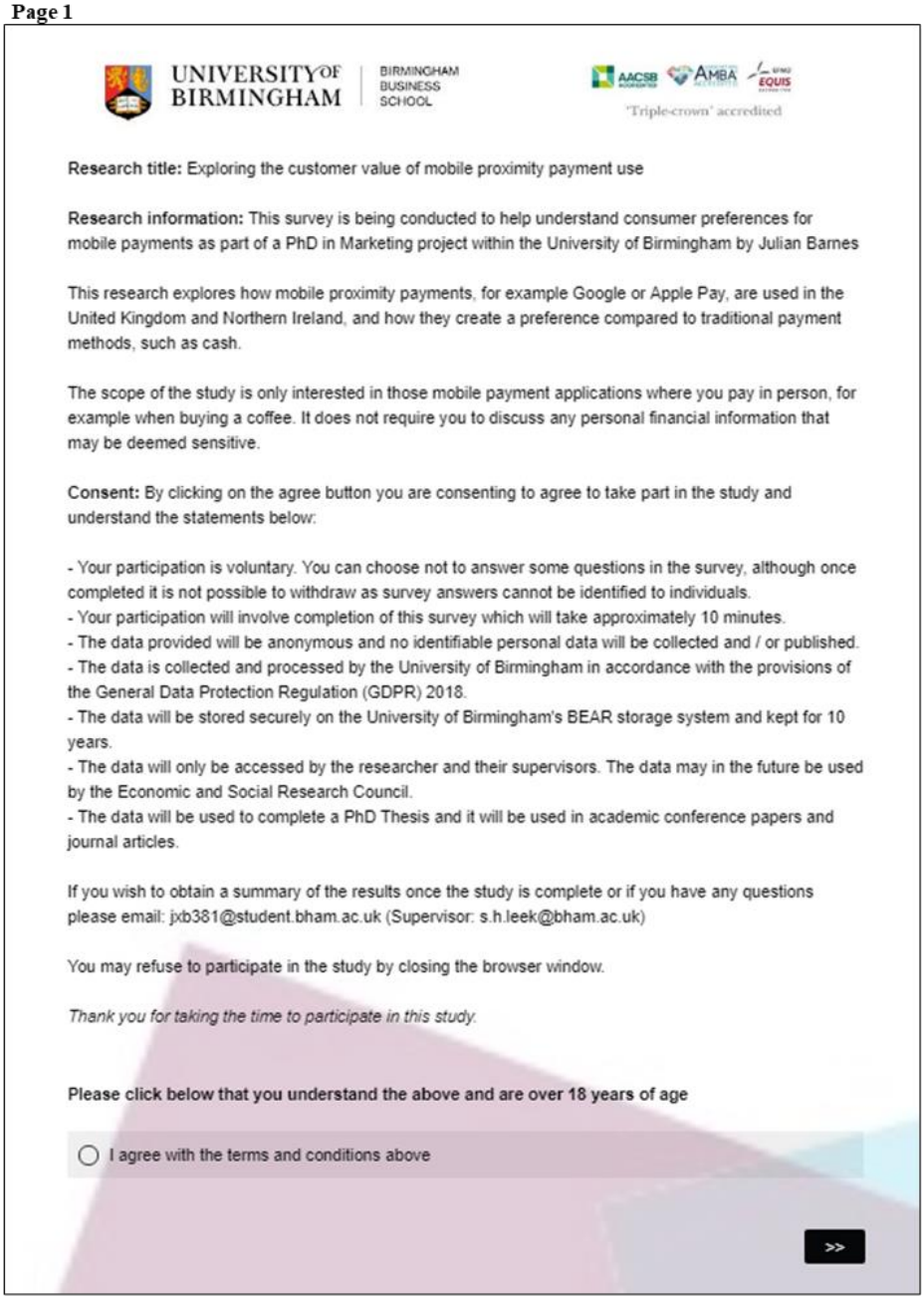
[I] They get added to the Apple Pay a bit like the loyalty cards?

[P] Yes and if I am flying as well, I go up to Scotland with work once every few months and I will fly up there Flybe let you add your booking boarding pass in which is really good and quite quick as it is QR code scan and convenient and it gives you reminders about your flight, tells you your seat number which is quite useful. If the add to Apple Wallet option is there I will always add it in if the option is there as I prefer to not print it and have stuff.

[I] That concludes the interview if you have got any friends, family who would also be in a similar position using Apple Pay or Google Pay regularly please let me know.

Appendix 7.1: Online survey instrument

Page 1



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

AACSB AMBA EQUIS

'Triple-crown' accredited

Research title: Exploring the customer value of mobile proximity payment use

Research information: This survey is being conducted to help understand consumer preferences for mobile payments as part of a PhD in Marketing project within the University of Birmingham by Julian Barnes

This research explores how mobile proximity payments, for example Google or Apple Pay, are used in the United Kingdom and Northern Ireland, and how they create a preference compared to traditional payment methods, such as cash.

The scope of the study is only interested in those mobile payment applications where you pay in person, for example when buying a coffee. It does not require you to discuss any personal financial information that may be deemed sensitive.

Consent: By clicking on the agree button you are consenting to agree to take part in the study and understand the statements below:

- Your participation is voluntary. You can choose not to answer some questions in the survey, although once completed it is not possible to withdraw as survey answers cannot be identified to individuals.
- Your participation will involve completion of this survey which will take approximately 10 minutes.
- The data provided will be anonymous and no identifiable personal data will be collected and / or published.
- The data is collected and processed by the University of Birmingham in accordance with the provisions of the General Data Protection Regulation (GDPR) 2018.
- The data will be stored securely on the University of Birmingham's BEAR storage system and kept for 10 years.
- The data will only be accessed by the researcher and their supervisors. The data may in the future be used by the Economic and Social Research Council.
- The data will be used to complete a PhD Thesis and it will be used in academic conference papers and journal articles.

If you wish to obtain a summary of the results once the study is complete or if you have any questions please email: jxb381@student.bham.ac.uk (Supervisor: s.h.leek@bham.ac.uk)

You may refuse to participate in the study by closing the browser window.

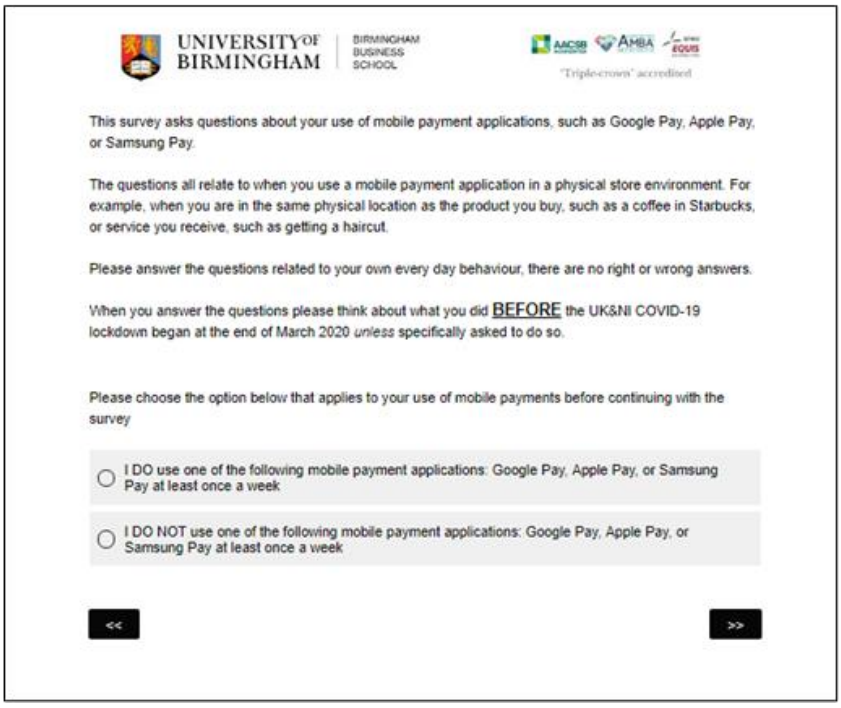
Thank you for taking the time to participate in this study.

Please click below that you understand the above and are over 18 years of age

◯ I agree with the terms and conditions above

>>

Page 2



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

'Triple-crown' accredited

This survey asks questions about your use of mobile payment applications, such as Google Pay, Apple Pay, or Samsung Pay.

The questions all relate to when you use a mobile payment application in a physical store environment. For example, when you are in the same physical location as the product you buy, such as a coffee in Starbucks, or service you receive, such as getting a haircut.

Please answer the questions related to your own every day behaviour, there are no right or wrong answers.

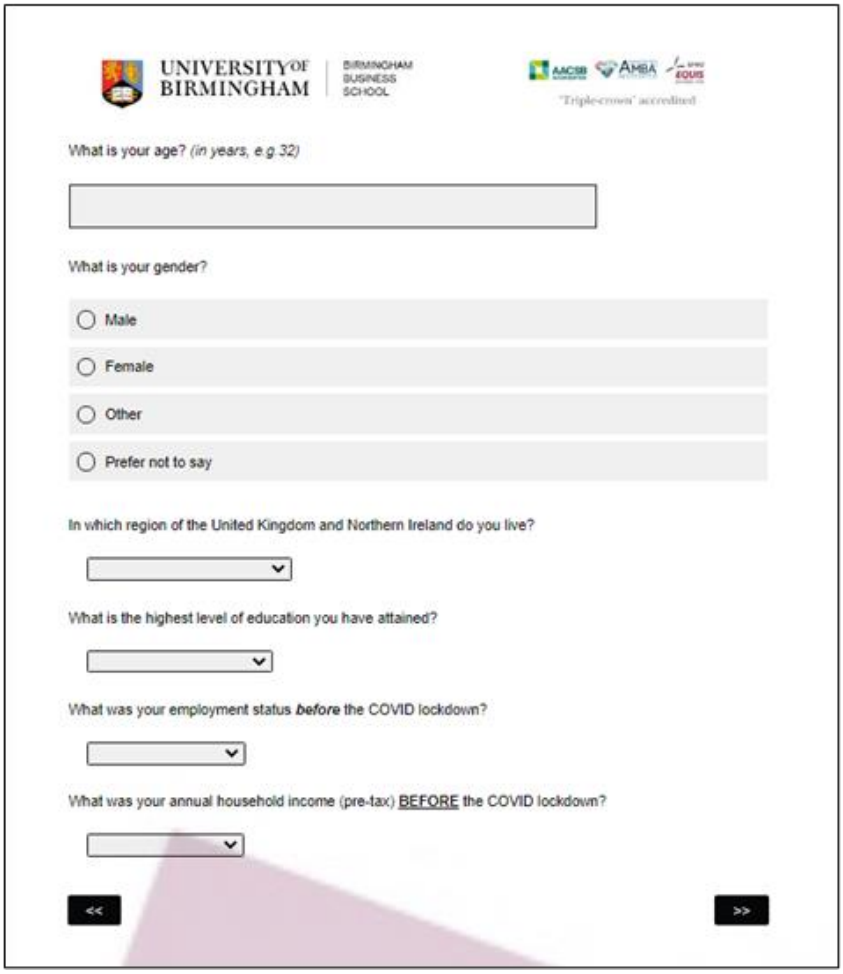
When you answer the questions please think about what you did BEFORE the UK&NI COVID-19 lockdown began at the end of March 2020 *unless* specifically asked to do so.

Please choose the option below that applies to your use of mobile payments before continuing with the survey

- ○ I DO use one of the following mobile payment applications: Google Pay, Apple Pay, or Samsung Pay at least once a week
- ○ I DO NOT use one of the following mobile payment applications: Google Pay, Apple Pay, or Samsung Pay at least once a week

<< >>

Page 3



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

"Triple-crown" accredited

What is your age? *(in years, e.g.32)*

What is your gender?

- Male
- Female
- Other
- Prefer not to say

In which region of the United Kingdom and Northern Ireland do you live?

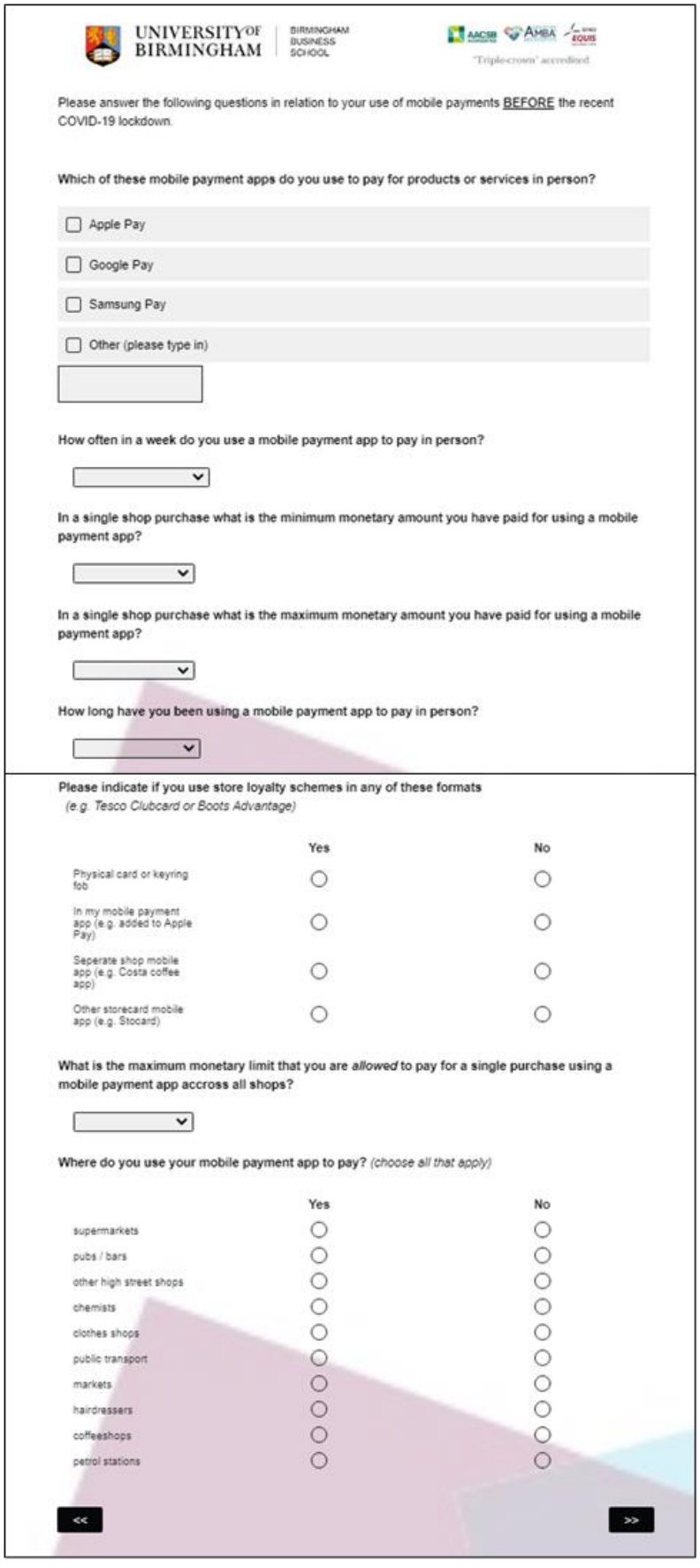
What is the highest level of education you have attained?

What was your employment status ***before*** the COVID lockdown?

What was your annual household income (pre-tax) BEFORE the COVID lockdown?

<< >>

Page 4



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

AACSB AMBA EQUIS "Triple-crown" accredited

Please answer the following questions in relation to your use of mobile payments BEFORE the recent COVID-19 lockdown.

Which of these mobile payment apps do you use to pay for products or services in person?

- [ ] Apple Pay
- [ ] Google Pay
- [ ] Samsung Pay
- [ ] Other (please type in)

How often in a week do you use a mobile payment app to pay in person?

In a single shop purchase what is the minimum monetary amount you have paid for using a mobile payment app?

In a single shop purchase what is the maximum monetary amount you have paid for using a mobile payment app?

How long have you been using a mobile payment app to pay in person?

Please indicate if you use store loyalty schemes in any of these formats
(e.g. Tesco Clubcard or Boots Advantage)

	Yes	No
Physical card or keyring fob	○	○
In my mobile payment app (e.g. added to Apple Pay)	○	○
Seperate shop mobile app (e.g. Costa coffee app)	○	○
Other storecard mobile app (e.g. Stocard)	○	○

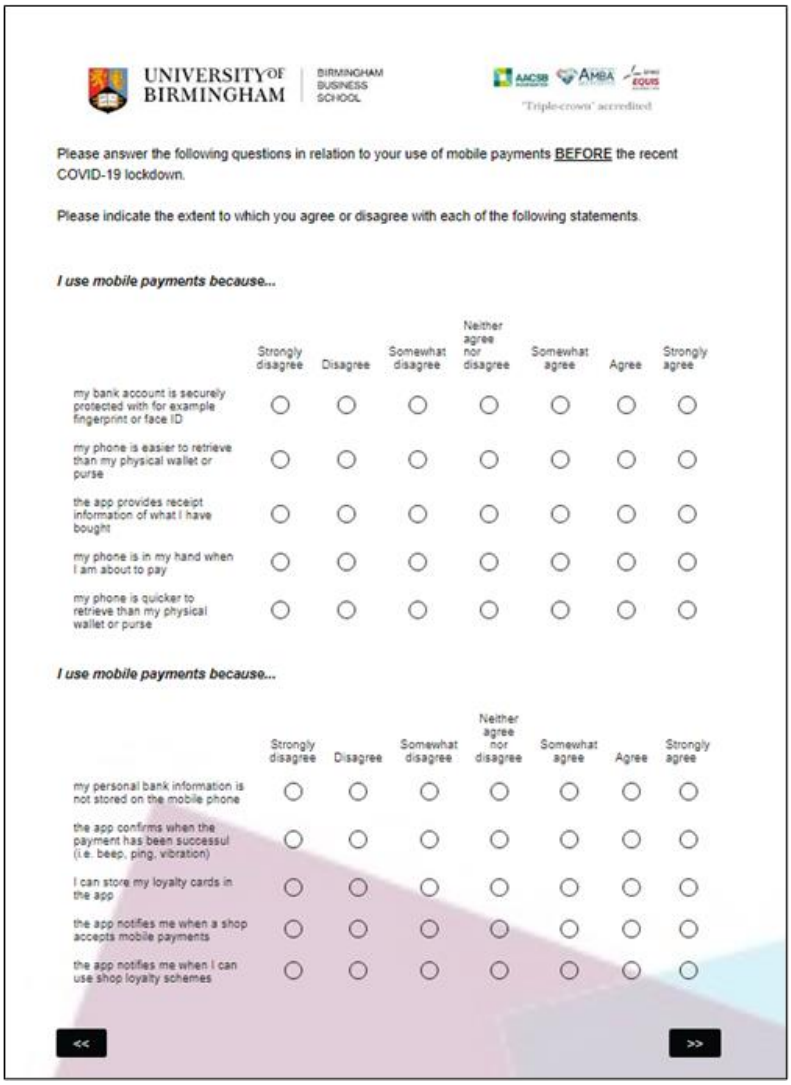
What is the maximum monetary limit that you are *allowed* to pay for a single purchase using a mobile payment app accross all shops?

Where do you use your mobile payment app to pay? *(choose all that apply)*

	Yes	No
supermarkets	○	○
pubs / bars	○	○
other high street shops	○	○
chemists	○	○
clothes shops	○	○
public transport	○	○
markets	○	○
hairdressers	○	○
coffeeshops	○	○
petrol stations	○	○

<< >>

Page 5



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

'Triple-crown' accredited

Please answer the following questions in relation to your use of mobile payments BEFORE the recent COVID-19 lockdown.

Please indicate the extent to which you agree or disagree with each of the following statements.

I use mobile payments because...

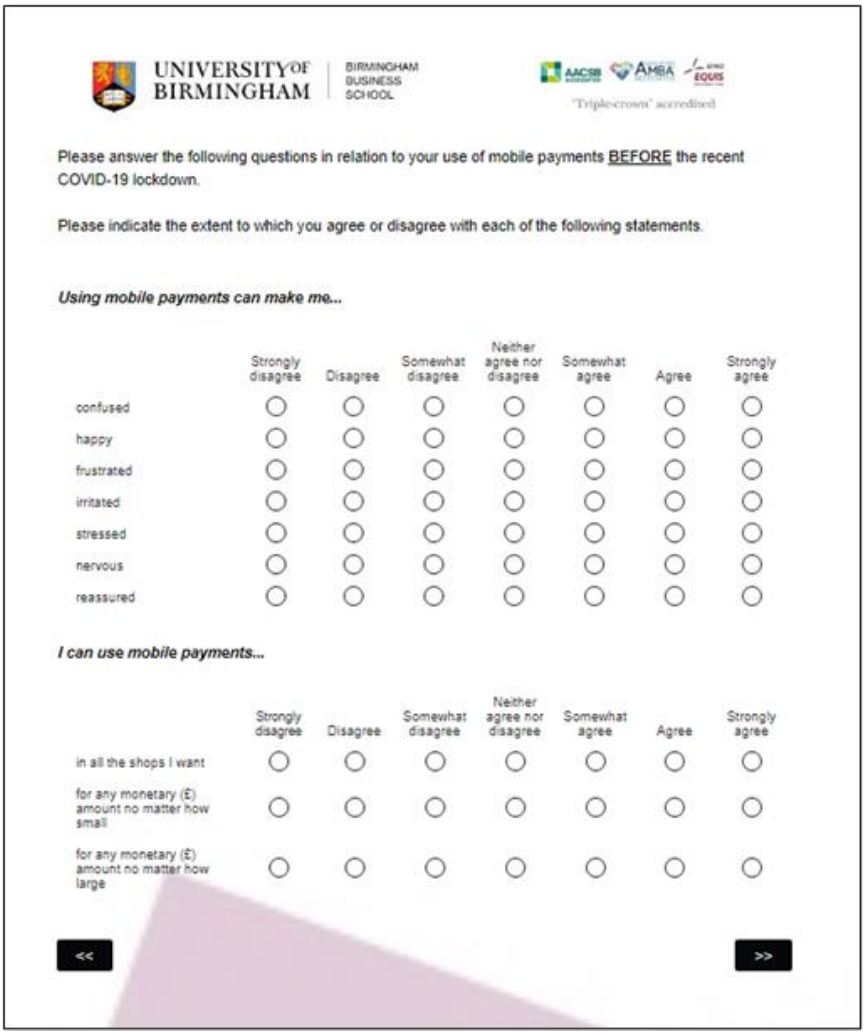
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
my bank account is securely protected with for example fingerprint or face ID	○	○	○	○	○	○	○
my phone is easier to retrieve than my physical wallet or purse	○	○	○	○	○	○	○
the app provides receipt information of what I have bought	○	○	○	○	○	○	○
my phone is in my hand when I am about to pay	○	○	○	○	○	○	○
my phone is quicker to retrieve than my physical wallet or purse	○	○	○	○	○	○	○

I use mobile payments because...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
my personal bank information is not stored on the mobile phone	○	○	○	○	○	○	○
the app confirms when the payment has been successful (i.e. beep, ping, vibration)	○	○	○	○	○	○	○
I can store my loyalty cards in the app	○	○	○	○	○	○	○
the app notifies me when a shop accepts mobile payments	○	○	○	○	○	○	○
the app notifies me when I can use shop loyalty schemes	○	○	○	○	○	○	○

<< >>

Page 6



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

AACSB AMBA EQUIS

"Triple-crown" accredited

Please answer the following questions in relation to your use of mobile payments BEFORE the recent COVID-19 lockdown.

Please indicate the extent to which you agree or disagree with each of the following statements.

Using mobile payments can make me...

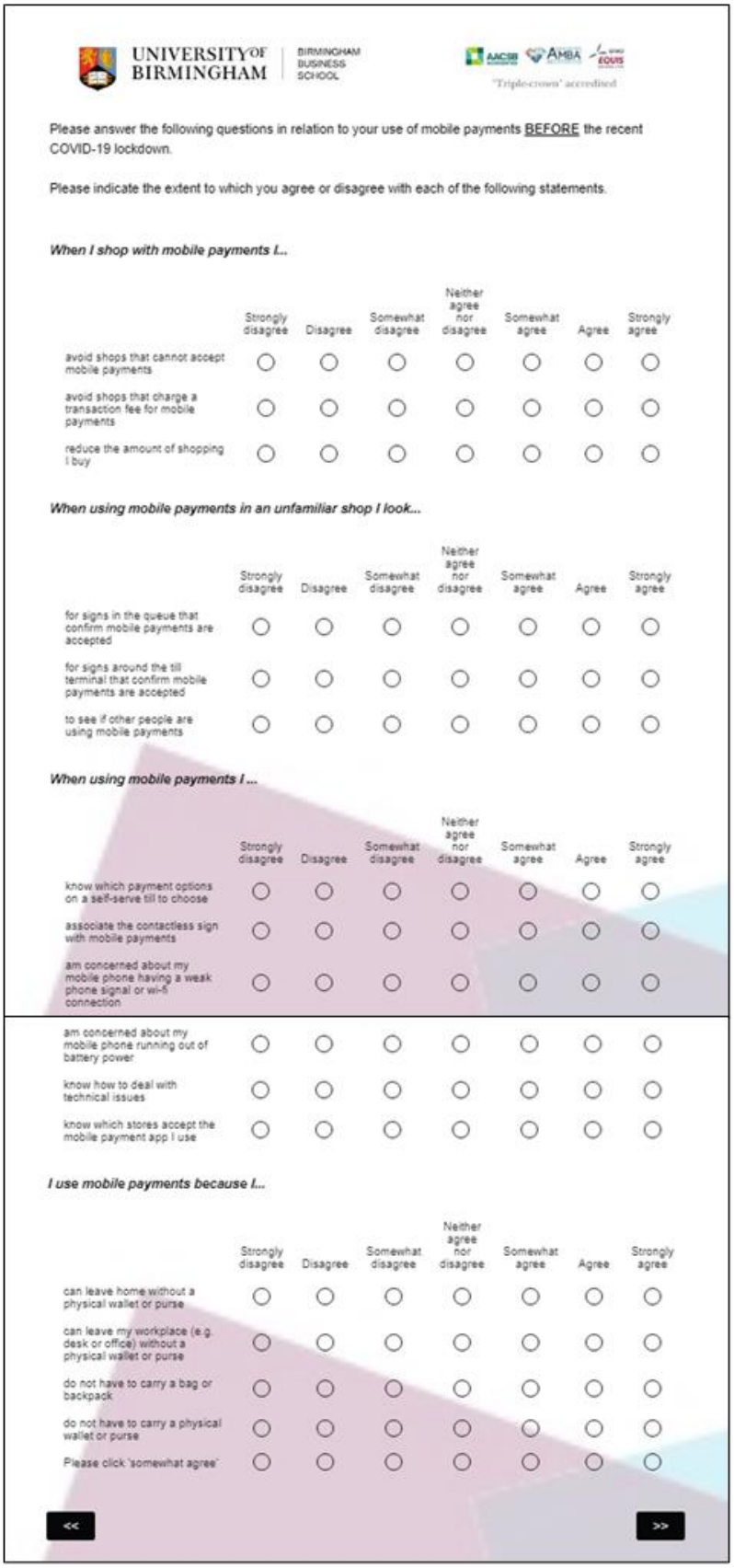
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
confused	○	○	○	○	○	○	○
happy	○	○	○	○	○	○	○
frustrated	○	○	○	○	○	○	○
irritated	○	○	○	○	○	○	○
stressed	○	○	○	○	○	○	○
nervous	○	○	○	○	○	○	○
reassured	○	○	○	○	○	○	○

I can use mobile payments...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
in all the shops I want	○	○	○	○	○	○	○
for any monetary (£) amount no matter how small	○	○	○	○	○	○	○
for any monetary (£) amount no matter how large	○	○	○	○	○	○	○

<< >>

Page 7



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

'Triple-crown' accredited

Please answer the following questions in relation to your use of mobile payments BEFORE the recent COVID-19 lockdown.

Please indicate the extent to which you agree or disagree with each of the following statements.

When I shop with mobile payments I...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
avoid shops that cannot accept mobile payments	○	○	○	○	○	○	○
avoid shops that charge a transaction fee for mobile payments	○	○	○	○	○	○	○
reduce the amount of shopping I buy	○	○	○	○	○	○	○

When using mobile payments in an unfamiliar shop I look...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
for signs in the queue that confirm mobile payments are accepted	○	○	○	○	○	○	○
for signs around the till terminal that confirm mobile payments are accepted	○	○	○	○	○	○	○
to see if other people are using mobile payments	○	○	○	○	○	○	○

When using mobile payments I ...

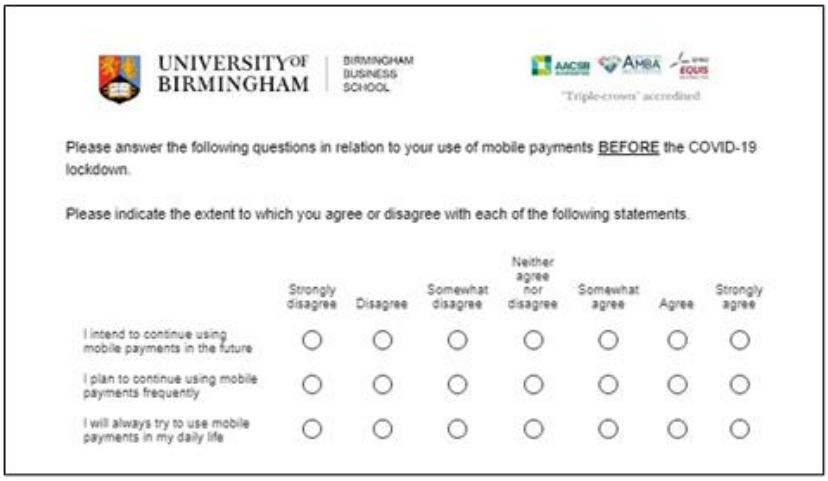
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
know which payment options on a self-serve till to choose	○	○	○	○	○	○	○
associate the contactless sign with mobile payments	○	○	○	○	○	○	○
am concerned about my mobile phone having a weak phone signal or wi-fi connection	○	○	○	○	○	○	○
am concerned about my mobile phone running out of battery power	○	○	○	○	○	○	○
know how to deal with technical issues	○	○	○	○	○	○	○
know which stores accept the mobile payment app I use	○	○	○	○	○	○	○

I use mobile payments because I...

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
can leave home without a physical wallet or purse	○	○	○	○	○	○	○
can leave my workplace (e.g. desk or office) without a physical wallet or purse	○	○	○	○	○	○	○
do not have to carry a bag or backpack	○	○	○	○	○	○	○
do not have to carry a physical wallet or purse	○	○	○	○	○	○	○
Please click 'somewhat agree'	○	○	○	○	○	○	○

<< >>

Page 8



UNIVERSITY OF BIRMINGHAM | BIRMINGHAM BUSINESS SCHOOL

'Triple-crown' accredited

Please answer the following questions in relation to your use of mobile payments BEFORE the COVID-19 lockdown.

Please indicate the extent to which you agree or disagree with each of the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I intend to continue using mobile payments in the future	○	○	○	○	○	○	○
I plan to continue using mobile payments frequently	○	○	○	○	○	○	○
I will always try to use mobile payments in my daily life	○	○	○	○	○	○	○

Appendix 7.2: Multivariate outlier cases

Multivariate outliers (p<0.001)			
Variables	**Case ID**	**D^2**	**D^2/df**
BI	291	29.493	9.831
BI	225	39.545	9.886
BI	377	36.649	9.162
BI	323	33.012	8.253
ACint	455	26.871	6.718
ACint	189	25.942	6.486
ACint	321	25.942	6.486
ACint	235	27.5	6.875
ACint	341	26.838	6.709
ACint	372	25.9	6.475
EMneg	314	36.211	7.242
EMneg	423	35.12	7.024
EMneg	332	28.386	5.677
EC	188	36.114	12.038
CF	185	27.829	6.957
CF	155	26.434	6.608
CF	176	25.294	6.323
ACind	225	39.545	9.886
ACind	377	36.649	9.162
ACind	323	33.012	8.253
ACind	455	26.871	6.718
ACind	189	25.942	6.486
ACind	321	25.942	6.486

Appendix 8.1: H7a MGA significant path and MICOM results

H7a MGA significant path results

H7a	Group A (female *n*=214) vs Group B (male n=227)			
Path	Path Coefficients-diff.	CI female (2.5% - 97%)	CI male (2.5% - 97%)	*p-value*
IND_COND -> BI	0.044	0.157: 0.417	0.096 : 0.397	0.664
IND_FUNC -> BI	-0.019	-0.099 : 0.089	-0.105 : 0.156	0.820
INT_COND -> BI	0.078	0.149 : 0.400	0.043 : 0.372	0.453
INT_COND -> NEG_EMOT	-0.035	-0.427: -0.082	-0.374 : -0.008	0.788
INT_COND -> POS_EMOT	-0.100	0.181 : 0.427	0.263 : 0.558	0.306
INT_FUNC -> BI	-0.058	-0.098 : 0.166	-0.047 : 0.232	0.554
INT_FUNC -> INT_COND	-0.097	0.296: 0.563	0.417 : 0.634	0.259
INT_FUNC -> NEG_EMOT	-0.029	-0.309 : 0.068	-0.273 : 0.055	0.821
INT_FUNC -> POS_EMOT	0.160	0.188 : 0.444	0.002: 0.318	0.124
NEG_EMOT -> BI	-0.007	-0.331 : -0.122	-0.377 : -0.087	0.934
POS_EMOT -> BI	-0.004	0.07 : 0.282	0.043 : 0.310	0.961

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	0.144	-0.124	0.000
p-value	0.396	0.406	0.767
Sig.	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	0.093	-0.109	0.042	-0.012
p-value	0.322	0.364	0.687	0.949
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	-0.588	-0.303	0.092	0.583	0.228	-0.047	0.030
p-value	0.185	0.407	0.825	0.161	0.515	0.750	0.859
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	0.001	0.009	0.055
p-value	0.978	0.523	0.143
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999 : 1.000	0.402	Yes
IND_COND	0.989	0.935 : 1.000	0.42	Yes
IND_FUNC	**1**	1.000 : 1.000	**0.025**	**No**
INT_COND	0.983	0.984 : 1.000	0.319	Yes
INT_FUNC	1	0.988 : 1.000	0.914	Yes
Neg EMOT	0.871	0.877 : 1.000	0.408	Yes
Pos EMOT	0.999	0.986 : 1.000	0.844	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	0.016	-0.184 : 0.183	0.866	Yes
IND_COND	-0.05	-0.187 : 0.183	0.602	Yes
IND_FUNC	0.016	-0.188 : 0.183	0.845	Yes
INT_COND	**0.205**	**-0.190 : 0.191**	**0.033**	**No**
INT_FUNC	-0.054	-0.187 : 0.191	0.562	Yes
Neg_EMOT	-0.037	-0.183 : 0.194	0.702	Yes
Pos_EMOT	-0.005	-0.191 : 0.187	0.96	Yes

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.07	-0.331 : 0.340	0.693	Yes
IND_COND	0.016	-0.256 : 0.253	0.903	Yes
IND_FUNC	-0.046	-0.196 : 0.192	0.638	Yes
INT_COND	0.044	-0.298 : 0.299	0.777	Yes
INT_FUNC	-0.144	-0.291 : 0.290	0.335	Yes
Neg_EMOT	-0.084	-0.230 : 0.227	0.467	Yes
Pos_EMOT	-0.179	-0.309 : 0.309	0.259	Yes

Appendix 8.2: H7c MGA significant path and MICOM results

H7c MGA significant path results

H7c	Group A (no univ. *n*=196) vs Group B (univ. *n*=241)			
Path	Path Coefficients-diff.	CI no uni. (2.5% - 97%)	CI uni. (2.5% - 97%)	*p-value*
IND_COND -> BI	0.070	0.147 : 0.418	0.069 : 0.356	0.490
IND_FUNC -> BI	**0.188**	**0.002 : 0.214**	**-0.182 : 0.024**	**0.014**
INT_COND -> BI	0.024	0.098 : 0.398	0.103 : 0.367	0.814
INT_COND -> NEG_EMOT	-0.216	-0.487 : -0.169	-0.291 : 0.041	0.063
INT_COND -> POS_EMOT	0.069	0.203 : 0.520	0.191 : 0.438	0.492
INT_FUNC -> BI	-0.125	-0.119 : 0.113	-0.018 : 0.255	0.178
INT_FUNC -> INT_COND	0.003	0.361 : 0.610	0.365 : 0.599	0.968
INT_FUNC -> NEG_EMOT	0.165	-0.178 : 0.144	-0.334 : 0.011	0.168
INT_FUNC -> POS_EMOT	-0.087	0.054 : 0.364	0.147 : 0.427	0.409
NEG_EMOT -> BI	-0.069	-0.419 : -0.148	-0.316 : -0.089	0.442
POS_EMOT -> BI	-0.021	0.055 : 0.284	0.056 : 0.328	0.821

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	-0.08	0.097	0
p-value	0.636	0.545	0.273
Sig.	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	**ACint**	PA	FUc	FUnc
Outer weights original diff.	**-0.207**	0.068	0.15	-0.198
p-value	**0.028**	0.554	0.154	0.254
Sig.	**Yes**	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	0.421	0.494	-0.401	-0.18	-0.279	-0.094	0.095
p-value	0.380	0.200	0.383	0.694	0.456	0.520	0.601
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	0.008	0.017	-0.052
p-value	0.79	0.265	0.18
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	c-Value (0=1)	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	0.999	0.999:1.000	0.17	Yes
IND_COND	0.995	0.936:1.000	0.59	Yes
IND_FUNC	**1**	**1.000:1.000**	**0.01**	**No**
INT_COND	0.971	0.954:1.000	0.153	Yes
INT_FUNC	0.982	0.954:1.000	0.24	Yes
Neg EMOT	0.908	0.876:1.000	0.591	Yes
Pos EMOT	0.995	0.985:1.000	0.576	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	0.036	-0.191 : 0.190	0.71	Yes
IND_COND	0.14	-0.188 : 0.186	0.141	Yes
IND_FUNC	-0.178	-0.189 : 0.184	0.068	Yes
INT_COND	0.129	-0.186 : 0.188	0.181	Yes
INT_FUNC	0.065	-0.180 : 0.190	0.499	Yes
Neg EMOT	-0.116	-0.189 : 0.184	0.233	Yes
Pos EMOT	0.173	-0.187 : 0.188	0.073	Yes

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Value	Equal variances?
BI	0.183	-0.352 : 0.341	0.312	Yes
IND_COND	0.025	-0.263 : 0.263	0.856	Yes
IND_FUNC	0.019	-0.202 : 0.195	0.856	Yes
INT_COND	0.075	0.290 : 0.289	0.617	Yes
INT_FUNC	-0.18	-0.295 : 0.281	0.22	Yes
Neg EMOT	-0.12	-0.232 : 0.230	0.307	Yes
Pos EMOT	-0.023	-0.316 : 0.297	0.894	Yes

Appendix 8.3: H7d MGA significant path and MICOM results

H7d MGA significant path results

H7d	Group A (income <£30k *n*=146) vs Group B (income >£30k *n*=253)			
Path	Path Coefficients-diff.	CI income<£30k (2.5% - 97%)	CI income>£30k (2.5% - 97%)	*p-value*
IND_COND -> BI	0.032	0.096 : 0.409	0.138 : 0.432	0.770
IND_FUNC -> BI	-0.045	-0.061 : 0.167	-0.107 : 0.113	0.579
INT_COND -> BI	**0.265**	**-0.019 : 0.260**	**0.244 : 0.524**	**0.013**
INT_COND -> NEG_EMOT	-0.232	-0.286 : 0.025	-0.512 : -0.088	0.065
INT_COND -> POS_EMOT	-0.016	0.238 : 0.489	0.157 : 0.510	0.899
INT_FUNC -> BI	0.024	-0.082 : 0.203	-0.061 : 0.212	0.813
INT_FUNC -> INT_COND	-0.155	0.407 : 0.632	0.208 : 0.504	0.093
INT_FUNC -> NEG_EMOT	0.239	-0.365 : -0.048	-0.208 : 0.231	0.092
INT_FUNC -> POS_EMOT	0.051	0.092 : 0.375	0.133 : 0.438	0.638
NEG_EMOT -> BI	0.115	-0.435 : -0.165	-0.302 : -0.050	0.216
POS_EMOT -> BI	-0.132	0.122 : 0.365	-0.039 : 0.247	0.164

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	-0.182	0.102	0
p-value	0.304	0.581	0.382
Sig.	No	No	No

Latent construct (interaction)	Conditional	Functional		
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	-0.041	-0.089	0.032	-0.071
p-value	0.685	0.493	0.794	0.711
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	-0.701	-0.036	0.631	-0.12	0.105	0.285	-0.316
p-value	0.148	0.926	0.184	0.817	0.791	0.053	0.077
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	-0.018	-0.003	-0.009
p-value	0.827	0.823	0.278
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Value	Compositional invariance?
BI	1	0.999:1.000	0.672	Yes
IND_COND	0.987	0.929:1.000	0.437	Yes
IND_FUNC	**1**	**1.000:1.000**	**0.01**	**No**
INT_COND	0.988	0.943:1.000	0.527	Yes
INT_FUNC	0.998	0.945:1.000	0.723	Yes
Neg EMOT	0.901	0.703:1.000	0.588	Yes
Pos EMOT	0.947	0.941:1.000	0.067	Yes

Construct	Difference of mean value (=0)	95% confidence interval	Permutation p-Values	Equal mean value?
BI	0.095	-0.197 : 0.198	0.361	Yes
IND_COND	0.181	-0.205 : 0.202	0.083	Yes
IND_FUNC	-0.007	-0.206 : 0.205	0.937	Yes
INT_COND	0.06	-0.203 : 0.201	0.562	Yes
INT_FUNC	0.035	-0.207 : 0.201	0.745	Yes
Neg EMOT	-0.068	-0.209 : 0.202	0.514	Yes
Pos EMOT	-0.066	-0.206 : 0.206	0.526	Yes

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.123	-0.372 : 0.374	0.52	Yes
IND_COND	0.114	-0.276 : 0.289	0.438	Yes
IND_FUNC	-0.083	-0.214 : 0.225	0.458	Yes
INT_COND	-0.028	-0.316 : 0.331	0.868	Yes
INT_FUNC	0.088	-0.308 : 0.318	0.592	Yes
Neg EMOT	0.059	-0.252 : 0.275	0.657	Yes
Pos EMOT	0.023	-0.329 : 0.359	0.897	Yes

Appendix 8.4: H7b_i MICOM results

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	0.076	-0.157	0.000
p-value	0.641	0.293	0.424
Sign	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	0.013	0.152	0.055	-0.067
p-value	0.905	0.209	0.602	0.689
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	0.059	-0.238	0.036	0.194	-0.061	-0.122	0.186
p-value	0.916	0.516	0.912	0.644	0.854	0.373	0.265
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	-0.002	0.030	0.004
p-value	0.966	0.163	0.877
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	1.000 : 1.000	0.415	Yes
IND_COND	0.992	0.992 : 1.000	0.518	Yes
IND_FUNC	1	1.000 : 1.000	0.183	Yes
INT_COND	0.964	0.964 : 1.000	0.094	Yes
INT_FUNC	0.998	0.998 : 1.000	0.686	Yes
Neg EMOT	0.983	0.983 : 1.000	0.973	Yes
Pos EMOT	0.99	0.990 : 1.000	0.412	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	**0.310**	**-0.187 : 0.188**	**0.001**	**No**
IND_COND	**0.290**	**-0.186 : 0.189**	**0.002**	**No**
IND_FUNC	**0.258**	**-0.190 : 0.188**	**0.008**	**No**
INT_COND	**0.431**	**-0.188 : 0.195**	**0.004**	**No**
INT_FUNC	0.045	-0.182 : 0.185	0.642	Yes
Neg_EMOT	0.054	-0.191 : 0.188	0.565	Yes
Pos_EMOT	**0.215**	**-0.183 : 0.189**	**0.024**	**No**

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.179	-0.341 : 0.336	0.319	Yes
IND_COND	**0.364**	**-0.255 : 0.251**	**0.005**	**No**
IND_FUNC	0.019	-0.198 : 0.203	0.849	Yes
INT_COND	-0.01	-0.297 : 0.296	0.948	Yes
INT_FUNC	0.235	-0.282 : 0.282	0.105	Yes
Neg_EMOT	0.19	-0.220 : 0.232	0.101	Yes
Pos_EMOT	-0.147	-0.311 : 0.321	0.357	Yes

Appendix 8.5: H7b_ii MICOM results

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	0.064	-0.193	0.000
p-value	0.719	0.094	0.945
Sig.	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	-0.193	0.001	0.120	-0.129
p-value	0.094	0.997	0.209	0.549
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	0.933	-0.133	-0.700	-0.219	0.113	-0.094	0.163
p-value	0.204	0.770	0.240	0.784	0.799	0.614	0.432
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	-0.031	-0.007	-0.065
p-value	0.410	0.773	0.255
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999 : 1.000	0.401	Yes
IND_COND	0.992	0.938 : 1.000	0.512	Yes
IND_FUNC	1	1.000 : 1.000	0.19	Yes
INT_COND	0.964	0.952 : 1.000	0.106	Yes
INT_FUNC	0.998	0.955 : 1.000	0.69	Yes
Neg EMOT	0.983	0.722 : 1.000	0.969	Yes
Pos EMOT	0.990	0.948 : 1.000	0.406	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	**0.310**	**-0.186 : 0.190**	**0.001**	**No**
IND_COND	**0.290**	**-0.184 : 0.193**	**0.002**	**No**
IND_FUNC	**0.258**	**-0.190 : 0.188**	**0.007**	**No**
INT_COND	**0.431**	**-0.185 : 0.189**	**0.005**	**No**
INT_FUNC	0.045	-0.185 : 0.189	0.634	Yes
Neg_EMOT	0.054	-0.187 : 0.189	0.571	Yes
Pos_EMOT	**0.215**	**-0.187 : 0.183**	**0.022**	**No**

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.179	-0.348 : 0.334	0.316	Yes
IND_COND	**0.364**	**-0.257 : 0.254**	**0.005**	**No**
IND_FUNC	0.019	-0.195 : 0.197	0.844	Yes
INT_COND	-0.01	-0.300 : 0.293	0.947	Yes
INT_FUNC	0.235	-0.291 : 0.287	0.115	Yes
Neg_EMOT	0.19	-0.224 : 0.224	0.101	Yes
Pos_EMOT	-0.147	-0.314 : 0.304	0.339	Yes

Appendix 8.6: H8b MGA significant path and MICOM results

H8b MGA significant path results

H8b	Group A (only mobile loyalty *n*=328) vs Group B (only physical loyalty *n=85*)			
Path	Path Coefficients-diff.	CI only mobile loyalty (2.5% - 97%)	CI only physical loyalty (2.5% - 97%)	*p-value*
IND_COND -> BI	0.043	0.192 : 0.425	0.045 : 0.457	0.720
IND_FUNC -> BI	-0.109	-0.106 : 0.068	-0.098 : 0.284	0.326
INT_COND -> BI	0.091	0.131 : 0.370	-0.063 : 0.398	0.514
INT_COND -> NEG_EMOT	0.138	-0.351 : -0.085	-0.589 : -0.029	0.354
INT_COND -> POS_EMOT	0.18	0.307 : 0.510	-0.068 : 0.448	0.185
INT_FUNC -> BI	0.169	-0.041 : 0.172	-0.308 : 0.115	0.169
INT_FUNC -> INT_COND	**0.303**	**0.439 : 0.617**	**-0.139 : 0.429**	**0.015**
INT_FUNC -> NEG_EMOT	0.19	-0.223 : 0.048	-0.525 : 0.063	0.275
INT_FUNC -> POS_EMOT	-0.076	0.073 : 0.311	-0.038 : 0.464	0.546
NEG_EMOT -> BI	0.169	-0.309 : -0.108	-0.589 : -0.148	0.191
POS_EMOT -> BI	-0.131	0.024 : 0.222	0.0650 : 0.458	0.242

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	-0.221	0.246	0
p-value	0.271	0.163	0.486
Sig	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	0.08	-0.159	-0.134	0.306
p-value	0.492	0.3	0.334	0.182
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	-0.356	-0.153	0.757	-0.698	0.399	0.17	-0.116
p-value	0.558	0.772	0.217	0.232	0.381	0.351	0.607
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	**BI1**	**BI2**	BI3
Outer loadings original diff.	**-0.09**	**-0.041**	-0.065
p-value	**0.013**	**0.039**	0.126
Sig.	**Yes**	**Yes**	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999 : 1.000	0.731	Yes
IND_COND	0.966	0.919 : 1.000	0.228	Yes
IND_FUNC	1	1.000 : 1.000	0.203	Yes
INT_COND	0.988	0.921 : 1.000	0.634	Yes
INT_FUNC	0.962	0.913 : 1.000	0.205	Yes
Neg EMOT	0.821	0.537 : 1.000	0.490	Yes
Pos EMOT	0.989	0.917 : 1.000	0.493	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	**0.693**	**-0.234 : 0.244**	**_**	**No**
IND_COND	**0.574**	**-0.238 : 0.240**	_	**No**
IND_FUNC	0.183	-0.245 : 0.235	0.14	Yes
INT_COND	**0.434**	**-0.234 : 0.239**	**_**	**No**
INT_FUNC	**0.599**	**-0.236 : 0.240**	**_**	**No**
Neg_EMOT	-0.113	-0.245 : 0.235	0.347	Yes
Pos_EMOT	0.6	-0.239 : 0.240	_	No

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	**-0.446**	**-0.411 : 0.441**	**0.039**	**No**
IND_COND	-0.207	-0.296 : 0.337	0.2	Yes
IND_FUNC	0.068	-0.228 : 0.268	0.588	Yes
INT_COND	-0.074	-0.345 : 0.403	0.702	Yes
INT_FUNC	0.077	-0.342 : 0.378	0.691	Yes
Neg_EMOT	0.092	-0.270 : 0.308	0.528	Yes
Pos_EMOT	-0.178	-0.364 : 0.426	0.377	Yes

Appendix 8.7: H8e MGA significant path and MICOM results

H8e MGA significant path results

H8e	Group A (store limit *n*=143) vs Group B (contactless limit *n*=298)			
Path	Path Coefficients-diff.	CI store limit (2.5% - 97%)	CI contactless limit (2.5% - 97%)	*p-value*
IND_COND -> BI	0.043	0.149 : 0.399	0.163 : 0.484	0.680
IND_FUNC -> BI	-0.005	-0.086 : 0.123	-0.101 : 0.116	0.943
INT_COND -> BI	0.089	0.046 : 0.311	0.134 : 0.436	0.382
INT_COND -> NEG_EMOT	-0.198	-0.334 : -0.039	-0.571 : -0.174	0.114
INT_COND -> POS_EMOT	0.025	0.229 : 0.463	0.197 : 0.554	0.822
INT_FUNC -> BI	0.136	-0.114 : 0.134	0.010 : 0.289	0.152
INT_FUNC -> INT_COND	0.055	0.366 : 0.574	0.371 : 0.658	0.525
INT_FUNC -> NEG_EMOT	0.054	-0.282 :0.029	-0.281 : 0.143	0.688
INT_FUNC -> POS_EMOT	-0.035	0.121 : 0.363	-0.001 : 0.416	0.784
NEG_EMOT -> BI	0.007	-0.362 : -0.143	-0.381 : -0.108	0.939
POS_EMOT -> BI	**-0.276**	**0.166 : 0.375**	**-0.140 : 0.121**	**0.002**

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	-0.293	0.191	0
p-value	0.096	0.251	0.401
Sig.	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	-0.293	0.191	0	-0.293
p-value	0.096	0.251	0.401	0.096
Sig.	No	No	No	No

Latent construct (interaction)	NEG_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	**EMneg5**	EMpos1	EMpos2
Outer weights original diff.	0.199	-0.213	-0.714	0.012	**0.849**	-0.061	0.095
p-value	0.691	0.605	0.146	0.983	**0.021**	0.698	0.617
Sig.	No	No	No	No	**Yes**	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	-0.034	0.001	0.004
p-value	0.266	0.972	0.922
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999:1.000	0.661	Yes
IND_COND	0.96	0.931:1.000	0.138	Yes
IND_FUNC	1	1.000:1.000	0.143	Yes
INT_COND	0.948	0.947:1.000	0.053	Yes
INT_FUNC	1	0.948:1.000	0.98	Yes
Neg EMOT	0.799	0.691:1.000	0.209	Yes
Pos EMOT	0.996	0.942:1.000	0.64	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	-0.063	-0.201 : 0.199	0.526	Yes
IND_COND	0.068	-0.197 : 0.198	0.5	Yes
IND_FUNC	-0.087	-0.203 : 0.202	0.402	Yes
INT_COND	0.003	-0.200 : 0.198	0.975	Yes
INT_FUNC	-0.001	-0.198 : 0.196	0.991	Yes
Neg EMOT	-0.019	-0.193 : 0.204	0.857	Yes
Pos EMOT	-0.009	-0.205 : 0.203	0.93	Yes

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.01	[-0.373 : 0.350	0.831	Yes
IND_COND	-0.006	[-0.277 : 0.258	0.941	Yes
IND_FUNC	-0.007	[-0.218 : 0.195	0.381	Yes
INT_COND	-0.011	[-0.319 : 0.303	0.521	Yes
INT_FUNC	-0.011	[-0.316 : 0.298	0.173	Yes
Neg EMOT	-0.004	[-0.250 : 0.236	0.402	Yes
Pos EMOT	-0.01	[-0.343 : 0.319	0.325	Yes

Appendix 8.8: H8a MGA significant path and MICOM results

H8a MGA significant path results

H8a	Group A (iOS *n*=237) vs Group B (Android *n*=231)			
Path	Path Coefficients-diff.	CI iOS (2.5% - 97%)	CI Android (2.5% - 97%)	*p-value*
IND_COND -> BI	-0.019	0.125 : 0.410	0.15 : 0.428	0.800
IND_FUNC -> BI	-0.148	-0.166 : 0.030	-0.027 : 0.189	0.053
INT_COND -> BI	0.103	0.149 : 0.408	0.044 : 0.31	0.276
INT_COND -> NEG_EMOT	-0.058	-0.386 : -0.077	-0.377 : 0.008	0.645
INT_COND -> POS_EMOT	0.091	0.243 : 0.525	0.162 : 0.433	0.359
INT_FUNC -> BI	0.016	-0.065 : 0.198	-0.081 : 0.178	0.866
INT_FUNC -> INT_COND	0.086	0.395 : 0.623	0.284 : 0.552	0.330
INT_FUNC -> NEG_EMOT	0.114	-0.218 : 0.100	-0.344 : 0.031	0.360
INT_FUNC -> POS_EMOT	-0.128	0.035 : 0.344	0.177 : 0.441	0.213
NEG_EMOT -> BI	0.086	-0.339 : -0.085	-0.429 : -0.177	0.349
POS_EMOT -> BI	-0.039	0.032 : 0.255	0.042 : 0.323	0.668

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	0.225	-0.193	0.000
p-value	0.164	0.197	0.298
Sig.	No	No	No

Latent construct (interaction)	Conditional	Functional		
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	0.040	-0.022	0.141	-0.152
p-value	0.722	0.854	0.210	0.373
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	0.268	0.293	-0.935	-0.163	0.593	0.088	-0.127
p-value	0.575	0.411	0.055	0.709	0.091	0.560	0.454
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	-0.033	-0.017	-0.042
p-value	0.252	0.257	0.266
Sig.	No	No	No

MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999 : 1.000	0.331	Yes
IND_COND	0.972	0.940 : 1.000	0.192	Yes
IND_FUNC	1	1.000 : 1.000	0.554	Yes
INT_COND	0.997	0.954 : 1.000	0.827	Yes
INT_FUNC	0.989	0.954 : 1.000	0.331	Yes
Neg EMOT	0.821	0.728 : 1.000	0.224	Yes
Pos EMOT	0.993	0.950 : 1.000	0.478	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	**0.267**	**-0.184 : 0.183**	**0.005**	**No**
IND_COND	**0.211**	**-0.186 : 0.197**	**0.029**	**No**
IND_FUNC	0.067	-0.181 :0.480	0.480	Yes
INT_COND	**0.261**	**-0.185 : 0.192**	**0.005**	**No**
INT_FUNC	0.114	-0.182 : 0.188	0.232	Yes
Neg_EMOT	**-0.189**	**-0.186 : 0.186**	**0.046**	**No**
Pos_EMOT	**0.223**	**-0.185 : 0.196**	**0.019**	**No**

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	-0.187	-0.342 : 0.349	0.287	Yes
IND_COND	0.198	-0.248 : 0.253	0.126	Yes
IND_FUNC	-0.149	-0.193 : 0.189	0.127	Yes
INT_COND	0.187	-0.294 : 0.299	0.221	Yes
INT_FUNC	-0.023	-0.281 : 0.285	0.871	Yes
Neg_EMOT	0.034	-0.224 : 0.232	0.779	Yes
Pos_EMOT	0.034	-0.295 : 0.316	0.819	Yes

Appendix 8.9: H8d MGA significant path and MICOM results

H8d MGA significant path results

H8d	Group A (MPP use <1yr *n*=255) vs Group B (MPP use >1yr *n*=186)			
Path	Path Coefficients-diff.	CI use MPP <1yr (2.5% - 97%)	CI use MPP>1yr (2.5% - 97%)	*p-value*
IND_COND -> BI	0.157	0.213 : 0.454	0.018 0.358	0.080
IND_FUNC -> BI	0.153	[0.087 : 0.143	-0.119 : 0.099	0.156
INT_COND -> BI	0.134	0.031 : 0.318	0.164 : 0.441	0.140
INT_COND -> NEG_EMOT	0.102	-0.404 : -0.079	-0.367 : -0.011	0.331
INT_COND -> POS_EMOT	0.042	0.265 : 0.499	0.109 : 0.450	0.611
INT_FUNC -> BI	-0.035	-0.135 : 0.103	0.003 : 0.303	0.786
INT_FUNC -> INT_COND	-0.037	0.321 : 0.559	0.339 : 0.619	0.681
INT_FUNC -> NEG_EMOT	-0.073	-0.282 : 0.051	-0.252 : 0.147	0.576
INT_FUNC -> POS_EMOT	-0.087	0.077 : 0.330	0.117 : 0.464	0.425
NEG_EMOT -> BI	-0.114	-0.298 : -0.076	-0.482 : -0.211	0.260
POS_EMOT -> BI	-0.159	0.112 : 0.340	-0.047 : 0.228	0.098

MICOM results: step 1: Configural invariance

Latent construct (independent)	Conditional		Functional
Indicators	ACind	CF	FE1
Outer weights original diff.	0.164	-0.134	0.000
p-value	0.332	0.379	0.249
Sig.	No	No	No

Latent construct (interaction)	Conditional		Functional	
Indicators	ACint	PA	FUc	FUnc
Outer weights original diff.	-0.082	-0.062	0.116	-0.185
p-value	0.437	0.626	0.288	0.304
Sig.	No	No	No	No

Latent construct (interaction)	Neg_emotions					POS_emotions	
Indicators	EMneg1	EMneg2	EMneg3	EMneg4	EMneg5	EMpos1	EMpos2
Outer weights original diff.	0.586	-0.345	-0.525	0.719	-0.285	-0.186	0.180
p-value	0.180	0.315	0.246	0.095	0.399	0.192	0.296
Sig.	No	No	No	No	No	No	No

Latent construct	BI		
Indicators	BI1	BI2	BI3
Outer loadings original diff.	0.014	-0.013	0.058
p-value	0.653	0.396	0.135
Sig.	No	No	No

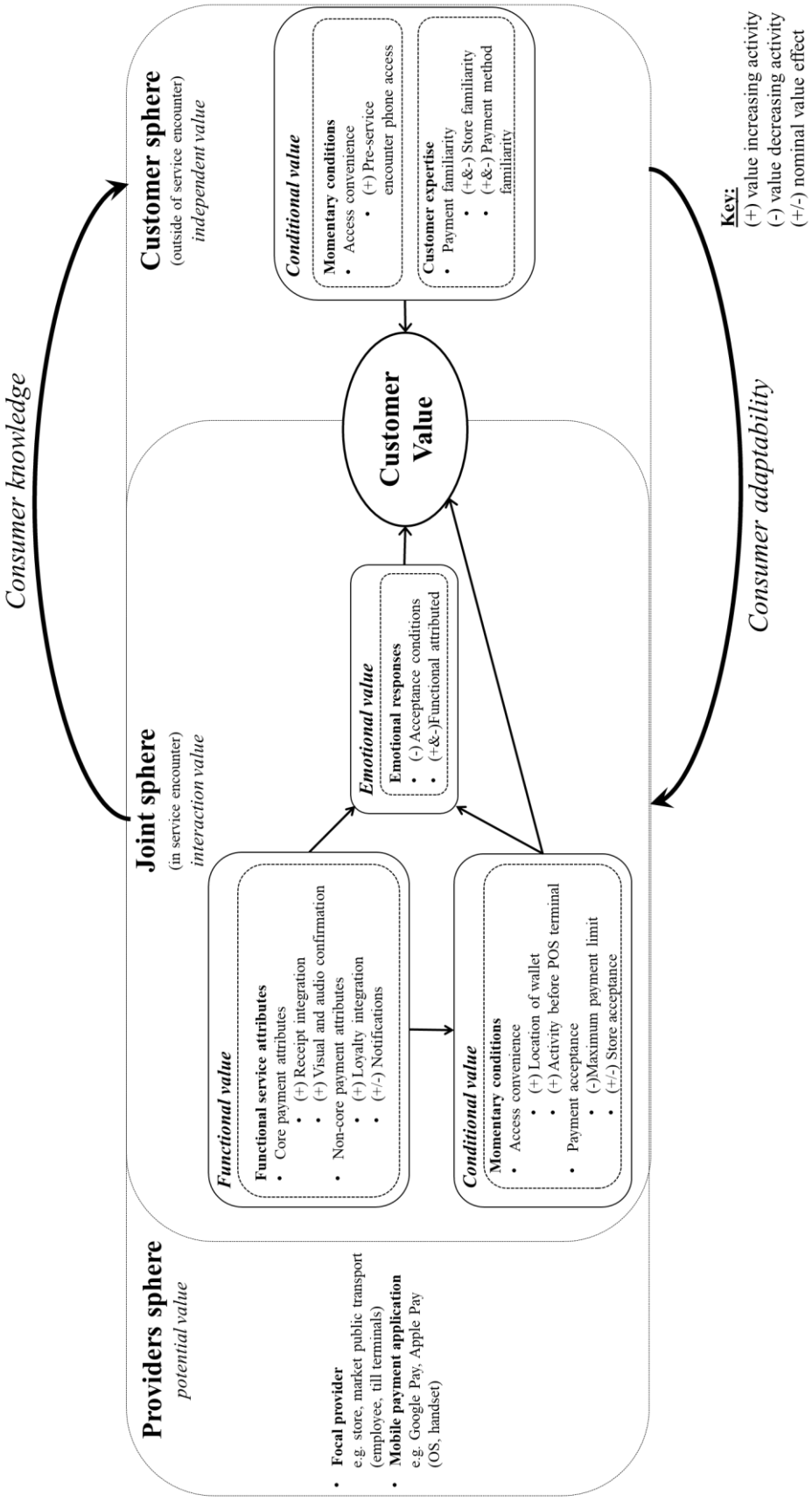
MICOM results: step 2: Compositional variance and step 3: Equal mean and variance

Construct	Original correlation	95% confidence interval	Permutation p-Values	Compositional invariance?
BI	1	0.999 : 1.000	0.795	Yes
IND_COND	0.986	0.934 : 1.000	0.379	Yes
IND_FUNC	1	1.000 : 1.000	0.293	Yes
INT_COND	0.995	0.952 : 1.000	0.745	Yes
INT_FUNC	0.986	0.951 : 1.000	0.291	Yes
Neg EMOT	0.797	0.716 : 1.000	0.174	Yes
Pos EMOT	0.982	0.945 : 1.000	0.253	Yes

Construct	Difference of mean value	95% confidence interval	Permutation p-Values	Equal mean value?
BI	**-0.506**	-0.197 : 0.186	**n/a**	**No**
IND_COND	**-0.475**	-0.191 : 0.187	**n/a**	**No**
IND_FUNC	-0.055	-0.188 : 0.187	0.549	Yes
INT_COND	**-0.328**	-0.192 : 0.187	**n/a**	**No**
INT_FUNC	**-0.423**	-0.189 : 0.191	**n/a**	**No**
Neg_EMOT	**0.324**	-0.185 : 0.188	**0.001**	**No**
Pos_EMOT	**-0.363**	-0.192 : 0.193	**n/a**	**No**

Construct	Difference of variance ratio	95% confidence interval	Permutation p-Values	Equal variances?
BI	0.255	-0.346 : 0.341	0.153	Yes
IND_COND	-0.03	-0.250 : 0.260	0.828	Yes
IND_FUNC	-0.097	-0.195 : 0.205	0.338	Yes
INT_COND	0.232	-0.287 : 0.302	0.132	Yes
INT_FUNC	-0.043	-0.286 : 0.303	0.766	Yes
Neg_EMOT	0.209	-0.225 : 0.229	0.072	Yes
Pos_EMOT	0.19	-0.317 : 0.321	0.239	Yes

Appendix 9.1: MPP customer value creation model overview



LIST OF REFERENCES

Abelson, R.P. (1976) 'Script processing in attitude formation and decision making', In Carroll, J. S. and Payne, J. W. (Eds.), **Cognition and Social Behavior.** Hillsdale, NJ: Lawrence Erlbaum. pp. 33-45

Abelson, R.P. (1981) Psychological status of the script concept. **The American Psychologist,** 36(7): 715-729

Agarwal, S. and Teas, R.K. (2001) Perceived value: Mediating role of perceived risk. **Journal of Marketing Theory and Practice,** 9(4): 1-14

Akaka, M.A. and Vargo, S.L. (2015) Extending the context of service: From encounters to ecosystems. **Journal of Professional Services Marketing,** 29(6/7): 453-462

Alba, J.W. and Hutchinson, J.W. (1987) Dimensions of consumer expertise. **The Journal of Consumer Research,** 13 (4): 411-454

Altman, I. and Taylor, D. (1973) **Social Penetration Theory.** New York: Holt.

Anderson, J.C., Narus, J.A. and van Rossum, W. (2006) Customer value propositions in business markets. **Harvard Business Review,** 84(3): 90–9

Annicelli, C. (2017) **More options boost UK proximity mobile payments.** eMarketer [online]. Available from: https://www.emarketer.com/Article/More-Options-Boost-UK-Proximity-Mobile-Payments/1016366 [Accessed 4th May 2018]

Antioco, M. and Kleijnen, M. (2010) Consumer adoption of technological innovations. **European Journal of Marketing,** 44(11/12): 1700-1724

Ansaripur, S., Sohrabi, R. and Khakbaz, A.S. (2020) Consumers' arrogance; Understanding semantic perceptions using phenomenology. **Journal of Business Management,** 12(2): 436-454

Antonides, G. (1999) Adoption of payment systems in ten countries - A case study of diffusion of innovations. **European Journal of Marketing,** 33 (11/12): 1123-1135

Anwar, S.T. (2003) Vodafone and the wireless industry: A case in market expansion and global strategy. **Journal of Business & Industrial Marketing,** 18 (3): 270-288

Apple (2021) Here to pay, Apple Pay. [online]. Available from: https://www.apple.com/uk/apple-pay/ [Accessed 12th October 2021]

Armitage, C.J. (2001) Efficacy of the Theory of Planned Behaviour: A meta-analytic. **British Journal of Social Psychology,** 40: 471-499

Arnfield, R. (2019) **Barlcays invests in fintechs to transform its mobile app.** Payments Source [online]. Available from: https://www.paymentssource.com/news/barclays-invests-in-fintechs-to-transform-its-mobile-app [Accessed 2nd April 2019]

Arvidsson, N. (2014) Consumer attitudes on mobile payment services – Results from a proof of concept test. **International Journal of Bank Marketing,** 32(2): 150-170

Arvidsson, N. (2016) **Sweden: The World's First Cashless Society? NACS** Convenience Summit. Stockholm. 5-11 June.

Asda (2020) **How to use mobile contactless payments.** [online]. Available at: https://mobile.asda.com/scoop/how-to-use-mobile-payments-apple-pay-samsung-pay [Accessed 1st February 2020]

Assimakopoulos, C., Papaioannou, E. and Sarmaniotis, C. (2018) Service quality of online transactions: The PayPal case. **International Journal of Electronic Marketing and Retailing,** 9(4): 378-397

Au, Y.A. and Kauffman, R.J. (2008) The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. **Electronic Commerce Research and Applications,** 7(2): 141-164

Babin, B.J., Darden, W.R. and Griffin, M. (1994) Work and/or fun: Measuring hedonic and utilitarian shopping value. **Journal of Consumer Research,** 20(4): 644-656

Bagozzi, R.P. and Yi, Y. (1988) On the evaluation of structural equation models. **Journal of the Academy of Marketing Science,** 16(1): 74-94

Bagozzi, R.P., Gopinath, M. and Nyer, P.U. (1999) The role of emotions in marketing. **Journal of the Academy of Marketing Science,** 27(2): 184-206

Bagozzi, R.P. (2011) Measurement and meaning in information systems and organizational research: Methodological and philosophical foundations. **MIS Quarterly,** 261-292

Batiz-Lazo, B., Haigh, T. and Stearns, D.L. (2014) How the future shaped the past: The case of the cashless society. **Enterprise and Society,** 15(1): 103-131

Ballantyne, D. and Varey, R.J. (2006) Creating value-in-use through marketing interaction: The exchange logic of relating, communicating and knowing. **Marketing Theory,** 6(3): 335-348

Bank of England (2020) **Cash in the time of covid.** Bank of England Quarterly Bulletin [online]. Available from: https://www.bankofengland.co.uk/quarterly-bulletin/2020/2020-q4/cash-in-the-time-of-covid [Accessed 12th February 2021]

Baptista, G. and Oliveira, T. (2016) A weight and a meta-analysis on mobile banking acceptance research. **Computers in Human Behavior,** 63: 480-489

Barkhuus, L. and Polichar, V.E. (2011) Empowerment through seamfulness: Smart phones in everyday life. **Personal and Ubiquitous Computing,** 15(6): 629-639

Barnes, S.J. (2002) The mobile commerce value chain: Analysis and future developments. **International journal of Information Management,** 22(2): 91-108

Barnes, J. (2017) **Exploring mobile proximity payment adoption in the United Kingdom from a customer value perspective,** M.A. Thesis. University of Birmingham.

Barnes, J. (2018) **From wallet to mobile: A pilot study exploring mobile proximity payment adoption from a customer value perspective,** 51st Academy of Marketing conference. University of Stirling, 2-4 July.

Barnes, S.J. and Mattsson, J. (2011) Exploring the fit of real brands in the *Second Life* virtual world. **Journal of Marketing Management,** 27(9-10): 934-958

Baron, R.M. and Kenny, D.A. (1986) The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. **Journal of Personality and Social Psychology,** 51(6):1173-1182

Barrutia, J.M. and Gilsanz, A. (2012) Electronic service quality and value: Do consumer knowledge-related resources matter? **Journal of Service Research,** 16(2): 231-246

Basole, R.C. and Karla, J. (2012) Value transformation in the mobile service ecosystem: A study of app store emergence and growth. **Service Science,** 4 (1): 24-41

Bateson, J.G. (1995) **Managing Services Marketing: Text and Readings.** 3rd ed. Texas: Dryden Press.

Bazeley, P. (2018) **Integrating analyses in mixed methods research**. London: Sage Publications.

BBA (2015) **More ways to bank mean that customers are now in touch with their banks more than ever before.** British Banking Association [online]. Available from: https://www.bba.org.uk/news/press-releases/more-ways-to-bank-mean-that-customers-are-now-in-touch-with-their-banks-more-than-ever-before/ [Accessed 14th May 2017]

BEAR (2018) **Birmingham Environment for Academic Research** (BEAR). University of Birmingham [online]. Available from: https://intranet.birmingham.ac.uk/it/teams/infrastructure/research/bear/research-data-service/rds/research-data-store.aspx [Accessed 26th June 2018]

Beatson, A., Lee, N. and Coote, L.V. (2007) Self-service technology and the service encounter. **The Service Industries Journal,** 27(1): 75-89

Beaudry, A. and Pinsonneault, A. (2005) Understanding user responses to Information Technology: A coping model of user adaptation. **The Mississippi Quarterly,** 29(3): 493-524

Becker, J.M., Klein, K. and Wetzels, M. (2012) Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. **Long Range Planning,** 45(5): 359-394

Bedi, G (2020) **How 'As-a-service' models can improve business outcomes.** Forbes [online]. Available from: https://www.forbes.com/sites/forbesbusinessdevelopmentcouncil/2020/05/01/how-as-a-service-models-can-improve-business-outcomes/ [Accessed 6th November 2020]

Belk, R.W. (1975) Situational variables and consumer behavior. **The Journal of Consumer Research,** 2(3): 157-164

Belk, R.W. (1988) Possessions and the extended self. **The Journal of Consumer Research,** 15(2): 139-168

Belk, R.W. (2014) Digital consumption and the extended self. **Journal of Marketing Management,** 30(11-12): 1101-1118

Benbasat, I. and Barki, H. (2007) Quo vadis TAM? **Journal of the Association for Information Systems,** 8(4): 211-218

Bernstein, R. (1983). **Beyond objectivism and relativism.** Philadelphia: University of Pennsylvania Press.

Berry, L.L. (1981) The employee as customer. **Journal of Retail Banking,** 3(1): 33-40

Berry, L.L., Conant, J.S. and Parasuraman, A. (1991) A framework for conducting a services marketing audit. **Journal of the Academy of Marketing Science,** 19(3): 255-268

Berry, L.L., Seiders, K. and Grewal, D. (2002) Understanding service convenience. **Journal of Marketing,** 66(3): 1-17

Bevan, J. and Murphy, R. (2001) The nature of value created by UK online grocery retailers. **Journal of Consumer Studies and Home Economics,** 25(4): 279-289

Bewley, W.L., Roberts, T.L., Schroit, D. and Verplank, W.L. (1983) "Human factors testing in the design of Xerox's 8010 "Star" office workstation." In **Proceedings of the SIGCHI conference on Human Factors in Computing Systems, Massachusetts 12-15 December 1983.** ACM. pp. 72-77.

Biddle, B.J. (1986) Recent developments in role theory. **Annual Review of Sociology,** 12(1): 67-92

Bitner, M.J. (1992) Servicescapes: The impact of physical surroundings on customers and employees. **Journal of Marketing,** 5(2): 57-71

Bitner, M.J. (1995) Building service relationships: It's all about promises. **Journal of the Academy of Marketing Science,** 23(4): 246-251

Bitner, M.J. and Hubbert, A.R. (1994) Encounter satisfaction versus overall satisfaction versus quality. **Service Quality: New directions in theory and practice,** 34(2): 72-94

Bitner, M.J. and Wang, H.S. (2014) "Service encounters in service marketing research." In Rust, R.T. and Huang, M.H. (Eds.), **Handbook of service marketing research.** Cheltenham: Edward Elgar Publishing. pp. 221-243

Bitner, M.J., Booms, B.H. and Tetreault, M.S. (1990) The service encounter: Diagnosing favorable and unfavorable incidents. **Journal of Marketing,** 54(1): 71-84

Bitner, M.J., Booms, B.H. and Mohr, L.A. (1994) Critical service encounters: The employee's viewpoint. **Journal of Marketing,** 58(4): 95-106

Bitner, M.J., Brown, S.W. and Meuter, M.L. (2000) Technology infusion in service encounters. **Journal of the Academy of Marketing Science,** 28(1): 138-149

Bitner, M.J., Ostrom, A.L. and Morgan, F.N. (2008) Service blueprinting: A practical technique for service innovation. **California Management Review,** 50(3): 66-94

Blaikie, N. (2010) **Designing Social Research**. 2nd ed. Cambridge: Polity Press.

Blocker, C.P. (2011) Modelling customer value perceptions in cross-cultural business markets. **Journal of Business Research,** 64(5): 533-540

Blut, M., Wang, C. and Schoefer, K. (2016) Factors influencing the acceptance of self-service technologies: A meta-analysis. **Journal of Service Research,** 19(4): 396-416

Boksberger, P.E. and Melsen, L. (2011) Perceived value: A critical examination of definitions, concepts and measures for the service industry. **Journal of Professional Services Marketing,** 25(3): 229-240

Bolger, N., Davis, A. and Rafaeli, E. (2003) Diary methods: Capturing life as it is lived. **Annual Review of Psychology,** 54: 579-616

Bolton, R.N. and Drew, J.H. (1991) A multistage model of customers' assessments of service quality and value. **The Journal of Consumer Research,** 17(4): 375-384

Bolton, R.N., Gustafsson, A., Tarasi, C.O., et al. (2021) Designing satisfying service encounters: website versus store touchpoints. **Journal of the Academy of Marketing Science,** 1-23

Bonney, F.L. and Williams, B.C. (2009) From products to solutions: he role of salesperson opportunity recognition. **European Journal of Marketing,** 43(7/8): 1032-1052

Borzekowski, R. and Kiser, E.K. (2008) The choice at the checkout: Quantifying demand across payment instruments. **International Journal of Industrial Organization,** 26(4): 889-902

Bouwman, H., Haaker, T. and de Vos, H. (2007) Mobile service bundles: The example of navigation services. **Electronic Markets,** 17(1): 20-28

Bowen, D.E. (2016) The changing role of employees in service theory and practice: An interdisciplinary view. **Human Resource Management Review,** 26 (1): 4-13

Bower, G.H., Black, J.B. and Turner, T.J. (1979) Scripts in memory for text. **Cognitive Psychology,** 11(2): 177-220

Bowman, C. and Ambrosini, V. (2000) Value creation versus value capture: Towards a coherent definition of value in strategy. **British Journal of Management,** 11(1): 1-15

Boyatzis, R.E. (1998) **Transforming Qualitative Information: Thematic Analysis and Code Development.** London: Sage.

Braun, V. and Clarke, V. (2012) "Thematic analysis." In Cooper, H., Camic, P.M., Long, D.L.(Eds.), **Handbook of Research Methods in Psychology**. New York: Routledge. pp. 57-71

BRC (2017) **Payments survey 2016.** British Retail Consortium (report) [online]. Available from: https://brc.org.uk/media/179489/payment-survey-2016_final.pdf [Accessed 12th May 2017]
Brinkmann, S. and Kvale, S. (2015) **Interviews: Learning the Craft of Qualitative Research Interviewing.** 3rd ed. London: Sage.

Broderick, A. (1999) Role theory and the management of service encounters. **The Service Industries Journal,** 19(2): 117-131

Brodie, R.J., Saren, M. and Pels, J. (2011) Theorizing about the service dominant logic: The bridging role of middle range theory. **Marketing Theory,** 11(1): 75-91

Brown, L.G. (1990) Convenience in services marketing. **Journal of Professional Services Marketing,** 4 (1): 53-59

Bryman A. and Bell, E. (2007) **Business Research Methods**. 2nd ed. Cambridge: Oxford University Press.

Bryman, A. and Bell, E. (2015) **Social Research Methods.** 4th ed. Cambridge: Oxford University Press.

Byrne, B.M. (1994) **Structural equation modelling with EQS and EQS/Windows: Basic concepts, applications, and programming.** Thousand Oaks: Sage.

Burnham, T.A., Frels, J.K. and Mahajan, V. (2003) Consumer switching costs: A typology, antecedents, and consequences. **Journal of the Academy of Marketing Science,** 31(2): 109-126

CACI (2019) **2018 Update: The future of digital banking.** (report) [online]. Available from: https://www.caci.co.uk/whitepapers/white-paper/2018-update-future-digital-banking [Accessed 20th May 2019]

Campbell, J. (1992) **The community reconstructs: The meaning of pragmatic social thought.** University of Illinois Press.

Caracelli, V.J. and Greene, J.C. (1997) Crafting mixed-method evaluation designs. **New Directions for Evaluation,** 74: 19-32

Carow, K.A. and Staten, M.E. (1999) Debit, credit, or cash: Survey evidence on gasoline purchases. **Journal of Economics and Business,** 51(5): 409-421

Carson, D., Gilmore, A., Perry, C. and Gronhaug, K. (2001) **Qualitative Marketing Research.** London: Sage.

Carù, A. and Cova, B. (2008) Small versus big stories in framing consumption experiences. **Qualitative Market Research,** 11(2): 166-176

Cenfetelli, R.T. and Bassellier, G. (2009) Interpretation of formative measurement in information systems research. **The Mississippi Quarterly,** 33(4): 689-707

Chae, J.S.U. and Hedman, J. (2015) Business models for NFC based mobile payments**. Journal of Business Models,** 3(1): 29-48

Chakrabarti, R. and Mason, K. (2014) "Designing better markets for people at the bottom of the pyramid: bottom-up market design." In Geiger, S.,Harrison, D., Kjellberg, H. and Mallard, A. (Eds.), **Concerned Markets**. Glos., Edward Elgar Publishing. pp.153-177

Chandler, J.D. and Vargo, S.L. (2011) Contextualization and value-in-context: How context frames exchange. **Marketing Theory,** 11(1): 35-49

Chaouali, W. and Souiden, N. (2019) The role of cognitive age in explaining mobile banking resistance among elderly people. **Journal of Retailing and Consumer Services,** 50: 342-350

Charland, A. and Leroux, B. (2011) Mobile application development: Web vs. native. **Communications of the ACM,** 54(5): 49-53

Cheah, J.-H., Sarstedt, M., Ringle, C.M., et al. (2018) Convergent validity assessment of formatively measured constructs in PLS-SEM. **International Journal of Contemporary Hospitality Management,** 30(11): 3192-3210

Cheah, J.-H., Ting, H., Ramayah, T., Memon, M.A., Cham, T.E. and Ciavolino, E. (2019) A comparison of five reflective-formative estimation approaches: reconsideration and recommendations for tourism research. **Quality & Quantity,** 53(3): 1421-1458

Chin, W.W. and Dibbern, J. (2010) "An introduction to a permutation based procedure for Multi-Group PLS analysis: Results of tests of differences on simulated data and a cross cultural analysis of the sourcing of information system services between Germany and the USA." In Esposito Vinzi, V., Chin, W.W., Henseler, J., et al. (Eds.), **Handbook of Partial Least Squares: Concepts, Methods and Applications.** Berlin, Heidelberg: Springer Berlin Heidelberg. pp. 171–193

Chin, W.W. (1998) Commentary: Issues and opinion on Structural Equation Modeling. **The Mississippi quarterly,** 22(1): vii–xvi

Choi, S. (2018) What promotes smartphone-based mobile commerce? Mobile-specific and self-service characteristics. **Internet Research,** 28(1): 106-122

Clayton, R.B., Leshner, G. and Almond, A. (2015) The extended iSelf: The impact of iPhone separation on cognition, emotion, and physiology**. Journal of Computer-Mediated Communication,** 20(2): 119-135

Cohen, M.A. and Rysman, M. (2013) Payment choice with consumer panel data. **Working Papers: Federal Reserve Bank of Boston,** 13(6): 1-26

Cohen, J. (1988). **Statistical Power Analysis for the Behavioral Sciences.** Hillsdale, NJ: Lawrence Erlbaum.

Collier, J.E. and Kimes, S.E. (2013) Only if it is convenient: Understanding how convenience influences self-service technology evaluation. **Journal of Service Research,** 16(1): 39-51

Collier, J.E. and Barnes, D.C. (2015) Self-service delight: Exploring the hedonic aspects of self-service. **Journal of Business Research,** 68(5): 986-993

Collins, K.M.T., Onwuegbuzie, A.J. and Jiao, Q.G. (2007) A mixed methods investigation of mixed methods sampling designs in social and health science research**. Journal of Mixed Methods Research,** 1(3): 267-294

Connolly, S.P. and Stavins, J. (2015) Payment instrument adoption and use in the United States, 2009-2013, by consumers' demographic characteristics. **Federal Reserve Bank of Boston,** 15(6): 1-16

Cooper, R.G. (1988) Predevelopment activities determine new product success. **Industrial Marketing Management,** 17(3): 237-247

Couper, M.P. and Peterson, G.J. (2017) Why do web surveys take longer on smartphones? **Social Science Computer Review,** 35(3): 357-377

Creswell, J. W., Plano Clark, V. L., Gutmann, M. L. and Hanson, W. E. (2003) "Advanced mixed methods research designs." In Tashakkori, A. and Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social and Behavioural Research.** California: Sage Publications. pp. 209-240

Creswell, J.W. (2009) Editorial: Mapping the field of mixed methods research. **Journal of Mixed Methods Research,** 3(2): 95-108

Creswell, J. W. (2014). **Research design: Qualitative, quantitative and mixed methods approaches.** 4th ed. Thousand Oaks, CA: Sage.

Creswell, J.W. and Plano Clark, V.L. (2018) **Designing and conducting mixed method research.** 3rd ed. Thousand Oaks: Sage.

Cronin, J.J., Jr., Brady, M.K. and Hult, G.T.M. (2000) Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. **Journal of Retailing,** 76(2): 193-218

Cronin, J.J. (2016) Retrospective: A cross-sectional test of the effect and conceptualization of service value revisited. **Journal of Professional Services Marketing,** 30(3): 261-265

Curran, J.M., Meuter, M.L. and Surprenant, C.F. (2003) Intentions to use self-service technologies: A confluence of multiple attitudes. **Journal of Service Research,** 5(3): 209-224

Dabholkar, P.A. and Bagozzi, R.P. (2002) An attitudinal model of technology-based self-service: Moderating effects of consumer traits and situational factors. **Journal of the Academy of Marketing Science,** 30(3): 184-201

Dagger, T.S., Sweeney, J.C. and Johnson, L.W. (2007) A hierarchical model of health service quality: Scale development and investigation of an integrated model. **Journal of Service Research,** 10(2): 123-142

Dahlberg, T., Mallat, N., Ondrus, J. and Zmijewska, A. (2008) Past, present and future of mobile payments research: A literature review. **Electronic Commerce Research and Applications,** 7(2): 165-181

Dahlberg, T., Guo, J. and Ondrus, J. (2015) A critical review of mobile payment research. **Electronic Commerce Research and Applications,** Sept-Oct: 265-284

Dai, H., Wen, K., Singh, R. and Iyer, L.S. (2012) An integrative framework of mobile commerce consumers' privacy concerns and willingness to use: An empirical study. **International Journal of Electronic Business,** 10(1): 79-100

Daikeler, J., Bošnjak, M.and Manfreda, K.L. (2020) Web versus other survey modes: An updated and extended meta-analysis comparing response rates, **Journal of Survey Statistics and Methodology,** *8*(3): 513–539

Danaher, P.J. and Mattsson, J. (1994) Customer satisfaction during the service delivery process. **European Journal of Marketing,** 28 (5): 5-16

Danaher, P.J. and Mattsson, J. (1998) A comparison of service delivery processes of different complexity. **International Journal of Service Industry Management,** 9(1): 48-63

Daugherty, T., Li, H. and Biocca, F. (2008) Consumer learning and the effects of virtual experience relative to indirect and direct product experience. **Psychology and Marketing,** 25(7): 568-586

Davis, F.D. (1986) **Technology Acceptance Model for empirically testing new end-user Information Systems theory and results.** Unpublished Doctoral Dissertation, MIT.

Davis, F. D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. **MIS Quarterly,** 13(3): 319-339

Davis, F.D. (1993) User acceptance of information technology: System characteristics, user perceptions and behavioural impacts. **International Journal of Man-machine Studies,** 38 (3): 475-487

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989) User acceptance of computer technology: A comparison of two theoretical models. **Management science,** 35(8): 982-1003

Davies, B., Baron, S. and Harris, K. (1999) Observable oral participation in the Servuction system: Toward a content and process model. **Journal of Business Research,** 44(1): 47-53

Dawes, J. (2008) Do data characteristics change according to the number of scale points used? An experiment using 5-Point, 7-Point and 10-Point scales. **International Journal of Market Research,** 50(1): 61-104

Dawson, S., Bloch, P.H. and Ridgway, N. (1990) Shopping motives, emotional states, and retail outcomes. **Journal of Retailing,** 66(4): 408-427

de Groot, B. and van Welie, M. (2002) "Leveraging the Context of Use in Mobile Service Design." In **Human Computer Interaction with Mobile Devices.** Lecture Notes in Computer Science 2002. Springer: Berlin Heidelberg. pp. 334-338

de Kerviler, G., Demoulin, N.T.M. and Zidda, P. (2016) Adoption of in-store mobile payment: Are perceived risk and convenience the only drivers? **Journal of Retailing and Consumer Services**, 31:344-344

de Reuver, M. and Ondrus, J. (2017) When technological superiority is not enough: The struggle to impose the SIM card as the NFC Secure Element for mobile payment platforms. **Telecommunications policy,** 41(4): 253-262

de Ruyter, K., Wetzels, M., Lemmink, J., et al. (1997) The dynamics of the service delivery process: A value-based approach. **International Journal of Research in Marketing,** 14(3): 231-243

Deloitte (2015) **Payments disrupted: The emerging challenge for European retail banks.** (report) [online]. Available from: https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/financial-services/deloitte-uk-payments-disrupted-2015.pdf [Accessed 15th August 2016].

Deloitte (2016) **There's no place like home: Consumer usage patterns in the era of peak smartphone: Global mobile consumer survey 2016: UK cut.** (report) [online]. Available from: https://www.deloitte.co.uk/mobileuk/assets/pdf/Deloitte-Mobile-Consumer-2016-There-is-no-place-like-phone.pdf [Accessed 18th May 2017].

Deloitte (2019) **Chasing cashless? The rise of mobile wallets in the Nordics.** (report) [online]. Available from: https://www2.deloitte.com/content/dam/Deloitte/dk/Documents/financial-services/Downloads/Chasing_Cashless-The_rise_of_Mobile_Wallets_in_the_Nordics.pdf [Accessed 18th October 2019].

Deloitte (2020) **The App economy in the European Union: A review of the market app market and its contribution to the European Economy.** (report) [online]. Available from: https://actonline.org/wp-content/uploads/Deloitte-The-App-Economy-in-the-EU-2020.pdf [Accessed 6th July 2020].

Denzin, N. and Lincoln, Y.S (Eds.) (2000) The discipline and practice of qualitative research. In **Handbook of Qualitative Research,** 2nd ed. Sage, Thousand Oaks. pp.1-29

Denzin, N. (1978) **Sociological Methods Sourcebook.** New York: McGraw Hill

Denzin, N. (2012) Triangulation 2.0. **Journal of Mixed Methods Research,** 6(2): 80-88

Desai, M. (1987) A pioneering analysis of the core: Turgot's essay on value. **Louvain Economic Review,** 53(2): 191-198

Deshpande, R. (1983) " Paradigms Lost": On theory and method in research in marketing. **Journal of Marketing,** 47(4): 101-110

DeviceAtlas (2019) **Android v iOS market share 2019.** [online]. Available from: https://deviceatlas.com/blog/android-v-ios-market-share [Accessed 21 February 2020].

Dewey, J. (1925). **Experience and nature.** Whitefish: Kessinger.

Dey, A.K. (2001) Understanding and using context. **Personal and Ubiquitous Computing,** 5(1): 4-7

Diamantopoulos, A., Sarstedt, M., Fuchs, C., Wilcynski, P. and Kaiser, S. (2012) Guidelines for choosing between multi-item and single-item scales for construct measurement: A predictive validity perspective. **Journal of the Academy of Marketing Science,** 40(3): 434-449

Diener, E., Smith, H. and Fujita, F. (1995) The personality structure of affect. **Journal of Personality and Social Psychology, 69(**1): 130-141

Dillman, D.A., Smyth, J.D. and Christian, L.M. (2014) **Internet, phone, mail, and mixed-mode surveys: The tailored design method.** (4th ed.). New Jersey: John Wiley & Sons.

Disney, J. (1999) Customer satisfaction and loyalty: The critical elements of service quality. **Total Quality Management & Business Excellence,** 10(4-5): 491-497

Dodds, W.B. (1991) In Search of Value: How price and store name information influence buyers' product perceptions. **Journal of Services Marketing,** 5(3): 27-36

Dodgson, M., Gann, D., Wladawsky-Berger, I., I.,Sultan, N. and George, G. (2015) Managing Digital Money. **Academy of Management Journal,** 58(2): 325-333

Dubinsky, A.J. and Mattson, B.E. (1979) Consequences of role-conflict and ambiguity experienced by retail salespeople. **Journal of Retailing,** 55(4): 70-86

Dunnewijk, T. and Hultén, S. (2007) A brief history of mobile communication in Europe. **Telematics and Informatics,** 24(3): 164-179

Echeverri, P. and Skålén, P. (2011) Co-creation and co-destruction: A practice-theory based study of interactive value formation. **Marketing Theory,** 11(3): 351-373

Edgington, E.S. (1987) **Randomisation Tests** (2nd edn.). New York, M. Dekker.

Edvardsson, B., Gustafsson, A. and Roos, I. (2005) Service portraits in service research: A critical review. **International Journal of Service Industry Management,** 16(1): 107-121

Edvardsson, B., Tronvoll, B. and Gruber, T. (2011) Expanding understanding of service exchange and value co-creation: A social construction approach. **Journal of the Academy of Marketing,** 39: 327-339

Eggert, A. and Ulaga, W. (2002) Customer perceived value: A substitute for satisfaction in business markets? **Journal of Business & Industrial Marketing,** 17(2/3): 107-118

Eiglier, P. and Langeard, E. (1975) Une approche novelle pour le marketing des services, **Revue Francaise de Gestion,** 2 (Spring), 97-114

Ellen, P.S., Bearden, W.O. and Sharma, S. (1991) Resistance to technological innovations: An examination of the role of self-efficacy and performance satisfaction. **Journal of the Academy of Marketing Science,** 19(4): 297-307

Elliott, R. and Jankel-Elliott, N. (2003) Using ethnography in strategic consumer research. **Qualitative Market Research: An International Journal**, 6(4): 215-223

Ellis, C., Adams, T.E. and Bochner, A.P. (2010) Autoethnography: An overview. **Forum, Qualitative Social Research,** 12(1): Art.10

Enberg, J. (2019) **Global mobile payment users 2019.** eMarketeer [online]. Available from: https://www.emarketer.com/content/global-mobile-payment-users-2019 [Accessed 3rd January 2020]

EPRS (2018) **European app economy: State of play, challenges, and EU policy.** European Parliamentary Research Service [online]. Available from: https://www.europarl.europa.eu/RegData/etudes/BRIE/2018/621894/EPRS_BRI(2018)621894_EN.pdf [Accessed 3rd July 2019]

Erzberger, C., Kelle, U. (2003) "Making inferences in mixed methods: The rules of integration." In Tashakkori, A., Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social & Behavioural Research.** California: Sage Publications. pp. 457–488

ESOMAR (2017) **ESOMAR guideline for online Research.** ESOMAR World Research [online]. Available from: https://www.esomar.org/uploads/public/knowledge-and-standards/codes-and-guidelines/ESOMAR_Guideline-for-online-research.pdf [Accessed 2nd May 2018]

European Commission (2020) **Communication from the commission to the European parliament, the European council, the council, the European central bank and the Eurogroup: Country report Italy 2020.** (report) [online]. Available from: https://ec.europa.eu/info/sites/default/files/2020-european_semester_country-report-italy_en.pdf [Accessed 3rd February 2021]

Evans, J.R. and Mathur, A. (2005) The value of online surveys. **Internet Research,** 15(2): 195–219

Evans, J.R. and Mathur, A. (2018) The value of online surveys: A look back and a look ahead. **Internet Research,** 28(4): 854-887

Farquhar, J.D. and Rowley, J. (2009) Convenience: A services perspective. **Marketing Theory,** 9(4): 425-438

Feng, W., Tu, R., Lu, T., et al. (2019) Understanding forced adoption of self-service technology: the impacts of users' psychological reactance. **Behaviour & Information Technology,** 38(8): 820-832

Ferber, R. (1977) Research by convenience. **The Journal of Consumer Research,** 4(1): 57-58

Fichman, R.G. and Kemerer, C.F. (1993) Adoption of software engineering process innovations: The case of object orientation. **Sloan management review,** Winter(34): 7-22

Field, A (2009) **Discovering statistics using SPSS.** 3rd ed. London: Sage.

Figge, S. (2004) Situation-dependent services-A challenge for mobile network operators. **Journal of Business Research,** 57(12): 1416-1422

Fink (2003) **The Survey Handbook.** 2nd ed. Thousand Oaks, California: Sage.

Fishbein, M. and Ajzen, I. (1975) **Belief, attitude, intention and behavior: An introduction to theory and research.** Reading: Addison-Wesley.

Fisk, R.P., Grove, S.J. and John, J. (2008) **Interactive Services Marketing.** Boston: Houghton Mifflin.

Flint, D.J., Woodruff, R.B. and Gardial, S.F. (2002) Exploring the phenomenon of customers' desired value change in a business-to-business context. **Journal of Marketing,** 66(4): 102-117

Fornell, C. (1987). "A second generation of multivariate analysis: Classification of methods and implications for marketing research." In M. J. Houston (Ed.), **Review of marketing**. Chicago: American Marketing Association. pp. 407-450

Fornell, C. and Larcker, D.F. (1981) Evaluating structural equation models with unobservable variables and measurement error. **Journal of Marketing Research,** 18(1): 39-50

FOS (2019) **Frauds and scams.** Financial Ombundsman Service [online]. Available from: https://www.financial-ombudsman.org.uk/businesses/complaints-deal/fraud-scams [Accessed 6th November 2019].

Freyne, J., Yin, J., Brindal, E., Hendrie, G.A., Berkovsky, S. and Noakes, M. (2017) Push notifications in diet apps: Influencing engagement times and tasks. **International Journal of Human–Computer Interaction,** 33(10): 833-845

Froehle, C.M. and Roth, A.V. (2004) New measurement scales for evaluating perceptions of the technology-mediated customer service experience. **Journal of Operations Management,** 22(1): 1-21

Froehle, C.M. (2006) Service personnel, technology, and their interaction in influencing customer satisfaction. **Decision Sciences,** 37(1): 5-38

Frow, P., McColl-Kennedy, J.R., Hilton, T., Davidson, A., Payne, A. and Brozovic, D. (2014) Value propositions: A service ecosystems perspective. **Marketing Theory,** 14(3): 327-351

Funk, J.L. (2009) The emerging value network in the mobile phone industry: The case of Japan and its implications for the rest of the world. **Telecommunications Policy,** 33(1): 4-18

Gabriel, Y. and Lang, T. (2015) **The Unmanageable Consumer.** 3rd ed. London: Sage.

Gallarza, M.G. and Saura, I.G. (2006) Value dimensions, perceived value, satisfaction, and loyalty: An investigation of university students' travel behaviour. **Tourism Management**, 27(3): 437-452

Gallarza, M.G., Gil-Saura, I. and Holbrook, M.B. (2011) The value of value: Further excursions on the meaning and role of customer value. **Journal of Consumer Behaviour,** 10(4): 179-191

Gallarza, M.G., Arteaga, F. and Del Chiappa, G. (2017) A multidimensional service-value scale based on Holbrook's typology of customer value. **Journal of Service Research,** 28(4): 724-762

Gao, L. and Waechter, K.A. (2017) Examining the role of initial trust in user adoption of mobile payment services: an empirical investigation. **Information Systems Frontiers,** 19(3): 525-548

Garson, D.G. (2016) **Partial least squares regression and structural equation models.** Asheboro: Statistical Publishing Associates.

Gefen, D. (2000) E-commerce: The role of familiarity and trust. **Omega,** 28(6): 725-737

Geisser, S. (1974) A predictive approach to the random effect model. **Biometrika,** 61(1): 101-107

Gentner, D. (1989) "The mechanisms of analogical learning." In Vosniadou, S. and Ortony, A. (Eds.), **Similarity and analogical reasoning.** Cambridge. Cambridge University Press. pp.199-241

Ger, G. and Belk, R.W. (1996) Cross cultural differences in materialism. **Journal Of Economic Psychology,** 17(1): 55-77

Ghezzi, A., Cortimiglia, M.N. and Frank, A.G. (2015) Strategy and business model design in dynamic telecommunications industries: A study on Italian mobile network operators. **Technological Forecasting and Social Change,** 90: 346-354

Ghose, A. and Han, S.P. (2014) Estimating demand for mobile applications in the new economy. **Management Science,** 60(6): 1470-1488

Gibbs, G.R. (2007) The nature of qualitative analysis. **Analyzing Qualitative Data,** 1-9

Giebelhausen, M., Robinson, S.G., Sirianni, N.J., and Brady, M.K. (2014) Touch versus tech: When technology functions as a barrier or a benefit to service encounters. **Journal of Marketing,** 78(4): 113-124

Gillham, B. (2008) **Developing a questionnaire,** 2nd ed. London: A&C Black.

Goffman, E. (1967) **Interaction ritual: Essays on face to face encounters,** Chicago: Aldine.

Goffman, E. and Lofland, L.H. (1989) On fieldwork. **Journal of Contemporary Ethnography**, 18(2): 123-132

Google (2021) Pay in apps, on the web, and in stores. [online]. Available from: https://pay.google.com/intl/en_uk/about/ [Accessed 12th October 2021]

Gonçalves, H.M., Lourenço, T.F. and Silva, G.M. (2015) Green buying behavior and the theory of consumption values: A fuzzy-set approach. **Journal of Business Research,** 69(4): 1484-1491

Goodhue, D.L., Lewis, W. and Thompson, R. (2012) Comparing PLS to regression and LISREL: A response to Marcoulides, Chin, and Saunders. **The Mississippi Quarterly,** 36(3): 703-716

Goodman, J.K. and Paolacci, G. (2017) Crowdsourcing consumer research. **Journal of Consumer Research,** 44(1): 196-210

Gorard, S. (2013) **Research Design: Creating Robust Approaches for the Social Sciences.** London: Sage.

Grady, M.P. (1998) **Qualitative and Action Research: A Practitioner Handbook.** Phi Delta Kappa Educational Foundation: Bloomington.

Gram, M. (2010) Self-reporting vs. observation: Some cautionary examples from parent/child food shopping behaviour. **International Journal of Consumer Studies,** 34(4): 394-399

Grandcolas, U., Rettie, R. and Marusenko, K. (2003) Web survey bias: Sample or mode effect? **Journal of Marketing Management,** 19(5-6): 541-561

Greenacre, L. and Akbar, S. (2019) The impact of payment method on shopping behaviour among low income consumers. **Journal of Retailing and Consumer Services,** 47(2019): 87-93

Greene, J.C. and Caracelli, V.J. (1997) Defining and describing the paradigm issue in mixed-method evaluation. **New Directions for Evaluation,** 74: 5-17

Greene, J.C. and Caracelli, V.J. (2003) "Making paradigmatic sense of mixed methods practice." In Tashakkori, A. and Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social and Behavioural Research.** California: Sage Publications. pp. 91-110

Grönroos, C. (2000) Creating a relationship dialogue: Communication, interaction, and value. **The Marketing Review,** 1(1): 5-14

Grönroos, C. (2008) Service logic revisited: Who creates value? And who co-creates? **European Business Review,** 20(4): 298-314

Grönroos, C. (2011) A service perspective on business relationships: The value creation, interaction, and marketing interface. **Industrial Marketing Management,** 40(2): 240-247

Grönroos, C. (2012) Conceptualising value co-creation: A journey to the 1970s and back to the future. **Journal of Marketing Management,** 28(13-14): 1520-1534

Grönroos, C. (2017) On value and value creation in service: A management perspective. **Journal of Creating Value,** 3(2): 125-141

Grönroos, C. and Gummerus, J. (2014) The service revolution and its marketing implications: Service logic vs service-dominant logic. **Managing Service Quality: An International Journal,** 24(3): 206-229

Grönroos, C. and Ravald, A. (2011) Service as business logic: Implications for value creation and marketing. **Journal of Service Management,** 22(1): 5-22

Grönroos, C. and Voima, P. (2013) Critical service logic: Making sense of value creation and co-creation. **Journal of the Academy of Marketing Science,** 41(2): 133-150

Grove, S.J. and Fisk, R.P. (1983) The dramaturgy of services exchange: An analytical framework for services marketing. **Emerging Perspectives on Services Marketing,** January: 45-49

Grove, S.J. and Fisk, R.P. (1992) The service experience as theatre. **ACR North American Advances.** 19: 455-461

Grove, S.J., Fisk, R.P. and Bitner, M.J. (1992) Dramatizing the service experience: A managerial approach. **Advances in Services Marketing and Management,** 1(1): 91-121

Grove, S.J., Fisk, R.P. and Dorsch, M.J. (1998) Assessing the theatrical components of the service encounter: A cluster analysis examination. **The Service Industries Journal,** 18(3): 116-134

Guba, E.G. and Lincoln, Y.S. (1994) "Competing paradigms in qualitative research." In Denzin, N.K. and Lincoln, Y. (Eds.), **Handbook of Qualitative Research**. Thousand Oaks, CA: Sage. pp.105-117

Gruber, T., Szmigin, I., Reppel, A.E. and Voss, R. (2008) Designing and conducting online interviews to investigate interesting consumer phenomena. **Qualitative Market Research: An International Journal,** 11(3): 256-274

Guest, G., Bunce, A. and Johnson, L. (2006) How many interviews are enough? An experiment with data saturation and variability. **Field Methods,** 18(1): 59-82

Guest, G. (2013) Describing mixed methods research: An alternative to typologies. **Journal of Mixed Methods Research,** 7(2): 141-151

Gummerus, J. (2013) Value creation processes and value outcomes in marketing theory: Strangers or siblings? **Marketing Theory,** 13(1): 19-46

Gummesson, E. (2007) Exit services marketing - Enter service marketing. **Journal of Customer Behaviour,** 6(2): 113-141

Guo, J. and Bouwman, H. (2016) An ecosystem view on third party mobile payment providers: A case study of Alipay wallet. **Info,** 44(2): 159-177

Gupta, S., and Lehmann, D. R. (2005) **Managing Customers as Investments.** Upper Saddle River: Wharton School Publishing.

Gutman, J. (1982) A means-end chain model based on consumer categorization processes. **Journal of Marketing,** 46(2): 60-72

Gwinner, K.P., Bitner, M.J., Brown, S.W. and Kumar, A. (2005) Service customization through employee adaptiveness. **Journal of Service Research,** 8(2): 131-148

Hackley, C. (2015) "Autoethnography in Consumer Research." In **Qualitative Research Methods in Consumer Psychology.** Hackett, P. (Ed.) London: Taylor and Francis Psychology Press. pp. 105-117.

Hair, J.F., Black, W.C. and Babin, B.J. (2010) An introduction to structural equation modelling. **Family Science Review,** 11: 354-373

Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011) PLS-SEM: Indeed a Silver Bullet. **Journal of Marketing Theory and Practice,** 19(2): 139-152

Hair, J.F., Sarstedt, M., Hopkins, L. and Kupplewiesser, V.G. (2014) Partial least squares structural equation modeling (PLS-SEM). **European Business Review,** 26(2): 106-121

Hair, J.F., Hult, G.T.M., Ringle, C. and Sarstedt, M. (2016) **A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM).** London**:** SAGE Publications.

Hair, J.F., Matthews, L.M., Matthews, R.L. and Sarstedt, M. (2017) PLS-SEM or CB-SEM: Updated guidelines on which method to use. **International Journal of Multivariate Data Analysis,** 1(2): 107-123

Hammersley, M. (2006) Ethnography: Problems and prospects. **Ethnography and Education,** 1(1): 3-14

Hammersley, M. and Atkinson (2007) **Ethnography: Principles in Practice.** 3rd ed. Oxford: Routledge.

Hampshire, C. (2017) A mixed methods empirical exploration of UK consumer perceptions of trust, risk and usefulness of mobile payments. **International Journal of Bank Marketing,** 35(3): 354-369

Harden, G. (2002) E-banking comes to town: Exploring how traditional UK high street banks are meeting the challenge of technology and virtual relationships. **Journal of Financial Services Marketing,** 6(4): 323-332

Harrison, R.L. and Reilly, T.M. (2011) Mixed methods designs in marketing research. **Qualitative Market Research: An International Journal,** 14(1): 7-26

Hartman, R.S. (1967) Formal Axiology and the measurement of values. **The Journal of Value Inquiry,** 1(1): 38-46

Hays, R.D., Bode, R., Rothrock, N., et al. (2010) The impact of next and back buttons on time to complete and measurement reliability in computer-based surveys. **Quality of Life Research,** 19(8): 1181-1184

Hedman, J. and Gimpel, G. (2010) The adoption of hyped technologies: A qualitative study. **Information Technology and Management,** 11(4): 161-175

Hedman, J., Tan, F.B., Holst, J. and Kjeldsen, M. (2017) Taxonomy of payments: A repertory grid analysis. **International Journal of Bank Marketing,** 35(1): 75-96

Heidenreich, S. and Spieth, P. (2013) Why innovations fail-The case of passive and active innovation resistance. **International Journal of Innovation**

Heidenreich, S., Kraemer, T. and Handrich, M. (2016) Satisfied and unwilling: Exploring cognitive and situational resistance to innovations. **Journal of Business Research,** 69 (7): 2440–2447.

Heinonen, K. and Pura, M. (2008) Classifying mobile services. **Helsinki Mobility Roundtable,** 1-2

Heinonen, K. and Strandvik, T. (2015) Customer-dominant logic: foundations and implications. **Journal of Professional Services Marketing,** 29(6/7): 472-484

Heinonen, K., Campbell, C. and Lord Ferguson, S. (2019) Strategies for creating value through individual and collective customer experiences. **Business Horizons,** 62(1): 95-104

Heinonen, K., Strandvik, T., Mickelsson, K.J., Edvardsson, B., Sunstrom, E. and Andersson, P. (2010) A customer-dominant logic of service. **Journal of Service Management,** 21(4): 531-548

Helkkula, A., Kelleher, C. and Pihlström, M. (2012) Practices and experiences: Challenges and opportunities for value research. **Journal of Service Management,** 23(4): 554-570

Henseler, J. (2017) Bridging design and behavioral research with variance-based structural equation modeling. **Journal of Advertising,** 46(1): 178-192

Henseler, J., Ringle, C.M. and Sarstedt, M. (2012) "Using partial least squares path modeling in advertising research: Basic concepts and recent issues." In Okazsaki, S. (Ed.), **Handbook of Research on International Advertising.** Edward Elgar Publishing, Cheltenham, pp.252-276

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015) A new criterion for assessing discriminant validity in variance-based structural equation modelling. **Journal of the Academy of Marketing Science,** 43(1): 115-135

Herzog, A.R. and Bachman, J.G. (1981) Effects of Questionnaire Length on Response Quality. **Public Opinion Quarterly,** 45(4): 549-559

Hilton, T., Hughes, T., Little, E. and Marandi, E. (2013) Adopting self-service technology to do more with less. **Journal of Professional Services Marketing, 27**(1): 3-12

Hirschman, A.O. (1970) **Exit, voice, and loyalty: Responses to decline in firms, organizations, and states**. London: Harvard university press.

Hirschman, E.C. (1982) Consumer payment systems: The relationship of attribute structure to preference and usage. **The Journal of Business,** 55(4): 531-545

Hirschman, E.C. (1986) Humanistic inquiry in marketing research: Philosophy, method, and criteria. **Journal of Marketing Research,** 23(3): 237-249

Ho, S.-H. and Ko, Y.-Y. (2008) Effects of self-service technology on customer value and customer readiness. **Internet Research,** 18(4): 427-446

Hoffman, K. and Bateson, J. (2011) **Services marketing,** South-Western: Cengage.

Holbrook, M.B. (1987) What is consumer research? **The Journal of Consumer Research,** 14(1): 128-132

Holbrook, M.B. (1994) "The Nature of Customer Value: An Axiology of Services in the Consumption Experience." In Rust, R.T. and Oliver, R.L. (Eds.), **Service Quality: New Directions in Theory and Practice.** California. SAGE Publications, pp. 21–71.

Holbrook, M. B. (ed.). (1999). **Consumer value: A framework for analysis and research.** London: Routledge.

Holbrook, M.B. (2005) Customer value and autoethnography: Subjective personal introspection and the meanings of a photograph collection. **Journal of Business Research,** 58(1): 45-61

Holbrook, M.B. (2006) Consumption experience, customer value, and subjective personal introspection: An illustrative photographic essay. **Journal of Business Research,** 59(6): 714-725

Holbrook, M.B. and Hirschman, E.C. (1982) The experiential aspects of consumption: Consumer fantasies, feelings, and fun. **The Journal of Consumer Research**, 9(2): 132-140

Holmqvist, J., Visconti, L.M., Grönroos, C., Guais, B. and Kessous, A. (2020) Understanding the value process: Value creation in a luxury service context. **Journal of Business Research,** 120: 114-126

Holzer, A. and Ondrus, J. (2011) Mobile application market: A developer's perspective. **Telematics and Informatics,** 28(1): 22-31

Hopkins, C.C. (1968) **Scientific Advertising.** New Line Publishing.

Horn, J.L. and McArdle, J.J. (1992) A practical and theoretical guide to measurement invariance in aging research. **Experimental Aging Research,** 18(3-4): 117-144

Horsky, D., Nelson, P. and Posavac, S.S. (2004) Stating preference for the ethereal but choosing the concrete: How the tangibility of attributes affects attribute weighting in value elicitation and choice. **Journal of Consumer Psychology,** 14(1): 132-140

House of Lords (2017) **Report of Session 2016–17 HL Paper 132 Tackling financial exclusion: A country that works for everyone?** House of Lords Select Committee on Financial Exclusion [online]. Available from: https://publications.parliament.uk/pa/ld201617/ldselect/ldfinexcl/132/132.pdf [Accessed 22nd January 2018]

Howard, J.A. and Sheth, J.N. (1969) **The Theory of Buyer Behavior.** New York: John Wiley & Sons, Inc.

Howe, N. and Strauss, W. (2007) The next 20 years. **Harvard Business Review,** 85(7-8): 41-52

Howe, K.R. (1988) Against the quantitative-qualitative incompatibility thesis or dogmas die hard. **Educational Researcher,** 17(8): 10-16

Hu, L.T. and Bentler, P.M. (1999) Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. **Structural Equation Modeling: A Multidisciplinary Journal,** 6(1): 1-55

Hudson, L.A. and Ozanne, J.L. (1988) Alternative ways of seeking knowledge in consumer research. **The Journal of Consumer Research,** 14(4): 508-521

Hult, G.T.M., Ketchen, D.J., Griffith, D.A., Finnegan, C.A., Gonzalez-Padron, T., Harmancioglu, N., Huang, Y., Talay, M.B. and Cavusgil, S.T. (2008) Data equivalence in cross-cultural international business research: assessment and guidelines. **Journal of International Business Studies,** 39(6): 1027-1044

Humphrey, D.B., Pulley, L.B. and Vesala, J.M. (1996) Cash, paper, and electronic payments: A cross-country analysis. **Journal of Money, Credit, and Banking,** 28: (4), 914-939

Humphrey, D., Willesson, M., Lindblom, T. and Bergendahl, G. (2003) What does it cost to make a payment? **Review of Network Economics,** 2(2): 159-174

Humphrey, D.B. (2004) Replacement of cash by cards in US consumer payments**. Journal of Economics and Business,** 56(3): 211-225

Humphrey, D.B. (2010) Retail payments: New contributions, empirical results, and unanswered questions. **Journal of Banking & Finance,** 34(8): 1729-1737

Husserl, E. (1999) **The Essential Husserl: Basic Writings in Transcendental Phenomenology.** (Ed.) Welton, D. Evanston: Indiana University Press.

Hyrynsalmi, S., Suominen, A., and Mäntymäki, M. (2016) The influence of developer multi-homing on competition between software ecosystems. **The Journal of Systems and Software,** 111: 119-127

IMRG (2019) **Smartphone now dominant device for buying online.** UK Online Retail Association [online]. Available from: https://www.imrg.org/media-and-comment/press-releases/smartphone-now-dominant-device-for-buying-online/ [Accessed 5th April 2019]

Izard, C.E. (2007) Basic emotions, natural kinds, emotion schemas, and a new paradigm. **Perspectives on Psychological Science,** 2(3): 260-280

Jahanmir, S.F. and Cavadas, J. (2018) Factors affecting late adoption of digital innovations**. Journal of Business Research,** 88: 337-343

Jarvis, C.B., MacKenzie, S.B. and Podsakoff, P.M. (2003) A critical review of construct indicators and measurement model misspecification in marketing and consumer research. **The Journal of Consumer Research,** 30(2): 199-218

Jia, L., Hall, D. and Sun, S. (2014) The effect of technology usage habits on consumers' intention to continue use mobile payments. Georgia, 7-9 August, 2014, **Twentieth Americas Conference on Informationn Systems (AMCIS)**

Jick, T.D. (1979) Mixing qualitative and quantitative methods: Triangulation in action. **Administrative Science Quarterly,** 24(4): 602-611

Johnston, R. (1995) The zone of tolerance. **International Journal of Service Industry Management,** 6(2): 46-61

Johnson, R.B. and Onwuegbuzie, A.J. (2004) Mixed methods research: A research paradigm whose time has come. **Educational Researcher,** 33(7): 14-26

Kaiser, K. (2009) Protecting respondent confidentiality in qualitative research. **Qualitative Health Research,** 19(11): 1632-1641

Kang, J.-Y.M., Mun, J.M. and Johnson, K.K.P. (2015) In-store mobile usage: Downloading and usage intention toward mobile location-based retail apps. **Computers in Human Behavior,** 46: 210-217

Kaplan, A. W. (1999) From passive to active about solar electricity: Innovation decision process and photovoltaic interest generation. **Technovation**, 19: 467-481

Kaushik, V. and Walsh, C.A. (2019) Pragmatism as a research paradigm and its implications for social work research. **Social Sciences,** 8(9): 255.

Kearney, A.T. (2018) **Why US banks should make contactless cards an immediate priority.** [online]. Available from: https://info.kearney.com/24/2185/uploads/why-us-banks-should-make-contactless-cards-an-immediate-priority.pdf [Accessed 22nd January 2021]

Keegan, B.J. and Rowley, J. (2017) Evaluation and decision making in social media marketing. **Management Decision,** 55(1): 15-31

Kees, J., Berry, C., Burton, S. and Sheehan, K. (2017) An analysis of data quality: Professional panels, student subject pools, and Amazon's Mechanical Turk. **Journal of Advertising,** 46(1): 141-155

Helkkula, A. and Kelleher, C. (2010) Circularity of customer service experience and customer perceived value. **Journal of Customer Behaviour,** 9(1): 37-53

Keyser, A.D., Köcher, S., Verbeeck, C. and Kandampully, J. (2019) Frontline service technology infusion: Conceptual archetypes and future research directions. **Journal of Service Management,** 30(1): 156-183

Khalifa, A.S. (2004) Customer value: A review of recent literature and an integrative configuration. **Management Decision,** 42(5): 645-666

Kim, C., Tao, W., Shin, N. and Kim, K.S. (2011) An empirical study of customers' perceptions of security and trust in e-payment systems. **Electronic Commerce Research,** 9(1): 351-368

Kim, Y., Dykema, J., Stevenson, J., Black, P. and Moberg, D.P. (2019) Straightlining: Overview of measurement, comparison of indicators, and effects in mail–web mixed-mode surveys. **Social Science Computer Review,** 37**(**2): 214-233

Kivetz, R. and Simonson, I. (2002) Earning the right to indulge: Effort as a determinant of customer preferences toward frequency program rewards. **Journal of Marketing Research,** 39(2): 155-170

Klee, E. (2008) How people pay: Evidence from grocery store data. **Journal of Monetary Economics,** 55(3): 526-541

Kleijnen, M., de Ruyter, K. and Wetzels, M. (2007) An assessment of value creation in mobile service delivery and the moderating role of time consciousness. **Journal of Retailing,** 83(1): 33-46

Kleinrock, L. (1996) Nomadicity: Anytime, anywhere in a disconnected world. **Mobile Networks and Applications,** 1(4): 351-357

Kline, R.B. (2016) **Principles and Practice of Structural Equation Modelling.** 4th ed. New York: Guilford.

Knoblauch, H. (2005) Focused ethnography. **Forum Qualitative Social Research,** 6(3) art.44

Knutson, B., Rick, S., Wimmer, G.E., Prelec, D. and Loewenstein, G. (2007) Neural predictors of purchases. **Neuron,** 53(1): 147-156

Kock, N. and Hadaya, P. (2018) Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods: Sample size in PLS-based SEM. **Information Systems Journal,** 28(1): 227-261

Koenig-Lewis, N., Marquet, M., Palmer, A. and Moll, A. (2015) Enjoyment and social influence: Predicting mobile payment adoption. **The Service Industries Journal,** 35(10): 537-554

Komulainen, H. and Saraniemi, S. (2019) Customer centricity in mobile banking: a customer experience perspective. **International Journal of Bank Marketing,** 37(5): 1082-1102

Konok, V., Gigler, D., Bereczky, B.M., and Miklósi, A. (2016) Humans' attachment to their mobile phones and its relationship with interpersonal attachment style. **Computers in Human Behavior,** 61: 537-547

Koulayev, S., Rysman, M., Schuh, S., and Stavins, J. (2016) Explaining adoption and use of payment instruments by US consumers. **The Rand Journal of Economics,** 47(2): 293-325

Kristensson, P. and Magnusson, P.R. (2010) Tuning users' innovativeness during ideation. **Creativity and Innovation Management,** 19(2): 147-159

Kryvinska, N., Olexova, R., Dohmen, P., Strauss, C. (2013) The SD logic phenomenon-conceptualization and systematization by reviewing the literature of a decade (2004--2013). **Journal of Service Science Research,** 5(1): 35-94

Kuhn, T (1962) **The Structure of Scientific Revolutions.** University of Chicago Press: Chicago.

Kuisma, T., Laukkanen, T. and Hiltunen, M. (2007) Mapping the reasons for resistance to Internet banking: A means-end approach. **International Journal of Information Management,** 27(2): 75-85

Kumar, V. and Reinartz, W. (2016) Creating enduring customer value. **Journal of Marketing,** 80(6): 36-68

Kvale, S. (1996) **Interviews: An Introduction to Qualitative Research Interviewing.** London: Sage.

Labrou, Y., Agre, J., Molina, J., Chen, W.I. (2004). "Wireless wallet." In **Proceedings of the First Annual International Conference on Mobile and Ubiquitous Systems: Networking and Services. Boston August 2004.** pp.32-41

Lähteenmäki, I. and Nätti, S. (2013) Obstacles to upgrading customer value-in-use in retail banking. **International Journal of Bank Marketing,** 31(5): 334-347

Langeard, E., Bateson, J., Lovelock, C., and Eiglier, P. (1981) **Marketing of services: New insights from consumers and managers. Marketing.** Science Institute, Cambridge, MA, pp. 81-104

Lanning, M. (1998) **Delivering profitable value: A revolutionary framework to accelerate growth, generate wealth and rediscover the heart of business,** Perseus Publishing: New York.

Larivière, B., Bowen, D., Andreassen, T.W., Kunz, W, Sirianni, N.J., Voss, C. and Wunderlich, N.V. (2017) "Service Encounter 2.0": An investigation into the roles of technology, employees, and customers. **Journal of Business Research,** 79: 238-246

Laukkanen, T., Sinkkonen, S., Kivijärvi, M., and Laukkanen, P. (2007) Innovation resistance among mature consumers. **Journal of Consumer Marketing,** 24(7): 419-427

Laukkanen, T. (2007) Internet vs mobile banking: Comparing customer value perceptions. **Business Process Management Journal,** 13(6): 788-797

Laukkanen, T. (2016) Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. **Journal of business research**, 69 (7): 2432–2439

Leclerc, F., Schmitt, B.H. and Dubé, L. (1995) Waiting time and decision making: Is time like money? **The Journal of Consumer Research,** 22(1): 110-119

Leech, N.L. and Onwuegbuzie, A.J. (2009) A typology of mixed methods research designs. **Quality & Quantity,** 43(2): 265-275

Lee, R. L. (2000) **Unobtrusive Methods in Social Research,** Milton Keynes: Open University Press.

Leigh, T.W. and Rethans, A.J. (1984) A script-theoretic analysis of industrial purchasing behavior. **Journal of Marketing,** 48(4): 22-32

Lemon, K.N. and Verhoef, P.C. (2016) Understanding customer experience throughout the customer journey. **Journal of Marketing,** 80(6): 69-96

Leroi-Werelds, S., Streukens, S., Brady, M.K. and Swinnen, G. (2014) Assessing the value of commonly used methods for measuring customer value: A multi-setting empirical study. **Journal of the Academy of Marketing Science,** 42(4): 430-451

Leroi-Werelds, S. (2019) An update on customer value: State of the art, revised typology, and research agenda. **Journal of Service Management,** 30(5): 650-680

Leroy, J., Cova, B., and Salle, R. (2013) Zooming in vs zooming out on value co-creation: Consequences for BtoB research. **Industrial Marketing Management,** 42(7), 1102–-1111

Levitt, T. (1980) Marketing success through differentiation-of anything. **Harvard Business Review,** 58 (January/February), 83-91

Li, J.-G.T., Kim, J.-O. and Lee, S.Y. (2009) An empirical examination of perceived retail crowding, emotions, and retail outcomes. **The Service Industries Journal,** 29(5): 635-652

Licklider, J.C.R. and Taylor, R.W. (1968) The computer as a communication device. **Science and Technology,** 76(2): 1-3

Liébana-Cabanillas, F.J., Sánchez-Fernández, J. and Muñoz-Leiva, F. (2014) Role of gender on acceptance of mobile payment. **Industrial Management & Data Systems,** 114(2): 220-240

Liljander, V. and Strandvik, T. (1997) Emotions in service satisfaction. **International Journal of Service Industry Management,** 8(2): 148-169

Lin, C., Sher, P.J. and Shih, H. (2005) Past progress and future directions in conceptualizing customer perceived value. **International Journal of Service Industry Management,** 16(4): 318-336

Lincoln, Y.S. and Guba, E.G. (1985) **Naturalistic Inquiry,** Newbury Park: Sage.

Lloyds Bank (2020) **Apple Pay: A new way to pay with your Lloyds Bank debit or credit card.** [online] Available at: https://www.lloydsbank.com/current-accounts/help-and-guidance/apple-pay.html [Accessed 12th March 2020]

Lowry, P.B. and Gaskin, J. (2014) Partial Least Squares (PLS) Structural Equation Modeling (SEM) for building and testing behavioral causal heory: When to choose it and how to use it. **IEEE Transactions on Professional Communication,** 57(2): 123-146

Lusch, R.F. and Vargo, S.L. (2006) Service-dominant logic: Reactions, reflections and refinements. **Marketing Theory,** 6(3): 281-288

Lusch, R.F. and Vargo, S.L. (2014) **The Service-Dominant Logic of Marketing: Dialog, Debate, and Directions.** London: Routledge.

Lusch, R.F., Vargo, S.L. and O'Brien, M. (2007) Competing through service: Insights from service-dominant logic. **Journal of Retailing,** 83(1): 5-18

Lutz, R.J. and Kakkar, P. (1976) Situational influence in interpersonal persuasion. **ACR North American Advances,** 03: 370-378

MacKenzie, S.B., Podsakoff, P.M. and Jarvis, C.B. (2005) The problem of measurement model misspecification in behavioral and organizational research and some recommended solutions. **The Journal of Applied Psychology,** 90(4): 710-730

MacKinnon, D.P., Lockwood, C.M., Hoffman, J.M., West, S.G. and Sheets, V. (2002) A comparison of methods to test mediation and other intervening variable effects. **Psychological Methods,** 7(1): 83-104

MacLean, L.M., Meyer, M. and Estable, A. (2004) Improving accuracy of transcripts in qualitative research. **Qualitative health research,** 14(1): 113-123

Madhavaram, S. and Hunt, S.D. (2008) The service-dominant logic and a hierarchy of operant resources: developing masterful operant resources and implications for marketing strategy. **Journal of the Academy of Marketing Science, 36**(1): 67-82

Madureira, A. (2017) Factors that hinder the success of SIM-based mobile NFC service deployments. **Telematics and Informatics,** 34(1): 133-150

Maglio, P.P., Vargo, S.L., Caswell, N., and Spohrer, J. (2009) The service system is the basic abstraction of service science. **Information Systems and e-Business Management,** 7(4): 395-406

Magsamen-Conrad, K. and Dillon, J.M. (2020) Mobile technology adoption across the lifespan: A mixed methods investigation to clarify adoption stages, and the influence of diffusion attributes. **Computers in Human Behavior,** 112

Mainwaring, S.D., Anderson, K. and Chang, M.F. (2005a) "What's in your wallet? Implications for global e-wallet design." In **CHI '05 Extended Abstracts on Human Factors in Computing Systems.** New York, 2 April 2005. ACM. pp.1613-1616

Mainwaring, S.D., Anderson, K. and Chang, M.F. (2005b) "Living for the Global City: Mobile Kits, Urban Interfaces, and Ubicomp." In **UbiComp 2005: Ubiquitous Computing. Lecture Notes in Computer Science.** Berlin, 11 September 2005. Springer. pp.269-286.

Majeed, M.H. (2018) Pragmatist inquiry into consumer behaviour research. **Philosophy of Management.** 18(2): 189-201

Malhotra, N.K., Birks, D. and Wills, P. (2012) **Marketing Research: An Applied Approach.** 4th ed. Harlow: Pearson.

Mallat, N. (2007) Exploring consumer adoption of mobile payments - A qualitative study. **The Journal of Strategic Information Systems,** 16: 413-432

Marinova, D., de Ruyter, K., Huang, M.-H., Meuter M.L. and Challagalla, G. (2017) Getting smart: Learning from technology-empowered frontline interactions. **Journal of Service Research,** 20(1): 29-42

Mary, J.H. (2012) The pragmatics of branding: an application of Dewey's theory of aesthetic expression. **European Journal of Marketing,** 46(7/8): 885-899

Mascitelli, R. (2000) From experience: Harnessing tacit knowledge to achieve breakthrough innovation. **The Journal of Product Innovation Management,** 17(3): 179-193

Mathwick, C., Malhotra, N. and Rigdon, E. (2001) Experiential value: Conceptualization, measurement, and application in the catalog and Internet shopping environment. **Journal of Retailing, 77**(1): 39-56

Matthews, L. and Hair, J. (2018) PLS-SEM: The Holy Grail for Advanced Analysis. **Marketing Management,** 28(1): 1-13

Mattila, A.S. and Enz, C.A. (2002) The role of emotions in service encounters. **Journal of Service Research,** 4(4): 268-277

Mattsson, J. (1991) **Better business by the ABC of Values.** Chartwell Publishing: New York.

Mavadiya, M. (2017) **Yoyo Wallet: The fastest growing mobile wallet in Europe.** Forbes Europe [online]. Available from: https://www.forbes.com/sites/madhvimavadiya/2017/09/21/yoyo-wallet-mobile-wallet/#4a2671c85937 [Accessed 12th April 2018]

Maxcy, S.J. (2003) "Pragmatic threads in mixed methods research in the social sciences: The search for multiple modes of inquiry and the end of the philosophy of formalism." In Tashakkori, A. and Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social and Behavioural Research.** California: Sage Publications. pp. 91-110

McCallum, R. J. and Harrison, W. (1985) "Interdependence in the Service Encounter." **In The Service Encounter: Managing Employee/Customer Interaction in Services Businesses.** (Eds.) Czepiel, J.A., Solomon, M.R. and Surprenant, C.E. Lexington, MA: Lexington Books, pp: 35-48.

McMaster, T. and Wastell, D. (2005) Diffusion – or delusion? Challenging an IS research tradition. **Information Technology & People,** 18(4): 383-404

Medberg, G. and Heinoen, K. (2014) Invisible value formation: A netnography in retail banking. **International Journal of Bank Marketing,** 32(6): 590-607

Mele, C., Colurcio, M. and Russo-Spena, T. (2014) Research traditions of innovation: Goods-dominant logic, the resource-based approach, and service-dominant logic. **Managing Service Quality: An International Journal,** 24(6): 612-642

Meuter, M.L., Ostrom, A.L., Roundtree, R.I. and Bitner, M.J. (2000) Self-service technologies: Understanding customer satisfaction with technology-based service encounters. **Journal of Marketing,** 6(3): 50-64

Meuter, M.L., Ostrom, A.L., Bitner, M.J. and Roundtree, R. (2003) The influence of technology anxiety on consumer use and experiences with self-service technologies. **Journal of Business Research,** 56(11): 899-906

Meuter, Matthew L., Mary Jo Bitner, Amy L. Ostrom, and Stephen W. Brown (2005) Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies. **Journal of Marketing, 69**(2), 61-83

Mick, D.G. and Fournier, S. (1998) Paradoxes of technology: Consumer cognizance, emotions, and coping strategies. **The Journal of Consumer Research,** 25(2): 123-143

Mickelsson, K.-J. (2013) Customer activity in service. **Journal of Service Management,** 24(5): 534-552

Miles, M.B., Huberman, A.M. and Saldana, J. (2014) **Qualitative Data Analysis: A Methods Sourcebook.** 3rd ed. London: Sage.

Millen, D.R. (2000) "Rapid Ethnography: Time Deepening Strategies for HCI Field Research" In **3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques.** New York, August 17-19. NY, USA: ACM. pp.280-286

Miller, E., Ziaian, T., Baak, M., et al. (2020) Recognition of refugee students' cultural wealth and social capital in resettlement. **International Journal of Inclusive Education,** 1-18

Mintel, (2019) **Mobile Phones - UK - April 2019 - Market Research Report.** Mintel Group Ltd. [online]. Available from: https://reports.mintel.com/sinatra/oxygen/attachment/id=931976&seq=1 [Accessed 4th July 2019]

Mogilner, C. and Aaker, J. (2009) "The time vs. money effect": Shifting product attitudes and decisions through personal connection. **The Journal of Consumer Research,** 36(2): 277-291

Monahan, T. and Fisher, J.A. (2010) Benefits of 'observer effects': Lessons from the field. **Qualitative research,** 10(3): 357-376

Monroe, K.B. (1990) **Pricing Making Profitable Decisions.** 2nd ed. New York: McGraw-Hill.

Montaguti, E., Kuester, S. and Robertson, T.S. (2002) Entry strategy for radical product innovations: A conceptual model and propositional inventory. **International Journal of Research in Marketing,** 19(1): 21-42

Moreau, C.P., Lehmann, D.R. and Markman, A.B. (2001) Entrenched knowledge structures and consumer response to new products. **Journal of Marketing Research,** 38(1): 14-29

Morgan, G. (1980), Paradigms, metaphors, and puzzle solving in organizational theory. **Administrative Science Quarterly,** 25: 3: 605-622

Morgan, D.L. (2007) Paradigms lost and pragmatism regained methodological implications of combining qualitative and quantitative methods. **Journal of Mixed Methods Research,** 1(1): 48-76

Morgan, D.L. (2014) Pragmatism as a Paradigm for Social Research. **Qualitative Inquiry,** 20(8): 1045-1053

Morgan (2019) **E-commerce payments trends: European overview.** J.P. Morgan (report) [online]. Available from: https://www.jpmorgan.com/merchant-services/insights/reports/european-overview [Accessed 16th March 2020]

Morosan, C. and DeFranco, A. (2016) It's about time: Revisiting UTAUT2 to examine consumers' intentions to use NFC mobile payments in hotels. **International Journal of Hospitality Management,** 53: 17-29

Morse, J.M. (2003) “Procedures and practice of mixed methods design and multimethod design.” In Tashakkori, A. and Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social and Behavioural Research.** California: Sage Publications. pp. 189-208

Morse, J.M. (2010a) “Procedures and practice of mixed methods design: Maintaining control, rigour, and complexity.” In Tashakkori, A. and Teddlie, C. (Eds.), **Handbook of Mixed Methods in Social and Behavioural Research.** 2nd ed. California: Sage Publications. pp. 339-352

Morse, J.M. (2010b) Simultaneous and sequential qualitative mixed method designs. **Qualitative Inquiry,** 16(6): 483-491

Mueller, R.W. (1969) The axiology of Robert S. Hartman: A critical study. **The Journal of Value Inquiry,** 3(1): 19-29

Muncey, T. (2005) Doing autoethnography. **International Journal of Qualitative Methods,** 4(1): 69-86

Nabih, M.I., Bloem, J.G. and Poiesz, T.B. (1997) Conceptual issues in the study of innovation adoption behavior. **ACR North American Advances,** 24: 190-196

Newman, C.L., Wachter, K. and White, A. (2018) Bricks or clicks? Understanding consumer usage of retail mobile apps. **Journal of Professional Services Marketing,** 32(2): 211-222

Ng, I., Parry, G., Smith, L., Maull, R. and Briscoe, G. (2012) Transitioning from a goods-dominant to a service-dominant logic: Visualising the value proposition of Rolls-Royce. **Journal of Service Management,** 23(3): 416-439

Ng, I. and Vargo, S.L. (2018) Service-dominant (S-D) logic, service ecosystems and institutions: Bridging theory and practice. **Journal of Service Management,** 29(4): 518–520

Nguyen, H., Groth, M., Walsh, G. and Hennig-Thurau, T. (2014) The impact of service scripts on customer citizenship behavior and the moderating role of employee customer orientation. **Psychology & Marketing,** 31(12): 1096-1109

Nijssen, E.J., Schepers, J.J.L. and Belanche, D. (2016) Why did they do it? How customers’ self-service technology introduction attributions affect the customer-provider relationship. **Journal of Service Management,** 27(3): 276-298

Norman, D.A. (1976) **Memory and Attention: Introduction to Human Information Processing,** 2nd ed. New York: John Wiley & Sons.

Novak, T.P. and Hoffman, D.L. (2019) Relationship journeys in the internet of things: a new framework for understanding interactions between consumers and smart objects. **Journal of the Academy of Marketing Science,** 47(2): 216-237

OFCOM (2017) **Communications market report: United Kingdom.** Office of Communications (report) [online]. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0017/105074/cmr-2017-uk.pdf [Accessed 2nd April 2018]

OFCOM (2019) **Communications Market Report 2019.** Office for Communications (report) [online]. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0028/155278/communications-market-report-2019.pdf [Accessed 21 February 2020].

OFCOM (2020) **Online nation 2020 report.** Office for Communications (report) [online]. Available from: https://www.ofcom.org.uk/__data/assets/pdf_file/0027/196407/online-nation-2020-report.pdf [Accessed 21 February 2021].

Ogilvy, D. (1947) "Directive to the Creative Department," (August 1st) **General Correspondence Series Box 1 Folder 3**, Reeves Papers.

Oliveira, T., Thomas, M., Baptista, G. and Campos, F. (2016) Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. **Computers in Human Behavior.** 61: 404-414

Oliver, R. and Westbrook, R. (1993) Profiles of consumer emotions and satisfaction in ownership and usage. **Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behaviour,** 6(13): 12-27

Oliver, R.L. (1993) Cognitive, affective, and attribute bases of the satisfaction response. **Journal of Consumer Research,** 20(3): 418-430

Ondrus, J. and Lyytinen, K. (2011) "Mobile payments market: Towards another clash of the titans?" In **10th International Conference on Mobile Business. Como, Italy, 20-21 June 2011.** IEEE. pp.166-172

ONS (2018) **Projected UK adult population for 2018.** Office for National Statistics [online]. Available from: https://www.ons.gov.uk/aboutus/transparencyandgovernance/freedomofinformationfoi/projectedukadultpopulationfor2018 [Accessed 22 February 2020]

ONS (2019a) **Internet Users, UK 2019.** Office for National Statistics [online]. Available from: https://www.ons.gov.uk/businessindustryandtrade/itandinternetindustry/bulletins/internetusers/2019 [Accessed 21 February 2020]

ONS (2019b) **Internet access – households and individuals, Great Britain.** Office for National Statistics [online]. Available from: 2019https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/bulletins/internetaccesshouseholdsandindividuals/2019 [Accessed 22 February 2020]

ONS (2019c) **Overview of the UK population: August 2019.** Office for National Statistics [online]. Available from: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/august2019 [Accessed 23 February 2020]

ONS (2021) **Dataset: Retail Sales Index internet sales.** Office for National Statistics [online]. Available from:https://www.ons.gov.uk/businessindustryandtrade/retailindustry/datasets/retailsalesindexinternetsales [Accessed 2nd June 2021)

Onwuegbuzie, A.J. and Collins, K.M.T. (2007) A typology of mixed methods sampling designs in social science research. **The Qualitative Report,** 12(2): 281-316

Ortiz, S. (2006) Is near-field communication close to success? **Computer Society,** 39(3): 18-20

Ostrom, A.L., Parasuraman, A., Bowen, D.E., Patricio, L. and Voss, C.A. (2015) Service research priorities in a rapidly changing context. **Journal of Service Research,** 18(2): 127-159

Overby, J.W. and Lee, E.J. (2006) The effects of utilitarian and hedonic online shopping value on consumer preference and intentions. **Journal of Business Research,** 59(10–11): 1160-1166

Ozcan, P. and Santos, F.M. (2014) The market that never was: Turf wars and failed alliances in mobile payments. **Strategic Management Journal,** 36(10): 1486-1512

Parasuraman, A., Zeithaml, V.A. and Berry, L.L. (1985) A conceptual model of service quality and its implications for future research. **Journal of Marketing,** 49(4): 41-50

Parasuraman, A. (1996) "Understanding and leveraging the role of customer service in external, interactive and internal marketing." In **Frontiers in Services Conference,** Nashville, TN. 1996.

Parasuraman, A. (1997) Reflections on gaining competitive advantage through customer value. **Journal of the Academy of Marketing Science,** 25(2): 154-161

Parish, J.T., Berry, L.L. and Lam, S.Y. (2008) The effect of the servicescape on service workers. **Journal of Service Research,** 10(3): 220-238

Park, C.W., Mothersbaugh, D.L. and Feick, L. (1994) Consumer knowledge assessment. **Journal of Consumer Research,** 21(1): 71-82

Parry, O. and Mauthner, N.S. (2004) Whose data are they anyway? Practical, legal and ethical issues in archiving qualitative research data. **Sociology,** 38(1): 139-152

Patrício, L., Fisk, R.P. and Cunha, J.F. (2008) Designing multi-interface service experiences: The service experience blueprint. **Journal of Service Research,** 10(4): 318-334

Patrício, L., Fisk, R.P., Cunha, J.F. and Constantine, L. (2011) Multilevel service design: From customer value constellation to service experience blueprinting. **Journal of Service Research,** 14(2): 180-200

Patton, M. Q. (2002). **Qualitative Research and Evaluation Methods**, 3rd ed. California: Sage.

Payne, A. and Holt, S. (2001) Diagnosing customer value: Integrating the value process and relationship marketing. **British Journal of Management,** 12(2): 159-182

Payne, A., Frow, P. and Eggert, A. (2017) The customer value proposition: Evolution, development, and application in marketing. **Journal of the Academy of Marketing Science,** 45(4): 467-489

Peer, E., Brandimarte, L., Samat, S., and Acquisti, A. (2017) Beyond the Turk: Alternative platforms for crowdsourcing behavioral research. **Journal of Experimental Social Psychology,** 70: 153-163

Peppard, J. and Rylander, A. (2006) From value chain to value network: Insights for mobile operators. **European Management Journal,** 24(2–3): 128-141

Perry, M., O'hara, K., Sellen, A., Brown, B. and Harper, R. (2001) Dealing with Mobility: Understanding access anytime, anywhere. **ACM Transactions on Computer-Human Interaction,** 8(4): 323-347

Pihlström, M. and Brush, G.J. (2008) Comparing the perceived value of information and entertainment mobile services. **Psychology and Marketing,** 25(8): 732-755

Pine, B.J. and Gilmore, J.H. (1998) Welcome to the experience economy. **Harvard Business Review,** 76(4): 97-105

Poland, B.D. (1995) Transcription quality as an aspect of rigor in qualitative research. **Qualitative Inquiry,** 1(3): 290-310

Polanyi, M. (1966) The logic of tacit inference. **Philosophy,** 41(155): 1-18

Porter, M. E. (1985) The value chain and competitive advantage. In **Competitive Advantage: Creating and Sustaining Superior Performance,** (Ed.) Porter, M.E. New York, NY: Free Press.

Porter, C.O., Outlaw, R., Gale, J.P. and Cho, T.S. (2019) The use of online panel data in management research: A review and recommendations. **Journal of Management,** 45 (1): 319-344

Prahalad, C.K. and Ramaswamy, V. (2004) Co-creation experiences: The next practice in value creation. **Journal of Interactive Marketing,** 18(3): 5-14

Preacher, K.J. and Hayes, A.F. (2008) Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. **Behavior Research Methods,** 40(3): 879-891

Prelec, D. and Loewenstein, G. (1998) The red and the black: Mental accounting of savings and debt. **Marketing Science,** 17(1): 4-28

Priem, R.L. (2007) A consumer perspective on value creation. **Academy of Management,** 32(1): 219-235

Pulakos, E.D., Arad, S., Donovan, M.A., Borman, W.C. and Hedge, J.W. (2000) Adaptability in the workplace: development of a taxonomy of adaptive performance. **The Journal of Applied Psychology,** 85(4): 612-624

Pura (2005) Linking perceived value and loyalty in location based mobile services. **Managing Service Quality,** 15(6): 509-538

Qualtrics (2019) Safe, secure, and ready for GDPR. [online], Available from: https://www.qualtrics.com/uk/platform/gdpr/ [Accessed 03 March 2020].

Quinn, J.B., Doorley, T.L. and Paquette, P.C. (1990) Beyond products: Services-based strategy. **Harvard Business Review,** 68(2): 58-67

Rafaeli, A., Ziklik, L. and Doucet, L. (2008) The impact of call center employees' customer orientation behaviors on service quality. **Journal of Service Research,** 10(3): 239-255

Ram, S. and Sheth, J.N. (1989) Consumer resistance to innovations: The marketing problem and its solutions. **Journal of Consumer Marketing,** 6(2): 5-14

Ram, S. (1987) A model of innovation resistance. **NA-Advances in Consumer Research,** 14: 204-212

Ram, S. (1989) Successful innovation using strategies to reduce consumer resistance: An empirical test. **Journal of Product Innovation Management,** 6: (1), 20-34

Ramaswamy, V. and Gouillart, F. (2010) Building the co-creative enterprise. **Harvard Business Review,** 88(10): 100-109

Ramsay, N., Hossain, R., Moore, M., et al. (2019) Health Care While Homeless: Barriers, Facilitators, and the Lived Experiences of Homeless Individuals Accessing Health Care in a Canadian Regional Municipality. **Qualitative Health Research,** 29(13): 1839-1849

Ravichandran, T. and Rai, A. (2000) Quality management in systems development: An organizational system perspective. **MIS Quarterly,** 381-415

Reeves, R. (1961) **Reality in Advertising.** New York: Alfred A. Knopf.

Reinartz, W., Haenlein, M. and Henseler, J. (2009) An empirical comparison of the efficacy of covariance-based and variance-based SEM. **International Journal of Research in Marketing,** 26(4): 332-344

Reinders, M.J., Dabholkar, P.A. and Frambach, R.T. (2008) Consequences of forcing consumers to use technology-based self-service. **Journal of Service Research,** 11(2): 107-123

Reis, H.T., Gable, S.L. and Maniaci, M.R. (2014) "Methods for Studying Everyday Experience in Its Natural Context." In **Handbook of Research Methods in Social and Personality Psychology**. Cambridge University Press. pp. 373–403.

Reisenwitz, T.H. and Iyer, R. (2009) Differences in generation X and generation Y: Implications for the organization and marketers. **Marketing Management Journal,** 19(2): 91-103

Reistad, D.L. (1967) The coming cashless society. **Business Horizons,** 10(3): 23-32

Richins, M.L. (1997) Measuring emotions in the consumption experience. **The Journal of Consumer Research,** 24(2): 127-146

Rick, S.I., Cryder, C.E. and Loewenstein, G. (2008) Tightwads and spendthrifts. **The Journal of Consumer Research,** 34(6): 767-782

Ringle, C.M. (2012) A critical look at the use of PLS-SEM in MIS Quarterly. **The Mississippi Quarterly,** 36(1).

Ringle, C.M., Sarstedt, M. and Straub, D.W. (2012) Editor's comments: A critical look at the use of PLS-SEM in " MIS Quarterly." **The Mississippi Quarterly,** pp. iii–xiv.

Risher, J. and Hair, J.F., Jr (2017) The robustness of PLS across disciplines. **Academy of Business Journal,** 1: 47-55

Rishi, M., Jauhari, V. and Joshi, G. (2015) Marketing sustainability in the luxury lodging industry: A thematic analysis of preferences amongst the Indian transition generation. **Journal of Consumer Marketing,** 32(5): 376-391

Ritchie, J. and Lewis, J. (2003). **Qualitative Research Practice - A Guide for Social Science Students and Researchers.** London: Sage.

Ritson, M. (2003) **Mobile branding flops create a market ripe for Tesco entrance.** Campaignlive. [online]. Available from: www.campaignlive.co.uk/article/opinion-mobile-branding-flops-create-market-ripe-tesco-entrance/182629 [Accessed 23rd May 2020]

Rodriguez, N.M., Ryave, A. and Ryave, A.L. (2002) **Systematic self-observation: A method for researching the hidden and elusive features of everyday social life** (Vol. 49). London: Sage.

Rogers E. M. (2003). **The diffusion of innovations.** 5th ed. New York: Free Press.

Roig, J.C.F., Garcia, J.S., Tena, M.A.M. and Monzonis, J.L. (2006) Customer perceived value in banking services. **International Journal of Bank Marketing,** 24(5): 266-283

Rokeach, M. (1973) **The Nature of Human Values.** New York: The Free Press.

Roos, I. and Friman, M. (2008) Emotional experiences in customer relationships – A telecommunication study. **International Journal of Service Industry Management,** 19(3): 281-301

Rorty, R. (1999) Truth without correspondence to reality. **Philosophy and Social Hope,** 23(3),1-25

Rossiter, J.R. (2002) The C-OAR-SE procedure for scale development in marketing. **International Journal of Research in Marketing,** 19(4): 305-335

Roster, C.A., Rogers, R.D. and Albaum, G. (2004) A comparison of response characteristics from web and telephone surveys. **International Journal of Market Research,** 46(3): 359-373

Rowley, J. and Slack, F. (2003) Kiosks in retailing: The quiet revolution. **International Journal of Retail & Distribution Management,** 31(6): 329-339

Rowley, J. (2004) Online branding. **Online Information Review,** 28(2): 131-138

Roy, S.K., Singh, G., Hope, M., and Nguyen, B. (2019) The rise of smart consumers: role of smart servicescape and smart consumer experience co-creation**. Journal of Marketing Management,** pp. 1-34.

Rust, R. T. and Oliver, R.L. (Eds.) (1994), "Service Quality: Insights and Managerial Implications from the Frontier," In **Service Quality: New Directions in Theory and Practice.** Thousand Oaks, CA: Sage Publications, pp.1-19.

Sainsburys (2020) **What payment methods do you accept?** [online]. Available at: https://help.sainsburys.co.uk/help/prices-payment/payment-methods [Accessed 25th March 2020].

Sánchez-Fernández, R. and Iniesta-Bonillo, M.Á. (2007) The concept of perceived value: A systematic review of the research. **Marketing Theory,** 7(4): 427-451

Sánchez-Fernández, R., Iniesta-Bonillo, M.Á. and Holbrook, M.B. (2009) The conceptualisation and measurement of consumer value in services. **International Journal of Market Research,** 51(1): 1-17

Sandelowski, M. (2008) "Theoretical saturation." In Given, L.M. (Ed.), **The SAGE Encyclopedia of Qualitative Research Methods,** vol. 2, pp. 875-876. London: Sage.

Sandström, S., Edvardsson, B., Kristensson, P. and Magnusson, P. (2008) Value in use through service experience. **Managing Service Quality,** 18(2): 112-126

Sarstedt, M., Henseler, J. and Christian, M. (2011) Ringle (2011) Multi-Group Analysis in Partial Least Squares (PLS) path modeling: Alternative methods and empirical results. **Advances in International Marketing,** 22: 195-218

Sarstedt, M., Hair, J.F., Ringle, C.M., Thiele, K.O. and Gudergan, S.P. (2016) Estimation issues with PLS and CBSEM: Where the bias lies! **Journal of Business Research**, 69(10): 3998-4010

Sarstedt, M., Ringle, C.M. and Hair, J.F. (2017) "Partial Least Squares Structural Equation Modeling." In Homburg, C., Klarmann, M. and Vomberg, A. (Eds.), **Handbook of Market Research.** Springer International Publishing. pp. 1–40.

Sarstedt, M., Hair, J.F., Cheah, J.-H., Becker, J.M. and Ringle, C.M. (2019) How to specify, estimate, and validate higher-order constructs in PLS-SEM. **Australasian Marketing Journal,** 27(3): 197-211

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C. (2018) Saturation in qualitative research: Exploring its conceptualization and operationalization. **Quality & Quantity,** 52(4): 1893-1907

Saunders M., Lewis, P. and Thornhill A. (2019) **Research Methods For Business Students.** 8th ed. Harlow. Pearson Education ltd.

Schank, R.C. and Abelson, R.P. (1977) **Scripts, plans, goals, and understanding: an inquiry into human knowledge structures.** Hillsdale, NJ: Lawrence Erlbaum Associates.

Schierz, P.G., Schilke, O. and Wirtz, B.W. (2010) Understanding consumer acceptance of mobile payment services: An empirical analysis. **Electronic Commerce Research and Applications,** 9(3): 209-216

Scholz, J. and Smith, A.N. (2016) Augmented reality: Designing immersive experiences that maximize consumer engagement. **Business Horizons,** 59(2): 149-161

Schuh, S. and Stavins, J. (2013) How consumers pay: Adoption and use of payments. **Accounting and Finance Research,** 2(2): 1-21

Schuh, S. and Stavins, J. (2014) The 2011 and 2012 surveys of consumer payment choice. **Federal Reserve Bank of Boston,** 14(1): 1-76

Seitz, F., Reimers, H.-E. and Schneider, F. (2018) Cash in circulation and the shadow economy: An empirical investigation for Euro area countries and beyond. **CESifo Working Paper Series 7143**, CESifo.

Settembre-Blundo, D., del Hoyo Alfonso Pedro, F. and Enrique, G.-M.F. (2018) Hermeneutics as innovative method to design the brand identity of a nanotechnology company. **Asia Pacific Journal of Innovation and Entrepreneurship,** 12(2): 181-205

Shaw, D. and Newholm, T. (2002) Voluntary simplicity and the ethics of consumption. **Psychology and Marketing,** 19(2): 167-185

Shaw, N. and Sergueeva, K. (2019) The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value. **International Journal of Information Management,** 45: 44-55

Shaw, N. (2014) The mediating influence of trust in the adoption of the mobile wallet. **Journal of Retailing and Consumer Services,** 21(4): 449-459

Shen, Y.C., Huang, C.Y., Chu, C.H. and Hsu, C.T. (2010) A benefit–cost perspective of the consumer adoption of the mobile banking system. **Behaviour & Information Technology,** 29(5): 497-511

Sheth, J.N., Newman, B.I. and Gross, B.L. (1991) Why we buy what we buy: A theory of consumption values. **Journal of Business Research,** 22(2): 159-170

Shin, D.-H. (2009) Towards an understanding of the consumer acceptance of mobile wallet. **Computers in Human Behavior,** 25(6): 1343-1354

Shmueli, G., Sarstedt, M., Hair, J.F., Cheah, J.H., Ting, H., Vaithilingam, S, and Ringle C.M. (2019) Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. **European Journal of Marketing,** 53(11): 2322-2347

Silverman, D. (2009) **Doing Qualitative Research.** 3rd ed. Thousand Oaks, CA: SAGE Publications.

Slade, E.L., Williams, M.D. and Dwivedi, Y.K. (2013) Mobile payment adoption: Classification and review of the extant literature. **International Marketing Review,** 13(2): 167-190

Slade, E., Williams, M., Dwivedi, Y., and Piercy, N. (2015) Exploring consumer adoption of proximity mobile payments. **Journal of Strategic Marketing,** 23(3): 209-223

Slater, S.F. and Narver, J.C. (2000) Intelligence generation and superior customer value. **Journal of the Academy of Marketing Science,** 28(1): 120-127

Slater, S.F. (1997) Developing a customer value-based theory of the firm. **Journal of the Academy of Marketing Science,** 25(2): 162-167

Smith, J.B. and Colgate, M. (2007) Customer value creation: A practical framework. **Journal of Marketing Theory and Practice,** 15(1): 7-23

Smith, R.A. and Houston, M.J. (1986) Measuring script development: An evaluation of alternative approaches. **ACR North American Advances,** 13: 504-508

Smith, J.P. (1999) Healthy bodies and thick wallets: the dual relation between health and economic status. **Journal of Economic perspectives,** 13(2): 145-166

Smith, A. M. (2013) The value co-destruction process: a customer resource perspective. **European Journal of Marketing,** 47 (11/12): 1889-1909

Snellman, J.S., Vesala, J.M. and Humphrey, D.B. (2001) Substitution of noncash payment instruments for cash in Europe. **Journal of Financial Services Research,** 19(2): 131-145

Söderlund, M. (2002) Customer familiarity and its effects on satisfaction and behavioral intentions. **Psychology & Marketing,** 19(10): 861-879

Solomon, M.R., Surprenant, C., Czepiel, J.A. and Gutman, E.G. (1985) A role theory perspective on dyadic interactions: The service encounter. **Journal of Marketing,** 49(1): 99-111

Sommer, J., Diedenhofen, B. and Musch, J. (2017) Not to be considered harmful: Mobile-device users do not spoil data quality in web surveys. **Social Science Computer Review,** 35(3): 378-387

Song, J. and Qu, H. (2017) The mediating role of consumption emotions. **International Journal of Hospitality Management,** 66: 66-76

Sorensen, E. (2019) **QR code payments – What is it and how does it work?** Mobile Transaction [online]. Available from: https://www.mobiletransaction.org/qr-code-payment-works/ [Accessed 20th November 2019]

Spohrer, J., Maglio, P.P., Bailey, J., and Gruhl, D. (2007) Steps toward a science of service systems. **Computer Society,** 40(1): 71-77

Stavins, J. (2016) The Effect of Demographics on Payment Behavior: Panel Data with Sample Selection. **Federal Bank of Boston,** 16(5): 1-21

Steenkamp, J.B.E. (1989) **Product quality: An investigation into the concept and how it is perceived by consumers.** Maastricht: Van Gorcum Assen.

Steenkamp, J.B.E. and Baumgartner, H. (2000) On the use of structural equation models for marketing modelling. **International Journal of Research in Marketing,** 17(2): 195-202

Stern, M.J., Bilgen, I. and Dillman, D.A. (2014) The state of survey methodology: Challenges, dilemmas, and new frontiers in the era of the tailored design. **Field Methods,** 26(3): 284-301

Stigler, G.J. (1950) The development of utility theory. **The Journal of Political Economy,** 58(4): 307-327

Stoltman, J.J., Tapp, S.R. and Lapidus, R.S. (1989) An examination of shopping scripts. **ACR North American Advances,** 16: 384-391

Storbacka, K. and Nenonen, S. (2011) Scripting markets: From value propositions to market propositions. **Industrial Marketing Management,** 40(2): 255-266

Straub, D. and Burton-Jones, A. (2007) Veni, vidi, vici: Breaking the TAM logjam. **Journal of the Association for Information Systems, 8**(4): 223-229

Ström, R., Vendel, M. and Bredican, J. (2014) Mobile marketing: A literature review on its value for consumers and retailers. **Journal of Retailing and Consumer Services,** 21(6): 1001-1012

Sue, V. M., and Ritter, L. A. (2012). **Conducting Online Surveys.** Thousand Oaks, CA: SAGE Publications.

Sultan, A.J. (2018) Orchestrating service brand touchpoints and the effects on relational outcomes. **Journal of Professional Services Marketing,** 32(6): 777-788

Sweeney, J.C. and Soutar, G.N. (2001) Consumer perceived value: The development of a multiple item scale. **Journal of Retailing,** 77(2): 203-220

Tabachnick, B.G. and Fidell, L.S. (2006) **Using Multivariate Statistics.** 5th ed, Allyn and Bacon, Boston.

Talke, K. and Heidenreich, S. (2014) How to overcome pro-change bias: Incorporating passive and active innovation resistance in innovation decision models. **Journal of Product Innovation,** 31(5): 894-907

Tam, C. and Oliveira, T. (2017) Literature review of mobile banking and individual performance. **International Journal of Bank Marketing,** 35(7): 1044-1067

Tashakkori, A. and Teddlie, C. (eds.) (2010) **SAGE Handbook of Mixed Methods in Social & Behavioral Research.** 2nd ed. SAGE. Thousand Oaks, CA: SAGE Publications.

Taylor, K. (2017) **One of Starbucks' biggest strengths is becoming a huge problem for the chain.** Business Insider UK [online]. Available from: http://uk.businessinsider.com/starbucks-mobile-ordering-problems-2017-1 [Accessed 6th May 2017]

Teddlie, C. and Tashakkori, A. (2012) Common "Core" Characteristics of Mixed Methods Research: A Review of Critical Issues and Call for Greater Convergence. **The American Behavioral Scientist,** 56(6): 774-788

Tellis, G.J. and Gaeth, G.J. (1990) Best value, price-seeking, and price aversion: The impact of information and learning on consumer choices. **Journal of Marketing,** 54(2): 34-45

TFL (2013) **TfL's famous Oyster card celebrates ten successful years making journeys easier for customers.** [online]. Available from: https://tfl.gov.uk/info-for/media/press-releases/2013/July/tfls-famous-oyster-card-celebrates-ten-successful-years-making-journeys-easier-for-customers [Accessed 8th June 2020]

Thomas, M., Desai, K.K. and Seenivasan, S. (2011) How Credit Card Payments Increase Unhealthy Food Purchases: Visceral Regulation of Vices. **The Journal of Consumer Research,** 38(1): 126-139

Thomas, L.D.W., Vernet, A. and Gann, D.M. (2016) Adoption readiness in service innovation: The case of digital money. **Industry and Innovation,** 23(4): 353-381

Thompson, C.J., Locander, W.B. and Pollio, H.R. (1989) Putting consumer experience back into consumer research: The philosophy and method of existential-phenomenology. **The Journal of Consumer Research,** 16(2): 133-146

Thompson, C.J. (1997) Interpreting consumers: A hermeneutical framework for deriving marketing insights from the texts of consumers' consumption stories. **Journal of Marketing Research,** 34(4): 438-455

Thomson, M. (2006) Human brands: Investigating antecedents to consumers' strong attachments to celebrities. **Journal of Marketing,** 70(3): 104-119

Tiwsakul, R.A. and Hackley, C. (2012) Postmodern paradoxes in Thai-Asian consumer identity**. Journal of Business Research,** 65(4): 490-496

Todd, P. and Benbasat, I. (1987) Process tracing methods in decision support systems research: Exploring the black box. **The Mississippi Quarterly,** 11(4): 493-512

Toepoel, V., Das, M. and Soest, A.V. (2009) Design of web questionnaires: The effects of the number of items per screen. **Field Methods,** 21(2): 200-213

Tolich, M. (2004) Internal confidentiality: When confidentiality assurances fail relational informants. **Qualitative Sociology,** 27(1): 101-106

Tronvoll, B. (2011) Negative emotions and their effect on customer complaint behaviour. **Journal of Service Management,** 22(1): 111-134

Turel, O., Serenko, A. and Bontis, N. (2010) User acceptance of hedonic digital artifacts: A theory of consumption values perspective. **Information & Management,** 47(1): 53-59

Trütsch, T. (2016) The impact of mobile payment on payment choice. **Financial Markets and Portfolio Management,** 30(3): 299-336

UK Finance (2015) **Contactless limit change FAQS: Why is the contactless limit increasing?** [online]. Available at: https://www.ukfinance.org.uk/contactless-limit-change-faqs [Accessed 12th May 2017]

UK Finance (2017) **One in four card payments now contactless.** (report) [online]. Available from: http://www.theukcardsassociation.org.uk/wm_documents/Contactless-one-in-four-FINAL.pdf [Accessed 12th May 2017]

UK Finance (2018) **UK Payment markets summary 2018.** (report) [online]. Available at: https://www.ukfinance.org.uk/system/files/Summary-UK-Payment-Markets-2018-1.pdf [Accessed 12th May 2019]

UK Finance (2019) **UK Payment markets summary 2019.** (report) [online]. Available at: https://www.ukfinance.org.uk/sites/default/files/uploads/pdf/UK-Finance-UK-Payment-Markets-Report-2019-SUMMARY.pdf [Accessed 12th May 2019]

UK Finance (2020a) **UK Payment markets summary 2020.** (report) [online]. Available at: https://www.ukfinance.org.uk/system/files/UK-Payment-Markets-Report-2020-SUMMARY.pdf [Accessed 2nd July 2020]

UK Finance (2020b) **Contactless limit in UK to be increased to £45.** [online]. Available at: https://www.ukfinance.org.uk/press/press-releases/contactless-limit-uk-be-increased-45 [Accessed 20th April 2020]

UK Finance (2021) **UK Finance responds to HMT announcement on increasing contactless payment limit to £100.** [online]. Available at: https://www.ukfinance.org.uk/press/press-releases/uk-finance-responds-hmt-announcement-increasing-contactless-payment-limit-£100 [Accessed 22nd June 2021]

Urban, G.L. and Hauser, J.R. (1980) **Design and Marketing of New Products.** Englewood, NJ: Prentice-Hall.

Van Maanen, J. (1988) **Tales of the field: On writing ethnography.** University of Chicago Press.

van Steenis, H (2019) **Future of finance review on the outlook for the UK financial system.** [online]. Available from: https://www.bankofengland.co.uk/-/media/boe/files/report/2019/future-of-finance-report [Accessed 22nd September 2021]

Vandermerwe, S. (2000) How increasing value to customers improves business results. **MIT Sloan Management Review,** 42(1): 27-37

Vargo, S.L. and Akaka, M.A. (2009) Service-Dominant Logic as a foundation for Service Science: Clarifications. **Service Science,** 1(1): 32-41

Vargo, S.L. and Lusch, R.F. (2004) Evolving to a new dominant logic for marketing. **Journal of Marketing,** 68(1): 1-17

Vargo, S.L. and Lusch, R.F. (2008) Service-dominant logic: Continuing the evolution. **Journal of the Academy of Marketing Science,** 36(1): 1-10

Vargo, S.L. and Lusch, R.F. (2016) Institutions and axioms: an extension and update of service-dominant logic. **Journal of the Academy of marketing Science,** 44: 5-23

Vargo, S.L., Maglio, P.P. and Akaka, M.A. (2008) On value and value co-creation: A service systems and service logic perspective. **European Management Journal,** 26(3): 145-152

Venkatesh, V., Morris, M.G., Davis, G.B., and Davis, F.D. (2003) User acceptance of information technology: Toward a unified view. **The Mississippi Quarterly,** 27(3): 425-478

Venkatesh, V., Davis, F. and Morris, M.G. (2007) Dead Or alive? The development, trajectory And future Of technology adoption research. **Journal of the Association for Information Systems,** 8(4): 267-286

Venkatesh, V., Thong, J.Y. and Xu, X. (2012) Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. **MIS Quarterly,** 36(1): 157-178

Verhoef, P.C., Lemon, K.N., Parasuraman, A., et al. (2009) Customer experience creation: Determinants, dynamics and management strategies. **Journal of Retailing,** 85(1): 31-41

Verkasalo, H. (2006) "Empirical observations on the emergence of mobile multimedia services and applications in the US and Europe." In **Proceedings of the 5th international conference on Mobile and ubiquitous multimedia.** MUM'06. ACM International Conference Proceeding Series 193 (Paper 3). New York: ACM.

Veryzer, R.W. (2005) The roles of marketing and industrial design in discontinuous new product development. **Journal of Product Innovation Management,** 22(1): 22-41

Victorino, L., Verma, R. and Bonner, B.L. (2012) Can customers detect script usage in service encounters? An experimental video analysis. **Journal of Service Research,** 14(4): 390-400

Vincent, J. (2006) Emotional attachment and mobile phones. **Knowledge, Technology & Policy,** 19(1): 39-44

Visa (2020) How to pay with Google Pay with Visa Checkout. [online] Available at: https://www.visa.co.uk/pay-with-visa/featured-technologies/google-pay-consumer.html [Accessed 1st April 2020]

Voima, P., Heinonen, K., Strandvik, T. (2010) **Exploring customer value formation: a customer dominant logic perspective.** Working Papers, 552, Hanken School of Economics, Helsinki.

Voorhees, C.M., Fombelle, P.W., Gregoire, Y., Bone, S., Guestafsson, A., Sousa, R. and Walkowiak, T. (2017) Service encounters, experiences and the customer journey: Defining the field and a call to expand our lens. **Journal of Business Research,** 79: 269-280

Wagner, J. (1999) “A model of aesthetic value.” In Swartz, T. and Iacobuci, D**.** (Eds.), **Handbook of Services Marketing and Management,** pp.69-85

Wakamori, N. and Welte, A. (2017) Why do shoppers use cash? Evidence from shopping diary data. **Journal of Money, Credit, and Banking,** 49(1): 115-169

Wallendorf, M. and Brucks, M. (1993) Introspection in consumer research: Implementation and implications. **The Journal of Consumer Research,** 20(3): 339-359

Walsh, C.E. (1993) What Caused the 1990-1991 Recession? **Economic Review**, 2(2): 33-48

Walter, S.L., Seibert, S.E., Goering, D. and O’Boyle, E.H. (2019) A tale of two sample sources: Do results from online panel data and conventional data converge? **Journal of Business and Psychology,** 34(4): 425-452

Warnaby, G. and Davies, B.J. (2013) Commentary: Cities as service factories? Using the servuction system for marketing cities as shopping destinations. **International Journal of Retail & Distribution Management,** 25(6): 204-210

Webb, E.T., Campbell, D.T., Schwartz, R.D. and Sechrest, L. (1981) **Un-obtrusive Measures in the Social Sciences.** California: Sage.

Weiser, M. (1991) **The Computer for the 21 st Century. Scientific American,** 265(3): 94-105

Weitz, B.A. (1981) Effectiveness in sales interactions: A contingency framework. **Journal of Marketing,** 45(1): 85-103

Wells, J.D., Campbell, D.E., Valacich, J.S. and Featherman, M. (2010) The effect of perceived novelty on the adoption of information technology innovations: A risk/reward perspective. **Decision Sciences,** 41(4): 813-843

Wengraf, T. (2001) **Qualitative Research Interviewing: Biographic Narratives and Semi-structured Methods.** London: Sage.

Westbrook, R.A. and Oliver, R.L. (1991) The dimensionality of consumption emotion patterns and consumer satisfaction. **The Journal of Consumer Research,** 18(1): 84-91

Wheeler, L. and Reis, H.T. (1991) Self-recording of everyday life events: Origins, types, and uses. **Journal of Personality,** 59(3): 339-354

Whipple, J., Arensman, W. and Boler, M.S. (2009) “A public safety application of GPS-enabled smartphones and the android operating system.” In **2009 IEEE International Conference on Systems, Man and Cybernetics.** October 2009. pp. 2059-2061.

White, A., Breazeale, M. and Collier, J.E. (2012) The effects of perceived fairness on customer responses to retailer SST push policies. **Journal of Retailing,** 88(2): 250-261

Whelan, T.J. (2007) **Anonymity and Confidentiality: Do Survey Respondents Know the Difference?** In Poster presented at the 30th annual meeting of the Society of Southeastern Social Psychologists, Durham, NC.

Wikström, S. (2008) A consumer perspective on experience creation. **Journal of Customer Behaviour,** 7(1): 31-50

Wikström, S. and Decosta, E.P. (2018) How is value created? Extending the value concept in the Swedish context. **Journal of Retailing and Consumer Services,** 40: 249-260

Wiles, R., Crow, G., Heath, S. and Charles, V. (2008) The Management of Confidentiality and Anonymity in Social Research. **International Journal of Social Research Methodology,** 11(5): 417-428

Willems, K., Leroi-Werelds, S. and Swinnen, G. (2016) The impact of customer value types on customer outcomes for different retail formats. **Journal of Service Management,** 27 (4): 591-618

Wolf, E.J., Harrington, K.M., Clark, S.L. and Miller, M.W. (2013) Sample size requirements for Structural Equation Models: An evaluation of power, bias, and solution propriety. **Educational and Psychological Measurement,** 76 (6): 913-934

Wood, W. and Neal, D.T. (2007) A new look at habits and the habit-goal interface. **Psychological review**, 114 (4): 843-863

Woodruff, R.B. and Gardial, S.F. (1996) Once and future products. **The Journal of Business Strategy,** 17(3): 11

Woodruff, R.B. (1997) Customer value: The next source for competitive advantage. **Journal of the Academy of Marketing Science,** 25(2): 139-153

Woodruff, R.B. and Flint, D.J. (2014) "Marketing's service-dominant logic and customer value." In Lusch, R.F. and Vargo L.V. (Eds.), **The Service-Dominant Logic of Marketing**. California: Routledge. pp. 201-213

WorldPay (2017) **Worldpay consumer behaviour and payments report 2017.** (report) [online]. Available from: https://www.worldpay.com/sites/default/files/attached/WPUK-Consumer-Behaviour-and-Payments-Report-2017.pdf [Accessed 1st April 2018]

WorldPay (2018) **Worldpay consumer behaviour and payments report 2018.** (report) [online]. Available from: https://www.worldpay.com/sites/default/files/attached/WPUK-Consumer-Behaviour-and-Payments-Report-2018.pdf [Accessed 12th June 2019]

Worthington, S., Stewart, D. and Lu, X. (2007) The adoption and usage of credit cards by urban-affluent consumers in China. **International Journal of Bank Marketing,** 25: 238-252

Wroth, L.C. (1954) An Elizabethan merchant and man of letters. **The Huntington Library quarterly,** 17 (4): 299-314

Wu, L., Fan, A., Yang, Y., et al. (2021) Robotic involvement in the service encounter: a value-centric experience framework and empirical validation. **Journal of Service Management,** 32(5): 783-812

Wünderlich, N.V., Wangenheim, F. and Bitner, M.J. (2012) High tech and high touch: A framework for understanding user attitudes and behaviors related to smart interactive services. **Journal of Service Research,** 16(1): 3-20

Xiao, X., Hedman, J. and Runnemark, E. (2015) "Use of payment technology: A perspective based on Theory of Consumption Value." In **23rd European Conference on Information Systems (ECIS), Munster 29 May 2015.** AISeL. pp.1-12

Yale, L. and Venkatesh, A. (1986) Toward the construct of convenience in consumer research. **ACR North American Advances.** 13: 403-408
Yan, T. (2008). Nondifferentiation. Encyclopedia of Survey Research Methods, 2, 520-521

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

Yüksel, A. and Yüksel, F. (2001) The expectancy-disconfirmation paradigm: A critique. **Journal of Hospitality & Tourism Research,** 25(2): 107-131

Zeithaml, V.A. (1988) Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. **Journal of Marketing,** 52(3): 2-22

Zhang, D., Adipat, B. and Mowafi, Y. (2009) User-centered context-aware mobile applications-The next generation of personal mobile computing. **Communications of the Association for Information Systems,** 24(3): 27-46

Zhao, X., Lynch, J.G. and Chen, Q. (2010) Reconsidering Baron and Kenny: Myths and truths about mediation analysis. **The Journal of Consumer Research,** 37(2): 197-206

Zhou, T. (2013) An empirical examination of continuance intention of mobile payment services. **Decision Support Systems,** 54(2): 1085-1091

Zhou, T., Lu, Y. and Wang, B. (2010) Integrating TTF and UTAUT to explain mobile banking user adoption. **Computers in Human Behavior,** 26(4): 760-767

Zinman, J. (2009) Debit or credit? **Journal of Banking & Finance,** 33(2): 358-366

Zomerdijk, L.G. and Voss, C.A. (2011) NSD processes and practices in experiential services. **Journal of Product Innovation Management,** 28(1): 63-80