Factors Affecting Consumer’s Adoption of Smartphones for Mobile Commerce

Dissertation submitted in part fulfilment of the requirements for the degree of

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Declaration:

I, Carl McEvoy, declare that this research is my original work and that it has never been presented to any institution or university for the award of Degree or Diploma. In addition, I have referenced correctly all literature and sources used in this work and this this work is fully compliant with the Dublin Business School's academic honesty policy.

Signed: [Signature]

Date: 16/8/2015
Acknowledgment

The completion of this dissertation would not have been possible without the support of many people and I would like to take this opportunity to thank them.

Firstly I would like to thank my supervisor, Eva Perez for helping me complete this dissertation. Her guidance and throughout the process has been invaluable.

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Abstract

The introduction of the smartphone has changed the world for consumers. Consumers now have the power to search and shop from anywhere at anytime. The latest advancements in mobile technology, such as near field communication and mobile wallets, make it easier for consumer to make purchases.

This research attempts to find any barriers or influential factors that exist in making consumers adopt mobile technology for the purpose of shopping. The research uses the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) model as a basis for the research. The research proposes a of technology acceptance for smartphones for future research.

Keywords: Digital Marketing, mobile marketing, mobile commerce, technology acceptance, path to purchase.
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Chapter 1

Introduction

1.1 Background

This paper will examine consumer’s attitudes towards mobile commerce. The purpose of the research is gain an insight into the influential factors affecting consumers using smartphones for mobile commerce based on the ‘Unified Theory of Acceptance and Use of Technology 2’ (UTAUT2) model. The researcher will gather primary data for four constructs from the UTAUT2: Social Influence, Facilitating Conditions, Hedonic Motivation and Price and one construct from both Chen and Chang’s (2013) and Kiseol and Forney’s (2013) technology acceptance models: Anxiety.

People’s lives everywhere have been transformed by changes in technology. The way the modern day consumer can now access information on various platforms, media, channels and devices will constantly evolve. Hathaway (2014, pp.139-147) discusses the phenomenon of the modern shopper who no longer recognises the traditional opening hours that exist in the retail sector and coins the phrase “always on shopper”. The introduction of the smartphone has put more power in the hands of the consumer. New technologies have allowed shoppers to encourage a change where retail must meet the demands of consumers for personalised products that are available everywhere at any time.

Smartphones are becoming more powerful with every new update and therefore increased functionality exists. Consumers now have the power to make purchases with mobile devices from anywhere at anytime. As smartphones become more powerful they become more important from a digital marketing perspective. It will be crucial for organisations to engage with consumers and not only match customer needs and wants but to exceed in order to increase levels of mobile commerce.

1.2 Research Question

Over the next number of years consumers will have more options to pay for goods and services via smartphones. The arrival of digital wallets in the marketplace, allows consumers to easily make purchases using their smartphones, which has the potential radically change the landscape. Google and Apple are developing new ways in which they will try and convince the consumer to exchange traditional forms of payment, such as cash and credit
cards, for their services. Digital wallets are set to increase the level of simplicity in making payments, something very much desired by the modern consumer, and thus will have the potential to increase sales.

Not only will it be easier for consumers to shop online using smartphones but also it will become easier to make purchases in store. Near field communication (NFC) will also allow users to make purchases with their mobile devices by touching their phone of a NFC enabled pay point. Apple are developing hardware which will allow for the removal of touch altogether and customers will simply have to be in store to make payments. The potential to reduce queuing times and charge lower rates than VISA and MasterCard will be welcomed for both the consumer and retailer.

An example of an organisation embracing these new forms of payment technology is Starbucks. In the United States the organisation has implemented the use of digital wallets in store and its mobile payment system accounted for 14% of its sales in July 2013 (Cockshott, 2014).

A number of questions will be considered and in answering these questions the research will help determine if any barriers exist, from a consumer's perspective, to prevent using smartphones for making purchases.

The researcher proposes the following question:

“What are the influential factors in consumers using smartphones for mobile commerce?”

Sub questions the researcher wishes to address are:

“Are consumers swayed by social influences in using smartphones for making purchases?”
“Do consumers trust the security of a smartphone?”
“Do smartphones provide an appropriate platform to facilitate shopping?”
“Do consumers enjoy using smartphones?”
“Does price impact consumers use of smartphones”
1.3 Research Hypotheses

In order to complete the research project a number of hypotheses will be tested. A survey will be distributed to consumers who use smartphones to obtain the primary research necessary to complete the project.

The following are the hypotheses that will be tested in the research project:

H1: Social influence will have a greater effect with younger individuals in the use of smartphones.
H2: There will be a negative relationship between anxiety and attitude towards the use of smartphones.
H3: Facilitating conditions will have a positive relationship with performance expectancies.
H4: Hedonic Motivation will have a positive impact on purchase intentions and will not be affected by gender.
H5: Price will have an impact on usage and younger consumers will be more price sensitive.

Testing these hypotheses will allow the researcher to answer the research question. The researcher will be able make suggestions on how to address any concerns that exist for consumers. The data will provide marketers with information necessary to tackle any existing barriers and improve communication about any existing issues. The research may also provide information on how to encourage consumers to adopt new technologies such as near field communication for making payments on other mobile devices such as smart watches.

1.4 Rational for the Study

The researcher is investigating a very current topic and an area of enormous growth. Currently there is not a large amount of published academic literature in the area of smartphone adoption, as the technology is relevantly new. The research will help increase the knowledge in this field of study by adding to the literature in existence. The research project will be of both value to academics and practitioners alike.
1.5 The Dissertation Road Map

The dissertation will be broken down into a number of chapters:

Literature Review

Chapter two is the literature review and it covers a number of different areas. The main themes in the literature review are the growth of digital marketing, mobile marketing, path to purchase, mobile commerce and technology acceptance models. The author has conducted an extensive literature review in the area of technology acceptance models and has traced the research back to the original Technology Acceptance Model by Davis (1989). The review concludes and develops hypotheses.

Research Methodology

Chapter three details the research methodology that was used in carrying out this research project. It examines different approaches and philosophies and justifies the approach taken in completing this project. It also discusses limitations to the research.

Data Analysis and Hypotheses Testing

Chapter four is an analysis of the data obtained by the primary research conducted. The data will be discussed and the hypotheses tested.

Conclusion Recommendations and Limitations

Chapter five concludes the research project and discusses the results of the testing. Recommendations will be made and a model for future research presented. Limitations of the research project will also be covered in this chapter.

Personal Reflection

Chapter six will discuss the researchers experiences in completing this research paper and also discuss the learning gained from completion of the master’s program.
2.1 The Growth of Digital Marketing

Digital marketing is becoming possibly the most important area of marketing today and is rapidly changing. A ZenithOptimedia report from April 2014 forecasts that advertising on the Internet will be in excess of US$121 billion in 2014, which is a twelve-fold increase since 2002 (Green, 2014). Social media is a very important tool to today's marketer and an area of familiarity for most people. Barger and Labrecque (2013 p. 64) say that in a survey in 2012 marketers and advertising agencies planned to increase spending in this area by 59%.

Wienclaw (2008) discusses how the advancements in technology in recent years have largely been a help for business. Technologies allowing instant communication between colleagues on different sides of the world via email and video conferencing software, and the development of the Internet, which can be used to gain knowledge about competitors, customers or potential customers have all been welcome developments.

As good as these advancements in technology are for business there are a number of challenges and opportunities that marketers need to consider. The radio has a competitor in the form of advertisement-free mp3 players and television advertising has become less effective as people multitask on their smartphones during advertisements, or fast forward through them by recording shows or watching them on advertisement-free (or advertisement-light) on-demand services such as Netflix.

The advent of the digital age has developed micro-blogging sites such as Twitter. This has allowed organisations track customers’ online behaviour and gain insight into what they are saying to each other about the organisation, its products or brand. The collected data can then be modelled against behavioural data which allows the organisation develop an effective communications plan that will drive sales and offer a maximum level of return on investment (Schultz et al, 2012, p. 4)

Luck and Moffatt (2009, pp. 311-325) say 21st century marketing will be dominated by the customer. The advancement in technology allows for the customer to control the technology,
gain access to product and competitor information and purchase products and services anywhere, anytime, and tell the world at large what they think of their new purchases. They suggest that, unlike Integrated Marketing Communication, the traditional four Ps approach does not place the customer at the centre of activities. The advancements in technology have had an impact on marketing in a number of obvious ways; the growth of the Internet, mobile smartphones and tablet devices and improvements in customer relationship management software. This is evidenced by companies such as Tesco with their ‘Tesco ClubCard’, which allows customers to be directly targeted based on their purchase history. The advancements in technology have caused great changes to how communication takes place between companies and consumers. Communication is now almost at a personal, one-to-one level, as seen on social media sites such as Twitter and Facebook (Kotler et al 2008 p. 692).

2.2 Mobile Marketing - Consumers’ Relationships With Their Phones

There appears to be a considerable amount of literature, from a practitioner’s perspective, that demonstrates the increase in importance of mobile phones in regards to marketing and making purchase decisions. However despite the smartphone being an obviously excellent shopping tool, academic research in this field is relatively sparse due to the fact that it is a new medium. Some research was carried out by Google, however and published in their November 2013 study ‘Mobile Path To Purchase’, conducted by Nielsen and surveying 950 participants. Some of the key findings include:

- Consumers spend over 15 hours per week researching on mobile phones
- 69% of consumers expect to find a store within 5 miles of their location
- 93% of consumers who use mobile technology to research complete a purchase of a product or service and most of these happen in a physical store

A study carried out by the mobile phone provider O2 found that in the lead up to Christmas 2013 72% of smartphone users used their mobile phone to research presents regardless of where they planned to purchase them (Marketing Institute of Ireland, 2013).

According to Persaud and Azhar (2012) research into mobile marketing is in its infancy. Most of the early research focused on areas such as mobile phone consumption and attitudes to mobile marketing where the technology itself was quite basic and focused largely on SMS marketing. Marketers now have a much greater opportunity to interact with
consumers via smartphones, not only through the rich media such as videos that can be accessed on these devices but through apps which are pull-based and allow the consumer to search for information. Hathaway (2014) notes that today’s consumers have the power to make purchases from wherever they like at any time of the day and are not concerned with how complex the marketing world has become for practitioners. This complexity places a number of barriers in the way of a marketer reaching their target consumer with ease, such as privacy issues, a consumer's willingness to engage in mobile marketing, and the consumer having a level of control over when and how they engage in this form of marketing. Providing the correct content that appeals to a consumer at the right time is important for mobile marketing strategies. Pull-based marking strategies, where a consumer seeks information, whether through apps, social or search, are also very important to mobile marketing strategies (Persaud and Azhar, 2012).

A key finding of Persaud and Azhar’s study shows that due to the varying styles of consumer, marketers must delicately change strategies to reflect these varying styles. It is important not to disregard proper segmentation and targeting when designing and putting into action the mobile marketing strategy.

2.3 Path to Purchase

Traditionally a consumer's path to purchase would have been fairly linear. Perhaps consumers would have seen an advert on television or in a newspaper, made a trip to a shop, got some advice from a salesperson and decided whether or not to make a purchase. Nowadays almost everything the modern consumer does has been affected by advancements in technology. The modern consumer's path to purchase is much more fluid.

Nelson-Field and Riebe (2011) discuss how the fragmentation of media has become a very difficult part of the media buying process. The rapid increase in the different forms of media, largely occurring due to technology, has caused fragmentation where there are hundreds of potential media vehicles, giving rise to a much greater amount of potential touch points with the consumer or target market. This can be very useful for the consumer as it opens access to many paths on which a consumer can research and indeed go on to purchase a product, but on the other hand, it brings with it many challenges for organisations.

Hathaway (2014) suggests that mobile channels have become an important form of digital marketing and have changed the way consumers shop. “Consumers now expect their
shopping experience to be everywhere, instant and personal” and that “there is no longer a path to purchase; instead, it is an intertwining journey of search, shop and social — fuelled by mobile.”

Holmes et al's (2012) research found that mobile phones are being used at different stages in the consumer decision-making process. There is a high level of mobile phone use when consumers search for information or compare alternative products in the process. The mobile phone is also used in the pre-purchase stage on the path to purchase. Even low involvement purchases such as washing powder and bread are searched for on mobile devices. Consumers commonly search for information on stock levels and for discounts or coupons for these types of low involvement products. The study found that the amount of search increases with the level of involvement in the products, for example search is high with high level involvement products such as TVs and mobile phones and is at a medium level for middle ranking products such as DVDs and footwear. The study also found that most searches were conducted at home although some were conducted in store, at shopping centres or “out and about”.

2.4 Mobile Commerce

Mobile commerce has been defined as “where commerce occurs on an anywhere, anytime basis” (Rose et al, 2011, p.24). Rose et al (2011) describe the emergence of the Internet as a game changer in the way organisations and customers can interact. Consumers, using mobile technology, can now search for product or company information, use services such as online banking, make online purchases or engage in social networking activities on the go.

Kiseol and Forney (2013, p. 335) say, “the online shopping experience is shifting to the internet-enabled mobile phone which has widespread capabilities for serving customers.” One reason the people are moving to the new channel is that mobile allows for a more personal and interactive communication between the consumer and the retailer compared to more limited marketing communications available with traditional channels. This new mobile channel allows for the generation of far more consumer data.

Kiseol and Forney (2013, p.335) suggest that mobile shopping can be information-based and also transaction-based. Information-based for example allows retailers to provide a map to the store or send promotional material to consumers whereas transaction-based would be
consumers making a purchase or placing an order using their mobile phones. Mobile phones can also be used as a digital wallet, for example Google Wallet, allowing consumers make purchases on mobile shopping sites.

A large amount of research has been conducted into electronic commerce in terms of how effective websites are in converting visits into sales, how consumers behave online in terms of researching and purchasing products and on the online service experience (Rose et al, 2011).

A study conducted in 2012 (Holmes et al) found that consumers were beginning to use mobile phones in shopping for a wide range of products but that they were still lagging behind personal computers in the purchase process. Consumers valued the ease at which they could access the relevant information but some negative elements include a lack of trust, fun, clarity, excitement and friendliness. Holmes et al argue that these negative elements mean that smartphones are not currently a suitable technology for shopping with or that consumers have not become accustomed to its use in this fashion.

2.5 Technology Acceptance Models and Theories

A number of different researchers have developed theories and models to assess how individuals accept the use of technology. The author will now review some of the research beginning with the Technology Acceptance Model.

2.5.1 Technology Acceptance Model (TAM) - 1989 Davis

In 1989 Davis introduced the ‘Technology Acceptance Model’ (TAM), which is derived from an earlier model known as the ‘Theory of Reasoned Action’ (TRA) developed by Fishbein and Ajzen (1975).
The study by Davis yielded the following results regarding computer usage:

- Perceived usefulness is a major determinant of people’s intentions to use computers
- Perceived ease of use is a significant secondary determinant in the use of computers

It is important to note that the perceived benefits from using the technology are the fundamental assumption underlying the TAM model. Davis (1989, p. 320) defined perceived usefulness, as “the degree to which a person believes that using a particular system would enhance his or her job performance.” The perceived usefulness of a technology is a critical factor in the TAM, as this aspect will affect whether an individual will adopt the technology or not. (Kim, Chun and Lee, 2014, p. 580). Kim et al say that a positive correlation between perceived usefulness of mobile technology and its acceptance has been found in many studies. Kim et al discuss how perceived usefulness has been a key factor in the adoption in a number of areas including mobile Internet and mobile banking.

Davis (1989, p.320) defined perceived ease of use as “the degree to which a person believes that using a particular technology would be free from efforts.” It is logical to assume that people would adopt technology they perceived to be easy to use.

There are a number of other models that focus on technology acceptance including the Diffusion of Innovation Theory (DOI) (Rogers, 1995) and the Theory of Planned Behaviour (TPB) (Ajzen, 1975) for example, however they will not be a focus of this paper.

2.5.2 Limitations and Criticisms of the Technology Acceptance Model

Since its introduction the TAM has received criticism. Legris, Ingham and Collerette (2003, p. 202) say there are three limits to the TAM:
1. **Involving Students**

Their research found nine studies involving students and suggest the more research was needed in a business environment.

2. **Type of Applications**

It was found that a lot of studies examined automation software or systems development software and suggest examining the introduction of business process software.

3. **Self Reported Use**

They found the TAM to use self reported use rather than actual use of the system, which does not generate accurate data.

Yousafzai, Foxall and Pallister (2007, p. 300) suggest that the TAM’s applications are limited beyond the workplace, as the model's fundamental constructs do not adequately measure the user's tasks and how well the technology satisfies the user's tasks.

Yang and Yoo's (2003) research found that attitudes can have a significant impact on the TAM and should be considered in further research.

2.5.3 The TAM Applied

As Yousafzai et al (2007, p. 300) point out it can be difficult to apply the TAM beyond the workplace. The author will briefly highlight a relevant example underlining this observation.

Park and Chen investigate “human motivations affecting an adoption decision for smartphone among medical doctors and nurses” (2007, p. 1349). The study aims to identify factors in human motivations affecting adoption of smartphones using both the TAM and the DOI as a base model for the research. The research found that the intention of individuals to use smartphones was largely influenced by perceived usefulness (PU) and attitudes towards the using smartphones. Both PU and perceived ease of use (PEOU) positively affects attitudes towards smartphone use with PU having the greater impact. Self-efficacy had a significant effect on PEOU suggesting that if the practitioners felt comfortable in their ability to use technology they demonstrated a higher perception in the ease of use of smartphones. The results found that attitudes towards using a smartphone were the largest influencer in the user's intention to adopt the technology. PU was the second largest influencer followed by self efficacy (2007, pp. 1358-1360).
A number of other studies to evolve from TAM are discussed by Holmes et al. (2014), which reveal some similar observations. Wu and Wang (2005) found that perceived risk, cost, compatibility, and perceived usefulness were factors affecting usage of mobile commerce. Lu and Su (2009) found that anxiety had a negative effect on using mobile shopping sites. Comparatively Vrechopoulos et al (2003) carried out a study on the success factors of mobile commerce across three different European countries and the results showed that lower prices, improved security, improved devices and effective customer support were influential factors.

2.6 Unified Theory of Acceptance and Use of Technology (UTAUT) - 2003 Venkatesh et al

The TAM has been used and adapted numerous times since 1989. In 2003 Venkatesh et al reviewed eight main models of technology acceptance attempted to integrate elements across the eight models allowing the development of a unified model named the Unified Theory of Acceptance and Use of Technology (UTAUT). Upon testing, Venkatesh claims the UTAUT outperforms the eight individual models (Venkatesh et al, 2003, p. 425). The UTAUT attempts to go further than previous models. It highlights the importance of four core determinants in the acceptance and use of technology and up to four moderators of key relationships:

- Performance Expectancy
- Effort Expectancy
- Social Influence
- Facilitating Conditions

- Gender
- Age
- Experience
- Voluntariness of Use
In developing the UTAUT a longitudinal study was conducted amongst individuals being introduced to new technology in the workplace at four different organisations. In order to ensure robust results a sample population was taken from dissimilar areas across technologies, organisations, and industries’ business functions and for the purpose of use both voluntary and mandatory. Also users’ perceptions were captured as their experience of using the new technology grew. The actual usage behaviour was measured over a six-month post-training period. (Venkatesh et al, 2003, p. 437)

In formulating the UTAUT it was theorised that the four key constructs and four key moderators listed above would play a significant role in the model. It was also theorised that attitudes towards using technology, self-efficacy and anxiety would not be direct determinants of intention to use the technology. (Venkatesh et al, 2003, p. 447)

2.6.1 Performance Expectancy

Performance expectancy is defined by Venkatesh et al (2003, p.447), as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance”. This was found to be the strongest factor in being able to predict the usage of technology in the previous eight models. Venkatesh however, points out “from a theoretical point of view, there is reason to expect that the relationship between performance expectancy and intention will be moderated by gender and age” (2003, p. 449).
2.6.2 Effort Expectancy

Effort expectancy is defined by Venkatesh et al (2003, p.450) as “the degree of ease associated with the use of the system”. Three constructs from existing models, including the TAM, capture effort expectancy. It is suggested that effort expectancy is more prominent in females than for males, this is possibly influenced by different gender roles. It is also more prominent in older individuals.

Research carried out by Chen and Chang (2013) using a modified UTAUT model mixed with TAM investigated factors, which influence the acceptance of smartphones, which have in built near-field communication (NFC) technology. They define NFC as “a technology with service applications that include location-based service, mobile payment, peer gaming, and targeted advertising” (p. 609). The results of the research found a number of interesting correlations with Davis’s original study and also discovered some new insights. Chen and Chang found that effort expectancy has a significant and positive effect on levels of performance expectancy. Operating functionality of mobile devices is of great importance to consumers and this should be considered by developers, which should design easy-to-use interfaces. How well the technology works has a great impact on a person's willingness to use the technology.

2.6.3 Social Influence

Social influence is defined by Venkatesh et al (2003, p. 451) as “the degree to which an individual perceives that important others believe he or she should use the new system”. The previous models all found strong evidence to suggest “the individual's behaviour is influenced by the way in which they believe others will view them as a result of having used the technology” (Venkatesh et al 2003, p.451). Venkatesh et al (2003, pp. 453-453) point out that prior research has found social influence has a greater level of influence with individuals who try to meet the expectations of others who have the ability to both reward good behaviour and punish poor behaviour. It is also more prominent with people with low levels of experience and when and individuals opinions are not well formed. This level of influence will dissipate over time as an individual's experience grows. It is also found that females are, to a greater extent, more sensitive to others’ opinions therefore social influence is a greater factor among the female market.
Chen and Chang (2013) found that social influences have a positive impact on the use of NFC technology. They speculate that if people's close friends and family use the technology they are more likely to adopt it. Kiseol and Forney (2013) also found social influence to have a positive impact on behavioural intention.

### 2.6.4 Facilitating Conditions

Facilitating conditions are defined by Venkatesh et al (2003, p. 453) as "the degree to which an individual believes that an organisational and technical infrastructure exists to support use of the system." Chen and Chang found facilitating conditions to have a positive effect on behavioural intentions in the use of NFC (2013, p. 621).

A number of other papers have tested the UTAUT in various situations, which are relevant to this research paper. Chen and Chang outline all the different elements already discussed in this literature review as contributing factors in the attitude toward use of technology. Chen and Chang's research combines both the UTAUT and the TAM in order to devise a questionnaire, which enables the development of a modified UTAUT model. Gender, age and experience are considered to be interference variables in the new model (2013, p. 614).

Venkatesh et al did not include attitude toward the use of technology (ATU) however, Chen and Chang found ATU to have a positive relationship with behavioural intention and was its most important influencing factor. This suggests most people are willing to use new technology such as NFC for making payments. It was found that facilitating conditions also had a positive effect on behavioural intention but not to the same extent as ATU suggesting participants were not fully aware of the capabilities of NFC (2013, p. 621).

Chen and Chang suggest that going forward telecoms companies must pay attention to developing appropriate NFC mobile phone service business models and marketing strategies (2013, p. 622).

![Figure 2.4: Proposed Research Model for NFC Use (Source: Chen and Chang, 2013)](source)
2.6.5 Anxiety

Anxiety is a new construct in Chen and Chang’s model. As already mentioned Venkatesh et al decided anxiety would not be used in the construction on the UTAUT. Chen and Chang, however, found that anxiety could have a negative and significant impact on the use of technology. Chen and Chang assume users are worried about personal data being stolen through the use of NFC technology.

In order to gain a greater insight into the negative effects anxiety has on the use of mobile technology the author has reviewed a paper by Kiseol and Forney (2013). The paper examines how technology anxiety effects mobile shopping adoption using a modified UTAUT model. Kiseol and Forney discuss a number of underlying issues with mobile shopping. They say the mobile shopping channel is different from traditional shopping channels such as in-store and catalogues and even differs from online shopping. Also as mobile phones are an extremely personal device mobile shopping services have a number of security and privacy issues that may be higher than in other shopping channels. The fact that mobile shopping is a new channel made available with faster connections, such as 4G, and has to be conducted on a small screen size, may cause anxiety amongst users in its early stages of development. Therefore consumer anxiety may be a significant barrier in consumers using mobile phones as a shopping channel (2013, p. 334).

The major difference in the model by Kiseol and Forney and the original UTAUT is the addition of two affective measures, hedonic performance expectancy and consumer anxiety, and by positioning facilitating conditions as a preceding factor in understanding consumer mobile shopping adoption (2013, p. 336).

Effort expectancy was removed from the model in order to analyse the effect of facilitating conditions on mobile shopping adoption as effort expectancy conflicted with facilitating conditions. With mobile technology developing faster and with consumers being more familiar with using it, consumers’ perception of ease of use of mobile technology may rise. The actual functions on the mobile phone itself may have a greater effect on a consumer’s adoption of mobile shopping than the consumer’s perception of ease of use (2013, p. 336).

Facilitating conditions with mobile shopping are slightly different to Venkatesh et al’s original study. Kiseol and Forney (2013, p. 336) highlight the fact that with mobile shopping support staff and a shopping assistant for example may not be available. However mobile phone
technology in itself may in fact act as a shopping assistant through search functionality available on the devices. As mobile shopping is a voluntary act a well-designed interface on an advanced handset may play a major role in facilitating mobile shopping. Therefore in a mobile shopping technology context the user's knowledge of the device would be relevant in measuring facilitating conditions. Facilitating conditions on a mobile device such as a well-designed interface, increased network speed (4G/5G) and the user's knowledge of the shopping functions would allow consumers access mobile shopping services with minimal technological barriers and may increase consumers' performance expectancy levels of mobile shopping. Therefore high facilitating conditions would increase performance expectancies with mobile shopping services.

The original UTAUT does not consider the hedonic, entertainment or experiential aspects of using technology. Kiesol and Forney consider these to have a significant impact on behavioural intention. Hedonic performance expectancy is the level to which a user thinks the technology is fun. Kiseol and Forney put forward the argument that the lack of these from the original UTAUT in relation to performance expectancy could limit the interpretations when analysing mobile shopping adoption (2013, p. 336). Therefore Kiseol and Forney incorporate a hedonic performance expectancy construct into their adapted UTAUT to gain a greater understanding of consumers' mobile shopping adoption behaviour.

Utilitarian performance expectancy is the degree to which an individual believes that using a technology will allow them to complete a task. It is derived from the idea that consumers expect to get a useful, economically effective and productive experience when they use a service. Venkatesh et al say utilitarian performance is the strongest predictor in the intention to use a technology, which implies having an efficient and functional technology will encourage consumers to use it. Personalisation, saving time and shopping on the go made possible by mobile technology will allow for increased efficiency and effectiveness results in increased performance expectancy (Kiseol and Forney, 2013, p. 337).
The results of Kiseol and Forney’s research identified critical determinants for consumer adoption behaviour of mobile shopping. Facilitating conditions, utilitarian performance expectancy, hedonic performance expectancy and social influences are significant constructs in predicting mobile shopping adoption according to the researchers. Contrary to these findings a study by Teo et al (2015, p. 322) focusing on mobile payments found that social influence was an insignificant construct. It was found that mobile users make independent adoption decisions without the influence of social influences. The study also found that performance expectancy had an insignificant relationship with behavioural intention.

As discussed performance expectancy was the strongest predictor in the original UTAUT, Kiseol and Forney’s research found that hedonic performance expectancy to be the strongest predictor in the intention to use mobile shopping in the new model. They argue that these results show that entertainment and experiential functions and features of mobile shopping reinforce the benefits to the consumer of using this channel and in the end they drive the users adoption of mobile shopping. Therefore it is suggested that retailers and mobile marketers should develop hedonic aspects of mobile shopping services making them visually and emotionally appealing with multidimensional product views. Also when retailers and mobile marketers design functions and features for mobile shopping services they should consider the experiential and entertainment aspects of the service. These are critical for creating an experience users desire (2013, p.343).

The research found facilitating conditions as a significant precondition to using mobile shopping. The facilitating conditions for mobile shopping may be influenced by device capabilities, low fees for services or for purchasing using mobile devices. In order to
encourage more consumers to adopt mobile shopping it is suggested that retailers and mobile marketers provide a shopping experience that is compatible across devices with a consumer centric mobile interface that has the ability to increase efficiency and effectiveness based on user preferences (Kiseol and Forney 2013, p. 343)

Kiseol and Forney's research found that the effect of facilitating conditions on utilitarian and hedonic performance expectancy was significantly higher for consumers with low levels of anxiety than with those experiencing high levels of anxiety. The researchers suggest that this means consumers with lower levels of anxiety have a higher perception of facilitating conditions than those with higher levels of anxiety. Therefore providing better facilitating conditions may help to overcome consumers’ anxieties, particularly in the adoption stage. The research also found that consumers with a high level of anxiety are more likely to be influenced by referrals more so than low-level anxiety consumers. Communicating through the use of social media, having customer reviews of their experience using mobile shopping readily available and an ‘ask the expert’ option, are suggested to be a good way of promoting mobile shopping to high anxiety consumers. Having a lot of testimonials, lots of user-generated content such as positive word of mouth reviews may be able to help reduce anxiety for mobile shopping. (Kiseol and Forney 2013, p. 344)

Kiseol and Forney (2013, p. 344) say that facilitating conditions are the biggest factor in convincing consumers to move to mobile shopping. Having the proper technology will increase performance expectancy while decreasing levels of anxiety for mobile shopping. The possibility of social influence through the use of social media can also help to reduce levels of anxiety in high anxiety individuals. Focusing on designing mobile shopping services that increase levels of utilitarian and hedonic performance will be key to engaging the consumer, improve their shopping experience and also increasing consumer retention rates.

2.7 Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) - 2012 Venkatesh et al

In 2012 Venkatesh et al updated their original UTAUT model to the UTAUT2, which incorporates three new constructs: hedonic motivation, price value and habit. The researchers claim that this new model “produced a substantial improvement in the variance explained in behavioural intention (56% to 74%) and technology use (40% to 52%)” (2012, p. 157). UTAUT measured the factors affecting the use of technology primarily in the context of individuals within an organisation. As already demonstrated in this literature review the
UTAUT has been used numerous times as a blueprint for measuring the adoption of technology in different settings. Venkatesh et al say that whilst the studies using UTAUT as a platform have been valuable in expanding understanding in this area there is a need to conduct more research to investigate the prominent factors affecting the adoption in a “consumer technology use context” (2012, p.158).

With this in mind Venkatesh et al developed a new model of technology adoption with a particular focus on the consumer’s use of technology. With the consumer technology industry being worth billions of euros Venkatesh et al (2012, p.158) argue that understanding UTAUT in a consumer context will be very beneficial. UTAUT2 identifies key constructs and relationships that are integrated into the original model:

- Hedonic Motivation
- Price Value
- Habit

Voluntariness of Use is dropped as a moderator from UTAUT2 and a link is created between Facilitating Conditions and Behavioural Intention.

![Figure 2.6: Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) (Source: Venkatesh et al, 2012)](image)
2.7.1 Hedonic Motivation

Venkatesh et al say ‘Hedonic Motivation’ can be defined as “the fun or pleasure derived from using a technology” (2012, p. 161) and in a consumer context is a very powerful factor in the use of technology. As discussed, just as other researchers, Kiseol and Forney, have acknowledged the importance of hedonic aspects of technology and included them into their research, we see that Venkatesh et al incorporates hedonic motivation into UTAUT2.

Davis et al (2013, p.13) examined the effects of gender on hedonic motivation for shopping online. They propose a model that suggests when consumers shop online their behaviour is moderated by two gendered behaviors: offline and online. This suggests that both male and females can take a different approach between shopping online and in store. Davis et al (2013, p. 25) tested a hypothesis that hedonic shopping motivation online has a significant effect on purchase intentions online moderated by gender. This hypothesis was rejected in the study. They conclude that there is no online gender effect.

Yim et al (2014, p. 528) point out that in the context of shopping in physical retail stores, hedonic shopping factors have been a very strong force in both encouraging and discouraging consumers making purchases. Furthermore the researchers mention, “hedonic consumption motivation suggests that purchases are inspired by the desire for pleasure, joy and fun” (2014, p. 529).

2.7.2 Price Value

Venkatesh et al (2012) infer that ‘Price Value’, a new element in the UTAUT2, as a very important difference between an organisational setting and a consumer setting. There will be a cost involved for an individual consumer, which may impact on their use of the technology. Consumers will have a positive price value when the perceived benefits of using the technology outweigh the costs involved and therefore price value will have a positive impact on intention. Kim et al (2014, p.580) consider the Value Based Adoption Model and argue that with the adoption of smartphones amongst college students that perceived price and perceived value may play an influential role due to lower income levels compared to older individuals. Kim et al (2014, p.585) concluded that whilst students found owning a smartphone as costly they thought it was worthwhile.
It was noted by Hulkower (2015) that the availability of home and public Wi-Fi networks allows individuals to consume an unlimited amount of data without incurring charges with their network providers for running over data plans. It is also noted that data plans are following a trend of offering more data for lower prices, making it more enticing for the consumer. There are more network providers offering ‘all you can eat’ data plans. Dublin City Council provides a number of free Wi-Fi hotspots in the city centre allowing consumers access to data on the go (Dublin City Council, 2015) (See Appendix 2). Dun Laoghaire Rathdown County Council also provides free Wi-Fi covering the entire town of Dun Laoghaire, an area of 1.4 square kilometres (Dun Laoghaire Business Improvement District, 2014).

2.7.3 Experience and Habit

Limayem et al (2007, p. 705) define habit as “the extent to which people tend to perform behaviours (use IS) automatically because of learning.” Limayem et al’s research attempts to incorporate the role of habit as a construct into the usage of information systems. (Appendix 1).

‘Habit’ is the final addition to UTAUT2. In 2003 Venkatesh et al measured experience based on time over three periods: post training, one month after training and three months after training. Habit can be measured in two ways: firstly it can be measured by prior behaviour and secondly it can be measured by the extent an individual believes the behaviour to be a habit. Venkatesh et al claim there are two clear distinctions between habit and experience. Experience is necessary, but not enough by itself to form a habit. Secondly, experience over time can form different levels of habit for different individuals depending on their usage of the technology.

Venkatesh et al’s (2012, p. 171) research returned some interesting results. Hedonic motivation was found to be a critical determinant of behavioural intention and was deemed to be more important than performance expectancy. Hedonic motivation on behavioural intention was found to be stronger for younger men with less experience using the technology. Price value was found to be a more important factor for older women. It is suggested therefore that both hedonic motivation and price value, and their interactions with UTAUT moderators, are crucial in expanding both the scope and applicability of the UTAUT model to a consumer.
Venkatesh et al (2012, p. 172) say that facilitating conditions are an important element to UTAUT2 from a consumer perspective as they are now moderated by age and gender. The results found facilitating conditions to be a more important influencer for older women who viewed the availability of resources, knowledge and support as an essential factor in using the technology.

One notable difference with Venkatesh et al’s finding between the models was on the effect of behavioural intention on technology use. In UTAUT behavioural intention had a positive direct effect on use, in the consumer context in the updated UTAUT2, the effect was moderated by experience.

Venkatesh et al found that older men with a lot of experience using the technology rely on habit as a driver for using the technology.

2.8 Literature Review, Conclusion and Hypothesis Development

The growth of digital marketing outlined at the beginning of the literature review highlights the importance of this area for marketers going forward. With a twelve-fold increase in spend on digital marketing from 2002 to 2014 and with digital devices such as smartphones and tablets becoming more common the area is set to continue to grow in importance. The traditional methods of communicating with consumers have changed forever. Marketers need to take a much more integrated approach with their communications due to the increased amount of touch points existing with consumers. It is now possible to communicate at a near personal one to one level with consumers, particularly with the increased usage of smartphones.

Persaud and Azhar (2012) point out that research in the area of mobile marketing is sparse and therefore there is a need to investigate this area more. Google’s ‘Mobile Path to Purchase’ study returned some interesting results on the importance of smartphones to consumers when researching for products. In November 2013 consumers were spending, on average, 15 hours per week researching on their smartphones. It is quite possible that this has increased due to faster network speeds and improved technology. Hathaway (2014) suggested that consumers now have the ability to make purchases from anywhere at any time, and refers to the modern consumer as the ‘always on shopper’. 
The consumer's path to purchase has changed significantly in recent times and has become more fluid. Nelson-Field and Biebe (2011) highlight how the fragmentation of media, due to new technologies, has made selecting the correct channels of communication more complicated for organisations yet at the same time has made it easier for a consumer to research a product or service. Hathaway (2014) says that the path to purchase no longer exists and has been replaced by an intertwining journey that is fuelled by mobile.

The Internet has been recognised as a game changer in the way interaction takes place between organisations and consumers by Rose et al (2011). Consumers can now research for products and services, do banking and be active on social networking sites on the go. Kiseol and Forney (2013) again highlight the importance of the personal communication now available between the retailer and consumer as one of the main reasons that mobile is so important. Mobile, as a channel of communication, also produces higher levels of consumer data that were previously unavailable with traditional channels. This allows for much more precise and accurate measurement of communication. Holmes et al (2012) says a shift to mobile is taking place however personal computers were still ahead in terms of purchasing. It was found that consumers liked the ease at which they could access information but some underlying negative elements such as a lack of trust, fun, clarity, excitement and friendliness existed. Holmes claims that due to these issues mobile is not a suitable technology for shopping or that consumers are not accustomed to using it in this way as yet.

To investigate whether Holmes’ idea that consumers are not accustomed to using the technology for purchasing is correct, the author reviewed a number of technology acceptance models and theories.

The author reviewed Davis’s Technology Acceptance Model from 1989, which yielded two results regarding computer usage:

1. Perceived usefulness of technology is a major factor in people’s intention of usage
2. Perceived ease of use is a secondary determinant in people’s intention of usage

Kim et al’s (2014) research turned up similar results in relation to perceived usefulness. It was found to be a factor in the adoption of mobile technology.

There are a number of limitations to Davis’ study as outlined by LeGris et al (2003) and Yousafzai et al (2007), who suggest that its applications are also quite limited outside the
workplace. Park and Chen (2007) conducted a study on the usage of smartphones by doctors and nurses; as it was conducted in the workplace it was not consumer focused.

In 2003 Venkatesh et al created a new model of technology acceptance known as the UTAUT, which was a combination of eight previous models. There are four key determinants and four key moderators in the model.

Venkatesh et al found that performance expectancy was the strongest predictor in the usage of technology in the eight previous models and that there is a reason to believe that the relationship between performance expectancy and intention will be moderated by gender and age.

Venkatesh et al (2012) found that effort expectancy was more prominent in older individuals. Chen and Chang (2013) also found effort expectancy to have a positive effect on performance expectancy. They suggest developers need to be conscious of designing easy to use interfaces for consumers.

Venkatesh et al (2012) say social influence expectancy is more prominent with individuals who have low levels of experience using the technology. Social influence will dissipate over time as people become more familiar with a particular technology. Chen and Chang (2013) speculated that the impact of social influence would be evidenced if an individual were to be more likely to use a technology if their close friends and family also used it. This leads the author to the following hypothesis:

\[ H1. \text{ Social influence will have a greater effect with younger individuals in the use of smartphones.} \]

Anxiety is a construct in both Chen and Chang’s (2013) and Kiseol and Forney’s (2013) technology acceptance model’s. Chen and Chang (2013) found that anxiety could have a significant impact on the use of technology, as people are worried about their personal information being stolen. Kiseol and Forney (2013) investigated this idea in greater depth and outlined how mobile shopping is different to traditional methods. They say that smartphones are an extremely personal device and this leads to higher levels of anxiety for consumers. This consumer anxiety may be a barrier to consumers using mobile technology as a channel for purchasing. Wu and Wang (2005) also highlight risk as a factor affecting mobile commerce along with Lu and Su (2009) who agreed that anxiety had a negative
effect on using mobile shopping sites, therefore the author puts forward the following hypothesis:

\[ H2. \text{ There will be a negative relationship between anxiety and attitude towards the use of smartphones.} \]

Venkatesh et al (2012) found that facilitating conditions were a factor in the adoption of technology. Chen and Chang (2013) found facilitating conditions to have a positive effect on the adoption of near field communication. Kiseol and Forney's (2013) model differed to the original UTAUT, as facilitating conditions with mobile shopping are different to Venkatesh et al's original study. For example support staff or a shopping assistant may not be available with mobile shopping. A well-designed interface, fast network speeds, low fees and user knowledge may influence mobile shopping levels. Improving facilitating conditions may help lower levels of anxiety caused by mobile shopping. The researchers say facilitating conditions are the biggest factor in convincing consumers to move to mobile shopping. Removing technological barriers and developing a consumer centric interface may increase consumers' performance expectancy levels thus the following hypothesis is suggested:

\[ H3. \text{Facilitating conditions will have a positive relationship with performance expectancies.} \]

Kiseol and Forney (2013) included hedonic performance expectancy into their model and found it to have a significant impact on behavioural intention. They say that as hedonic motivation is lacking from the original UTAUT it could limit interpretations for the analysis of mobile shopping. Utilitarian performance expectancy was also included into Kiseol and Forney's (2013) model and looks at the degree to which a consumer believes using a technology will allow them complete a task. Their research found facilitating conditions, utilitarian performance expectancy, hedonic performance expectancy and social influences to be important in predicting mobile shopping adoption. Hedonic performance was found to be the strongest predictor, suggesting mobile marketers focus on this element.

In 2012 Venkatesh et al updated the original UTAUT to the UTAUT2 with a focus on consumers. Hedonic motivation has been included as a new construct in UTAUT2. The fun and pleasure that is derived from using a technology is very powerful and was found to be a critical factor and was deemed to be more important than performance expectancy.
Considering Davis’s (2013) study resulting in no online shopping gender effect the following hypothesis is presented:

\[ \text{H4. Hedonic Motivation will have a positive impact on purchase intentions and will not be affected by gender.} \]

Price value is a new addition to the UTAUT2. Price was found to be different in an organisational and consumer setting as there will be costs to the consumer that may influence the use of technology. As discussed by Kim et al (2014) younger individuals may be more price sensitive due to lower income levels therefore:

\[ \text{H5. Price will have an impact on usage and younger consumers will be more price sensitive.} \]

Experience and habit are the final two new elements to have been introduced in the UTAUT2.
3.1 Introduction

Research is defined as “something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge” (Saunders et al., 2012, p. 5).

In this section will be outlined the methods used to collect data, how to design the research and also how the research will use the data to show the relevant findings. An analysis of the research methodologies and methods was conducted to find the one most appropriate or combination for this area of research.

3.2 Methodology

According to Fisher (2004, p. 33) methodology is the study of methods, which raises a number of philosophical questions for a researcher. The meaning of the term methodology in a research context refers to the overall approaches that are available and to the perspectives of the process. Methodology could be considered to be the philosophy or general principle, which guides the researcher and addresses a number of issues such as time constraints, dilemmas and ethical choices to need to be considered. It covers the various theories in existence of gathering knowledge (Dawson 2002, p. 34). Saunders et al. (2012) says that methods refers to techniques and procedures which are used to obtain and analyse data and that methodology refers to the theory of how the research should be undertaken. The methodology therefore provides assistance for the researcher in addressing and facilitating the answering of the questions proposed.

The process of research can be considered similar to travelling a journey where the researcher must interact and overcome different choices, constraints and biases and also learn from the process.

3.3 The Research Onion

Saunders et al (2012, p.128) developed a useful way of looking at research and constructed a diagram referred to as the ‘research onion’. The research onion was developed in order to describe the different stages a researcher must undertake when formulating a research
methodology and it breaks down the process into different layers. In preparing for this research project the author studied the research onion. The methodology used in this research project will follow the steps described by Saunders et al.

![Research Onion (Saunders et al, 2012)](image)

3.4 Research Philosophy

The first stage in the research process is to define a research philosophy suitable to the project. The philosophy will provide justification for how the research will be carried out. Philosophies can differ based on the desired outcomes and goals of the research project. How a researcher views the world they live in will inevitably shape a research question and the design associated with answering it. It is therefore important to take the appropriate time to select the correct philosophy.

There are ten different possible philosophies outlined by Saunders et al (2012) in the outermost layer of the onion including: Pragmatism, Interpretivism, Objectivism, Subjectivism, Realism and Positivism. The researcher spent considerable time investigating each philosophy put forward. These philosophies were then narrowed down into potential approaches and the potential options are discussed below.

*Pragmatism* (Kelemen and Rumens, 2008, cited in Saunders et al, 2012, p. 130) is described as the idea that the only concepts that are relevant are those that support action. This means the most important factor determining the researcher's position is the research question. There may be different positions that are more appropriate depending on the question in hand. This approach was strongly considered by the research as an appropriate approach, however on further investigation it was not chosen.
Interpretivism according to Fisher (2007, p.41) is interpretative research, which examines people’s accounts of how they make sense of the world and the structures and processes existing within it. Saunders et al say Interpretivism will require the researcher to have understanding of people in their role as social actors (2012).

Realism is a position which using a scientific approach for creating knowledge and is concerned with the social aspects of business. This philosophy looks at their being a reality independent of the human mind. What can be seen by the research is only part of the picture making up the social world. Saunders et al (2012, p. 136) describe realism as what one witnesses or experiences and the mental process involved in interpreting those experiences.

Interpretivism is an approach, which considers the subjective views of reality from the point of view of the participants and may indeed change over time as the participants themselves change.

The researcher decided that Positivism is the best and most suitable approach to take in conducting the research. Positivism is considered to be a structured approach taken by a researcher. This methodology is used when replicating or testing theory. Positivism affirms objective statements about the social reality that can be observed which are not based on the nature of the viewer. Positivism can be considered similar to the natural sciences, which generate hypotheses and gather facts, which will either support or reject the proposed hypotheses. This approach is tends to involve large volumes of quantitative data. It can be argued that the world is far too complex to be viewed in such a way by generalising this complexity down to a number of laws. The researcher is looking at previous models that have been designed and is attempting to test theories put forward in these models. The researcher is applying the theories in these models to a new medium, the smartphone, and is using quantitative data gathered from a survey.

Saunders et al (2012, p. 7) say that it is not necessary nor expected for a researcher to become a philosopher but it is expected that the researcher acquires enough knowledge so as to avoid making errors, for example using an inappropriate research method that will not have the capabilities to answer the proposed research question.
3.5 Research Approach

In this layer of ‘the onion’ the two method options available are either deductive or inductive. Saunders, (2012) outlines both as:

**Deductive Approach** – Testing theory: in which a theory and a hypothesis would be developed and design a research strategy to test the hypothesis, similar to scientific research. *(Positivism Philosophy)*.

**Inductive Approach** – Building theory: data collection would be conducted and theory developed as a result of the data analysis. *(Interpretivism Philosophy)*.

The researcher has investigated both a deductive and inductive approach in great detail in order to select the best approach for this particular project. Saunders et al (2012, p. 145) discuss a number of important characteristics with a deductive approach. Characteristics include the search for the relationship between concepts and variables, patterns in the literature, which help develop a theory, the development of hypotheses and the collection of quantitative data to test the proposed hypotheses.

The alternative approach is inductive research, which is associated more with the interpretivism philosophy of research. An inductive approach will usually involve acquiring broad and detailed knowledge of the subject matter from a few sources and developing theories based on the results and findings. Often structured interviews are used in this approach. Inductive research is perfectly acceptable and can return very detailed information. However it can also be quite subjective to the opinions of the participants or
interviewees in the research. An inductive approach is more suited to developing theories rather than testing them.

When reflecting on both approaches the researcher proposes using a deductive approach as it best fits the study being carried out. The deductive approach has a lot in common with the scientific method where theories are developed first and then tested in order to find out whether or not they stand up to the tests. The approach is therefore best suited to the positivist philosophy of research and the quantitative method, both of which are being used by the researcher in conducting this study. The deductive approach does not generate new theories but is used to test the validity of previous hypotheses. Quantitative research concerns itself with understating a particular phenomenon and extrapolating it to a larger population. This fits well with the research being conducted in this dissertation. There is a need to select samples of sufficient size in order to generalise conclusions.

### 3.6 Research Strategy

The next layer in the onion decides on the best method for gathering the data in order to complete the research project. It is possible for a research to select more than one strategy when conducting research.

There are a number of strategies that can be used to gather data as discussed by Saunders et al (2012, p. 173). These are experiment, survey, case study, action research, grounded theory, ethnography, narrative inquiry, and archival research. Most are associated with the inductive approach, which is not being used for this particular research and were therefore ruled out as possible methods of gathering the data required. Saunders et al suggests that the both strategies of experiment or survey can be used with the planned deductive approach.

Experiment is a strategy, which has its roots in natural science, and is often used in psychological and social science research. An experiment uses hypotheses rather than a research question. This approach was considered but in the end ruled out.

Saunders et al (2012, p. 176) ascertain that a survey is a strategy often used in business and management research and is best used to understand the why, what, when, where types of questions. A survey allows for the collection of quantitative data, which can be analysed at a later date using statistics. A survey can be used for suggesting relationships
between variables and for the production of a model of these relationships. A survey can gather data on how a population thinks or behaves in relation to an issue. The researcher has chosen this as the most appropriate method of gathering primary data.

The survey will be in the form an online survey, constructed in Google Forms. The online survey was considered to be best strategy suited to gathering a large amount of data from a broad population over short period of time (see appendix 3). The online survey will allow the researcher gather precisely the data he wishes to obtain from a broad sample of people in order to complete the research project. An advantage of a the online survey is that it allows for the collection of broad demographic related data where time constraints are an issue. It is then possible to compare responses from the different sets of the population. The data will then be analysed using the analytical software SPSS. Another advantage of the online survey is that it allows the gathering of a large volume of data in a short amount of time, which helps overcome the time constraints existing within this research project. Also as there is no allocated budget for this research project the online survey is an excellent method of collecting data in an economical way (Saunders et al, 2012, p. 177) The approach of using a survey therefore very much suits the research project as it will allows the testing of the proposed hypotheses.

To support this approach the researcher reflected on various papers discussed in the literature review and found other researcher to have used a survey approach in conducting their research. Chen and Chang’s (2013, p. 615) research was conducted over a six-week period starting April 1st 2010. They received 189 valid responses to their questionnaire. Park and Chen’s study (2007) also used a survey. They created a questionnaire consisting of three sections and returned a sample size of almost 120 medical practitioners.

To further support the survey approach the author refers to the main study, the UTAUT2, which this research relates. Venkatesh et al (2012, p.157) gathered primary research by conducting a two stage online survey. This supports the approach taken in this paper that the online method of surveying is an suitable approach. Venkatesh et al’s survey 4,127 valid respondents to first stage of the survey and 2,220 to the second stage. A number of respondents were removed for various reasons leaving a final sample of 1,512 consumers of which 601 were female. This underlines the suggestion that a large amount of data can be collected with an online survey.
Sampling and Population

Saunders et al (2012, pp. 258-261) discuss how sampling techniques can reduce the amount of data necessary for a researcher to collect by considering data from a sub group rather than all possible cases. For some cases it is possible to collect data from an entire population this is known as a census. There are two possible sampling techniques available to the researcher as discussed by Saunders et al:

1. Probability or representative sampling.
2. Non-probability sampling.

With probability sampling the chance of each case being selected is known. With non-probability sampling the chance of each case being selected is not known.

The researcher will be using non-probability sampling when collecting data for this research project. Non-probability sampling means that the sample will be chosen at random. The researcher followed the procedure set out by Saunders et al (2012, p.282) for selecting an appropriate non-probability sampling technique (see appendix 4). After completing the selection exercise the researcher choose convenience sampling. This is where cases are selected, as they are easily available. This approach is commonly used however, one drawback is that it is prone to bias and influences, which are out of the researchers control therefore interpretations of the data, must be treated with care. Snowball sampling will also be used. This is a technique which acquires volunteers to be part of the research rather than them being chosen. Initial contacts are chosen who then identify other members from the desired population.
Saunders et al (2012, p.283) says that for all non-probability sampling techniques, excluding quota samples, the issue surrounding sample size is open to interpretation depending on the research project and that there are no rules. The appropriate sample size very much depends on the research question and objectives. This research project is investigating consumers who use smartphones therefore the population covered is very broad. It was noted in Mintel (2012) that mobile phone penetration in Ireland in 2012 had reached 120% and that roughly 4.9 million mobile phone subscriptions existed. The researcher proposes to obtain a minimum of one hundred valid responses to the survey. This will allow enough data to allow insights to be gleaned. The researcher’s sample will only cover consumers over the age of eighteen.

3.7 Research Choice

Saunders et al (2012, p. 164) indicates that there are different possible primary research methods to choose from when conducting research. These are illustrated in ‘the onion’ and consist of; mono methods, mixed methods and multi-methods. Mono methods use a single research strategy, which may be either qualitative or quantitative. Multi-method research uses more than one data collection method but the sources will be of a similar type and either qualitative or quantitative. The mixed-methods approach differs and uses a number of different data collection methods and can include both qualitative and quantitative. Advantages exist to using a mixed-methods or a multi-method research approach if the researcher wishes to use two sources for gathering data. Qualitative research can be used in order to formulate hypotheses, which then go on to form the basis of quantitative research. This research will be done using a mono method strategy. A single quantitative data collection method will be used for acquiring the data. The researcher considered this to be the most appropriate strategy for the task due the large population sample required.

3.8 Time Horizon

Saunders et al (2012, p.190) discuss two possibilities when choosing a time horizons; cross-sectional and longitudinal. A longitudinal time horizon is used when collecting data over a long period of time and is generally used to assess the changes that take place over this period. This may allow for the identification of trends that occur during the time period observed. Alternatively a cross-sectional study may be conducted where a particular phenomenon is studied at a particular time.
Due to time constraint and the nature of the research project the researcher is proposing to gain a moment-in-time view or snapshot of how consumers feel about using mobile technology and therefore the research will be cross-sectional. This is a common approach for most academic courses. The survey will provide the researcher with data at a specific time. The question being posed lends itself to this type of investigation. The research project will be conducted during the months of June until August 2015.

3.9 Data Collection

Data collection is an extremely important element of research and as can been seen is at the centre of the ‘research onion’. The researcher proposes to use both secondary and primary research to answer the research question. The Internet and email are extremely effective tools for gathering quantitative data, due to the large field of possible respondents.

Secondary Data Collection

Secondary research will form part of the learning curve for the researcher and will be used mainly in the form of the literature review and in the design of the survey. The researcher has conducted an extensive literature review in this area of research. The majority of the literature will be obtained through the Dublin Business School Library resources both online and on campus. According to Saunders et al (2012, p.73) the purpose of a literature review will vary from research project to research project based on the approach the researcher is intending on taking. As already discussed the researcher is taking a deductive approach and therefore the literature review in this research project will be used to help identify theories, such as the Technology Acceptance Model and UTAUT, that will be used for testing the data. This will allow for the development of a theoretical framework, which can be used for testing the data.


Hypotheses

In the development of hypotheses the researcher must have completed a full literature review and be able to understand the knowledge gained by this process. Hypotheses are
developed using existing theory discovered in the literature review. These hypotheses will then be tested and confirmed, or refuted which may lead to further development of theory, which may then be tested by a different research project (Saunders et al, 2012, p. 134).

Primary Data Collection

As discussed the researcher has chosen a survey for the collection of primary data. Saunders et al say “surveys using questionnaires are popular as they allow the collection of standardised data from a sizeable population in a highly economical way, allowing easy comparison” (2012, p. 177). The data gathered this way should be easily comparable and also easy to examine and explain. The survey was constructed in Google Forms, which can be easily completed on a computer, smartphone or tablet. The survey was distributed via email and also posted on the social media sites Twitter and LinkedIn. This was done in order to disperse the survey to as wide an audience a possible in order to return a maximum amount of responses from a diverse set of respondents. The survey was easy for respondents to send on to referrals via email. The survey took roughly two to three minutes to complete.

Survey Design

This section will highlight the steps taken in designing the survey. The researcher reviewed questions from similar research papers as a starting point and provisional questions were drawn up. The questionnaire design process is covered in great detail by Malhotra and Birks (2007) and was used as a guide. A number of suggested steps are to be followed in the successful design of a questionnaire and are discussed below.

Specify the Information Needed

The research in this project is around consumer’s use of smartphones. In constructing the survey a number of elements needed to be considered in order to make sure the required data was obtained. The researcher formed a grid and made sure that all hypotheses would be covered in the survey.
Interviewing Method

The following step in the process is to select the type of interviewing method that will be used. The survey will be targeting consumers and will be issued via email and snowball sampling was implemented. An initial group of respondents were selected whom the researcher felt possessed the desired characteristics in the target population. The respondents were asked to target other potential people who might be willing to complete the survey. The hope of using this approach is that by obtaining referrals by referrals the numbers completing the survey would grow rapidly thus creating a snowballing effect. The referrals would contain similar demographic and psychographic characteristics than would be possible by chance. The main advantage to this approach is the likelihood of locating the desired characteristics in the population (Malhotra and Birks, 2007, p. 414) This fits the time constraints and monetary constraints of the research project and thus was chosen by the researcher. The survey was also posted on the social media sites Twitter and LinkedIn. The aim of the survey will be to obtain a minimum of one hundred responses.

Question Content

The next step in the process tackles the questions to be asked in the survey. This process will determine which questions are necessary and ensure they are straightforward. Here it is necessary to think on each question and decide if it will provide the answer needed. A question must be written in a straightforward manner and should not be broken up into multiple questions. A great deal of time was spent altering these questions accordingly to simplify the study and aid in its analysis.

Willingness and Ability

Step four addresses the respondent’s willingness and ability to answer the questions. Malhotra and Birks (2007) outline a number of issues that need to be addressed including; issues about the respondent's ability to remember, if they are informed about the topic, the purpose of the research and sensitive topics.

Question Structure

The survey consists of structured questions, which allow for standardised responses making the analysis easier. The questions will be answered using a five-point Likert scale, with the
being “strongly agree” and “strongly disagree”. Age was measured in years using a range. The issue of bias, for example order bias and position bias, was considered carefully.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
</table>

Figure 3.4: sample of scale used from actual questionnaire

**Question Wording**

The researcher must reflect carefully on the language being used in each question in this stage. The wording of a question can be critical and a number of issues exist. Malhotra and Birks (2007) discuss the use of ordinary unambiguous words and leading questions. The researcher has carefully selected words that are not too ‘technical’ to ensure they do not confuse a respondent or encourage a particular response. The researcher’s supervisor prior to circulation reviewed the content of the questions.

**Question Order**

Following recommendations from Malhotra and Birks (2007) the order of the questions has been done purposefully and in a logical and systematic way. The survey begins with a brief introduction followed by question groups to address the various hypotheses and closing with questions relating to demographics.

**Data Analysis - Quantitative Data**

Quantitative data in its raw form provides very little information for the researcher. The data gathered from the survey will need to be transferred into Microsoft Excel and there it will be cleaned for errors. The data will then be analysed using the statistical software SPSS.

**3.10 Ethical Issues**

Saunders et al describes ethics as “the standard of behaviour that guide your conduct in relation to the rights of those who become the subjects of your work, or are affected by it” (2012, p226). Ethical issues are important when conducting research, as often it is required
that respondents submit personal information. This must be treated with the utmost respect and confidentially. Questions may be considered personal or private and therefore respondents might not feel comfortable completing the survey. As the researcher is proposing a snowball method for collection of data there is an issue that referrals may be contacted unwillingly however their participation is voluntary and individuals do not need to participate if they do not wish to. The purpose of the survey has been communicated with so as to avoid any anxiety. The results of the survey are anonymous and no personal identifying data is asked for or collected.

The survey was tested by seven people to ensure it worked correctly and did not take an unforeseen amount of time to complete.

The researcher will endeavour to remain impartial throughout the research project and not allow bias to affect the research.

The researcher will be mindful of any ethical issues that may occur through the research and will review this area on a regular basis.

3.11 Data Editing and Analysis

The responses for the survey were exported into Microsoft Excel where the data was cleaned. The results were then entered into SPSS where the statistical analysis was conducted. Analysis such as descriptive statistics and cross-tabulation was used. The allowed the responses to be studied. The data was then put into graph form and exported into both Microsoft Excel and Word for discursive purposes. The data was saved and backed up in a logical fashion to prevent loss of data.

3.12 Limitations to the Research

There are a number of limitations to the research. One main limitation is the lack of time allowed to complete the research. The 12 week window put the researcher under pressure to complete the project given it was completed on a part-time basis whilst the researcher worked full time.

The researcher was limited by access to a big enough sample size to get a result reflective of the general population. Although the researcher obtained 150 valid responses to the
survey it may still not be a large enough population to generate valid results. The age demographics of the responses do not represent the population as a whole and were predominantly from the 33 - 39 year old age bracket. Convenience sampling was used in collecting the data therefore the data may contain biases. According to Saunders et al (2012, p. 291) findings generated from convenience samples are often not given much credibility.

Another limitation is the researcher’s experience and expertise with analytical software SPSS. The researcher had no prior experience using SPSS software and has limited knowledge of statistics. Given the number of responses to the survey the researcher fills with more time and greater knowledge in these areas it would be possible to glean much more insightful findings and correlations in the different areas examined.
Chapter 4
Data Analysis and Hypotheses Testing

4.1 Introduction

This chapter discusses the analysis and results of the primary data obtained by adopting the research design, methodology and strategies identified in chapter 3 the objective of answering the research question posed in chapter 1. The findings were obtained through the online survey described above. The survey results were imported into Microsoft Excel where the data was cleaned. SPSS was then used to analyse and evaluate the responses. To give a short overview descriptive statistics were used to illustrate the sample’s demographics such as age and gender. Outlined will be the results of the survey and a discussion of how they relate to the proposed hypotheses to help either confirm or reject the premise.

A total of 156 individuals completed the survey. Six responses were omitted from the analysis as data was missing leaving 150 valid responses for the analysis.

4.2 Demographic Snapshot

“Demography is the study of human populations in terms of size, density, location, age, gender, race, occupation and other statistics” (Kotler et al, 2008, p. 185).

Demographics are a very important source of information for a marketer as they discuss the people who make up a market. Demographic trends and developments are monitored closely and segmentation can be used to assess customer needs and wants within a target market (Kotler et al, 2009, p. 342).

The survey used for this research paper contained two demographic questions:

1. Age
2. Gender
4.2.1 Age

The age of the respondent is an important demographic to define as users from different age groups may have different attitudes towards smartphones.

In the survey a choice of seven different age ranges were available for selection. One of the first procedures carried out in SPSS was to group these seven ranges into three categories spanning ages 18-33, 33-55 and over 35.

From the overall respondents of 150 people, the largest amount of responses fell in the 33-55 year old category. 74 (49.33%) respondents fell into this category. As this is almost half of the total responses the results are biased towards this age category as in is not reflective of the entire population. The second largest category is from the 18-32 year old category. 58 (38.67%) respondents were in this category. The smallest group was the over 55 age category with 18 (12%) respondents. This may be due to the fact that the survey was online and this age group may be harder to contact through this form of survey. Also this age category would contain the least amount contacted in the initial survey invitation email circulated.
To get a more detailed age profile of respondents we can view the seven category charts above. In the bar chart it is quite easy to see age category 33-39 with 54(36%) responses as the largest group and the noticeable drop off in respondents after the age category.

### 4.2.2 Gender

From the overall respondents of 150, 76(50.67%) were male and 74(49.33%) were female indicating the survey was evenly distributed between both genders. This is close to being an accurate reflection of Ireland's population but in reality there are slightly more females in the population than males. In 2011 Ireland had 98 males per 100 females living in the population (Central Statistics Office, 2012).
According to the Central Statistics Office (2012) there are more females than males in the age group 20-29 as more males have emigrated at this stage and in older age groups there are more females than males as females live longer than males. If we analyse the charts below we can see there were more male respondents in both the 18-32 and 33-55 age groups with only the over 55 age group containing more females. Taking a closer look at the data shows that age category 18-25 contained one more male respondent than female (12/11). Both age categories 26-32 and 33-39 contained the same amount of respondents (18/18 and 27/27 respectively). Age category 40-47 contained 2 more male respondents (7/5). Age category 48-55 contained one more male respondents (4/3). Both age categories 55-65 and over 65 contained one more female respondent in each category four males and five females each.
4.3 Testing the Hypothesis

The following analysis will help to answer the hypothesis put forward in this research project. This section consists of the statistical data gathered from the electronic survey.

4.3.1 Hypothesis 1: *Social influence will have a greater effect with younger individuals in the use of smartphones.*

‘Social Influence’ was a new element of the UTAUT2 and the researcher therefore chose to investigate the impact of social influence in the usage of smartphones. Questions seven and eight of the survey were used to test this hypothesis.

**Q7. People around me think I should shop for products or services on my smartphone?**

In question seven 13(8.67%) respondents selected strongly agree, 29(19.33%) selected agree, 36(24%) selected disagree and 5(3.33%) selected strongly disagree. The largest amount of respondents selected neither agree nor disagree, 67(44.67%) of respondents.

42(28%) respondents, just over one quarter, selected either agree or strongly agree in question seven, which is almost equal to those who disagree or strongly disagree, 41(27.33%) respondents.

An analysis of the data highlights no great variances between gender in question seven as illustrated above.
Hypothesis one specifically relates to the impact of age on social influence so a thorough analysis of the data is necessary. Firstly an analysis will be carried out of the data split into three age categories; 18-32, 33-35 and over 55 as illustrated in the bar chart.

![Figure 4.7: Social Influence 1 - Age with 3 Categories](image)

An analysis reveals that in all three categories neither agree nor disagree to be the highest selected response. Age category 18-32, 44.83% of respondents, age category 33-35, 45.9% of respondents and category over 55, 38.9% of respondents selected neither agree nor disagree.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-32</td>
<td>29.3%</td>
<td>25.8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>33-35</td>
<td>28.4%</td>
<td>25.7%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Over 55</td>
<td>22.2%</td>
<td>39.1%</td>
<td>-16.9%</td>
</tr>
</tbody>
</table>

![Figure 4.8: Social Influence 1 - Age With 3 Categories](image)

In the 18-32 age category 29.3% of respondents, in the 33-35 age category 28.4% selected either agree or strongly agree. Thus revealing a similar response across the two categories. The over 55 age category reveals 22.2% respondents selected either agree or strongly agree.

The analysis reveals 7.1% more from age category 18-33 category and a 6.2% more from age category 33-35 selected either agree or strongly agree than the over 55 age category.
In the 18-32 age category 25.8% of respondents and in the 33-55 age category 25.7% selected either disagree or strongly disagree. Thus revealing an almost identical response. The over 55 age category reveals 38.9% respondents selected either disagree or strongly disagree. This analysis reveals that 13.3% more from age category 18-33 and 13.2% more from age category 33-55 selected either disagree or strongly disagree than the over 55 age category.

When the difference between respondents who selected either agree and strongly disagree and those who selected either disagree or strongly disagree is calculated the data reveals the 18-32 category are most likely to discuss making purchases on their smartphones. They are followed age category and the 33-55. Age category over 55 are least likely think that people around them think they should shop on their smartphone. The category returned a response showing 16.9% more didn’t think people around them thought they should shop on their smartphones than did.

This analysis suggests that younger ages are more influenced by social elements in the usage of their smartphones.

To investigate this hypothesis in further detail an analysis of the seven age categories will be discussed.
A comparison between the youngest age category, 18-25, and the oldest age category, over 65, gleans the following insights:

In the 18-25 age category 47.8% of respondents selected either agree or strongly agree. In the over 65 age category 22.2% of respondents selected agree none selected strongly agree. This analysis reveals 25.6% more 18-25 years olds selected either agree or disagree than over 65 year olds.

In the age category 18-25, 26.1% respondents selected disagree none selected strongly disagree. In the age category over 65, 44.4% of respondents selected disagree no respondents selected strongly disagree.

When the difference between respondents who selected either agree and strongly disagree and those who selected either disagree or strongly disagree is calculated the data reveals the 18-32 category think people around them think they should shop on their smartphones more than the over 65 age category. The analysis suggests that roughly double f the respondents in age category 18-25 think people around them should shop for products and services on their smartphones than in the over 65 age category. It is worth noticing the low response rate in the over 65 age category.
As can been seen in the table there are some anomalies in the data. This is perhaps due to lower response rates in the older groups.

Given the lower response rates the researcher is suggesting splitting the table in two by grouping the first three age categories together, 18-39, followed by the remaining four, 47-over 65. When this is done, it can been seen that the younger age categories in both groups are more likely to be influenced by social elements than the older age categories.

Q8. I would discuss making purchases on my smartphone with friends and family

![Figure 4.11: Social Influence 2](image)

In question eight 13(8.67%) of respondents selected strongly agreed, 63(42%) selected agree, 30(20%) selected neither agree nor disagree agree, 28(18.67%) selected disagree and 16(10.67%) selected strongly disagree. 50.67% of respondents selected either agree or strongly disagree compared to 29.34% of respondents who selected either disagree or strongly disagree in question eight. This shows a lot more consumers would discuss making purchases on their smartphones than would not.

There were some differences between gender in question eight. 55.41% of female respondents selected either agree or strongly agree compared with 46.06% of males. There is a difference of 9.35% between male and female. 32.21% of males selected either agree or strongly disagree compared with 24.33% of females. This suggests that males are not as likely to discuss making purchases on their smartphones with friends and family.
A thorough analysis of the data is necessary to assess the impact of age on social influence. To begin an analysis will be carried out of the data split into three age categories; 18-32, 33-35 and over 55 as illustrated in the bar chart.

![Figure 4.12: Social Influence 2 - Age With 3 Categories](image)

An analysis shows us that in each agree category agree is the highest selected response. Age category 18-32, 46.6%, age category 33-55, 39.2% and age category over 55, 38.9% of respondents selected agree.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-32</td>
<td>53.5%</td>
<td>29.3%</td>
<td>24.2%</td>
</tr>
<tr>
<td>33-55</td>
<td>48.7%</td>
<td>29.8%</td>
<td>18.9%</td>
</tr>
<tr>
<td>Over 55</td>
<td>50%</td>
<td>27.8%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

![Figure 4.13: Social Influence 2 - Age With 3 Categories](image)

As can be seen from the analysis all age categories returned similar responses. Age category 18-32 has the highest percentage, 53.5%, selecting either agree or strongly agree. This is followed by the age category over 55 with 50%. The age category with the least amount, 48.7%, is category 33-55, suggesting they are least affected by social influences.
In the 18-32 age category 29.3% of respondents, in the 33-55 age category 29.8% respondents and in the over 55 age category 27.8% respondents selected either disagree or strongly disagree. All three age categories returned similar responses.

When the difference between respondents who selected either agree and strongly disagree and those who selected either disagree or strongly disagree is calculated the data reveals the 18-32 category are most likely to discuss making purchases on their smartphones. They are followed by the over 55 age category and the 33-55 age category is least likely to discuss making purchases on the smartphones.

![Bar chart](image)

**Figure 4.14: Social Influence 2 - Age With 7 Categories**

A deeper analysis of the data can be conducted by examining the data split into seven age categories as illustrated in the bat chart.
<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>47.8%</td>
<td>34.8%</td>
<td>13%</td>
</tr>
<tr>
<td>26-32</td>
<td>58.4%</td>
<td>25%</td>
<td>33.4%</td>
</tr>
<tr>
<td>33-39</td>
<td>48.2%</td>
<td>31.5%</td>
<td>16.7%</td>
</tr>
<tr>
<td>40-47</td>
<td>50%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>48-55</td>
<td>42.9%</td>
<td>28.6%</td>
<td>14.3%</td>
</tr>
<tr>
<td>55-65</td>
<td>55.5%</td>
<td>22.2%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Over 65</td>
<td>44.4%</td>
<td>33.3%</td>
<td>11.1%</td>
</tr>
</tbody>
</table>

Figure 4.15: Social Influence 2 - Age With 7 Categories

47.8% of respondents from the youngest age category, 18-25, selected either agree or strongly agree compared with 44.4% from the oldest age category over 65. The group with the highest selection of agree or strongly agree is the 26-32 age category with 58.4% of respondents making the selection.

In the youngest age category, 18-25, 34.8% of respondents selected either disagree or strongly disagree compared with 33.3% from the oldest age category over 65. The lowest amount of respondents selecting either disagree or strongly disagree was the 56-65 age category with 22.2% selecting strongly disagree and 0% selecting disagree.

The data shows that consumers do tend to discuss making purchases on their smartphones with friends and family as 50.67% of respondents selected this choice suggesting social influence does impact behaviour on smartphones.
Hypothesis 1 Conclusion

It was suggested by Venkatesh et al (2012) that social influence would be more prominent with younger individuals and would become less influential over time. Chen and Chang (2013) also suggested that social influence would impact on technology usage and that the influence on friends and family would be a factor.

The analysis of question seven, the first question to address the impact of age on social influence gleaned some interesting results. It would appear by the data that younger individuals are more influenced by social influences than older individuals in the use of their smartphones for shopping for products or services. Almost half, 47.8%, of 18-25 year olds selected either agree or strongly agree compared with 22.2% of over 65 year olds who selected agree and none selected strongly agree.

Previous studies found social influence plays a strong part in people's behaviour when it comes to using technology. The analysis of question eight revealed that people do seem to be influenced by social factors. 21.33% more respondents selected agree or strongly agree than selected disagree or strongly disagree. This shows consumers are more likely to discuss making purchases on their smartphones with friends and family.

When age was taken into account some interesting results were recovered. When age was split into three categories the youngest group, 18-32, 3.5% more respondents agreed that people around them thought they should shop on their phones compared with 2.7% of 33-55 year olds. 16.9% more over 55’s, the oldest age group, disagreed that people around them thought they should shop on their smartphones. The highest amount of respondents that agreed they would discuss making purchases on their smartphones was the youngest age category 18-25 year olds.

Based on the data obtained the researcher confirms hypothesis 1 that social influence will have a greater effect with younger individuals in the use of smartphones. An analysis of the data reveals that it is probable that younger consumers feel a greater social influence toward the way they use their smartphones than older age groups. It is however worth noting the low response rates in the older age categories. More analysis is recommended to obtain a higher response rate from older consumers.
4.3.2 Hypothesis 2: There will be a negative relationship between anxiety and attitude towards the use of smartphones.

‘Anxiety’ was introduced into Chen and Chang’s (2013) model, which specifically relates to mobile phone users adoption of near field communication. Both Chen and Chang’s (2013) and Kiseol and Forney’s (2013) research suggest that anxiety can have a significant impact on the use of mobile phones therefore the researcher has chosen to test a hypothesis in this area. Questions five and six in the survey will address this hypothesis.

Q5. Using a smartphone is financially secure?

![Figure 4.16: Anxiety 1](image)

In question five 18(12%) respondents selected strongly agree, 51(34%) selected agree, 60(40%) selected neither agree nor disagree, 20(13.33%) selected disagree and only 1(0.67%) selected strongly disagree.

An analysis shows the largest amount of respondents, 40%, selected neither agree nor disagree suggesting consumers do not have a strong opinion on whether smartphones are financially secure or not. When agree and strongly agree are combined, 46% of respondents made a selection compared with 14% who selected either disagree or strongly disagree. The difference between the two areas is 32%, which is large. The analysis suggests the more consumers feel using a smartphone is financially secure than using a smartphone is not financially secure.

There were some small differences of note between gender. 50% of males selected either agree compared with 41.89% of females. 11.85% of males selected either disagree or...
strongly disagree compared with 16.22% of females who disagree.

Q6. I trust the ability of a smartphone to protect my privacy?

In question six 11(7.33%) respondents selected strongly agree, 29(19.33%) selected agree, 38(25.33%) selected neither agree nor disagree, 58(38.67%) selected disagree, 14(9.33%) selected strongly disagree.

An analysis shows that the largest selected answer was disagree with 38.67% of respondents making this selection. When disagree and strongly disagree are combined a total of 45% of responses were from this area, making it the largest segment. This compares with 26.66% selecting agree or strongly agree. There is a difference of 18.34% between the two areas. This suggests that more respondents do not trust the ability of their smartphones to protect their privacy.

Just over one quarter, 25.33%, selected neither agree nor disagree.

As can be seen there is no great variance between gender for this question.
Hypothesis 2 Conclusion

Previous research by Chen and Chang (2013) found that anxiety plays an influential role in how people use technology. It has been argued by Kiseol and Forney (2013) that smartphones are a very personal device for consumers and therefore high levels of anxiety exist for consumers using them. This anxiety may become a barrier for smartphones being used as a device to shop with.

The analysis of question five, the first to address the relationship between anxiety and the attitude towards use of smartphones revealed that almost half, 46%, of the respondents felt that using a smartphone was financially secure. One interesting result was that the largest amount of respondents, 40%, selected neither agree nor disagree suggesting there is some uncertainty amongst consumers about the security of their devices. Interestingly the results suggested that more males felt their devices were secure than females.

Kiseol and Forney’s (2013) research found that consumers worried about their personal information being stolen from their mobile phones. The analysis of question eight supports this idea put forward by Kiseol and Forney (2013). Almost half, 45%, of respondents did not trust the ability of their devices to protect their privacy. Only just over a quarter, 26.66% of respondents trusted the ability of their smartphones. One quarter, 25.33%, selected neither agree nor disagree suggesting there is some uncertainty amongst consumers in this area.

The researcher confirms hypothesis 2 that there will be a negative relationship between anxiety and attitude towards the use of smartphones. An analysis of the data reveals that the majority of respondents have high anxiety when using their smartphones. The analysis supports the idea that smartphones are a personal device the anxiety caused by consumers shopping on smartphones may become a barrier in the technology being used in this fashion.
4.3.3 Hypothesis 3: Facilitating conditions will have a positive relationship with performance expectancies.

Smartphones are an ever-evolving technology and the literature review revealed that facilitating conditions could influence technology adoption. Chen and Chang’s (2013) research found facilitating conditions to have a positive effect in the use of NFC. Kiseol and Forney (2013) found facilitating conditions to be the biggest influencing factor in consumers adopting mobile shopping. The researcher has chosen to examine a hypothesis in this area. Question three and four in the survey will address this hypothesis.

Q3. I can easily access relevant information using my smartphone?

In question three 81(54%) respondents selected strongly agree, 58(38.67%) selected agree, 7(4.67%) selected neither agree nor disagree, 3(2%) selected disagree and 1(0.67%) selected strongly disagree.

An analysis of the data reveals that the largest number of respondents, 54%, selected strongly agree. When agree and strongly agree are combined the total is 92.67%. Only 2.67% of respondents selected either disagree or strongly disagree. This suggests that respondents are extremely comfortable accessing relevant information on their smartphones.

With only 4.67% of respondents selecting neither agree nor disagree is suggests that people are confident is saying that they either agree or disagree with the question. There is no great difference between gender in question three. 7.89% more males selected strongly agree compared to females suggesting males might feel slightly more comfortable with the technology.
Q4. I have the necessary knowledge to make purchases with my smartphone?

In question four 58(38.67%) respondents selected strongly agree, 61(40.67%) selected agree, 15(10%) selected neither agree nor disagree, 13(8.67%) selected disagree and 3(2%) selected strongly disagree.

An analysis of the data reveals that the largest number of respondents, 40.67%, selected agree. When agree and strongly agree are combined the total is 79.34%. Only 10.67% of respondents selected either disagree or strongly disagree. This suggests that respondents have the knowledge to make purchases on their smartphones.

Only 10% of respondents selected neither agree nor disagree which suggests that respondents were confident in selecting agree or disagree to the question.

There are similar responses between genders however, 82.9% of males selected either agree or strongly agree compared with 75.68% of females, giving a difference of 7.22%. Only 5.27% of males selected disagree or strongly disagree compared with 16.21% of females, giving a difference of 10.94%. The data suggests more males than females feel they have the necessary knowledge to use their smartphone for making purchases.
Hypothesis 3 Conclusion

Chen and Chang’s research into the adoption of NFC found that most people were willing to use the technology. Kiseol and Forney’s (2013) research found that facilitating conditions were a significant factor in the adoption of mobile shopping. The facilitating conditions may be influenced by the devices capabilities, a well designed interface and fast network speeds for example. Kiseol and Forney (2013) suggest that providing a customer centric mobile interface will help consumers adopt the technology for the purpose of shopping.

The analysis of question three, the first to address facilitating conditions revealed that a staggering 92.67% of respondents selected either agree or strongly agree that they could access relevant information on their smartphone.

The analysis of question four revealed that a resounding 79.34% of respondents selected either agree or strongly agree that they could access relevant information on their smartphones.

It would appear that technology companies have recognised the idea put forward by Kiseol and Forney (2013) that providing high facilitating conditions is important in mobile shopping. The high responses show that organisations have worked on providing customer centric interfaces that consumers find user friendly. Also increased network speeds with the introduction of 4G and the introduction of public Wi-Fi may have had an impact on consumers.

The researcher confirms hypothesis 3 that facilitating conditions will have a positive relationship with performance expectancies. The researcher suggests that consumers now are very content with the facilitating conditions available on smartphones.
4.3.4 Hypothesis 4: Hedonic Motivation will have a positive impact on purchase intentions and will not be affected by gender.

Hedonic motivation was included by Venkatesh et al (2012) as a new construct in the UTAUT2. A number of researchers, as discussed in the literature review, highlight the importance of enjoyment when adopting a new technology. Davis’s (2013) research examined the effect of gender on hedonic motivation when shopping online. Davis (2013) found that there was no gender effect in online shopping. The researcher has decided to test a hypothesis in this area. Question one and two in the survey will address this hypothesis.

Q1. Using a smartphone is pleasant?

![Figure 4.20: Hedonic Motivation 1](image)

In question one 44(29.33%) respondents selected strongly agree, 78(52%) selected agree, 22(14.67%) selected neither agree nor disagree, 6(4%) selected disagree and none selected strongly disagree.

An analysis of the data reveals that the largest number of respondents, 52%, selected agree. When agree and strongly agree are combined the total is 81.33%. Only 4% of respondents selected disagree with none selecting strongly disagree. This large number selecting either agree or strongly agree suggests that the respondents do find using a smartphone pleasant.

The hypothesis suggests that gender will not affect hedonic motivation so an analysis of the data is necessary. The data reveals no great variance between gender for this question. 81.58% of males selected either agree or strongly agree compared with 81.08%. This
variance of 0.05% shows responses were almost identical. 5.44% more females selected disagree than males and 4.95% more males selected neither agree nor disagree, which are very small differences between gender.

Q2. *Using a smartphone is rewarding?*

In question two 33(22%) respondents selected strongly agree, 66(44%) selected agree, 34(22.67%) selected neither agree nor disagree, 16(10.67%) selected disagree and 1(0.67%) selected strongly disagree.

An analysis of the data reveals that the largest number of respondents, 44%, selected agree. When agree and strongly agree are combined the total is 66%. 11.34% of respondents selected either disagree or strongly disagree. Given the majority of respondents selected either agree or strongly agree it suggests that the respondents do find using a smartphone rewarding.

An analysis of the data in relation to gender is necessary. The data reveals no great difference between gender in question two. 65.79% of males selected either agree or strongly agree compared with 66.22% of females. This 0.43% variance, which shows that responses are almost identical. 10.53% of males selected either disagree or strongly disagree compared with 12.16% females who selected disagree, none selected strongly disagree. 23.68% of males selected neither agree nor disagree compared with 21.62% of females. The data again shows very small differences between gender in the two areas.
H4 Conclusion

Studies uncovered during the literature all underlined the importance of hedonic motivation in technology adoption. Venkatesh et al (2012) argues that it is a very powerful factor from a consumer perspective and Yim et al (2014) underlines the idea of hedonic motivation as a powerful force when shopping in physical stores. Davis (2013) conducted a study to examine the effect of gender on hedonic motivation and concluded that there was no online gender effect.

The analysis of question one, the first question to test this hypothesis gleaned some interesting results. An resounding 81.33% agreed or strongly agreed that using a smartphone was pleasant compared with only 4% who selected disagree. The data shows that consumers do find using smartphones pleasant.

The analysis of question two reveals similar results. 66% of respondents selected either agree or strongly agree that that using a smartphone was rewarding. Although this is a drop in agreement compared with question one it is still a high level of agreement.

As discussed responses for both questions revealed the responses from different genders were almost identical thus agreeing with the hypothesis put forward for testing.

The researcher confirms the hypothesis that hedonic motivation will have a positive impact on purchase intentions and will not be affected by gender. The results agree with the previous studies and highlights that hedonic motivation is important not only physical stores but in online shops accessible through smartphones.
4.3.5 Hypothesis 5: Price will have an impact on usage and younger consumers will be more price sensitive.

Venkatesh et al (2012) introduced price as new element in the UTAUT2 as it was found price can play an important role in technology usage for consumers. Kim et al (2014) suggests that younger individuals might be more price sensitive due to lower income levels. The researcher has decided to test a hypothesis in this area. Question nine and ten in the survey will address this hypothesis.

Q9. The fee that I pay to use my smartphone is reasonable?

In question nine 14(9.33%) respondents selected strongly agree, 82(54.67%) selected agree, 19(12.67%) selected neither agree nor disagree, 27(18%) selected disagree and 8(5.33%) selected strongly disagree.

Analyses of the data reveals that the largest number of respondents, 54.67%, selected agree. When agree and strongly agree are combined the total is 64%. 23.33% of respondents selected either disagree or strongly disagree. Given the majority of respondents selected either agree or strongly agree it suggests that the respondents the fee they pay for their smartphones reasonable.

There are some differences of note between genders. 68.92% of females selected either agree or strongly agree compared with 59.21% of males. 17.56% of females selected either disagree or strongly disagree compared with 28.94% of males. The data suggests that more
females than males feel the amount they pay for their smartphone is reasonable.

Hypothesis five specifically relates to the impact of age on price so a thorough analysis of the data is necessary. Firstly an analysis will be carried out of the data split into three age categories; 18-32, 33-35 and over 55 as illustrated in the bar chart.

An analysis reveals that in all three age categories agree is the highest selected response. In age category 18-32, 51.7% of respondents, in age category 33-55, 58.1% of respondents and in age category over 55, 50% of respondents selected agree.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-32</td>
<td>65.5%</td>
<td>25.8%</td>
<td>39.7%</td>
</tr>
<tr>
<td>33-55</td>
<td>63.5%</td>
<td>20.3%</td>
<td>43.2%</td>
</tr>
<tr>
<td>Over 55</td>
<td>61.1%</td>
<td>27.8%</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

The combined responses for agree and strongly agree are as follows: 18-32 age category 65.5%, 33-55 age category 63.5% and in the over 55 age category 61.1%. The data reveals similar responses between age groups.
The combined responses for disagree and strongly disagree are as follows: 18-32 age category 25.8%, 33-55 age category 20.3% and in the over 55 age category 27.8%.

When the difference between respondents who selected either agree and strongly disagree and those who selected either disagree or strongly disagree is calculated the data reveals all age groups are happy with the price they pay. 18-32 year olds appear more price sensitive than the 33-55 year olds but the most price sensitive are the over 55 age group.

To investigate this hypothesis in further detail an analysis of the seven age categories will be discussed.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>69.6%</td>
<td>17.4%</td>
<td>52.2%</td>
</tr>
<tr>
<td>26-32</td>
<td>61.1%</td>
<td>30.6%</td>
<td>30.5%</td>
</tr>
<tr>
<td>33-39</td>
<td>74.1%</td>
<td>16.7%</td>
<td>57.4%</td>
</tr>
<tr>
<td>40-47</td>
<td>41.7%</td>
<td>33.3%</td>
<td>8.4%</td>
</tr>
<tr>
<td>48-55</td>
<td>28.6%</td>
<td>28.6</td>
<td>0%</td>
</tr>
<tr>
<td>55-65</td>
<td>66.6%</td>
<td>22.2%</td>
<td>44.4%</td>
</tr>
<tr>
<td>Over 65</td>
<td>55.6%</td>
<td>33.3%</td>
<td>22.3%</td>
</tr>
</tbody>
</table>

Figure 4.25: Price 1 - Age with 7 Categories

Figure 4.26: Price 1 - Age with 7 Categories
A comparison between the youngest age category, 18-25, and the oldest age category, over 65 gleans the following insights:

In the 18-25 age category 69.6% of respondents selected either agree or strongly agree. In the over 65 age category 55.6% of respondents selected agree and none selected strongly agree. This analysis reveals a drop of 14% from age category 18-25 to age category over 65.

In age category 18-25, 17.4% of respondents selected disagree and none selected strongly disagree. In the over 65 age category 33.3% of respondents selected disagree none selected strongly disagree. The analysis reveals an increase of 15.9% from age category 18-25 to the over 65 age category.

The biggest variance between agree and disagree lies in the 33-39 age category. 74.1% of respondents selected either agree or strongly agree compared with 16.7% of respondents who selected either disagree or strongly disagree. The difference is 57.4% suggesting this age group is very happy with the price they pay to use their smartphones.

The findings suggest that suggests the younger age group is happier with the price they pay to use their smartphones.
Q.10 I worry about incurring high costs when using my smartphone?

In question ten 21(14%) respondents selected strongly agree, 46(30.67%) selected agree, 23(15.33%) selected neither agree nor disagree, 54(36%) selected disagree and 6(4%) selected strongly disagree.

Analyses of the data reveals that the largest amount of respondents, 36%, selected disagree. When agree and strongly agree are combined the total is 44.67% compared with 40% when disagree and strongly disagree are combined. These figures are very close however with only a 4.67% variance, however more respondents did agree they worried about incurring high costs when using their smartphone.

There are some differences of note between genders. 48.69% of males selected either agree or strongly agree compared with 40.54% of females. 38.16% of males selected either disagree or strongly disagree compared with 41.9% of females. The data suggests males are more worried about incurring costs compared to females.

Hypothesis five specifically relates to the impact of age on price so a thorough analysis of the data is necessary. Firstly an analysis will be carried out of the data split into three age categories; 18-32, 33-35 and over 55 as illustrated in the bar chart.
In age category 18-32, 46.5% of respondents, in age category 33-55, 40.6% of respondents and in the over 55 age category 55.5% of respondents selected either agree or strongly agree.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-32</td>
<td>46.5%</td>
<td>36.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>33-55</td>
<td>40.6%</td>
<td>44.6%</td>
<td>-4%</td>
</tr>
<tr>
<td>Over 55</td>
<td>55.5%</td>
<td>33.3%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

In age category 18-32, 46.5% of respondents, in age category 33-55, 40.6% of respondents and in the over 55 age category 55.5% of respondents either selected agree or strongly agree.

The data reveals that the category that worries most about incurring high costs when using their smartphone is the over 55 age category with a 22.2% variance between agree and disagree. The 18-32 year old age category did worry about incurring costs but to a lesser degree.
The only category where more people disagreed about incurring high costs when using their smartphones was in the 33-55 age group. 4% more people disagreed that they worry about incurring high costs when using their smartphones.

To investigate this hypothesis in further detail an analysis of the seven age categories will be discussed.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Agree &amp; Strongly Agree</th>
<th>Disagree &amp; Strongly Disagree</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-25</td>
<td>34.7%</td>
<td>39.1%</td>
<td>-4.4%</td>
</tr>
<tr>
<td>26-32</td>
<td>55.5%</td>
<td>33.3%</td>
<td>22%</td>
</tr>
<tr>
<td>33-39</td>
<td>35.2%</td>
<td>50%</td>
<td>-14.8%</td>
</tr>
<tr>
<td>40-47</td>
<td>41.7%</td>
<td>41.6%</td>
<td>-0.1%</td>
</tr>
<tr>
<td>48-55</td>
<td>71.5%</td>
<td>14.3%</td>
<td>57.2%</td>
</tr>
<tr>
<td>55-65</td>
<td>44.4%</td>
<td>33.3%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Over 65</td>
<td>66.7%</td>
<td>33%</td>
<td>33.7%</td>
</tr>
</tbody>
</table>

Figure 4.30: Price 2 - Age with 7 Categories

Figure 4.31: Price 2 - Age with 7 Categories
A comparison between the youngest age category, 18-25, and the oldest age category, over 65 gleans the following insights:

In the 18-25 age category 34.7% of respondents selected either agree or strongly agree. In the over 65 age category 66.7% of respondents selected agree, none selected strongly agree. The analysis reveals 32% more selected agree in the over 65 age category than in the 18-25 age category.

In the 18-25 age category 39.1% selected either disagree or strongly disagree. In the over 65 age category 33.3% selected disagree none selected strongly disagree. 5.8% more people disagreed they worry about incurring high costs when using a smartphone than in the over 65 age category.

The variance between agree and disagree in the 18-25 age category revealed 4.4% more people disagree than agreed they worried about incurring high costs. In the over 65 age category the variance between agree and disagree revealed that 33.7% more people agree they worried about incurring high costs.

The category that disagreed they worry about incurring high costs when using their smartphone was the 33-39 age category with 14.8% more people selecting disagree than agree.
H5 Conclusion

Venkatesh et al (2012) puts forward the idea of price as an important consideration for consumers, as costs may be incurred for using a particular technology. Their research also suggests that when the benefits of using a technology outweigh the price involved, price will become less of a consideration. Kim et al’s (2014) study on the adoption of smartphones amongst college students found that younger individuals may be more price sensitive than older individuals due to lower levels of income.

The analysis of question nine gleaned the an number of insights. There was a high agreement, 64%, that the fee paid to use a smartphone was reasonable. There were still a significant amount, 23.33%, of respondents who felt that the fee was not reasonable and 12.67% selected neither agree nor disagree. The data shows that whilst the majority find the fee for using their smartphone reasonable there are almost a quarter that don’t highlighting the importance of price in the use of technology. It may also suggest that consumers now see the benefits of owning a smartphone outweighing the costs involved.

When the difference between agree and disagree for each of the three age categories calculated it appears the age group that is happiest with the fee they pay to be the 33-55 age category, a difference of 43.2%. They are followed by the 18-32 age category, a 39.7% difference and finally the most price sensitive age category the over 55 with a 33.3% difference.

When youngest and oldest age groups were compared in the seven age categories the same results were found that younger age groups were happier. The most content age group was the 33-39 year olds who were happier than the youngest age group. This is potentially due to higher income levels in this age category.

The analysis of question ten shows that large amounts of consumers do worry about incurring high costs when using their smartphones. The data shows that almost the same amount of people worry about incurring high costs as those who don’t with only 4.67% more who do not worry about incurring high costs. 44.67% agreed they worried about incurring costs versus 40% who disagreed. This again highlights the importance of price as an influential factor in the usage of smartphones.

When analysing the data split into three categories it again revealed the oldest age category,
over 55, to be more worried about price than the youngest age category, 18-25. Again the age group least affected by price was the 33-55 category.

An analysis of the data split into seven age categories gleaned some mixed results. It would appear the youngest age category worry less than the oldest age category. In question ten, as in question nine, it again appears the 33-39 age category to be least affected by price. It is recommended that further a analysis of this age category is undertaken.

The researcher rejects hypothesis five that price will have an impact on usage and younger consumers will be more price sensitive. Whilst the researcher agree that price is still very important it terms of anxiety that can be created due to the fear of incurring high costs it appears consumers are largely happy with the fees they pay. Also the researcher found that younger individuals were less price sensitive than older individuals. The is potentially due to the suggestions put forward by Hulkower (2015) that readily available Wi-Fi and lower data plans have reduced costs to the consumer and younger individuals are more likely to avail of cheaper Wi-Fi.
Chapter 5
Conclusion Recommendations and Limitations

5.1 Introduction

The following discussion will assist in answering the research questions put forward in this project. It will provide a direct connection between the literature review and the outcomes and findings that were yielded as a result of the primary research conducted. The research project attempts to ascertain and analyse existing barriers preventing consumers adopting smartphones as a device to shop with. Mobile commerce is a growing area and one, which is relatively sparse in academic research. The research project will therefore provide both academics and practitioners with useful data. Recommendations for further research will be framed and the limitations of the research project will be outlined.

5.2 Conclusion

The researcher set out to answer the following question:

“What are the influential factors in consumers using smartphones for mobile commerce?”

In order to answer this question the researcher conducted an extensive literature review to gain a greater knowledge in this field. This review provided a backdrop for the research paper and also direction for the primary research.

Initially a literature review of digital marketing was conducted in order to understand the importance of digital marketing to both consumers and organisations today. The growth of spend within digital marketing was outlined highlighting the importance of digital marketing. The introduction of the smartphone has changed a consumer's path to purchase and Google (2013) noted that researching on smartphones was very popular that 93% of consumers who use mobile technology to research a product or service go on to complete the purchase.

A number of research papers were reviewed in the area of technology acceptance and adoption, tracing back to the Technology Acceptance Model created by Davis (1989). All of these papers highlighted barriers that prevent people using technology. Most of the early
research was conducted internally within different industries where a different environment exists to consumers using their own technology externally to the workplace. Kiseol and Forney (2013) point out the smartphone is considered a very personal and therefore the same factors that apply in the workplace might not be applicable to a smartphone.

Venkatesh et al’s (2012) UTAUT2 model is specifically focused on consumers and both Chen and Chang’s (2013) and Kiseol and Forney’s (2013) technology acceptance models examine consumer’s adoption of smartphones. Based on information gained in the review of these models the researcher devised five hypotheses for testing. These hypotheses provide a starting point in identifying influential factors for consumers in the adoption of mobile commerce.

The following areas were investigated and all were found to be influential factors in the use smartphones for mobile commerce:

- Social Influence
- Anxiety
- Facilitating Conditions
- Hedonic Motivation
- Price

‘Social Influence’ was the first area found to be an influencing factor. The influence of friends and family was found to be an important factor in Chen and Chang’s research (2013). Both Venkatesh et al (2012) and Kiseol and Forney (2013) also found social influence to be a factor and Venkatesh et al (2012) argued that it was more dominant in younger individuals. The primary research conducted suggests the same and hence H1 was confirmed thus social influence is an influential factor. Marketers should consider the power of social influence when constructing an integrated marketing communications plan to increase its success.

‘Anxiety’ was not included by Venkatesh et al (2012) in the UTAUT2 model however both Chen and Chang (2013) and Kiseol and Forney (2013) deemed anxiety to be very influential in their research. Again given the personal nature of a smartphone and the ability of a smartphone to store more detailed and private information the researcher felt this was an area in need of investigation. The survey responses turned up some interesting results. Whilst almost half, 46%, of respondents felt using a smartphone was financially secure 45%
did not trust the ability of their smartphone to protect their information. Therefore we can say that anxiety is indeed an influential factor in consumers using smartphones as a shopping device. Technology companies will need to improve upon security issues with phones as they continue to advance. Marketers need to communicate to the consumer the benefits of the added security features to encourage the use the growth of mobile commerce, particularly with features such as NFC and mobile wallets.

‘Facilitating Conditions’ were tested to see how they impact on the usage of smartphones. Previous studies (Venkatesh et al, Chen and Chang, Kiseol and Forney) found that facilitating conditions had a positive effect on the use of technology. It was suggested that elements such as a user-friendly interface and fast network speeds would have an effect on the use of smartphones. The findings from analysing survey agreed with previous studies that facilitating conditions were an influential factor in consumers using smartphones. If the technology is not user friendly or appears slow a consumer is less likely to adopt it as a viable option. When consumers were asked if they have the ability to access relevant information on their smartphones 92.67% selected either agree or strongly agree. When consumers were asked do they have the necessary knowledge to make purchases on their smartphones 79.34% selected either agree or strongly agree. This shows that consumers are happy with the ability of a smartphone to provide them with the necessary information they need through search and also with the ability to make purchases. Marketers will need to convey a message that m-commerce allows for a faster easier and user-friendly way of making purchases to encourage more adoption.

‘Hedonic Motivation’ was introduced into the UTAUT (2012) and was found to be influential in the adoption of technology. Google found that consumers spend over 15 hours per week researching on smartphones and we can see in our everyday lives that people are almost addicted to the technology. 81.33% of respondents in the survey found using a smartphone pleasant and 66% found using a smartphone rewarding. These figures suggest that hedonic motivation is important influential factor and that smartphones do provide the majority of consumers with an enjoyable user experience. Marketers will need to consider developing the idea of m-commerce as enjoyable in the mind of the consumer.

‘Price’ was the final area to be examined. Previous research found price to be very influential as costs incurred for the use of the technology could create a barrier in its adoption. Venkatesh et al’s (2012) research found that when the benefits of using a technology out way the costs involved, price does not become such an important factor in its adoption. An
analysis of the survey found that this was indeed the case and consumers were largely happy to pay the fees for using their phones. 64% agreed the fee they pay was reasonable for using their smartphones. There were some concerns for consumers that they might incur high fees for using their smartphones. 44.67% of respondents worried about incurring costs. Marketers will need to address this issue and educate consumers on how to manage costs. Also if marketers can show how using m-commerce can save money, possibly through cheaper transaction fees it could help reduce any anxiety caused.

5.3 Recommendations for Further Research

Mobile commerce and smartphones are an ever-evolving area and research can be updated on a regular basis to investigate trends. The researcher has constructed a potential model for the adoption of smartphones for mobile commerce that could be examined to test for its validity.

![Recommended Model For Research](image)

The researcher suggests that all five constructs will impact on the intention to use smartphones for shopping. The results of the survey revealed that age is a moderating factor for social influence and also revealed gender as having an impact on social influence. Females were 9.35% more likely to discuss making purchases on their smartphones than males. Facilitating conditions will be moderated by gender as 7.22% more males agreed they had the necessary knowledge to make purchases on their smartphones. 10.94% more females disagreed they had the necessary knowledge to make purchases on their smartphones. Price is moderated by age and gender. The results found younger individuals
to be more price sensitive. The survey also revealed that females were happier with the fee they pay with 9.71% more females agree. 11.38% more males disagreed the fee they pay is reasonable. 8.15% more males agreed they worried about incurring costs when using their smartphone and 3.74% more females disagreed they worried about incurring costs.

5.4 Limitations

The researcher sees the following elements as the main limitations to the research project:

The 12 week time frame allowed for the completion of the paper was restrictive and perhaps a longitudinal study would be more appropriate. The sample size was not reflective of the population, as discussed in the findings under the demographic snapshot. Also in regards to the sample, Saunders et al (2012) say that the convenience sampling that was used in this paper may contain biases. The researcher feels the main limitation to the paper was due to the researchers lack of familiarity with statistical analysis. A greater knowledge of statistics and statistical analysis software such as SPSS would have allowed for a more detailed analysis. The researcher was unfamiliar with analysis such as regression and correlation that can be used in software such as SPSS Modeler which would have allowed further testing of the suggested model.

A further limitation for consideration is that the technology being researched, smartphones, advances at such a rapid pace the data may quickly become out-dated as consumers change their opinions and tastes along with the advancements. It must be highlighted that the data gathered is simply a snapshot at one particular point in time.
Chapter 6
Personal Reflection

6.1 Introduction

“Live as if you were to die tomorrow. Learn as if you were to live forever.” (Mahatma Gandhi)

This chapter will reflect on the researcher’s experiences, learning and personal development throughout the entire Masters of Business Administration program. It will cover a number of different learning styles, cover the personal learning styles and skills developed during the program and reflect on the dissertation program.

Learning and reflection are not only an important part of an academic course but also important in everyday life. Reflection may occur at a time long after an event such as out on a walk. The researcher recognises the importance of learning and has been encouraged to reflect on work throughout the Masters of Business Administration program at Dublin Business School and also during a degree at Dublin Business School. One of the key tools for reflection during the Masters of Business Administration process was Mahara where a diary could be maintained. Along the way the researcher also needed to submit diaries at the end of assignments, both group and individual, which encouraged reflection on the learning’s of the assignments. Cottrell (2010, p.189) discusses how reflection for students in university allows them to develop into thinkers, which is an important part of the educational experience.

6.2 Learning Styles

A number of different learning styles exist and people can be better suited to different styles. Kolb’s learning style model sets out four different learning styles that follow each other in a learning cycle
Kolb (1984, p.41) defines learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience." Kolb’s model has been adapted over time and Honey and Mumford (1986) extended the model to incorporate their own learning styles.

Figure 6.1: Kolb’s Learning Styles
(Source: http://www.algonquincollege.com/healthandcommunity/files/2013/03/kolb.jpg)

Figure 6.2: Honey and Mumford Learning Styles (Source: Honey and Mumford, 1986)
Honey and Mumford (1986) suggested four types of learning styles:

1. Activist  
2. Reflector  
3. Theorist  
4. Pragmatist

(See Appendix 5 for full description of each style) During the Masters of Business Administration program the researcher carried out a number of self assessment tests and for learning styles the results were as follows:

- Activist: 9
- Reflector: 14
- Theorist: 11
- Pragmatist: 12

Reflectors tend to gather data, both primary and secondary, study it and they draw conclusions. This matches up well with the way the researcher approached the paper. I find I tend to be a blend of a couple of the styles that exist with slightly more focus on reflection. I will work things over in my mind at the end of the day. Pragmatist my second strongest style is also suited as I am keen on trying out theories.

**Learning, Development and Process**

During the entire Masters program and the dissertation process the author has be constantly learning new things. Along the way the lectures provided by the college allowed for the course curriculum to be structured. The lectures are supplemented with external reading that is heavily encouraged as part of the learning process. This has allowed the researcher to build up well-rounded level of knowledge.

During the Masters program the researcher received guidance from different lecturers in the research methods process. On completion of the dissertation the researcher is able to reflect on this process and the learning’s involved. The researcher has never undertaken a project of this size and has gained an enormous amount of experience from it.
The dissertation process began at the abstract conceptual stage (Kolb, 1984) where the researcher considered different possibilities and discussed ideas with various lecturers in Dublin Business School. The researcher then formulated a plan for the research and began a literature review following a process to narrow down the topic area (see appendix 6). After an initial meeting with my supervisor it was suggested that my topic was too broad in some areas and needed refining. The researcher moved between a reflector as the material was reviewed and a pragmatist in planning the next stage of the project.

Once the topic had be finalised the literature was concluded and hypotheses drawn up. A survey was carefully constructed and circulated. The most valuable experience in the dissertation was creating the hypotheses from the literature review and testing them in the data analysis.

Learning from fellow students during the program was an extremely beneficial experience. It allowed me to meet other students with different backgrounds and see the different approaches possible. I have had to work in teams and reflect on my own input. In the past I have carried out a Belbin’s team role assessment and the results showed my personality type to be a ‘shaper’. One of the drawbacks of a ‘shaper’ is becoming frustrated, I now kept a focus to not get frustrated if things aren’t moving along as I would like them.

6.3 Planning and Time Management

Planning and preparation are extremely important to get the desired results. As already discussed the dissertation itself had some time constraints that required planning and good time management to overcome. I completed my degree at night part time whilst working and have done the same with this Masters of Business Administration program. This has enabled me with excellent time management and planning skills, which are valuable in both a professional and personal setting.

6.4 Communication Skills

In every module students were made to form groups and complete assignments. This has allowed me to develop my communication skills greatly. I have also been required to complete a number of different presentations. Public speaking is not something I am entirely keen on doing but the experience of making presentations has allowed me to become more accustomed to the process.
6.5 Application of Learning

The Masters of Business Administration course has been an excellent experience and has provided with excellent skill that can be used in a number of different areas that will support career development. The author’s communication skills, research skills and analysis skills have been greatly enhanced. I feel more confident both in work and out of work due to undertaking the course.

6.6 Plans for Future Study

The university experience has been very beneficial to the author. It has opened up my mind to new ideas new ways of thinking and new possibilities. After completing a four year degree part-time at night and continuing straight into a two years master’s course I don’t think I will do a course of the same volume straight away.

Using the Myers-Briggs (1995) personality test, I am an ENTJ. One of the traits of this type is an interest in personal growth and development. In this regard there are a couple of specialist professional courses that I would be keen to complete. The areas of interest are digital marketing and project management and I have already investigated some potential courses. As discussed in the limitations I felt I lacked enough knowledge to carry out a deeper statistical analysis of the data obtained through the primary research. This is something I would also like to address.
Bibliography


Google, 'Mobile Path to Purchase', November 2013.


Appendices

Appendix 1

![Diagram](image)

(Limayem et al, 2007)

Appendix 2

Wi-Fi Hotspots provided by Dublin City Council - (source: Google Maps)
Appendix 3

Masters Dissertation Research - Mobile Commerce

This purpose of this survey is to provide information on how consumers use their mobile phones for making purchases. It will evaluate whether the smartphone is a popular device for shopping with. It will also determine if any barriers exist to prevent using smartphones for shopping from a consumer’s perspective.

The survey will also help to understand any gaps existing in this area research and will help increase the knowledge in the field of study.

The survey is strictly confidential and will only be used by the researcher to establish the above objectives.

Thank you for your support.

* Required

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using a smartphone is pleasant?</td>
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<tr>
<td>Using a smartphone is rewarding?</td>
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<td>I can easily access relevant information using my smartphone?</td>
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<tr>
<td>I have the necessary knowledge to make purchases with my smartphone?</td>
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<td>Using a smartphone is financially secure?</td>
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<td>I trust the ability of a smartphone to protect my privacy?</td>
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<tr>
<td>People around me think I should shop for products or services on my smartphone?</td>
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<tr>
<td>I would discuss making purchases on my smartphone with friends and family?</td>
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The fee that I pay to use my smartphone is reasonable?

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I worry about incurring high costs when using my smartphone?

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<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree nor Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
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Age *

Please enter your age

- [ ] 18 - 25
- [ ] 26 - 32
- [ ] 33 - 39
- [ ] 40 - 47
- [ ] 48 - 55
- [ ] 55 - 65
- [ ] Over 65

What is your Gender?

- [ ] Male
- [ ] Female

Submit
Appendix 4

Figure 7.5 Selecting a non-probability sampling technique
### Activist
Activists involve themselves fully and without bias in new experiences. They enjoy the here and now, and are happy to be dominated by immediate experiences. They are open-minded, not sceptical, and this tends to make them enthusiastic about anything new. Their philosophy is: "I'll try anything once". They tend to act first and consider the consequences afterwards. Their days are filled with activity. They tackle problems by brainstorming. As soon as the excitement from one activity has died down they are busy looking for the next. They tend to thrive on the challenge of new experiences but are bored with implementation and longer term consolidation. They are gregarious people constantly involving themselves with others but, in doing so, they seek to centre all activities around themselves.

### Pragmatist
Pragmatists are keen on trying out ideas, theories and techniques to see if they work in practice. They positively search out new ideas and take the first opportunity to experiment with applications. They are the sort of people who return from courses brimming with new ideas that they want to try out in practice. They like to get on with things and act quickly and confidently on ideas that attract them. They tend to be impatient with ruminating and open-ended discussions. They are essentially practical, down to earth people who like making practical decisions and solving problems. They respond to problems and opportunities 'as a challenge'. Their philosophy is "There is always a better way" and "If it works it's good".

### Reflector
Reflectors like to stand back to ponder experiences and observe them from many different perspectives. They collect data, both first hand and from others, and prefer to think about it thoroughly before coming to a conclusion. The thorough collection and analysis of data about experiences and events is what counts so they tend to postpone reaching definitive conclusions for as long as possible. Their philosophy is to be cautious. They are thoughtful people who like to consider all possible angles and implications before making a move. They prefer to take a back seat in meetings and discussions. They enjoy observing other people in action. They listen to others and get the drift of the discussion before making their own points. They tend to adopt a low profile and have a slightly distant, tolerant untroubled air about them. When they act it is part of a wide picture which includes the past as well as the present and others' observations as well as their own.

### Theorist
Theorists adapt and integrate observations into complex but logically sound theories. They think problems through in a vertical, step-by-step logical way. They assimilate disparate facts into coherent theories. They tend to be perfectionists who won't rest easy until things are tidy and fit into a rational scheme. They like to analyse and synthesise. They are keen on basic assumptions, principles, theories models and systems thinking. Their philosophy prizes rationality and logic. "If it's logical it's good." Questions they frequently ask are: "Does it make sense?" "How does this fit with that?" "What are the basic assumptions?" They tend to be detached, analytical and dedicated to rational objectivity rather than anything subjective or ambiguous. Their approach to problems is consistently logical. This is their 'mental set' and they rigidly reject anything that doesn't fit with it. They prefer to maximise certainty and feel uncomfortable with subjective judgements, lateral thinking and anything flippant.

(Honey and Mumford definition 1982) Mobbs, R., (No Date) 'How to be an e-tutor', Published online, University of Leicester. Available: http://www2.le.ac.uk/departments/gradschool/training/eresources/teaching/theories/honey-mumford