



The Impact of Mobile Payment on Consumer Experience:  
Does Contactless Payment Influence Willingness to pay and  
Impulse Buying?

*Understanding the Moderating Role of Consumer Characteristics and the  
Mediating Role of Cognitive Payment Decoupling*

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**Title:** The Impact of Mobile Payment on Consumer Experience: Does Contactless Payment Influence Willingness to pay and Impulse Buying?

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## **Abstract**

The growing adoption of mobile payment technologies is reshaping the way consumers interact with their money in offline retail environments. While mobile payments offer speed and convenience, they also raise concerns about how the reduced visibility of the transaction affects consumer behaviour.

Previous research suggests that these payment methods reduce the “pain of paying”, which is the uncomfortable feeling people often experience when spending money. However, there is increasing evidence that mobile payments may go even further by fostering a “pleasure of paying” effect, where seamlessness and ease trigger positive emotions during purchases. This dissertation explores the influence of mobile payments on two key behavioural outcomes, namely the WTP and impulse buying. It also investigates among others the mediating factor of CPD, which weakens the mental connection between the payment and financial loss and examines how different consumer characteristics shape these effects.

The findings of this dissertation indicate that mobile payments strongly influence the buying behaviour, especially for those people who have specific characteristics. This underlines the urgent need to better understand how digital payment systems affect the financial control and decision-making of the consumers.

The study offers valuable insights for the retailers and policymakers aiming to understand and responsibly shape the consumer experience in a cashless economy. It contributes to the ongoing discussions on digital convenience, financial responsibility, and shifts in how consumers decision making changes over the time.

**Keywords:** Mobile Payment, Willingness to Pay, Impulse Buying, Cognitive Payment Decoupling, Consumer Characteristics

**Título:** O Impacto do Pagamento Móvel na Experiência do Consumidor: O Pagamento por Aproximação Influencia a Disposição a Pagar e as Compras por Impulso?

*Compreendendo o Papel Moderador das Características dos Consumidores e o Papel Mediador do Desacoplamento Cognitivo do Pagamento*

**Autora:** Annabelle Rossow

## **Resumo**

A crescente adoção de tecnologias de pagamento móvel está transformando a forma como os consumidores interagem com seu dinheiro em ambientes de varejo físico. Embora ofereçam rapidez e conveniência, esses métodos também geram preocupações sobre como a menor visibilidade da transação afeta o comportamento do consumidor. Pesquisas anteriores sugerem que reduzem a chamada dor de pagar, que é a sensação desconfortável ao gastar dinheiro, e segundo evidências mais recentes, podem até promover um prazer ao pagar, despertando emoções positivas pela fluidez e facilidade do processo. Esta dissertação investiga a influência dos pagamentos móveis sobre dois principais comportamentos, a disposição a pagar (WTP) e as compras por impulso. Além disso, analisa o papel mediador do desacoplamento cognitivo do pagamento (CPD), que enfraquece a conexão mental entre pagamento e perda financeira, e examina como diferentes características dos consumidores moldam esses efeitos. Os resultados indicam que os pagamentos móveis podem influenciar fortemente o comportamento de compra, especialmente entre indivíduos com determinadas características. Isso reforça a necessidade de compreender melhor como os sistemas digitais afetam o controle financeiro e a tomada de decisões.

O estudo oferece insights valiosos para varejistas e formuladores de políticas interessados em moldar de forma responsável a experiência do consumidor em uma economia sem dinheiro físico, contribuindo para os debates sobre conveniência digital, responsabilidade financeira e mudanças no processo decisório ao longo do tempo.

**Palavras-chave:** Pagamento Móvel, Disposição a Pagar, Compras por Impulso, Desacoplamento Cognitivo do Pagamento, Características dos Consumidores

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## **Abbreviations**

CPD

Cognitive payment decoupling

NFC

Near Field Communication

WTP

Willingness to pay

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# 1 Introduction

## 1.1 Problem Definition and Relevance

The global mobile payments market is expected to grow from USD 126.68 billion in 2025 to USD 548.13 billion by 2030, reflecting an annual growth rate of 34.04%. This fast development underlines the increasing importance of digital payment solutions worldwide. It is driven by the ongoing digitalization of payment processes and the growing acceptance of contactless payments (Mordor Intelligence, 2024).

At the same time, the shift to mobile payments raises questions about its impact on consumer behaviour, especially in terms of willingness to pay (WTP) and impulse buying (Ma et al., 2024).

Compared to paying with cash or card, mobile payment changes the way how consumers experience their spending. While traditional methods often make consumers more aware of the money they are giving away, mobile payments tend to reduce this awareness. Earlier studies have already shown that digital payments reduce the so called “pain of paying”, which refers to the uncomfortable feeling that comes up with spending money (Ma et al., 2024). This effect is already well researched for credit cards, which make paying feel less painful and often lead to people spending more (Chatterjee & Rose, 2012). In contrast, some other sources suggest that mobile payment may go one step further by creating a so called “pleasure of paying” effect, where the ease and seamlessness of the transactions generate more positive emotions, which may make people even more likely to buy something (Ma et al., 2024).

Although mobile payment offers many advantages such as speed and convenience, it also brings potential risks for consumers, especially regarding their overall behaviour. As the payment process becomes less visible, consumers may become less aware of price differences and increasingly make purchasing decisions based on convenience rather than rational price comparisons (Liu et al., 2021). A key question is therefore whether and to what extent mobile payment influences consumers’ WTP and impulse buying behaviour.

Furthermore, there is also clear evidence that mobile payment encourages impulse purchases. Due to the high level of convenience in combination with the immediate availability and less required time for the transaction, mobile payments can trigger that people make spontaneous purchase decisions without rationally weighing them carefully up. Ma et al. (2024) found that

when people use mobile payments, they tend to focus more on the good features of a product and worry less about how much it costs. That might explain why their buying decisions may differ from the more traditional payment methods.

Even though mobile payments are more convenient to use, they also have financial risks. As the money is not physically visible, people might lose track of what they are really spending. This could make it harder for them to stay on top of their budget, as Liu et al. (2021) points out.

Furthermore, mobile payments can also have wider financial consequences, such as reduced budget control. While some people enjoy the ease and speed of mobile transactions, others and especially those with limited financial knowledge or low self-control, may struggle to track their spendings (Ahn & Nam, 2022). Therefore, the extent to which factors such as financial literacy and digital affinity influence behavioural change remains an open question.

Despite its increasing adoption, the long-term effects of mobile payments remain largely unexplored. Although it has been shown that digital payment methods reduce the “pain of paying” (Ma et al., 2024), it is unclear if mobile payments, similar to credit cards, only reinforce this effect or even lead to an independent change in WTP and impulse buying behaviour. There is currently limited empirical evidence on the extent to which consumer characteristics act as moderators and how CPD as a mediator explains the influence of mobile payments on consumer behaviour. CPD describes a psychological mechanism that weakens the mental link between payment and financial loss. It may therefore play a role in explaining these effects, which highlights the importance of taking a closer look at it (Chatterjee & Rose, 2012).

While some earlier studies have already looked on this, it is still unclear if mobile payments actually make people to spend more money or even trigger new psychological effects like the “pleasure of paying” (Ma et al., 2024). In particular, little is known about the mechanisms behind these effects and how they may vary across different consumer groups. To be able to develop more effective sales, pricing, and marketing strategies in both retail and financial services, the exact understanding of these dynamics is crucial.

## 1.2 Objectives and Research Questions

This dissertation aims to explore the effects of mobile payment methods on the consumer behaviour in offline retail settings. Hereby, the focus lies on the WTP and impulse buying. Also, it examines the CPD as a potential mediating mechanism and explores how individual characteristics are moderating these effects.

Therefore, the first research question is focusing on how the mobile payments are influencing the spending behaviour, especially in relation to the WTP and impulse purchases:

**RQ1:** How does mobile payment affect willingness to pay and impulse buying in offline shopping environments?

The second research question focuses on the psychological effect of CPD, which describes the reduced mental connection between paying and spending:

**RQ2:** How does cognitive payment decoupling mediate the effect of mobile payment on willingness to pay and impulse buying?

Finally, the third research question examines how individual consumer characteristics like age, gender, income, digital affinity and financial literacy moderate the impact of mobile payments. As consumers may react differently to mobile payment technologies, this study aims to identify those consumer profiles that are more sensitive to changes in spending behaviour:

**RQ3:** How do consumer characteristics moderate the effects of mobile payment on willingness to pay and impulse buying?

## 1.3 Thesis Structure

Building on *section 1.1* and *1.2*, which already provided details about the research problem and its relevance, followed by the objectives of this dissertation and the research questions, the second chapter goes into more detail. *Section 2* provides a comprehensive overview of existing literature and forms the theoretical foundation of this dissertation.

Afterwards, the third chapter presents the conceptual model and the research hypotheses, to prepare the upcoming methodological part. Then, chapter four outlines the chosen research design, the data collection process, and the applied methodologies.

Furthermore, the fifth chapter then takes a closer look at the results of the previously conducted analysis and explains them in more detail. Finally, Chapter 6 summarizes the key findings and discusses the theoretical and managerial implications of the study, while Chapter 7 addresses its limitations.

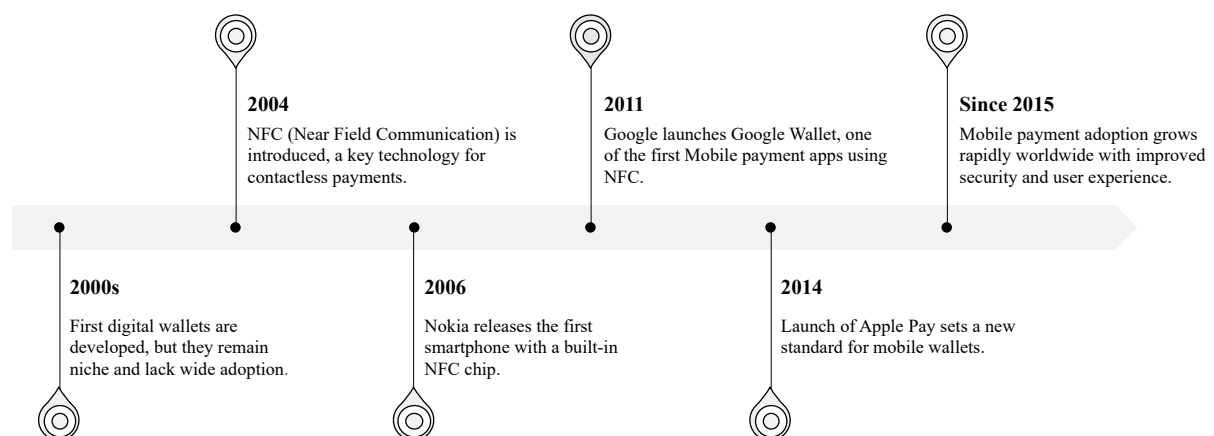
## 2 Literature Review

### 2.1 Evolution and Increasing Influence of Mobile Payment Systems

Mobile payment systems are considered as a key innovation in digital finance, enabling users to conduct transactions seamlessly via mobile devices. These systems include various mobile payment methods, such as “mobile wallet, mobile money transfer, contactless payment, as well as proximity payment” (Jung et al., 2020, p. 1) allowing consumers to store and also access payment credentials directly from their smartphones. Over time, mobile payments have evolved from niche usage into a widely adopted form of everyday payment.

The evolution of mobile payment systems began in the early 2000s with SMS-based services and basic mobile banking functions, mainly used for simple tasks like balance inquiries or adding prepaid credit. These early systems provided the basis for today’s digital payment environment. The spread of smartphones and new technologies like NFC, QR codes and mobile wallets like Google Pay and Apple Pay emerged, making contactless payments widely accessible (Chatterjee, 2023). *Figure 1* shows an overview of important milestones.

*Figure 1: Evolution of Mobile Payment Systems*



In recent years, mobile payments have become more and more accessible and secure. Technologies like biometric authentication, smart fraud detection, and improved connections between banks have made the process smoother and a central part of the digital economy.

However, the overall adoption still varies widely across countries. In digitally advanced areas like the Netherlands or Turkey, mobile payments were already common in 2019 (Beutin & Harmsen, 2019). In contrast, countries with a stronger preference for cash, such as Germany, were slower to adopt. Concerns about data privacy, security, and familiar payment routines were especially relevant among older people who are less confident with digital tools (Ahmed et al., 2021; Camilleri & Agius, 2021).

Furthermore, the COVID-19 pandemic also played a crucial role in speeding up the use of mobile payments. During this time, concerns about hygiene and physical contact led many people to prefer mobile and contactless payments to cash or cards. This behavioural change has continued even after the pandemic, making mobile payments a routine part of everyday life for most consumers (Ahn & Nam, 2022; Szumski, 2022).

In addition, mobile payments have also changed the people's spending behaviour. Prior research shows that digital wallets not only enable faster purchases, but also lead to more frequent transactions and spontaneous purchases (Ahn & Nam, 2022; Ma, 2024). Beyond the technical aspects of adoption, mobile payment systems also have a psychological effect on spending experiences, in positive and negative ways. These effects are further analysed in the following chapters.

### **2.1.1 The “Pain of Paying” Effect**

The “Pain of Paying” concept was first introduced by Zellermyer (1996) and describes the immediate negative feeling that consumers experience when spending money. It is based on the Prospect Theory (Kahneman & Tversky, 1979), which says that losses are perceived more intensely than comparable gains. This effect can be especially seen when people are paying with cash because the physical act of handing over money makes the spending more visible, which make people think twice before making unnecessary impulsive purchases (Prelec & Loewenstein, 1998).

Overall, the pain of paying effect is shaped by two main psychological mechanisms, which are payment transparency and the connection between payment and consumption. While cash

payments increase the perception of spending due to their visibility, credit cards and mobile payments reduce this awareness by making the transactions less visible, which can be also referred to CPD (*see 2.3.1*). As a result, consumers may also spend more when using less transparent payment methods (Kamleitner & Erki, 2013; Liu & Dewitte, 2021).

In addition, another theoretical perspective from Thaler's (1999) framework of mental accounting helps to explain why some payment methods feel more painful than others. In this context, he differentiated between two types of perceived value, the practical benefit of a product (acquisition utility) and the feeling of the deal itself (transaction utility). The latter depends on how the actual price compares to a personal benchmark, such as the price a consumer expected to pay. If the paid amount feels favourable in that comparison, it can create a sense of satisfaction that goes beyond the usefulness of the product alone. Although Thaler (1999) does not refer to mobile payments, his framework suggests that payment methods with low salience may ignore mental budgets and reduce perceived financial loss.

Recent studies also show that mobile payments reduce emotional resistance to spendings because of convenience, which acts as a key mediator (Boden et al., 2020). Additionally, the way people pay influences how much they feel the purchase really belongs to them. Paying with cash makes people feel more connected to their purchases because handing over money feels more like a personal investment (Kamleitner & Erki, 2012). In contrast, paying with mobile payments can weaken this feeling of ownership, making people more likely to buy things on impulse (Boden et al., 2020).

As mobile payments become increasingly integrated into daily life, people become less aware of how much they are spending. Also, while the “pain of paying” effect is particularly strong for high-priced purchases, mobile payments can also trigger another effect called “pleasure of paying” due to their ease of use, which will be discussed the next chapter (Ma et al., 2024).

### **2.1.2 The “Pleasure of Paying” Effect**

Meanwhile, other recent studies say that mobile payments can also trigger a “pleasure of paying” effect. This describes a positive emotional response associated with a smooth and easy payment experience. Also, it can make people want to buy more and increase the satisfaction during this payment experience (Wang et al., 2022).

The “pleasure of paying” is closely linked to processing fluency, which refers to how smooth and quick the payment feels. Because when people can process information quickly and without

effort, it often leads to a positive feeling (Reber et al., 2004). Previous studies that are using brain scans (EEG) show that mobile payments not only reduce negative emotions when spending money but can also trigger positive feelings that can lead to a higher WTP and overall customer satisfaction (Wang et al., 2022). This effect is particularly strong with mobile payments, as skipping steps like entering a PIN or taking a wallet and handing cash creates the ease that defines processing fluency (Ma et al., 2024; Landwehr et al., 2020).

Moreover, research shows that formats which are easier to process are often seen as more familiar, more trustworthy, and also more valuable. (Alter & Oppenheimer, 2008). Applying this perspective to this dissertation, the familiarity and simplicity of mobile payments may contribute to more positive evaluations of the transaction itself and potentially increase WTP.

Additionally, mobile payments make the payment process less noticeable and separate it from the purchase itself. This lowered sense of awareness is called CPD, and it might also explain why paying this way feels a bit easier and even more enjoyable (Raghubir & Srivastava, 2008).

Still, it is not really clear how this effect plays out in different shopping situations or for different types of consumers. While initial studies already suggest a link to higher impulse purchases and satisfaction, more research is needed to see how the personal financial habits and offline environments influence this effect (Ma et al., 2024).

## **2.2 Impact of Mobile Payment on Consumer Behaviour**

### **2.2.1 Willingness to Pay**

WTP refers to “the maximum price a consumer is willing to pay for a given quantity of a good” (Werthenbroch & Skiera, 2002, p. 228) and is a key factor to understand consumer’s spending behaviour.

The research on payment methods has shown that payment mechanisms influence WTP by affecting how consumers perceive the transaction and the associated financial loss. As mentioned earlier, mobile payments tend to make spending feel easier because they break the link between paying and being aware of the cost. This can result in people accepting higher prices (Ma, 2024; Boden et al., 2020). Just like credit cards, mobile payments make it easy to spend almost without noticing. This is mainly because of the convenience, leading to an increased price acceptance and more spending overall (Ahn & Nam, 2022; Boden et al., 2020).

Recent research by Falk et al. (2016) supports this idea, showing that mobile payments can lead to a so-called “mobile premium,” where people are willing to pay more for the same item compared to when they pay with cash. One main reason is that mobile payments feel less transparent, which makes spending less noticeable and lowers the “pain of paying” (Raghubir & Srivastava, 2008).

Besides the decoupling effect, how good the deal feels to consumers also plays a role in how much they are WTP. As Thaler (1985) pointed out, people do not just think about whether a product is worth its price, they also compare it to what they expected. If the offer seems better than they thought it would be, it can lead to a sense of gain and more satisfaction, even if the product itself has not changed. On the other hand, if buyers think they missed out on a better deal or feel like the price is unfair, this negative impression can lower purchase intentions. This is particularly impactful because people tend to react more strongly to negative experiences than to equally positive ones (Muehlbacher et al., 2011).

These findings are particularly important in the context of this study, as the growing use of mobile payments can lead to higher sales, which gives valuable insights for the retailers. In the future, it would make sense to look into how different consumer characteristics affect the link between mobile payments, WTP as well as impulse buying. This could help to better understand how people behave in today’s digital economy.

### **2.2.2 Impulse Buying**

Impulsive buying describes spontaneous and also unplanned purchasing decisions that are more driven by emotions than rational consideration. This often happens when something suddenly triggers the need to buy, like a special offer, an product that stands out, or even just being in a good mood (Lee et al., 2022).

In offline stores, mobile payments can make these spontaneous purchases more likely by reducing the cognitive effort that is needed to complete a payment. The convenience of mobile payments, through for example one-click purchases, biometric authentication as well as automated transactions, speeds up the decision-making processes while also increasing the likelihood of impulse purchases. In addition, mobile payments are also often linked with e-commerce, social media, and real-time deals, which can create a shopping experience that feels more exciting and encourages even more impulse purchases (Lee et al., 2022). In contrast to cash, which increases spending awareness through physical payment, mobile payments make it

harder to notice how much we are spending and thereby promote impulsivity (Ma et al., 2024). This effect is also related to the CPD, which will be explained in more detail in *section 2.3.1*.

In addition, Boden et al. (2020) emphasise that the perceived convenience itself can act as an emotional trigger for impulse purchases, especially for users who are already familiar with mobile payments. Furthermore, Falk et al. (2016) shows that mobile payments can shift consumers' attention from price to product benefits, especially when the payment transparency is low. This can increase impulsive behaviour by making the shopping experience more emotionally positive, which is also linked to the "pleasure of paying" described in *section 2.1.2*.

Going hand in hand, previous studies have also shown that digital payment systems improve the user experience and the perceived enjoyment through interactive functions like for example advertisements, cashback offers and discounts. This suggests that this also increases the willingness to buy and impulse purchases (Lee et al., 2022).

## **2.3 Mediating and Moderating Factors in Mobile Payment Effects**

### **2.3.1 Cognitive Payment Decoupling**

CPD describes the process in which the cognitive link between the purchase decision and payment is weakened or removed, making consumers less aware of their financial loss and also decoupling them from the previously described "pain of paying" (Chatterjee & Rose, 2012). The effect of decoupling has mainly been studied for credit card payments, where delayed financial impact and reduced payment transparency lower people's spending awareness. While prior studies suggest a similar effect for mobile payments, findings indicate that convenience rather than decoupling could also be the main driver of increased spending (Boden et al., 2020; Ma et al., 2024).

CPD is mainly driven by two factors, namely the reduced payment transparency and lower cognitive effort during the payment process. When using mobile or other cashless payment methods, consumers are less aware of how much they are spending, as there is no immediate visible loss of money (Liu & Dewitte, 2021; Raghurir & Srivastava, 2008). Features like one-click payments, fingerprint login, and saved payment info's make paying feel effortless, which shifts the focus more to buying than to the act of paying itself (Liu et al., 2021).

An EEG study by Wang et al. (2022) supports this by showing that mobile payments can evoke the "pleasure of paying" effect as explained before. In addition, Raghurir and Srivastava (2008)

found that consumers who pay with less transparent payment methods such as vouchers or credit cards often perceive them as “monopoly money”, which makes it even easier to spend money.

Overall, CPD has many useful implications for consumer behaviour and business strategies. Retailers can benefit from a higher average spend per customer by promoting mobile payment options, while consumers should be aware of the increase in their spending without realising. The reduction in payment transparency and the simplification of the payment process mean that mobile payments create a psychological distance from real spending, which can have a lasting impact on consumer behaviour in the long term (Ma et al., 2024).

### **2.3.2 Consumer Characteristics**

Also, consumer characteristics play an important role in the impact of mobile payment. Factors as for example age, gender, income level and the financial literacy have a major influence on whether the people regularly use mobile payments or not. These characteristics can change spending habits, financial discipline as well as the acceptance of technology and ultimately shape consumer behaviour in the digital payment environments (Lavanya & Shrivastava, 2024).

#### *Age*

First, age plays an important role in how people use mobile payments and how these influence their overall behaviour. Younger consumers and especially digital natives, tend to use mobile payments more often because they are already more used to it and prefer convenience over traditional payment methods. However, this group of people is also more likely to buy things on impulse, since paying with a phone makes it more easy to spend without even thinking about it. On the other hand, older consumers tend to be less familiar with mobile payments and are therefore usually more carefully when it comes to financial matters. Because of that, they are also less likely to make spontaneous purchases when using mobile payment options (Lavanya & Shrivastava, 2024).

#### *Gender*

Furthermore, gender also affects how mobile payment impact consumer behaviour. Early studies show that men tend to use mobile payments more often than women. This might be because they are generally more into the topic of technology and more open to take a risk. Women, on the other hand, often pay closer attention to their spendings when using mobile payments. They're more likely to check their transactions and stick to a budget during their

shopping experience. This indicates that men are more likely to spend more, while women are more likely to be more careful with their money (Lavanya & Shrivastava, 2024).

### *Income*

Additionally, income also affects how consumers react to mobile payment. Those with higher incomes usually see mobile payments more as a convenient and time saving tool, not as a tool for managing their finances. As they have more financial freedom, they are also more likely to make spontaneous or expensive purchases. Studies show that people with lower incomes in contrast, often use mobile payments for everyday expenses and to keep better track of their budget (Ahn & Nam, 2022).

### *Education*

Moreover, the level of education is another important factor that can influence the digital payment behaviour. Studies show that those with a higher level of education are usually more comfortable with digital tools and better understand how mobile payments work. This often leads to more trust and confidence while using. People with less education, in comparison, may find mobile payments more confusing or difficult to use, which can restrict their use. Therefore, education has a big impact on whether people are likely to use mobile payments and the way they are integrated into their daily financial behaviour (Lavanya & Shrivastava, 2024).

### *Digital Affinity*

Also, how often people use mobile payments depends on how familiar they are with digital technologies. People who are more familiar with digital tools are also more likely to use mobile payments because they are convenient and also fast (Lavanya and Shrivastava, 2024). A recent literature review by Ramayanti et al. (2024) supports this by identifying perceived ease of use and effort expectancy, which are closely related to digital affinity, as key factors in the adoption and actual use of mobile payment systems. Users with a high level of digital familiarity tend to be more confident with technologies like mobile wallets, QR codes or contactless payments, especially when the process is perceived as simple and intuitive.

However, being good with technology does not always mean someone is good at managing their finances. Ahn and Nam (2022) argue that digitally affine users may adopt mobile payments more quickly, but this may come at the cost of reduced spending awareness. Similarly, Ramayanti et al. (2024) emphasize that digital familiarity alone does not protect against unconscious overspending, especially when transactions become highly automatic. This

suggests that while digital affinity supports adoption, it may also reinforce the psychological decoupling between payment and consumption.

### *Financial Literacy*

Finally, another important moderating factor is financial literacy. Previous studies show that users with low financial literacy are more likely to overspend, mainly because digital payments reduce awareness of actual financial losses. In contrast, consumers with higher financial literacy can better track their spending because they budget more effectively and make fewer impulse purchases, demonstrating greater awareness of their spending (Ahn & Nam, 2022). This relationship is also supported by recent findings from Purwaningtyas and Sari (2025), who found that financial literacy seems to have a clear negative effect on shopping behaviour. Even though the study took place in a specific cultural context, students with higher financial knowledge reported a lower tendency to buy impulsively. The results suggest that financial literacy strengthens self-control and can reduce the impact of cognitive biases, such as the decoupling effect of mobile payments.

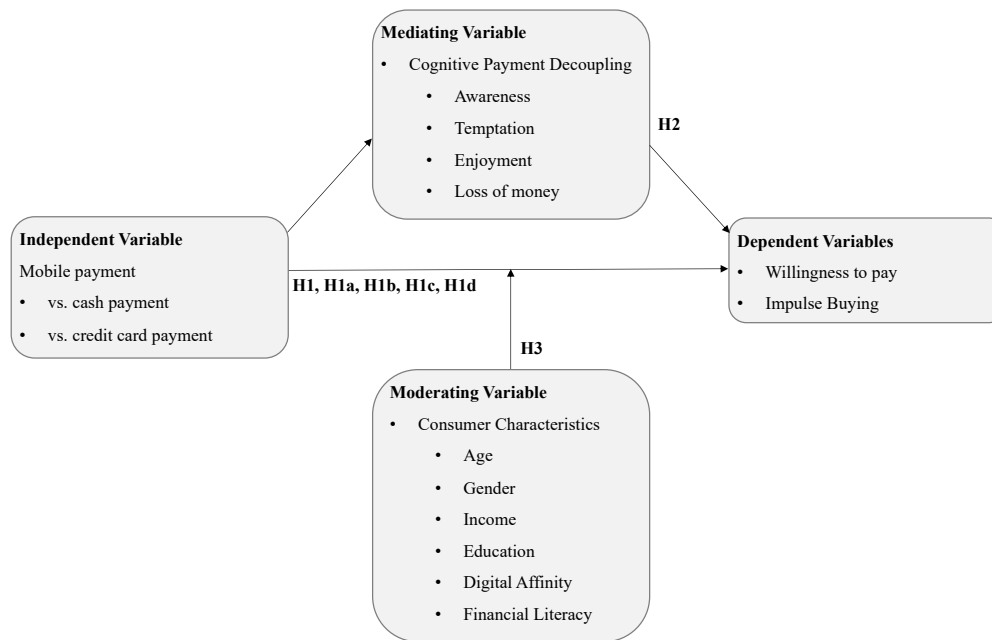
As a result, consumers with stronger financial skills might not be as easily influenced by how smooth and convenient mobile payments are.

## **3 Conceptual Model and Hypotheses**

To answer the research questions, the dissertation is based on a conceptual model that shows the relationships between the use of mobile payments, WTP and impulse buying and also takes mediating and moderating variables into account. This model helps to explain how and when mobile payments influence consumer behaviour during purchase decisions.

Specifically, the study specifically looks at mobile payment, cash, and credit card use as independent variables, and examines their impact on willingness to pay and impulse buying behavior, which serve as the dependent variables. A central focus is on the mediating role of the cognitive decoupling of payment and spending, which describes how mobile payment weakens the perceived psychological link between purchase and financial loss. In addition, it will be analyse how consumer characteristics moderate these effects.

Figure 2: Conceptual Framework



### 3.1 Research Hypotheses

As already explained in more detail before, prior research states that different payment methods influence consumers' spending behaviour by changing the psychological perception of the payment process. Traditional payment methods like cash and credit cards create a stronger awareness of spending money, while mobile payment systems reduce this awareness by a cognitive decoupling of payment and spending (Liu & Dewitte, 2021; Ma et al., 2024). Since the payment process is associated as easier with mobile payments, consumers may be more willing to spend more money and make impulse purchases more often (Zellermayer, 1996; Kamleitner & Erki, 2012). Based on these prior findings, the following hypotheses will be tested:

**H1:** Mobile payment influences consumer behaviour during offline purchasing decisions.

**H1a:** Mobile payment increases consumer willingness to pay compared to credit card payments in offline retail environments.

**H1b:** Mobile payment increases consumer willingness to pay compared to cash payments in offline retail environments.

**H1c:** Mobile payment increases impulse buying compared to credit card payments in offline retail environments.

**H1d:** Mobile payment increases impulse buying compared to cash payments in offline retail environments.

As mobile payments reduce the awareness of cash outflow, spending feels less painful. This makes it easier for consumers to lose the direct link between the purchase and the actual financial loss. This effect is known as CPD, which could explain why people often spend more with digital payment methods (Raghubir & Srivastava, 2008; Boden et al., 2020). It is therefore assumed that:

**H2:** Cognitive Payment Decoupling mediates the effect of mobile payment on willingness to pay and impulse buying.

However, these effects do not have the same impact for all consumers. Factors like age, income level, digital affinity or financial education can affect to what extent younger consumers who are more familiar with mobile payments may experience a more significant decoupling (Lavanya & Shrivastava, 2024). In contrast to that, those with less financial knowledge may have less control over their spending when using mobile payment methods (Ahn & Nam, 2022), as also explained in 2.3.2. To have a closer look on these differences, the following hypothesis is formulated:

**H3:** Consumer characteristics moderate the effect of mobile payment usage on WTP and impulse buying.

## **4 Methodology and Data Collection**

### **4.1 Research Method**

After analysing the secondary data, a quantitative study was conducted to answer the research questions of this dissertation. Overall, three experimental studies were conducted: a pre-test, a pilot test to check clarity and structure, and the final main study. For each of these studies, an online survey using the Qualtrics Survey Software was developed. This method enabled the quick and cost efficient collection of a large number of responses. As participants were able to complete the survey at any time and any location, the quality of responses improved. Something that is also important to note, is that the assurance of anonymity for the people has significantly increased their overall willingness to participate (Nayak & Narayan, 2019). The survey was primarily carried out through a Qualtrics link that was shared on social media platforms like for

example WhatsApp, Instagram, Facebook and also LinkedIn. Moreover, it was accessible offline via a self created QR code that was posted and displayed in high-traffic locations like universities. Afterwards the collected data was analysed using SPSS in order to gain statistical insights for the further analysis.

## **4.2 Sampling**

To collect the data, a convenience sampling method was used for the whole study. That means the participants were selected through channels that were easily accessible, as already mentioned before. This method was especially chosen as it is quick and practical for reaching a large amount of people, that are bringing in a wide range of distinct characteristics and behaviours. As defined by Golzar et al. (2022, p. 72), convenience sampling is “a way of selecting participants from the target population based on ease of access”. By not limiting participation based on prior payment experience, the study ensured that users as well as non-users of mobile payment methods were represented (Golzar et al., 2022).

## **4.3 Research Instruments**

During this research process, three quantitative instruments were conducted, a pre-survey to identify a well-known brand for the main study, a pre-test to identify possible gaps and issues, and finally the main study. All surveys were anonymous and were distributed via a link or QR code, as explained earlier.

### **4.3.1 Survey for Brand Identification**

To be later used in the main study, a short survey was conducted to identify a well-known technology brand that first comes to mind. Since the analysis focused on the effect of mobile payments on higher priced products, the chosen category were technology brands. This focus stands in contrast to previous studies, which have primarily examined the effect of mobile payments on low-priced products, like for example from the supermarket. Accordingly, this study aims to explore whether similar effects hold true in the context of more expensive technology products. The short survey consisted of three parts in total, an introduction into the topic, the main part in which the participants needed to rank their first 3 technology brands that come to their mind, and finally a thank you for participating (*see Appendix 1*).

This pre-survey was active from March 23, 2025 to March 27, 2025 and was answered by a total of 38 participants. As a result, Apple was identified as the clear top-of-mind brand, as it was mentioned from 88.9% as brand 1 (*see Appendix 2*). Therefore, Apple was chosen as an example brand during the main survey.

#### **4.3.2 Pre-Test Study**

Before launching the main survey, a pre-test was conducted to ensure that all elements of the questionnaire were clear, understandable, and that the three manipulation scenarios were perceived as planned. This pre-test was active from March 29, 2025 to April 1, 2025 and answered by 14 people. The results showed that everything was clear and the intended outcome was achieved. After briefly interviewing the participants, the feedback such as adding more product details (e.g., storage space) was collected and included in the final version of the survey.

#### **4.3.3 Main Survey**

After implementing these small adjustments, the main survey was conducted between April 2, and April 13, 2025 and received 254 responses. Of these, 168 people completed the survey in full length. The remaining participants may have stopped the survey due to factors such as its perceived length, technical difficulties or a lack of personal relevance and motivation. These are some common reasons for dropout in online surveys (Van Selm & Jankowski, 2006).

To ensure accessibility for a diverse audience, the survey was provided in English. And as previously mentioned, it was shared through social media channels and public QR codes to encourage a large number of participants.

### **4.4 Design and Procedure**

This study examined how payment methods (mobile, card, cash) affect consumers' WTP and impulse buying, and whether these effects are influenced by individual factors like age, income, digital affinity, or financial literacy, with CPD analysed as a potential mediator.

At the beginning of the survey, participants received a short introduction that explained the purpose of the research and informed them that all responses would remain anonymous and only used for academic purposes. Participants were then asked about their age, gender, income, education, how often they use mobile payments, how comfortable they are with digital tools,

and how confident they feel about finances, which were later used to see if different types of people reacted differently to the payment methods.

The main part of the study followed a within-subjects design, which means that all participants went through three different shopping scenarios and each representing a specific payment method. This design reduced variability and increase statistical power by exposing all participants to each condition (Charness et al., 2012). In each scenario, participants were asked to imagine purchasing an Apple iPhone 16 using the respective method and then answered the same questions, measuring their WTP, impulse buying and payment experience. This included reflections on how aware they were of the amount spent, how emotionally involved the payment felt, and whether the method made the purchase more tempting (*see Appendix 3*). At the end, participants were thanked for their time and valuable contribution.

Overall, the full survey was created using Qualtrics and took approximately 5-7 minutes to complete. All responses were collected anonymously and later analysed through SPSS.

#### **4.5 Stimuli Development**

To test the influence of different payment methods on consumer behaviour, three experimental shopping scenarios were integrated as stimuli into the main survey. Each scenario was carefully designed to simulate a realistic purchasing experience and manipulate the method of payment (mobile payment, credit card or cash).

In all conditions, participants were asked to imagine purchasing a high-value Apple product in a physical store. The text stimuli only varied in how the payment was executed. In the mobile payment condition, the process was described as seamless and easy, using Face ID on a smartphone. The credit card condition involved inserting or tapping the card and confirming the transaction with a PIN or signature. Finally, in the cash payment condition, participants handed over physical money and received their change and a printed receipt, making the payment feel especially real and tangible. Each scenario included two images to make more clear, one showing the payment method and situation, and another showing the iPhone 16 (*see Appendix 3*).

Each condition was followed by a set of questions assessing participants' WTP, impulse buying and CPD. The structure of the text stimuli was kept consistent in tone, length, and visual detail, which ensured that only the payment method varied across conditions. This controlled design

helped to isolate the psychological effects of each payment method on consumer decision-making.

## **4.6 Variable Description**

### **4.6.1 Independent Variable**

The independent variable *Mobile payment vs. Cash vs. Credit card* was tested by having participants go through three different payment scenarios for the same product. Each situation was illustrated with a detailed description of the process as well as matching photos. Participants then answered questions about each payment method before moving on to the next (see Appendix 3).

### **4.6.2 Dependent Variable**

The dependent variables, *WTP* and *impulse buying*, were recorded after each payment scenario. The WTP was measured with a numerical slider. After each scenario, participants indicated how much they would pay for the product, adopted from Boden et al. (2020). The scale ranged from €0 to €2,000, in steps of €200, based on the realistic price of the example product (iPhone 16) and to allow for more precise insights into participants' WTP compared to a standard Likert scale.

In contrast, impulse buying was recorded using the question “How likely would you be to buy this iPhone 16 spontaneously?”. The answer was given on a 7-point Likert scale from 1 (very unlikely) to 7 (very likely). The question was inspired by the approach of Lee et al. (2022), but the wording was adapted to fit the purpose of this study.

### **4.6.3 Moderator**

To examine the moderating effects, several consumer characteristics were assessed at the beginning of the survey, using demographic and self-assessment questions. These demographic information were collected through several single choice questions like for example “How old are you?”, following the idea of Lavanya and Shrivastava (2024).

After that, digital affinity was measured with statements about the participants' confidence levels, such as “I feel confident using new digital payment Technologies”, inspired by Lee et

al. (2022) and Lavanya and Shrivastava (2024). For that, a 7-point Likert scale was also used to record responses.

Finally, financial literacy was assessed using in total three statements also rated on a 7-point scale. Participants were asked to answer how confident and informed they felt about managing their personal finances. With statements like: “I understand financial concepts like budgeting, saving, and interest rates” (*see Appendix 3*).

#### **4.6.4 Mediator**

To measure the level of CPD between the act of paying and the feeling of spending, participants were asked to respond to four statements after each payment scenario, also rated on a 7-point Likert scale. One example statement was “Paying by credit card made me feel like I was losing money” (*see Appendix 3*).

To conclude, even most earlier studies used 5-point scales, this study used a 7-point Likert scale to give participants more response options. This helped to see more detailed differences in attitudes and emotional reactions, especially when it comes to payment behaviour and how confident they feel (Joshi et al., 2015).

## **5 Analysis and Results**

### **5.1 Data Screening and Multivariate Outliers**

Before starting the main analysis, the dataset was cleaned to make sure the results were valid and reliable. A total number of 265 people accessed the survey, but 52 participants did not answer a single question and were therefore removed from the sample.

The remaining 213 participants answered at least one answer and were included in the initial screening process. To prepare the data for statistical analysis, a two-step exclusion was applied.

First, all incomplete responses were excluded. Second, a multivariate outlier analysis was conducted using Mahalanobis distance in SPSS to detect cases with unusual response patterns across multiple variables. Following the recommendation by Field (2018), a conservative threshold of  $p < .001$  was applied. This strict alpha level was chosen to minimize the risk of excluding valid but slightly atypical responses and to focus only on the most extreme cases.

In total, 45 responses were excluded from the analysis, 40 due to incompleteness and 5 due to multivariate outliers, resulting a final dataset of 168 valid and also complete responses.

To ensure that this data cleaning process did not bias the findings, an additional independent samples t-tests were conducted. These compared key variables, including WTP, impulse buying, and the CPD variables between the final analysis sample and the excluded participants. Across all three payment conditions, no significant group differences were found (all  $p > .05$ ). Just one slightly significant result was found for spending awareness in the credit card condition ( $p = .061$ ), but the effect size was small and the confidence interval included zero, which indicates a low practical relevance.

Taken together, these findings confirm the data screening was appropriate. It improved internal validity without excluding relevant patterns. The full t-test results can be found in *Appendix 4*.

## **5.2 Sampling Characterization**

Overall, 168 people were included in the final analysis. The characteristics of these participants are shown in *Figure 3*, giving a clear picture of the sample.

The figure below shows the gender breakdown, with more female participants than male, which suggests a slight gender imbalance in the sample. Furthermore, the age distribution indicates that most participants are between 25 and 34 years old, making this the largest age group.

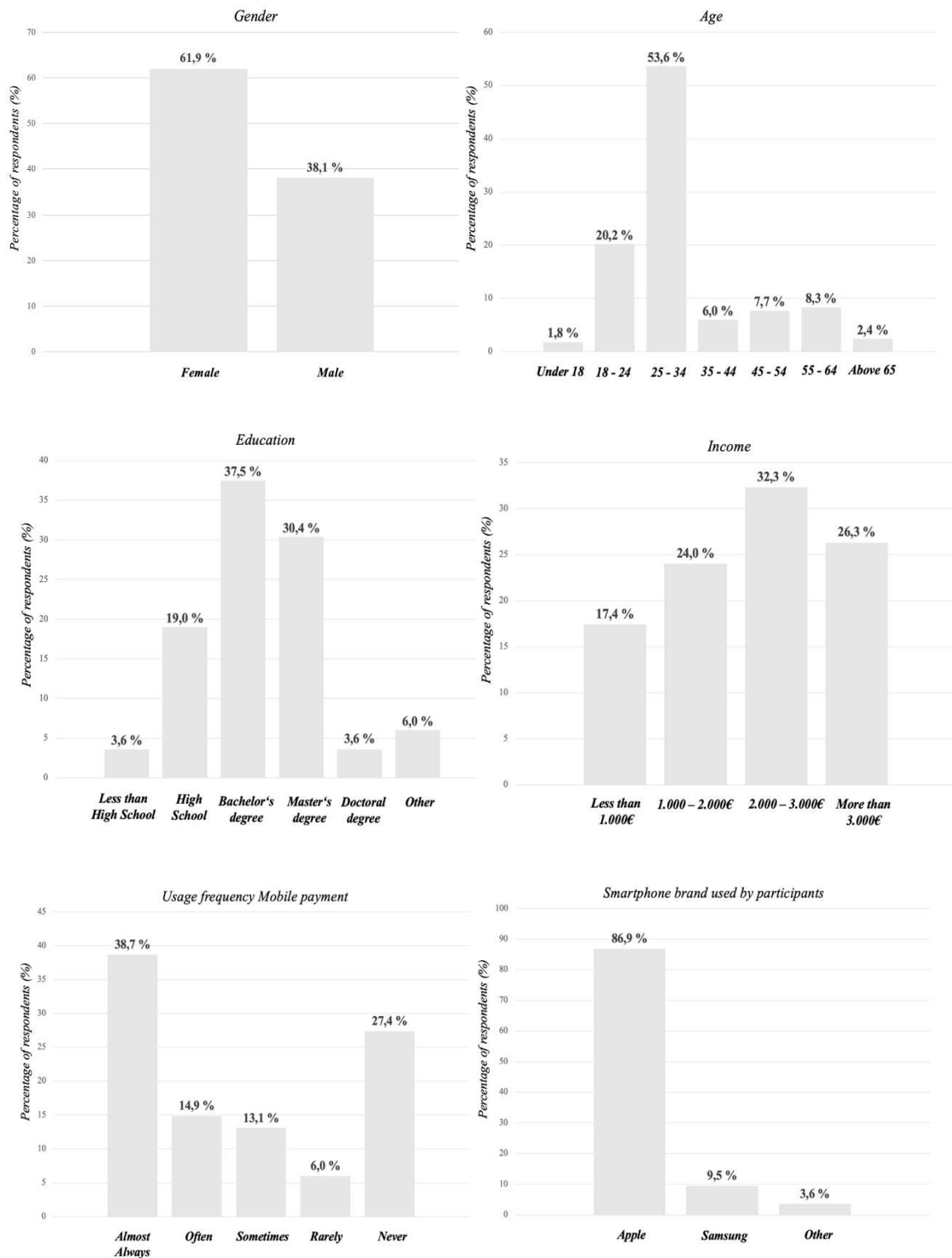
The education level of participants reveals that most have a higher education degree, mainly at the bachelor's or master's level. This higher education might make them more comfortable with digital payment methods. In contrast, income levels vary widely with many participants earning between 2.000 and 3.000 Euros. This range in income could further affect how they spend and which payment methods they prefer.

Regarding the use of mobile payments in stores, many participants often use mobile payments, while others still prefer traditional payment methods. This variety helps to provide a balanced view for studying the impact of different payment types.

Lastly, most participants use Apple devices, which aligns with the pre-test findings and supports choosing the Apple iPhone 16 as the example product in the main survey.

These figure give a detailed look at the sample’s characteristics, laying the groundwork for a thorough analysis of consumer behaviour across different groups.

Figure 3: Participants ‘ Survey Demographics



### 5.3 Scales Reliability

To ensure that the multi-item scales in this study are internally consistent and measure the same underlying construct, the reliability was tested using Cronbach's alpha. This method is widely used in social sciences to assess how closely related items are as a group. According to DeVellis (2017), values above .70 are generally considered the lower bound of acceptability, while values between .60 and .65 may be tolerated in exploratory research. Values below .60 are usually viewed as problematic.

The Digital Affinity scale consisted of two items and reached a Cronbach's alpha of .728, which shows internal consistency in line with accepted threshold. For the Financial Literacy scale, overall four items were tested. One of them "I value luxury products" did not fit well with the other items conceptually and also weakened the reliability of the scale. Therefore, it was removed and Cronbach's alpha increased from .569 to .631.

In contrast to that, the three CPD scales did not show good reliability. In fact, all three had Cronbach's alpha values below .60, in some cases even negative, which suggests that the four items in each scenario did not really measure one consistent construct. That's why it was decided to treat each item ("losing money", "awareness", "enjoyment", "temptation") as a single variable in the further analysis. Scales for impulse purchases and WTP are not included in the reliability table since they were measured as single-items for each payment condition. Since reliability testing requires multiple items per construct, Cronbach's alpha was not applicable in these cases. Still, these variables were retained for further analysis due to their relevance to the research question.

A complete overview of the tested scales, number of items, and reliability results is presented in *Table 1*.

Table 1: Scale Reliability Results

	Initial number of items	Cronbach's alpha	Cronbach's alpha if item deleted	Items deleted	Final Number of items
Digital Affinity	2	.728	-	0	2
Financial Literacy	4	.569	.631	1	3
Cognitive Payment Decoupling Cash	4	-.344	-	0	4 (single items)
Cognitive Payment Decoupling Credit Card	4	-0.67	-	0	4 (single items)
Cognitive Payment Decoupling Mobile payment	4	-.344	-	0	4 (single items)

#### 5.4 Manipulation Check

To verify whether the experimental manipulations were successfully perceived by the participants, a manipulation check before the main analysis was conducted. In line with prior research on CPD, it was tested whether three different payment methods influenced participants' awareness, temptation, loss perception, and enjoyment. These four constructs were assessed as manipulation check variables and measured through within-subject comparisons across the three payment scenarios.

To get a first impression of how the different payment methods were perceived, a descriptive statistical analysis was conducted. This helped to identify first trends in participants' responses before running further statistical tests. These results show clear differences in mean ratings across payment methods for all four manipulation check variables (*see Table 2*). For example, participants reported the highest spending awareness when paying with cash ( $M = 6.21$ ,  $SD = 1.20$ ), and the lowest when using mobile payment ( $M = 5.11$ ,  $SD = 1.76$ ). Regarding temptation to purchase, mobile payments ( $M = 3.31$ ,  $SD = 1.84$ ) showed stronger a temptation compared to cash ( $M = 2.45$ ,  $SD = 1.41$ ). Similarly, the perceived feeling of losing money was highest when paying with cash ( $M = 5.02$ ,  $SD = 2.00$ ) and lowest with mobile payment ( $M = 3.70$ ,  $SD = 1.70$ ). In terms of payment enjoyment, mobile payment has the highest score ( $M = 4.71$ ,  $SD = 1.75$ ), while cash was perceived as least enjoyable ( $M = 3.33$ ,  $SD = 1.78$ ). These results show that all three payment scenarios were perceived differently by participants, confirming that the manipulation worked as planned.

Table 2: Descriptive Statistics per Payment Method

	Cash		Credit Card		Mobile Payment	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Spending Awareness	6.21	1.20	5.61	1.33	5.11	1.76
Purchase Temptation	2.45	1.41	3.11	1.59	3.31	1.84
Losing Money	5.02	2.00	4.01	1.82	3.70	1.70
Payment Enjoyment	3.33	1.78	4.54	1.50	4.71	1.75

To test whether these mean differences were statistically significant, four separate repeated-measures ANOVAs were conducted, one for each manipulation check variable. The within-subjects factor was always the payment method, with three different levels. The dependent variables were the four CPD variables, already described above. These variables captured how participants experienced each payment method and were also used to test if the experimental manipulations were perceived as planned.

In summary, all four ANOVAs showed significant effects of the payment method. Participants perceived the payment types differently across all measured dimensions (*see Table 3*). Spending awareness differed significantly between payment types ( $F = 38.10, p < .001, \eta^2 = .168$ ), as did temptation to purchase ( $F = 21.92, p < .001, \eta^2 = .116$ ). Similarly, the perceived loss of money ( $F = 39.82, p < .001, \eta^2 = .193$ ) and payment enjoyment ( $F = 37.75, p < .001, \eta^2 = .192$ ) showed significant differences across conditions.

Table 3: Results of Repeated-Measures ANOVA Manipulation Checks

	<i>F</i>	<i>p-value</i>	<i>Partial <math>\eta^2</math></i>
Spending Awareness	38.10	< .001	.168
Temptation to Purchase	21.92	< .001	.116
Losing Money	39.82	< .001	.193
Payment Enjoyment	37.75	< .001	.192

In conclusion, these results confirm that the experimental manipulation via different payment methods was effective and successfully triggered the intended psychological perceptions, such as cognitive decoupling. Therefore, the manipulation checks validate the experimental setup and support the internal validity of subsequent analyses.

## 5.5 Main Analysis

Before presenting the main results, it is important to note that multiple hypothesis tests were conducted on the same dataset, increasing the risk of false positives, the so called “family-wise error”. To address this, a Bonferroni correction was applied. Twelve relevant tests were counted across the three hypotheses, some pairwise comparisons for H1, mediation analyses for H2 as well as regression and ANOVA-based moderation analyses for H3. Based on Field (2018), only the main tests for each hypothesis were counted. Similar or related tests were grouped to keep the correction from being too strict and missing real effects. The standard significance level of .05 was divided by twelve, resulting in a corrected threshold of  $p < .0042$  used throughout the upcoming analysis.

### 5.5.1 The Impact of Mobile Payment on Offline Buying Behaviour

*H1: Mobile payment influences consumer behaviour during offline purchasing decisions.*

*H1a: Mobile payment increases consumer willingness to pay compared to credit card payments in offline retail environments.*

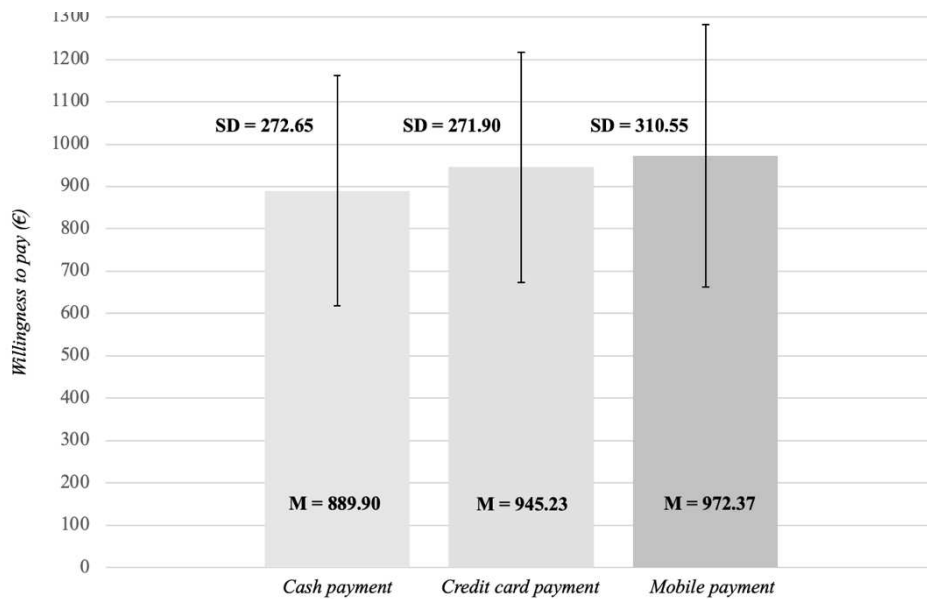
*H1b: Mobile payment increases consumer willingness to pay compared to cash payments in offline retail environments.*

To investigate whether mobile payment influences consumer behaviour during offline purchasing decisions, this section examines consumers’ WTP across the three payment methods. A repeated-measures ANOVA was conducted with three within-subject conditions (cash, credit card, and mobile payment). The analysis revealed a statistically significant effect of payment method on WTP,  $F = 19.80$ ,  $p < .001$ , with a small to medium effect size ( $\eta^2_{\text{partial}} = .106$ ).

The descriptive statistics show that participants reported the lowest average WTP when using cash ( $M = €889.90$ ,  $SD = 272.65$ ), followed by credit card ( $M = €945.23$ ,  $SD = 271.90$ ), and the highest when using mobile payment ( $M = €972.37$ ,  $SD = 310.55$ ), as it can be seen in *Figure 4*. This supports the assumption that the more seamless and less tangible a payment method is, the higher consumers’ WTP may be, as also explained in *chapter 2.1.1*. Interestingly, the high standard deviation for mobile payment also indicates greater variability in responses, suggesting that individual familiarity or comfort with mobile payment methods may moderate this effect, a possibility that will be analysed in more detail in *section 5.5.3*

Overall, these results align with Boden et al. (2020), who found that consumers are more willing to spend with credit cards than with cash, due to higher convenience and lower mental salience of the payment. The increase in WTP for mobile payment further supports (Ma et al. 2024, *see Section 2.2.1*), who describe mobile payment as the least visible and least “painful” method, thereby promoting greater spending.

Figure 4: Average WTP and Standard Deviations by Payment Method



To test H1a and H1b more directly, a Bonferroni-corrected pairwise comparisons were used. A statistically significant difference was found between mobile payment and cash ( $p < .001$ ), which clearly supports H1b. The difference between mobile payment and credit card was also statistically significant at the conventional level ( $p = .026$ ) but does not meet the corrected significance threshold of  $p < .0042$ . Therefore, H1a is not statistically supported under the applied correction. This effect should, however, be interpreted with caution, as it would have been considered significant without correction. The comparison between credit card and cash revealed also a significant difference ( $p < .001$ ), which aligns with prior literature on payment transparency (*see section 2.2.1*) and confirms that tangible payment methods tend to reduce WTP.

Table 4: Pairwise Comparison of WTP Between Payment Methods

	<i>Mean</i>	<i>p-value</i>
Mobile vs. Credit card	27.14	.026
Mobile vs. Cash	82.46	<.001
Credit card vs. Cash	55.33	<.001

In summary, only H1b remains statistically supported under the corrected significance level. Statistically significant differences were found between all three payment methods. WTP was highest when using mobile payment, followed by credit card, and lowest when using cash. This finding supports the theoretical mechanisms described in *sections 2.1.1* and *2.1.2*, where reduced salience and increased ease of use are linked to higher WTP.

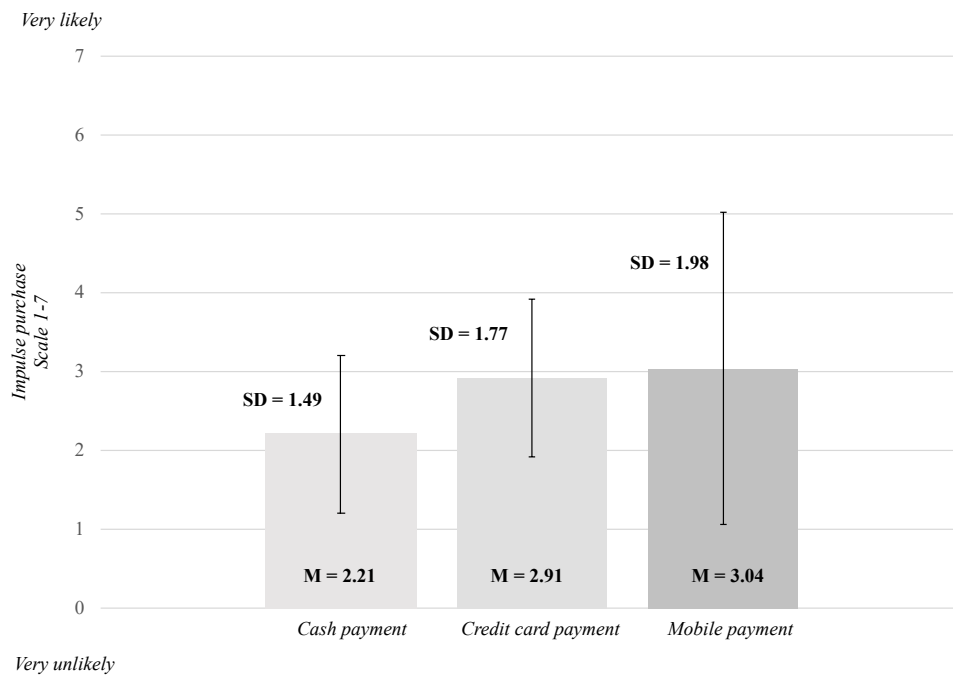
*H1c: Mobile payment increases impulse buying compared to credit card payments in offline retail environments.*

*H1d: Mobile payment increases impulse buying compared to cash payments in offline retail environments.*

Furthermore, participants were also asked to indicate how likely they would be to purchase the product spontaneously in each payment scenario. The same repeated-measures ANOVA approach was used to test differences in impulse buying across the three payment methods. The analysis revealed a statistically significant main effect of payment method on impulse buying intention,  $F = 28.56$ ,  $p < .001$ , with a medium effect size ( $\eta^2_{\text{partial}} = .146$ ). These results indicate that the payment method significantly affects how spontaneously participants imagined themselves making the purchase.

Looking at the descriptive statistics, impulse buying intention was lowest when paying with cash ( $M = 2.21$ ,  $SD = 1.49$ ), higher with credit card ( $M = 2.91$ ,  $SD = 1.77$ ), and highest when using mobile payment ( $M = 3.04$ ,  $SD = 1.98$ ). Although all values are located below the midpoint of the 7-point scale (1 = Not at all likely, 7 = Very likely), the observed data shows a clear upward trend. This also suggests that less tangible and more seamless payment methods may reduce cognitive control and spending awareness, which leads to more impulse purchases (*see section 2.3.1*). These findings are consistent with prior research showing that the ease and speed of digital payments can lead consumers towards impulsive purchases, as the reduced friction makes it easier to act without fully processing the cost (Ghaith et al., 2023).

Figure 5: Mean Impulse Buying and Standard Deviation Across Payment Methods



The pairwise comparisons with Bonferroni correction showed a clear and statistically significant difference between mobile payment and cash ( $p < .001$ ), which supports H1d. In contrast, there was no significant difference between mobile payment and credit card ( $p = .554$ ), so H1c is not supported. These results suggest again that paying with cash, being more concrete and noticeable, reduces the tendency to buy on impulse more effectively than using mobile payment, a finding that is consistent with the “pain of paying” effect (see section 2.1.1).

Table 5: Pairwise Comparisons of Impulse Buying Between Payment Methods

	<i>Mean</i>	<i>p-value</i>
Mobile vs. Credit card	0.13	.554
Mobile vs. Cash	0.83	< .001
Credit card vs. Cash	0.70	< .001

## 5.5.2 Mediating Role of Cognitive Payment Decoupling in Mobile Payment

*H2: Cognitive Payment Decoupling mediates the effect of mobile payment on willingness to pay and impulse buying.*

To analyse Hypothesis 2, a mediation test was conducted using Model 4 of the PROCESS macro, to examine whether the CPD variables explain the effect of mobile payment on consumers' WTP and impulse buying.

As explained before, CPD was analysed through four psychological variables: awareness, temptation, loss of money, and enjoyment. These variables were analysed separately as mediators, as a prior scale reliability check showed that they could not be considered as a single combined scale. Overall, two analyses were conducted, one comparing mobile vs. cash and one comparing mobile vs. credit card. The outcome variables were always either WTP or impulse buying. Also, to make sure the results were not influenced by other factors, demographic variables were included as covariate variables in all models.

Then, to test whether the mediation effects were significant, bootstrapping with 5.000 samples was used, as this method provides more robust and reliable confidence intervals, especially for indirect effects. An effect was considered significant if the 95% confidence interval did not include zero (Hayes, 2012). Lastly, to make the results more reliable in case the data shows unequal error variance, robust standard errors of type HC2 were used. HC2 considers the individual influence of each observation and adjusts the standard errors based on this, which makes the estimates more accurate, especially in small to medium-sized samples (MacKinnon & White, 1985).

Overall, the analysis for impulse buying revealed several significant mediation effects. The comparison between mobile payment and cash, showed three out of four CPD variables with significant positive indirect effects, awareness (Indirect effect = .1981, 95% CI [.0947, .3306]), temptation (Indirect effect = .2360, 95% CI [.1171, .3839]), and enjoyment (Indirect effect = .2211, 95% CI [.0853, .3791]). These results remain significant under the corrected significance threshold of  $p < .0042$ . This supports the assumption that mobile payments reduce cognitive control and enhance emotional ease and spontaneity (*see section 2.3.1*). The mediation via payment enjoyment further reflects the “pleasure of paying” effect, where seamless payments trigger positive emotions and increase spending (Wang et al., 2022; *see section 2.1.2*).

In contrast, the indirect effect of perceived loss of money was not significant, as the confidence interval included zero. In the comparison between mobile payment and credit card, only spending awareness showed a significant indirect effect at the conventional level ( $p = .022$ ; Indirect effect =  $-.2018$ , 95% CI  $[-.3730, -.0679]$ ). However, this effect does not meet the Bonferroni-corrected threshold and should therefore be interpreted with caution. The other dimensions did not show significant mediation effects.

Table 6: Mediation Effects on Impulse Buying (PROCESS Model 4)

**Impulse Buying – Mobile payment vs. Cash payment**

	<i>Indirect Effect</i>	<i>Boot SE</i>	<i>95% CI (Lower)</i>	<i>95% CI (Upper)</i>	<i>Significant?</i>
Spending Awareness	.1981	.0603	.0947	.3306	✓
Purchase Temptation	.2360	.0679	.1171	.3839	✓
Losing Money	.0518	.0532	-.0522	.1593	X
Payment Enjoyment	.2211	.0758	.0853	.3791	✓

**Impulse Buying – Mobile Payment vs. Credit card payment**

Spending Awareness	-.2018	.0779	-.3730	-.0679	X
Purchase Temptation	-.1024	.0857	-.2786	.0607	X
Losing Money	-.0218	.0238	-.0782	.0145	X
Payment Enjoyment	-.0901	.0727	-.2412	.0454	X

Regarding WTP, the results were more limited. In the comparison between mobile payment and cash, only the variable “enjoyment” showed a significant positive indirect effect on WTP (Indirect effect =  $23.7322$ , 95% CI  $[1.3646, 48.4169]$ ), which remains still significant under the corrected threshold. This finding suggests that mobile payments may increase WTP because payment enjoyment reduces perceived financial loss, which aligns with Thaler’s (1999) mental accounting framework on transaction utility (*see section 2.1.1*). The other three CPD variables did not show significant effects, as their confidence intervals included zero. In the comparison between mobile payment and credit card, none of the indirect effects showed a significant effect. This suggests that CPD mechanisms do not explain differences in WTP between these two digital payment methods.

Table 7: Mediation Effects on WTP (PROCESS Model 4)

**Willingness to pay – Mobile payment vs. Cash payment**

	<i>Indirect Effect</i>	<i>Boot SE</i>	<i>95% CI (Lower)</i>	<i>95% CI (Upper)</i>	<i>Significant?</i>
Spending Awareness	-.9516	7.6496	-17.3041	13.2150	X
Purchase Temptation	2.4065	8.0021	-12.8344	18.8419	X
Losing Money	7.7947	8.5014	-8.7329	25.5835	X
Payment Enjoyment	23.7322	11.9187	1.3646	48.41.69	✓

**Willingness to pay – Mobile payment vs. Credit card payment**

Spending Awareness	-9.4603	7.1658	-26.3187	1.5483	X
Purchase Temptation	-7.9179	7.2324	-24.0676	4.5869	X
Losing Money	-4.9581	4.6911	-15.6398	2.8500	X
Payment Enjoyment	-10.8737	8.7843	-29.5110	6.0711	X

Overall, the results provide partial support for Hypothesis 2. The mediation effects between mobile payment and cash remain robust and statistically significant under the corrected significance level, especially for impulse buying. In contrast, the indirect effects in the comparison with credit card were either non-significant or did not meet the stricter threshold. Some of these effects would have been considered significant using a conventional threshold of  $p < .05$  but must be interpreted more careful because of the correction. This indicates that mobile payment influences consumer behaviour mainly because it stands in stronger psychological contrast to cash. It appears less distinct from credit card payments in terms of cognitive and emotional processing.

### 5.5.3 Consumer Characteristics as Moderators of Payment Behaviour

*H3: Consumer characteristics moderate the effect of mobile payment usage on willingness to pay and impulse buying.*

To test how personal characteristics influence payment behaviour, multiple linear regressions were conducted. These regressions focused on digital affinity and financial literacy, examining whether their interaction with the payment method (mobile vs. cash or credit card) affected WTP and impulse buying. In other words, the analyses tested whether the effect of mobile payment usage varied depending on the level of digital affinity or financial literacy. Later, to

analyse whether other characteristics such as age, gender and income also play a role, an additional one-way ANOVA tests were conducted.

### 5.5.3.1 Willingness to Pay and Impulse purchases

#### *Willingness to pay*

First, digital affinity showed a very strong moderating effect on WTP. The interaction term was highly significant ( $\beta = .931$ ,  $t = 28.320$ ,  $p < .001$ ). This means that the more digitally affine a person is, the more likely they are to spend more when paying by phone than with cash. This supports the assumption from *section 2.3.2* that high digital affinity reduces transaction salience in mobile payments, leading to higher spending.

A similar effect emerged for financial literacy, with a strong and significant interaction effect ( $\beta = .985$ ,  $t = 72.592$ ,  $p < .001$ ). Therefore, consumers with lower financial literacy were more sensitive to mobile payment, indicating they may perceive costs less consciously. In line with *section 2.3.2* and Ahn and Nam (2022), financial literacy appears to raise cost awareness and limit overspending.

In the comparison between mobile payment and credit card usage, digital affinity again showed a very strong and statistically significant moderating effect on WTP ( $\beta = .931$ ,  $t = 30.326$ ,  $p < .001$ ). This suggests that individuals who are more digitally inclined are significantly more likely to spend more when using mobile payment compared to a credit card.

Financial literacy also remained a strong moderator ( $\beta = .979$ ,  $t = 61.651$ ,  $p < .001$ ), indicating that individuals with lower financial literacy are particularly influenced by the seamless nature of mobile payments and are willing to spend significantly more than they would with a credit card, also aligning with the findings of Ahn and Nam (2022).

*Table 8: Moderating Effect of Digital Affinity and Financial Literacy on WTP*

<b>Willingness to pay – Mobile payment vs. Cash payment</b>				
	<i>R</i>	<i>Standardized Coefficients Beta</i>	<i>t</i>	<i>Significance</i>
Digital Affinity	.911	.931	28.320	< .001
Financial Literacy	.985	.985	73.592	< .001
<b>Willingness to pay – Mobile payment vs. Credit Card payment</b>				
Digital Affinity	.922	.931	30.326	< .001
Financial Literacy	.979	.979	61.651	< .001

### *Impulse purchases*

Furthermore, the analysis of the impact on impulse purchases revealed a strong interaction effect between digital affinity and mobile payment when compared to cash. The interaction term was highly significant ( $\beta = .568$ ,  $t = 8.759$ ,  $p < .001$ ). That means, digitally affine consumers were significantly more likely to engage in spontaneous purchasing when paying with mobile devices rather than with cash, as described in *section 2.3.2*

The interaction with financial literacy was also significant ( $\beta = .598$ ,  $t = 9.622$ ,  $p < .001$ ). Consumers with lower financial literacy were more likely to make impulse purchases when using mobile payment instead of cash, likely due to a lack of cognitive control or budget awareness during the purchase process.

When comparing the use of mobile payment and credit card, digital affinity also showed a strong and statistically significant moderating effect on impulse buying ( $\beta = .913$ ,  $t = 28.026$ ,  $p < .001$ ). This means that even compared to another digital method, mobile payments still led to more impulsive purchases among people who are more comfortable with digital technology.

Financial literacy showed a similar effect, as it also influenced the link between mobile payment and impulse buying ( $\beta = .965$ ,  $t = 48.370$ ,  $p < .001$ ). Consumers with lower financial literacy were once again particularly sensitive to the impulse effects of mobile payment compared to credit card transactions. These findings are in line with *section 2.3.2* as well as Purwaningtyas and Sari (2025), who found that consumers with higher financial literacy showed significantly less impulsive shopping behaviour.

*Table 9: Moderating Effect of Digital Affinity and Financial Literacy on Impulse Purchases*

<b>Impulse purchase – Mobile payment vs. Cash payment</b>				
	<i>R</i>	<i>Standardized Coefficients Beta</i>	<i>t</i>	<i>Significance</i>
Digital Affinity	.583	.568	8.759	< .001
Financial Literacy	.602	.598	9.622	< .001
<b>Impulse purchase – Mobile payment vs- Credit card payment</b>				
Digital Affinity	.911	.913	28.026	< .001
Financial Literacy	.967	.965	48.370	< .001

### 5.5.3.2 Effects of Consumer Characteristics

In addition to the multiple linear regression analysis, a series of one-way ANOVA tests were conducted to further investigate whether factors like age, income, gender, and education level influence WTP or impulse buying behaviour. Moreover, the frequency of mobile payment usage was included as part of an additional analysis. Although not originally defined as a consumer characteristic within the conceptual model, this factor was analysed to provide further insights into behavioural differences between regular and non-regular mobile payment users, and can be found in *Appendix 5*.

#### *Age*

In line with previous regression results, age showed no significant effect in any comparison. ANOVA tests for both WTP and impulse buying revealed non-significant differences across all age groups when comparing mobile payment to cash or credit card (all  $p > .05$ ). This suggests that while age may influence adoption (*see section 2.3.2*), it does not moderate behaviour once mobile payment is used.

*Table 10: One-Way ANOVA: Age Differences on WTP and Impulse Purchases*

	<i>F</i>	<i>Df (Between Groups / Within Groups)</i>	<i>Significance</i>
WTP mobile vs. cash payment	0.147	6 / 161	.989
WTP mobile vs. credit card payment	0.701	6 / 161	.649
Impulse mobile vs. cash payment	0.812	6 / 161	.562
Impulse mobile vs. credit card payment	0.340	6 / 161	.951

#### *Gender*

Gender also showed no significant effect. Men and women did not differ significantly in their WTP ( $p = .721 / .361$ ) or impulse buying behaviour ( $p = .241 / .284$ ) for mobile payments vs. cash or credit card. Therefore, Gender appears to play no relevant moderating role in this study.

Table 11: One-Way ANOVA: Gender Differences on WTP and Impulse Purchases

	<i>F</i>	<i>Df (Between Groups / Within Groups)</i>	<i>Significance</i>
WTP mobile vs. cash payment	0.128	6 / 166	.721
WTP mobile vs. credit card payment	0.841	6 / 166	.361
Impulse mobile vs. cash payment	1.386	6 / 166	.241
Impulse mobile vs. credit card payment	1.156	6 / 166	.284

### *Income*

In contrast, income showed some statistically significant effects under the conventional threshold ( $p < .05$ ). For WTP, significant group differences were found when comparing mobile payments to both cash ( $p = .031$ ) and credit cards ( $p = .031$ ). For impulse buying, a significant difference only emerged in the comparison between mobile payment and credit card ( $p = .020$ ). However, none of these effects remain statistically significant under the Bonferroni-corrected threshold of  $p < .0042$  and should therefore be interpreted with caution. These results indicate that medium-income individuals (€1,000 - 3,000) may be more sensitive to mobile payment effects, but the robustness of these effects is limited.

Table 12: One-Way ANOVA: Income Differences on WTP and Impulse Purchases

	<i>F</i>	<i>Df (Between Groups / Within Groups)</i>	<i>Significance</i>
WTP mobile vs. cash payment	2.103	4 / 162	.031
WTP mobile vs. credit card payment	2.736	4 / 162	.031
Impulse mobile vs. cash payment	1.010	4 / 162	.404
Impulse mobile vs. credit card payment	3.004	4 / 162	.020

### *Education*

Moreover, education level showed no significant influence on either WTP ( $p = .170 / .570$ ) or impulse purchases ( $p = .219 / .573$ ), regardless of whether mobile payments were compared to cash or credit cards. This implies that factors like financial literacy may be more relevant than general education for understanding and managing spending behaviour.

Table 13: One-Way ANOVA: Education Differences on WTP and Impulse Purchases

	<i>F</i>	<i>Df (Between Groups / Within Groups)</i>	<i>Significance</i>
WTP mobile vs. cash payment	1.575	5 / 162	.170
WTP mobile vs. credit card payment	0.841	5 / 162	.570
Impulse mobile vs. cash payment	1.423	5 / 162	.219
Impulse mobile vs. credit card payment	.770	5 / 162	.573

While age, gender, and education did not reveal significant effects on WTP or impulse buying in this study, income and mobile payment usage frequency (*Appendix 5*) showed some relevant results under  $p < .05$ , though most of these did not meet the stricter Bonferroni-corrected threshold. These results reflect earlier findings by Lavanya and Shrivastava (2024), who also showed that demographic factors like income, gender, and education influence the general adoption of digital payment methods. So, even if these traits do not strongly affect spending behaviour in every situation, they still help to explain who tends to adopt mobile payments in the first place.

#### 5.5.4 Summary of Hypotheses and Results

Table 14 gives a simple overview of the results of this dissertation. It shows which effects were significant after correction ( $p < .0042$ ) and which should be interpreted with caution.

Table 14: Overview Analysis Results

Note: Significance was evaluated using Bonferroni correction ( $p < .0042$ )

<b>Hypothesis</b>	<b>Null Hypothesis (H<sub>0</sub>)</b>	<b>Result</b>	<b>Interpretation</b>
<b>H1a</b>	Mobile payment does not lead to higher WTP than credit card	H <sub>0</sub> not rejected ( $p = .026 > .0042$ )	H1a not supported
<b>H1b</b>	Mobile payment does not lead to higher WTP than cash	H <sub>0</sub> rejected ( $p < .001$ )	H1b supported
<b>H1c</b>	Mobile payment does not increase impulse buying vs. credit card	H <sub>0</sub> not rejected ( $p = .554 > .0042$ )	H1c not supported
<b>H1d</b>	Mobile payment does not increase impulse buying vs. cash	H <sub>0</sub> rejected ( $p < .001$ )	H1d supported
<b>H2</b>	CPD does not mediate the effect of mobile payment (vs. cash & credit card)	H <sub>0</sub> partially rejected	H2 partially supported
<b>H3</b>	Consumer characteristics do not moderate the effect of mobile payment	H <sub>0</sub> partially rejected	H3 partially supported

## 6 Conclusion and Implications

The purpose of this dissertation was to analyse how mobile payment influences consumer behaviour in offline shopping contexts. More specifically, it explored its effects on WTP and impulse buying, the mechanism of CPD, and the moderating role of consumer characteristics like age, income, digital affinity, and financial literacy.

In response to the first research question, this analysis suggests that mobile payment tends to increase both WTP and impulse buying compared to traditional methods, and especially cash payment. This aligns with prior findings in *section 2.1.1* on the psychological “pain of paying”, where less tangible payment methods reduce the spending awareness and increase purchase likelihood (Ma et al., 2024), as well as with the behavioural research discussed in *section 2.2.1*. Furthermore, this study offers first indications that the “pleasure of paying” (Wang et al., 2022; *see section 2.1.2*) may also occur in offline and high-involvement shopping situations. Although it was not measured as a separate factor, the higher enjoyment reported when using mobile payment suggests that emotional ease may play an important role in shaping consumer responses. This reveals a new perspective, as previous research has more focused on low-priced products or online purchases.

Additionally, the second research question focused on the mediator CPD on consumers’ WTP and impulse purchases. In contrast to the expected outcome, the mediation analysis revealed only partial effects. So, mobile payment increased impulse buying through reduced spending awareness, higher temptation, and greater payment enjoyment when compared to cash. However, only “enjoyment” showed a mediating effect on WTP. This partially supports the theoretical framework described in *section 2.3.1*, where CPD is considered. However, after applying a Bonferroni correction for multiple testing, some of these effects no longer reached the adjusted significance threshold. Also, no significant mediation effects were found in the comparison between mobile and credit card payments. This suggests that CPD alone may not fully explain the effects of mobile payment as other factors like for example convenience could play a more important role. This is also shown by Boden et al. (2020) who found that it increases WTP.

Lastly, addressing the third research question, this study provides strong empirical support for the moderating role of consumer characteristics. Participants with a high digital affinity or low financial literacy tended to show increased WTP and impulse buying when using mobile

payment, while older and financially literate participants showed a more controlled behaviour. These results confirm previous findings on financial knowledge and overspending (Ahn & Nam, 2022; Purwaningtyas & Sari, 2025), but expand on them by integrating mobile payment frequency as a behavioural moderator. Frequent users were especially prone to impulse purchases when paying via smartphone compared to cash. While some effects remained significant after correction, others require cautious interpretation. Overall, the findings confirm that consumer characteristics shape both payment adoption and shopping behaviour (Lavanya & Shrivastava, 2024; Ahn & Nam, 2022).

In summary, this study offers a differentiated view of mobile payment by combining psychological, behavioural as well as personal characteristics. It highlights the contrast between mobile and cash payments, the limited difference to credit cards, and the role of individual traits. While Boden et al. (2020) compared mobile and credit card payments in a low-involvement online setting, this study extends their findings by analysing consumer behaviour in offline, high-involvement purchases and by including impulse buying and consumer characteristics in comparison to existing literature.

## **6.1 Theoretical Implications**

This dissertation contributes to the growing literature on the psychological effects of payment methods by reinforcing key theoretical concepts. As discussed in *section 2.1.1*, the findings support the idea that reduced payment salience in mobile transactions lowers the perceived “pain of paying” and promotes higher spending (Ma et al. 2024). Moreover, the observed increase in payment enjoyment provides empirical support for the “pleasure of paying” concept in offline and high-involvement settings (*see section 2.1.2*), suggesting that emotional ease may complement cognitive mechanisms in shaping consumer behaviour.

Nevertheless, this effect does not hold compared with credit card payments, suggesting that both may trigger similar psychological responses. This underlines the importance of the chosen comparison and challenges the common assumption that mobile payments are generally more influential than other digital payment methods. As Chatterjee and Rose (2012) explained, cashless payments tend to shift attention from the cost of a purchase to the product’s benefits, which could apply equally to both cards and mobile payments. Therefore, mobile payment should not be treated as universally more powerful, but rather as one of several digital payment options for whose effects depend on the context and comparison baseline.

This thesis also extends the literature on impulse buying by examining how mobile payment influences consumer behaviour in a high-involvement, offline settings. While earlier research primarily focused on low-cost products or online settings (e.g. Lee et al. 2022; Boden et al. 2020, *see section 2.2.2*), this study shows that mobile payment can also trigger unplanned purchases even for higher-priced products. This helps to better understand what drives impulse buying by showing that the ease of digital payments can reduce the usual control people have when making expensive decisions. The results show that digital solutions can actively drive consumer behaviour, supporting the idea that technology sells. Future research should therefore consider the situational and product related factors when studying how payment methods affect consumer behaviour.

In addition, the results provide a more differentiated view of CPD. Although it has been widely used to explain the behavioural effects of digital payments (Chatterjee & Rose, 2012; Liu & Dewitte, 2021), this study offers only partial support for its importance. While CPD showed a mediation effect between payment method and impulse buying, only the “enjoyment” variable was significant in explaining differences in WTP. There was no mediation found when comparing mobile and credit card payments. These findings show that CPD is not a universal explanation and should therefore be seen as a more complex and multidimensional construct. Emotional factors like the “pleasure of paying” (Ma et al., 2024; Wang et al., 2022) might also be relevant mediators, especially in situations where paying feels fast, easy as well as enjoyable. So, future research should look at both the mental and emotional sides of the payment process to better understand how people respond to modern payment methods.

Finally, the results also show how important it is to take individual differences into account when it comes to mobile payments. People who are more comfortable with digital tools tend to spend more and also impulsively. On the other hand, those with stronger financial knowledge seem less influenced by mobile payments. This shows that personal traits and capabilities play a key role in shaping payment behaviour, also shown by Lavanya and Shrivastava (2024) and Ahn and Nam (2022). In summary, not everyone reacts the same way to mobile payments. That’s why future research should take people’s different experiences into account, knowledge levels, and digital habits to get a better understanding of how payment methods affect their behaviour.

## 6.2 Managerial Implications

From a more practical perspective, the findings offer relevant insights, especially for the retailers, app developers, and the financial service providers. Mobile payment is more than just a convenient tool, as it is actively influencing the consumer behaviour as well as their decision making. This study shows that mobile payment increases the consumers' WTP and their tendency to buy impulsively, especially when compared to the payment directly with cash (*Figure 3*). The retailers can use this for their advantage by promoting their mobile payment options more visibly in their stores, for example through in-store signage, digital displays, or verbal prompts at checkout.

In line with the research of Ghaith et al. (2023), payment processes should be fast and simple, in order to reduce friction and encouraging usage. This includes not only the terminal readiness but also small incentives like mobile-exclusive discounts or instant cashback offers to be able to encourage digital payments.

Additionally, a smoother and faster checkout process, such as for example contactless payments, one-click apps, or scan-based systems could further enhance this effect, especially for the consumers that are digitally more affine. Here, a more personalised and seamless mobile payment journey could promote both, the engagement as well as the spending. Therefore, simple visual feedback like personalised confirmations or gamified checkout animations can further reinforce the positive associations with spending.

The results also highlight that mobile payments make people feel like they are losing less money, which increases the temptation to buy. The businesses can leverage this information by creating more opportunities for spontaneous purchases, such as for example placing small or seasonal items near the checkout, offering some QR code discounts, or simply adding time-limited deals in their apps. These strategies work especially well for the people who are already very comfortable with digital tools, as they tend to react more sensitive to mobile promotions. From a responsibility perspective, it can also help to add small reminders, like for example showing some real-time spending updates or warning the users when they go over their usual limit. These subtle features can help people make more mindful decisions without getting in the way of the smooth and fast mobile payment experience.

At the same time, not all people react the same way to mobile payments. While tech-savvy users value speed and simplicity, others may feel overwhelmed or unsure. Retailers and

payment providers should therefore offer a more customisable payment journey. For example, giving users the choice between a quick or guided checkout, adding simple step-by-step instructions for first-time users, or allowing personal settings can make mobile payments easier and more accessible for everyone. This supports the findings in *section 5.5.3*, which showed that digital affinity, and financial literacy all influence how people respond to mobile payments. The study also highlights that people with lower financial literacy are especially at risk of overspending when using mobile payment, what is also in line with previous results of Ahn & Nam (2022). For these consumers, the ease of mobile payments can make it harder to control spending. App developers and fintech companies should therefore add features that encourage a more mindful use, like weekly summaries, budget alerts, or custom notifications. These tools not only help to protect users from financial mistakes, but also build trust in mobile payment systems and support long-term customer loyalty.

Overall, this study underlines that mobile payment can influence consumer behaviour beyond convenience, especially in physical stores and also for higher-value products. It demonstrates that spending behaviour is shaped by a combination of reduced payment salience and increased emotional ease. Understanding the psychological and behavioural effects of mobile payment enables businesses to improve their pricing strategies, targeting as well as product design. At the same time, it highlights the importance of responsible innovation that takes the preferences of diverse consumer groups into account.

By combining commercial opportunity with ethical design, companies can create more effective and fairer digital experiences that benefit both business and consumer.

## **7 Limitations and Future Outlook**

Although the present analysis provides valuable insights into the effects of mobile payment on consumer behaviour, some limitations must be considered.

First, the methodology of the analysis should be mentioned. An online survey was used as the main research instrument. Although this was a cost-effective and quick way of collecting substantial data this methodology also has limitations (Nayak and Narayan, 2019). It already requires participants to be connected to the internet and to have an overall digital affinity. This often leads to an overrepresentation of young people, which favours the opinion of one generation (Nayak and Narayan, 2019). This effect was also observed within this dissertation.

The sample was skewed toward digitally affine individuals, as seen in the age distribution (73.8% under 35) and frequent mobile payment usage (over 60% reported using it “almost always” or “often”). This bias may limit the generalisability of the findings to older or less digitally engaged groups. Additionally, the distribution method influenced the sample composition, the survey was shared via social media, family, friends, and extended to strangers on the street. However, using a QR code to access the survey especially appealed to younger, tech-savvy individuals, reinforcing the demographic skew.

This study was based on a convenience sample, meaning that participants were not chosen randomly but were recruited because they were easy to reach, for example through personal contacts or people passing by. While this made data collection quick and practical, it could have led to bias. As a result, the findings might not fully apply to people who are older, less digitally experienced, or not familiar with popular brands.

Furthermore, online surveys are also hard to control. They assume participants are motivated and respond honestly. In reality, low response rates, high dropout levels, and outliers can distort results (Nayak & Narayan, 2019). To address this, incomplete responses and extreme outliers were excluded during data screening.

In addition to the methodological considerations, the experimental design also represents a limitation. The online survey aimed to present the three payment methods as clearly and realistically as possible to simulate real situations. However, this approach could not replicate actual financial consequences or emotional involvement. In a real experiment, effects such as WTP and impulse buying might have been even stronger.

Furthermore, the product choice also limits generalisability. The survey used an Apple product, which could bias responses due to brand familiarity or loyalty. Moreover, 86.9% of participants reported using an Apple smartphone. This dominance may have influenced their comfort with mobile payments and biased their behaviour. Results may therefore not apply to users of other ecosystems.

Moreover, the study also measured short-term responses after hypothetical purchases. It remains therefore unclear whether mobile payments influence long-term behaviour beyond the immediate decision.

In addition, the within-subjects design may have caused fatigue or learning effects, since all participants saw the payment methods in the same order.

Lastly, only a limited number of CPD factors were examined in this study. Therefore, the absence of effects in some areas cannot be taken as conclusive evidence that mobile payment has no influence on other relevant psychological or behavioural mechanisms. Future research should consider a broader range of CPD related variables to fully capture the impact of mobile payments.

In conclusion, these limitations should be considered when interpreting the findings. They highlight the need for further research using more diverse samples, real-life payment settings, and an expanded variable set.

## 8 Appendices

### Appendix 1: Survey Brand Identification

#### Introduction to the survey

*Dear participant,*

*Thank you for participating in this survey! The survey will take less than one minute to complete, and all responses will be kept anonymous and confidential.*

*Thank you for your support!*

*Kind regards,  
Annabelle Rossow*

#### Question 1: Brand Identification Technology brands

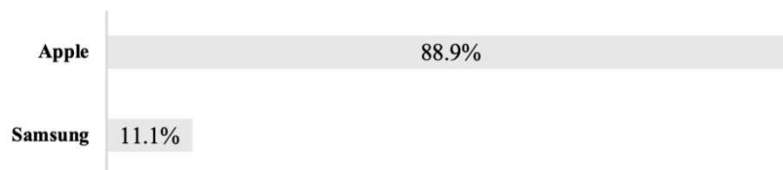
**Please name the first three technology brands that come to your mind that sell Smartphones or Laptops.**

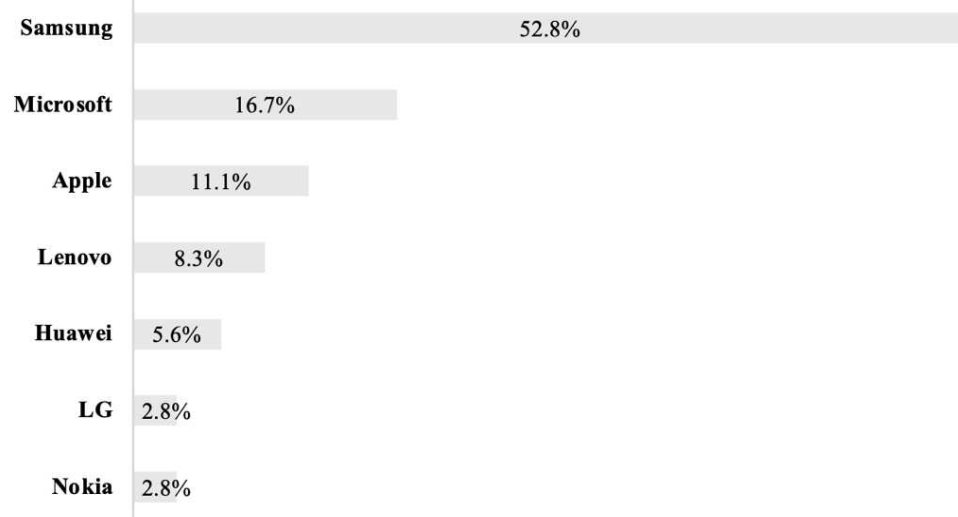
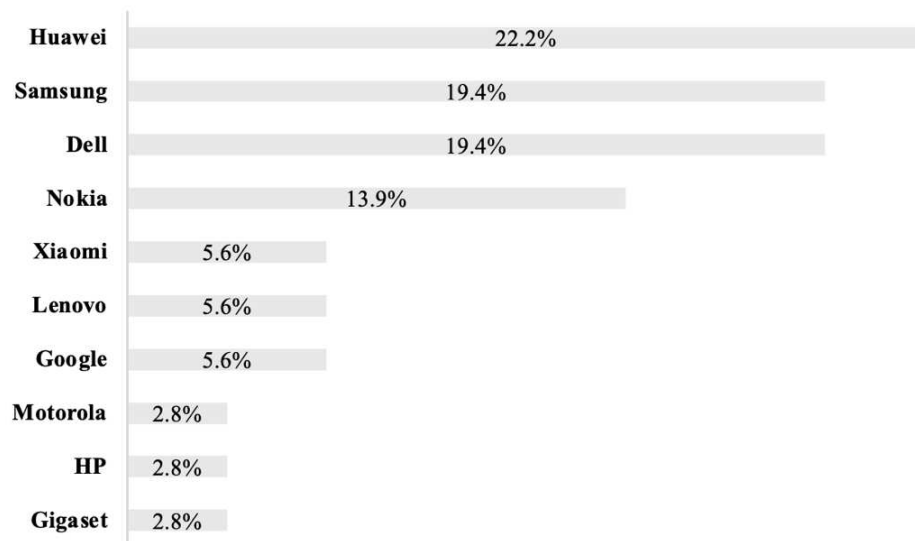
<b>Brand 1</b>	
<b>Brand 2</b>	
<b>Brand 3</b>	

#### End of the survey

*Thank you so much, your response has been successfully submitted.*

### Appendix 2: Brand Identification Survey Results





## Appendix 3: Main Survey Questionnaire

### SURVEY BEGINNING

Dear participant,

Thank you for participating in this survey! This survey is part of my Master's Thesis research, which aims to analyze purchasing behaviour across different payment methods. Your valuable insights will contribute to a better understanding of how different payment methods influence consumer decisions.

Your responses will be processed anonymously and used solely for academic purposes. All data will remain strictly confidential and will not be shared with third parties. There are no right or wrong answers, so please answer honestly.

The survey will take approximately 5 minutes.

For any questions, please contact: s-arossow@ucp.pt

Thank you very much for your support and all the best,  
Annabelle

### BLOCK A: SCREENING & DEMOGRAPHIC DATA

**Q1** What is your gender?

- Male
  - Female
  - Prefer not to say
-

**Q2** How old are you?

- Under 18 years
  - 18 – 24 years
  - 25 – 34 years
  - 35 – 44 years
  - 45 – 54 years
  - 55 – 64 years
  - 65 years or above
- 

**Q3** What is the highest level of education you have completed?

- Less than High School
  - High school graduate
  - Bachelor's degree
  - Master's degree
  - Doctoral Degree
  - Other
-

**Q4** What is your personal available monthly net income, in euros? (After taxes and deductions)

- Less than €500
  - €500 – €1,000
  - €1,000 – €2,000
  - €2,000 – €3,000
  - More than €3,000
- 

**Q5** For how many of your offline (in store) purchases do you use Mobile Payment (e.g., Apple Pay, Google Pay, Samsung Pay)?

- Never
  - Rarely (Less than 25% of your purchases)
  - Sometimes (About 25% to 50% of your purchases)
  - Often (About 50% to 75% of your purchases)
  - Almost Always (More than 75% of your purchases)
-

**Q6** Which smartphone brand do you use?

- Apple
- Samsung
- Xiaomi
- Google
- Huawei
- Other, please specify

\_\_\_\_\_

**Q7** Using a scale from 1 (extremely uncomfortable) to 7 (extremely comfortable), please rate how comfortable you are with the following statements.

	Extremel y Uncomfo rtable (1)	Very Uncomfo rtable (2)	Somewha t Uncomfo rtable (3)	Neither Comforta ble nor Uncomfo rtable (4)	Somew hat Comfort able (5)	Very Comfort able (6)	Extreme ly Comfort able (7)
1) I feel confident using new digital payment technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I enjoy trying out new financial apps or online banking tools.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q8** Using a scale from 1 (strongly disagree) to 7 (strongly agree), please rate your agreement with the following statements about financial knowledge, budgeting and luxury products.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1) I understand financial concepts like budgeting, saving, and interest rates.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I feel confident in making financial decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) I regularly track my expenses and financial transactions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) I value luxury products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### BLOCK B: EXPERIMENTAL SHOPPING SCENARIO

**Q9** Please imagine you are at an electronics store, prepared to purchase the Apple iPhone 16 with 256 GB of storage. At the checkout counter, you insert or tap your credit card on the payment terminal. You confirm the transaction by entering your PIN or signing on the terminal

screen. The full amount is paid at once, without using installments or financing. The process is familiar but requires attention to complete the transaction successfully.

All of the following questions are based on this scenario.



**Q10** How much would you be willing to pay for the Apple Phone 16, 256 GB? (Please use the slider to indicate your willingness to pay in €)

0 200 400 600 800 1000 1200 1400 1600 1800 2000

How much would you be willing to pay for the Apple iPhone 16? (€)	
---	--

**Q11** Remembering the described payment method before (paying by credit card), how likely would you be to buy this product spontaneously?

	Very unlikely (1)	Unlikely (2)	Somewhat unlikely (3)	Neither likely nor unlikely (4)	Somewhat likely (5)	Likely (6)	Very likely (7)
How likely would you be to buy this iPhone 16 spontaneously?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q12** Using a scale from 1 (strongly disagree) to 7 (strongly agree), please rate your agreement with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1) Paying by credit card made me feel like I was losing money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I was fully aware of how much I was spending during this transaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) The payment process felt enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Did you feel more tempted to buy this product because of the way you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q13** Imagine you are at an electronics store, ready to purchase the latest Apple product you have been considering — the Apple iPhone 16 with 256 GB of storage. You approach the counter, tap your smartphone on the payment terminal, and confirm the transaction via Face ID. The entire amount is paid upfront in a single payment. The process is quick and straightforward, and within seconds, the payment is completed, and you receive a digital receipt on your phone.

All of the following questions are based on this scenario.



**Q14** How much would you be willing to pay for the Apple iPhone 16, 256 GB? (Please use the slider to indicate your willingness to pay in €)

0 200 400 600 800 1000 1200 1400 1600 1800 2000

How much would you be willing to pay for the Apple iPhone 16? (€)



**Q15** Remembering the described payment method before (paying by mobile phone), how likely would you be to buy this product spontaneously?

	Very unlikely (1)	Unlikely (2)	Somewhat unlikely (3)	Neither likely nor unlikely (4)	Somewhat likely (5)	Likely (6)	Very likely (7)
How likely would you be to buy this iPhone 16 spontaneously?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



**Q16** Using a scale from 1 (strongly disagree) to 7 (strongly agree), please rate your agreement with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1) Paying with my phone made me feel like I was losing money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I was fully aware of how much I was spending during this transaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) The payment process felt enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Did you feel more tempted to buy this product because of the way you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>


**Q17** Please imagine you are at an electronics store, to purchase the Apple iPhone 16 with 256 GB of storage. After selecting the item, you walk to the counter, take out cash from your wallet, and hand it to the cashier. The full amount is paid in cash all at once, without any installments or financing. The cashier counts the coins and banknotes, gives you the change, and hands you a printed receipt. This transaction involves physically handling cash, making you fully aware of the amount spent.

All of the following questions are based on this scenario.



**Q18** How much would you be willing to pay for the Apple Phone 16, 256 GB? (Please use the slider to indicate your willingness to pay in €)

0 200 400 600 800 1000 1200 1400 1600 1800 2000

How much would you be willing to pay for the Apple iPhone 16? 

**Q19** Remembering the described payment method before (paying with cash), how likely would you be to buy this product spontaneously?

	Very unlikely (1)	Unlikely (2)	Somewhat unlikely (3)	Neither likely nor unlikely (4)	Somewhat likely (5)	Likely (6)	Very likely (7)
1) How likely would you be to buy this iPhone 16 spontaneously?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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**Q20** Using a scale from 1 (strongly disagree) to 7 (strongly agree), please rate your agreement with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
1) Paying by cash made me feel like I was losing money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) I was fully aware of how much I was spending during this transaction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) The payment process felt enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Did you feel more tempted to buy this product because of the way you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix 4: T-Test to validate data exclusion

### Impulse purchase – Excluded vs. included Samples (Cash payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	5	2.40	2.61	.277 (171)	.782	.192	-1.18 – 1.56
Included	168	2.21	1.49				

### Impulse purchase – Excluded vs. included Samples (Credit card payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	33	2.42	1.64	-1.460 (199)	.146	-0.486	-1.14 – 0.17
Included	168	2.91	1.77				

### Impulse purchase – Excluded vs. included Samples (Mobile payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	14	3.07	1.90	.054 (180)	.957	.030	-1.05 – 1.11
Included	168	3.04	1.98				

### Willingness to pay – Excluded vs. included Samples (Cash payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	5	1296.60	437.12	3.228 (171)	.001	406.70	158.01 – 655.38
Included	168	889.90	272.65				

### Willingness to pay – Excluded vs. included Samples (Credit card payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	33	839.15	428.49	- 1.841 (199)	.034	- 106.08	-219.70 – 7.54
Included	168	945.23	271.90				

### Willingness to pay – Excluded vs. included Samples (Mobile payment)

	<i>N</i>	<i>Mean (€)</i>	<i>SD</i>	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Excluded	14	679.29	424.27	-3.291(180)	.001	-293.08	-468.80 – (-117.37)
Included	168	972.37	310.55				

**Cognitive payment decoupling – Excluded vs. Includes Samples (Cash payment)**

	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Losing money	-1.759 (171)	.080	-1.618	-3.43 – .20
Spending Awareness	-1.435 (171)	.153	-.814	-1.94 – .31
Payment enjoyment	.824 (171)	.411	.673	-.94 – 2.28
Temptation to purchase	-.071 (171)	.943	-.046	-1.33 – 1.24

**Cognitive payment decoupling – Excluded vs. Includes Samples (Credit card payment)**

	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Losing money	-1.478(199)	.141	.491	-1.15 – .16
Spending Awareness	-1.873(199)	.061	-.486	-.998 – .026
Payment enjoyment	-.798(199)	.426	.233	-.808 – .342
Temptation to purchase	.943(199)	.347	.287	-.313 – .887

**Cognitive payment decoupling – Excluded vs. Includes Samples (Mobile payment)**

	<i>t (df)</i>	<i>p-value</i>	<i>Mean diff.</i>	<i>95% CI (Lower-Upper)</i>
Losing money	.048 (180)	.962	.024	-.954 – 1.001
Spending Awareness	-1.227 (180)	.221	-.607	-1.58 – 0.37
Payment enjoyment	.597 (180)	.551	.292	-.67 – 1.26
Temptation to purchase	1.477 (180)	.141	.762	-.26 – 1.78

**Appendix 5: One-Way ANOVA: Mobile payment usage frequency***Mobile payment usage frequency*

Mobile payment usage frequency emerged as a relevant differentiator when applying the conventional significance threshold. Therefore, it was included as a additional analysis during this dissertation. Regarding WTP, statistically significant group differences were observed when comparing mobile payments to cash ( $p = .028$ ), while no significant effect was found in the comparison with credit card payments ( $p = .111$ ). For impulse buying, the effect was even stronger, as frequent mobile users were significantly more prone to spontaneous purchases than non-users when mobile payments were compared to cash ( $p < .001$ ). However, only for impulse buying this effect remains statistically significant when applying the Bonferroni-corrected significance threshold. The result for WTP ( $p = .028$ ) no longer meets this stricter criterion.

Nevertheless, these findings suggest that the frequent use of mobile payment methods may increase impulsiveness, especially in contrast to cash transactions.

	<i>F</i>	<i>Df (Between Groups / Within Groups)</i>	<i>Significance</i>
WTP mobile vs. cash payment	2.791	4 / 163	.028
WTP mobile vs. credit card payment	0.841	4 / 163	.111
Impulse mobile vs. cash payment	6.508	4 / 163	< .001
Impulse mobile vs. credit card payment	1.880	4 / 163	.116

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