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Determinants of smartphone shopping adoption

Key factors for online shopping of consumer
goods through smartphones in Sweden

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Abstract

The purpose of this thesis was to examine key factors for adoption of online shopping of consumer goods through smartphones in Sweden. Previous research on online shopping and m-commerce was reviewed and the Unified Theory of Acceptance and Use of Technology model (UTAUT) (Venkatesh et al. 2003) was chosen. Interviews were conducted with 11 online shoppers and 5 industry experts to explore current beliefs and to modify the model to the empirical context. The model with hypotheses was tested with statistical analysis of data obtained by a survey on 303 shoppers in the Malmoe region.

The findings suggest that social influence and the location of the shopper have significant positive effects on behavioural intention to shop consumer goods through smartphones. The experience of the shopper was shown to moderate the effects of the determinants. High trustworthiness and performance of smartphone web shops was appreciated, but did not affect intention. A positive relation was found between intention to shop through smartphones and self-reported past smartphone shopping habits. The findings suggest that online retailers should customise their marketing efforts to consumers with different experience levels of smartphone shopping if they wish to increase its adoption. This is one of few studies that investigate the determining factors for online shopping exclusive to smartphones.

Keywords: Smartphone, e-commerce, online shopping, retail, consumer behaviour, UTAUT, Sweden

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Joel Persson

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List of Abbreviations

TRA	Theory of Reasoned Action
TPB	Theory of Planned Behaviour
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use Technology
IS	Information system

Terminology

E-commerce	Online transactions and purchases of products and services made through Internet-connected devices, including both physical and nonphysical products.
M-commerce	Online transactions and purchases of products and services made through mobile devices, including both physical and non-physical products.
E-shopping	Online purchases of consumer goods through Internet connected devices.
M-shopping	Online purchases of consumer goods through mobile devices.
E-tailer	An online retailer.
M-tailer	An online retailer on mobile devices.
Smartphone	A mobile phone that can perform many of the functions of a computer.
Tablet	A mobile device/handheld computer with a large touch screen display.
Smartphone shopping	Online purchases of consumer goods through an online web store on a smartphone.
Smartphone web shop	A web shop accessed on a smartphone.
Conversions rate	A measure of the total amount of visiting customers that makes a purchase.

1 Introduction

This thesis aims to examine and determine key factors that affect adoption of smartphone shopping. There seems to be a lack of knowledge regarding customers' attitude towards smartphone web shops and what factors influence their choice of using the smartphone for online shopping. Previous research on the topic has included computers or all mobile devices, studied purchases of both products and services, or have been conducted in another country. This thesis focuses on Sweden and the determining factors for smartphone shopping specifically. Considering the differences between smartphones, tablets and computers, and the fact that many consumers who own a smartphone do not own a tablet, there is a chance that the adoption factors differ between the devices. It is important to fill this research gap since online shopping is gaining popularity and the use of smartphones is increasing in the Swedish society.

The following section introduces the reader to the development of e-commerce and online shopping, provides data on the Swedish market, and highlights current problems and challenges for online retailers. The chapter ends with sections on research purpose, delimitations, and the structure of the thesis.

1.1 Problem Background

Since the beginning of the 1990's, e-commerce has radically changed consumer behaviour by introducing new retail channels (Ngai & Gunasekaran, 2007). Several researchers (Dholakia & Uusitalo, 2002; Monsuwé, Dellaert & Ruyter, 2004) have emphasized online retailers' need to understand consumers' motivations for online shopping. Technological advancements and developments of wireless networks have enabled a new form of e-commerce to emerge - m-commerce (Ngai & Gunasekaran, 2007). While e-commerce encompasses all forms of monetary transactions via computer networks (Turban et al. 2008), m-commerce is specified to online transactions made over telecommunication networks by using mobile devices (Dholakia, Rask, & Dholakia, 2006). M-commerce can thus be explained as e-commerce performed through a mobile device. The term mobile devices refer to small handheld devices

with computing capabilities, such as smartphones, tablets, and personal digital assistants (Chang, Chen, & Zhou, 2009).

According to Barnes (2002), the emergence of m-commerce entailed new challenges for businesses different from those of e-commerce. This thesis focuses on m-commerce of consumer goods in the business-to-consumer perspective, also known as m-shopping, or m-tailing, where online retailers sell consumer goods to end consumers (Turban et al. 2008).

Today, the retail sector is facing a paradigm shift. The generation born and raised from 1980 and onwards is becoming a group of consumers with strong purchasing power, but also superior online habits in comparison to previous generations. The younger generation is more experienced with the Internet and mobile devices and are thus more susceptible to engage in m-commerce activities than older generations (Kumra & Malik, 2013).

In 2014, 30 percent of all global online transactions were made from mobile devices, with smartphones being used more than tablets (Criteo, 2014). Smartphones are close at hand throughout the day (DIBS, 2014), which means that they provide a great opportunity for retailers to reach out to potential customers whenever and wherever they are. This is not possible to the same extent with computers (Xu & Yang, 2012). Although it is now considered natural for Swedes to use and purchase services on their smartphone, Swedish consumers still seem to prefer to use the computer when they buy physical products online (PostNord, 2015). It is believed that this difference in attitudes towards the mediums will decrease in the coming years and that smartphones will gradually be used more for purchases of physical products (PostNord, 2015).

1.2 M-shopping in Sweden

E-commerce has grown substantially in Sweden during the last decade and it has simplified every-day tasks for consumers. A high Internet penetration is a foundation for successful e-commerce, as it enables companies to reach more consumers online. Sweden's Internet penetration is over 95 percent (World Bank, 2014), which indicates a great potential for e-commerce. Swedish firms have traditionally been early adopters of e-commerce (Eriksson et al. 2008), but the recent developments of m-commerce impose new challenges and opportunities for Swedish retailers.

Around 85 percent of the Swedish population from 12 years of age has used Internet to purchase goods or services (Findahl, 2014; PostNord, 2015). Between 63 and 78 percent of the Swedish population owned a smartphone in 2014, which is among the highest smartphone penetrations in the world (Findahl, 2014; Richter, 2013). More than 90 percent of the Swedish population over 12 years of age have access to a computer, tablet, or smartphone in their daily lives (Findahl, 2014). The turnover for e-shopping was 42.9 billion SEK in 2014, about half of that of e-commerce in total. Nonetheless, online purchases of consumer goods have increased almost ten-fold since 2003 (PostNord, 2015).

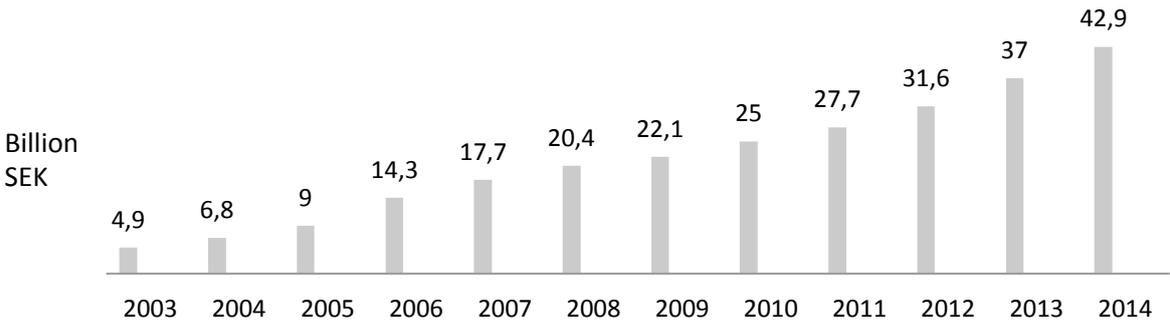


Figure 1 E-shopping Turnover in Sweden 2014
Note. Sourced from “E-barometern Årsrapport 2014” by PostNord, 2015, Available Online: <http://www.hui.se/statistik-rapporter/index-och-barometrar/e-barometern> [Accessed 8 February 2015]

The annual turnover of the e-shopping industry in Sweden has increased steadily for a decade. The DIBS Nordic e-commerce report (2014) revealed that online purchases made through mobile devices increase faster in Sweden than in Denmark and Norway.

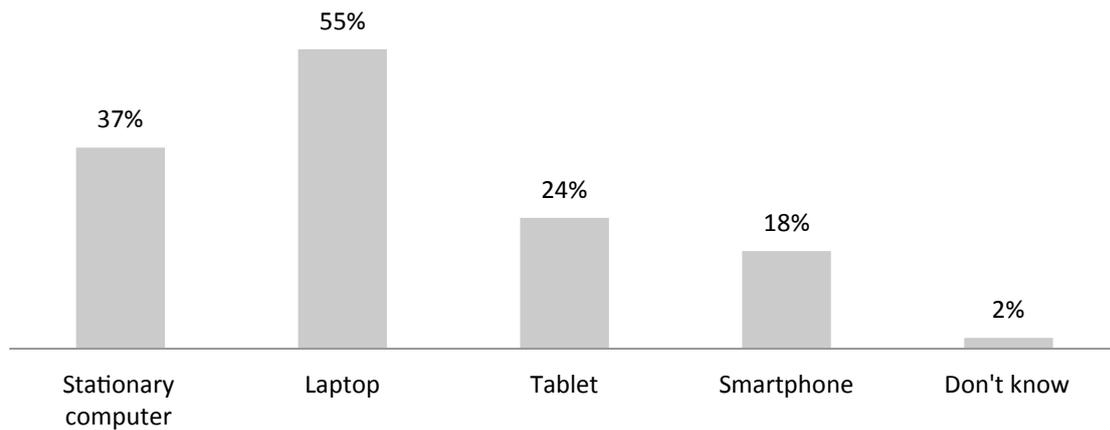


Figure 2 Device of Choice for Online Shopping in 2014

Note. Sourced from “E-barometern Helårsrapport 2014” by PostNord, 2015, Available Online: <http://www.hui.se/statistik-rapporter/index-och-barometrar/e-barometern> [Accessed 8 February 2015]

Figure 2 shows that only 18 percent of the respondents in PostNord’s 2014 study (2015) had purchased consumer goods through a smartphone in Sweden. This illustrates that smartphones are not as adopted for online shopping as other devices. It is possible that e-tailers’ total sales would increase if they could improve the conversion rate for smartphones.

1.3 Problem Statement

According to PostNord (2015), mobile devices are most commonly used in the beginning of the online shopping process when the consumer browses web shops and researches products, whereas the computer is used later to complete the online purchase. It is possible that companies do not yet have a complete understanding of what factors drive the adoption of smartphone shopping and how to increase the conversion rates. Another explanation could be that consumers have certain perceptions, unwarranted or not, towards online shopping on smartphones that cause them to not finalise their purchases on smartphones.

There is a chance that the low adoption rate of smartphone shopping is caused by the fact that it is a new phenomenon, and that new technologies are met with scepticism. This may be true, but figure 2 shows that tablets are more adopted for online shopping in Sweden, while the commercial success of tablets came after that of smartphones (Business Insider, 2013; International Business Times, 2014). Additionally, the Japanese and South Korean markets are far ahead of Sweden in regards to smartphone shopping adoption, where over 50 percent

of all e-shopping transactions are made from smartphones (Criteo, 2015). These facts suggest that Swedish consumers may have certain attitudes and perceptions of smartphone shopping that cause its low adoption. As smartphone shopping is expected to increase in Sweden (PostNord, 2014), it could be useful for Swedish m-tailers to understand consumers' attitudes towards smartphone shopping in order to respond to the shifting shopping behaviours as proficiently as possible. By doing this, the m-tailers would be able to create more successful smartphone shopping platforms where customers will finalise the purchase on their smartphones, and adapt their marketing effort to further drive the adoption.

1.4 Research Purpose

The purpose of this thesis is to examine key factors that affect Swedish consumers' intention to purchase consumer goods through smartphones. It seems little knowledge exists on which factors drives online shopping in the Nordic countries. There are several studies in the research field that cover the same question for computers or for mobile devices in general, including tablets. This study focuses on the key factors for shopping through smartphones, but also makes comparisons to computers in order to determine the relative strengths and weaknesses of the smartphone for online shopping. It is also our intention to provide a foundation for e-tailers to improve their smartphone web shops and marketing techniques.

1.5 Research Questions

The three research questions for this study are:

RQ1. How can adoption of online shopping from smartphones be modelled for the Swedish market?

This question is answered by constructing a conceptual framework of smartphone shopping adoption by reviewing existing models, previous research findings, and interviewing online shoppers and industry experts. The conceptual framework will be used as the research model with hypotheses that are to be tested quantitatively with statistical analysis of data provided by a survey on online shoppers.

RQ2. What do the constructs of the research model mean in a practical smartphone shopping context and how can online retailers work with these aspects to improve their smartphone web shop?

Conceptual frameworks are often abstract and hard to understand in a practical sense. In order to improve the practical contribution of the study towards online retailers, we want to explore what concrete measures can be linked to the constructs of the conceptual framework. For instance, if a construct is related to the interface of the smartphone web shop, we want to understand what actions the online retailers can make to improve the interface. We will use qualitative interviews to gather an understanding of this.

RQ3. What are the determinant factors for adoption of online shopping from smartphones?

This question will be answered by testing hypotheses through statistical analyses of the effects between the variables in the research model. It is important to broaden the research to new contexts and for online retailers to know which of the factors have a significant effect on customers' intention to shop consumer goods on their smartphone.

1.6 Research Delimitations

This thesis only studies online shopping of consumer goods on smartphones in Sweden. In respect to what consumer goods that are to be included in the study, we use PostNord's (2015, p.4) definition of the term; "[...] goods sold through the internet that are delivered home, to a package pickup centre or collected in a store, warehouse, or pickup centre by the consumer".

This includes the following product categories:

- Physical media (books, DVD/Blue-ray, CDs, computer-/video games, journals and magazines)
- Clothing and shoes
- Home electronics (computers/computer accessories, speakers and monitors, mobile/telephones/GPS, gaming consoles, electronic household appliances, personal care, cameras, kitchen appliances)
- Cosmetics, skin- and hair care
- Sports and leisure equipment
- Furniture/Interior decorations

- Toys (not including computer-/video games, computers and home electronics)
- Nutrition supplements and pharmaceutical products
- Jewellery and watches
- Children's products (not including toys, children's movies, children's books, children's games)
- Eye lenses and glasses
- Car accessories
- Foodstuffs
- Construction and garden material
- Wine- and alcoholic drinks
- Flowers and plants

Data will be gathered on the types of consumer goods that the respondent of the survey has purchased, so we can check whether all types of consumer goods are represented in the sample.

1.7 Outline of the Thesis

The next chapter is the literature review, containing explanations of theories and research findings relevant to the study. This ends with a section of the conceptual framework with hypotheses that has been chosen to study smartphone shopping attitudes. The methodology is then explained, which includes discussions of the research design, data collection, and quality and credibility assessments. This is followed by two chapters of the results of the study, one for the interviews and one for the survey, including statistical data analysis. After that comes the discussion chapter, which elaborates on what the results mean and how they relate to previous research findings. Conclusions come thereafter, tying together the findings for the three research questions and explaining the contributions and implications of the results, theoretical as well as managerial. Research limitations and recommendations for future research are also given in this chapter. The appendix contains the interview guides, the survey guide and the SPSS output.

2 Literature review

This section provides an in-depth discussion of relevant theories, previous studies on online commerce and shopping, and presents the chosen conceptual framework and research model with accompanying hypotheses.

2.1 Theoretical Developments

Since shopping is a behavioural act and online shopping is dependent on technology, the theories used in this thesis originate from behavioural psychology and information system research. The theories are meant to predict people's intention to engage in behaviour or use of a technology. To provide the reader with a good understanding of the theories, the literature review begins with an overview of the theories' historical developments. This is followed by a discussion of the large body of research that has used these theories for studying online commerce.

2.1.1 Theory of Reasoned Action

The Theory of Reasoned Action (TRA) was established by Fishbein and Ajzen in 1975 (1975). According to the authors, "*the theory of reasoned action can be used to predict, explain and influence human behaviour in applied settings*" (Ajzen & Fishbein, 1980 p. 9). The authors stated that the theory could be used in the future to solve problems and decisions concerning organizational developments. The theory presumes that humans act rationally and that behaviours can be explained with the three constructs attitude, subjective norm, and behavioural intention.

Attitude: Attitude is defined as a "*function of his beliefs about the object and the implicit evaluative responses associated with those beliefs*" (1975, p. 29). It is influenced by the antecedent *beliefs and evaluations*. Beliefs are the person's subjective probability that the behaviour will have certain outcomes, whereas evaluations are the person's expected response to these outcomes (Davis, Bagozzi, & Warshaw, 1989). For instance, if a person has negative

beliefs about the outcomes of a behaviour and a pessimistic evaluation of how he will respond to these, he will also have a negative attitude towards the behaviour. This, in turn, affects his intention to perform the behaviour.

Subjective Norm: This construct is about the perceived influence people in the surrounding have on the individual's intention to perform a behaviour. This is affected by the antecedent *normative beliefs* and *motivation to comply*. Normative beliefs can be explained as the perceived expectations of important people, such as friends and family, have on one's behaviour. Motivation to comply is about whether the individual will act in accordance with these influential people's expectations (Davis, Bagozzi, & Warshaw, 1989).

Behavioural Intention: Behavioural intention is a function of attitude and subjective norm. It measures the strength of the individual's intention to perform the behaviour, specifically used to anticipate a voluntary act (Fishbein & Ajzen, 1975; Sheppard, Hartwick & Warshaw, 1988). It is important to note that it is not the actual usage that is measured, but the behavioural intention to carry out the act. However, Davis et al. (1989, p.997) found that intentions could predict behaviours "reasonably well" and according to Ajzen, measuring intentions is still a valid way of predicting use:

Intentions are assumed to capture the motivational factors that influence a behaviour; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behaviour. As a general rule, the stronger the intention to engage in a behaviour, the more likely should be its performance. (Ajzen, 1991, p. 181)

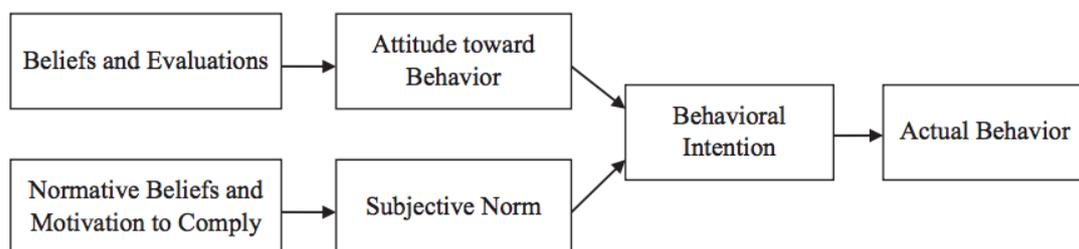


Figure 3 Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975)

Table 1 Core Constructs in Theory of Reasoned Action (TRA) (Tan, 2013)

Core Constructs	Definitions	References
Attitude toward Behaviour	"An individual's positive or negative feelings (evaluative affect) about performing the target behaviour."	Fishbein & Ajzen (1975)
Subjective Norm	"The person's perception that most people who are important to him think that he should not perform the behaviour in question."	Fishbein & Ajzen (1975)

Although praised for its simple way of predicting the complex social phenomena of behaviours, TRA is not without its flaws. In the meta-analysis of TRA research by Sheppard et al. (1988), the model was criticized for not taking into account the choice component that is present in situations when an individual is faced with several alternatives. For example, if a person prefers to use the computer instead of the smartphone for online shopping, he might always choose the computer when it is available.

2.1.2 Theory of Planned Behaviour

As TRA could only be used to predict behaviours of free will, a new model was needed that provided higher predictive power for non-voluntary and planned behaviours. In 1991, Ajzen revised and extended the TRA to a new model called The Theory of Planned Behaviour (TPB) (Southey, 2011). The new variable introduced in TPB was *perceived behavioural control*, which along with the variables attitude and subjective norm could better predict the behavioural intention for actions that were planned in advance.

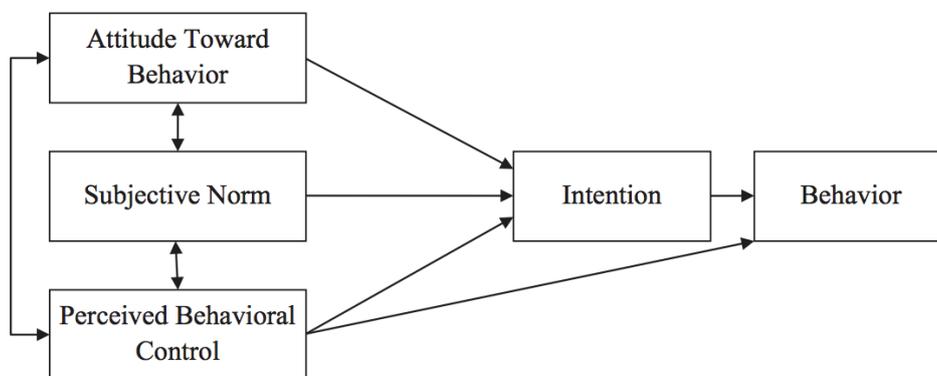


Figure 4 Theory of Planned Behaviour (TPB) (Ajzen, 1991)

Table 2 Core Constructs in Theory of Planned Behaviour (TPB) (Tan, 2013)

Core Constructs	Definitions	References
Attitude toward Behaviour	Adapted from TRA.	Fishbein & Ajzen (1975)
Subjective Norm	Adapted from TRA.	Fishbein & Ajzen (1975)
Perceived Behavioural Control	"The perceived ease or difficulty of performing the behaviour."	Ajzen (1991)

The added variable perceived behavioural control is a measure of the resources and opportunities available for a person that strengthens this person's perception of control they have over their action (Ajzen, 1991). It stems from Bandura's concept of *self-efficacy* from his Social Cognitive Theory (1977). According to Bandura (1982), the self-efficacy construct is about how well an individual expects he or she will be able to deal with a difficult situation. The idea of using the variable in TPB is that the person's degree of self-efficacy will influence whether he will consider even attempting the task or not (Ajzen, 1991). With a very low degree of perceived behavioural control (e.g. self-efficacy), the individual's estimation of successfully completing the task is too low to even bother trying. Although not included in Ajzen's TPB model, Bandura also considered another form of expectation, called *outcome expectancy*, which is thought of as the outcomes one is expected to gain by completing the act. The higher the estimated payoff from completion, the higher willingness one has to perform the action. Bandura separates the two forms of expectations in the following manner:

An outcome expectancy is defined as a person's estimate that a given behaviour will lead to certain outcomes. An efficacy expectation is the conviction that one can successfully execute the behaviour required to produce the outcomes. (Bandura, 1977, p.193).

Bandura stated that self-efficacy has the highest impact of the two constructs in predicting behavioural change (Bandura, 1977), which has been confirmed by studies on the theory's generalizability where it was tested in other contexts (Bandura et al. 1980). Exemplifying self-efficacy and outcome expectancy in a smartphone shopping context, a person will not bother shopping online with their smartphone if they believe that 1) they are not capable of successfully completing the smartphone shopping process, and 2) they do not expect to gain anything from it.

2.1.3 Technology Acceptance Model

Davis (1989) made an extension of TRA called the Technology Acceptance Model (TAM). By redefining the existing variables of TRA and including new variables applicable to the use of information systems (IS), the model attempts to capture what factors contribute to end-consumer acceptance of a specified technology (Davis, Bagozzi, & Warshaw, 1989).

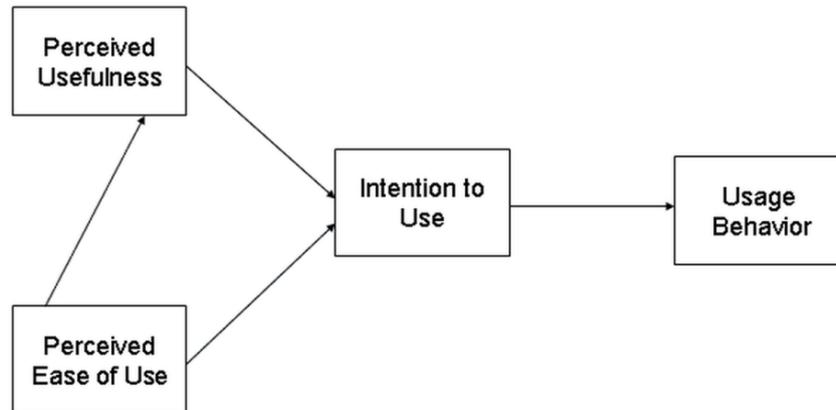


Figure 5 Technology Acceptance Model (TAM) (Davis, 1989)

Table 3 Core Constructs introduced in Technology Acceptance Model (TAM) (Tan, 2013)

Core Constructs	Definitions	References
Perceived Usefulness	"The degree to which a person believes that using a particular system would enhance his or her job performance"	Davis (1989)
Perceived Ease of Use	"The degree to which a person believes that using a particular system would be free of effort"	Davis (1989)

As seen in figure 5 and table 3, the model proposes two new core constructs especially important in the context of predicting IS use. These are *perceived usefulness* and *perceived ease of use*. Perceived usefulness measures the extent to which people believe using the information system will help them perform their task better. People tend not to use an information system that does not offer any substantial and/or additional benefit for what they want to accomplish. The construct can be compared to Bandura's outcome expectancy since the better the expected outcome of using the technology the more useful one might think the technology is. Perceived ease of use measures whether the information system is easy or difficult to use (Davis, 1989), and has similarities with Bandura's self-efficacy, in the sense

that an easy to use technology will increase one's perception of self-efficacy when using it (Davis, 1989). Together, perceived usefulness and perceived ease of use make up Intention to Use, which is believed to predict Usage Behaviour. The constructs in TRA and TPB that measure expectations and beliefs, such as subjective norm, are not included in TAM.

TAM had a large impact on IS research, with several researchers testing its empirical utility, predictive power, and the relationships among its variables. Subramanian's replication study (1994) confirmed that perceived usefulness was a predictor of future usage while perceived ease of use was not. Similar findings were presented recently (Aldás-Manzano, Ruiz-Mafé, & Sanz-Blas, 2009), where perceived usefulness was shown to have a larger impact than perceived ease of use on behavioural intention. A study (Wu & Liao, 2011) that used a joint TRA-TAM model further confirmed the relative higher importance of perceived usefulness over perceived ease of use. Szajna (1994), on the other hand, found that both variables have about equal predictive power for usage. Other scholars (Adams, Nelson, & Todd, 1992; Segars & Grover, 1993) confirmed the variables perceived usefulness and perceived ease of use as important determinants of system use, but noted that the measures may need to be adapted to the organizational and technological context studied to enhance the predictive power of information system usage. There are thus conflicting findings within TAM research despite its extensive use in research on consumer acceptance of technology.

2.1.4 Unified Theory of Acceptance and Use of Technology

The last decade has seen a vast array of modifications and extensions of the TRA, TPB and TAM. Countless alterations, extensions and tests of the models have been made with the intent to improve them and apply them to new empirical contexts, with many scholars competing to find the optimal model. According to Venkatesh et al. (2003, p. 426), *"Researchers are confronted with a choice among a multitude of models and find that they must "pick and choose" constructs across the models, or choose a "favoured model" and largely ignore the contributions from alternative models."* As the models became more complex and fragmented, the technology acceptance research field lost focus. Findings have also been mixed as an effect of the inconsistency of the models and the populations that have been studied. The increased complexity of the research field has led to confusion and lower practical use of consumer acceptance research for businesses.

As a result of the situation, Venkatesh et al. (2003) reviewed the existing research in the field and proposed a new model, the Unified Theory of Acceptance and Use of Technology (UTAUT), which is a synthesis of TRA, TPB, TAM and five other models from social psychology and innovation research. Figure 6 shows UTAUT as originally presented by Venkatesh et al. (2003).

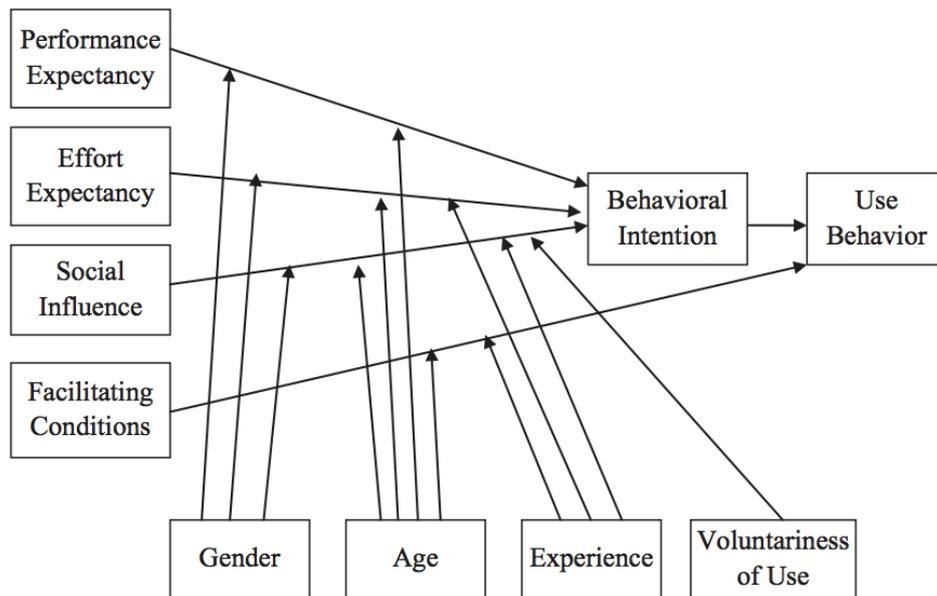


Figure 6 Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al. 2003)

Table 4 Core Constructs of UTAUT (Tan, 2013)

Core Constructs	Definitions	References
Performance Expectancy	"The degree to which an individual believes that using the system will help him or her attain gains in job performance"	Venkatesh, Morris, Davis, & Davis (2003)
Effort Expectancy	"The degree of ease associated with the use of the system"	Venkatesh, Morris, Davis, & Davis (2003)
Social Influence	"The degree to which an individual perceives that important others believe that he or she should use the system"	Venkatesh, Morris, Davis, & Davis (2003)
Facilitating Conditions	"The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system"	Venkatesh, Morris, Davis, & Davis (2003)

UTAUT has four determinants of intention and usage; performance expectancy, effort expectancy, social influence, and facilitating conditions, which are all affected by the four

moderating effects gender, age, experience, and voluntariness of use. As the moderating effects on the horizontal row are rather self-explanatory, only the four constructs that act as independent variables and presented vertically will be explained:

Performance Expectancy: This construct is closely related the idea of utility, e.g. whether the individual expects that using the technology will help him or her to improve the performance of whatever task or goal he or she is pursuing. The constructs from the eight former models (TRA, TPB, TAM, etc.) that make up performance expectancy are perceived usefulness, extrinsic motivation, relative advantage (in relation to the performance of other technologies), and outcome expectations (Venkatesh et al. 2003), of which the latter can be compared to the aforementioned concept of outcome expectancy by Bandura.

Effort Expectancy: This construct is defined as “*the degree of ease associated with using the system*” (Venkatesh et al. 2003, p. 450). It is almost directly adopted from the construct perceived ease of use in TAM.

Social Influence: Social influence is a measure of how much an individual feels he or she is influenced by important people in the surroundings, such as family and friends. This construct is a joint version of subjective norm in TRA and TPB, and image in Innovation Diffusion Theory (Venkatesh et al. 2003). Image from Innovation Diffusion Theory measures if using a certain technology yields higher social status among friends, relatives and family (Lu et al. 2003).

Facilitating Conditions: Facilitating conditions draw from the variable perceived behavioural control from TPB (Ajzen, 1991) and self-efficacy from Bandura’s Social Cognitive Theory (1977). It is about the degree to which one perceives that the system has a functioning organizational and technological infrastructure that will facilitate usage of the system. In other words, whether one believes that the technology will function well and provides customer service.

Using the same data set as previous research where the older models where used, UTAUT was shown to drastically improve the prediction of behavioural intention in comparison to the eight models and their extensions (Venkatesh et al. 2003).

2.3 Previous Research Findings

Researchers that have used the models presented so far have often adapted them with additional variables. The reason for this is to find new explanatory factors or make the model fit the empirical context better. In research on m-commerce and m-shopping, Technology Acceptance Model (TAM) has been the most used model.

Presented in table 5 are findings from studies of consumer acceptance of m-commerce, e-shopping and m-shopping. Although this thesis' focus is on m-shopping, we chose to include m-commerce and e-shopping studies due to the fact that few studies have been made on only m-shopping and the fact that findings from m-commerce may be transferable to m-shopping (see the similarities in findings between the studies in table 5). The reason for not including studies on e-commerce is that e-commerce encompasses all forms of transactions through the Internet, thus being very broad. We believe that limiting the reviewed studies to m-commerce, e- and m-shopping gives us more relevant studies for this thesis. For instance, e-commerce is not limited to mobile devices neither to shopping, while m-commerce is at least limited to transactions made through mobile devices. The studies were found by searches on Lund University Library Search and Web of Science. We only included studies that had been cited by other scholars at least 15 times. This has ensured that the studies presented in table 5 have had at least a small impact in the academic world.

Table 5 Previous Research of Consumer Acceptance and Adoption of m-commerce, e-shopping and m-shopping

Model	Source	Online transaction type	Location	Significant variables ^a
TAM	Aldás-Manzano, Ruiz-Mafé, & Sanz-Blas, 2009	M-shopping	Spain	Perceived usefulness, perceived ease of use, and personality variables (habit, experience, social influence)
TAM & ECT	Al-maghrabi et al. 2011	E-shopping	Saudi Arabia	Age, enjoyment (site quality), social influence, trust, and perceived usefulness
TAM	Bruner & Kumar, 2005	M-commerce	USA	Perceived usefulness, hedonic aspects, and visual aspects
TAM	Çelik & Yilmaz, 2011	E-shopping	Turkey	Perceived ease of use, trust, and enjoyment
TAM	Chong, 2013	M-commerce	China	Trust, network influence, enjoyment, and cost
TAM	Ko, Kim, & Lee, 2009	M-shopping	Korea	Usefulness, enjoyment, and ease of use

TAM	Lu & Su, 2009	M-shopping	USA	Anxiety, enjoyment, usefulness, and compatibility.
TAM	Malik, Kumra, & Srivastava, 2013	M-commerce	India	Perceived usefulness, ease of use, and perceived financial risk.
TAM	Nassuora, 2013	M-commerce	Jordan	Perceived usefulness, perceived ease of use, perceived trust, perceived cost, and perceived privacy
TAM	Okazaki & Mendez, 2013	M-commerce	Spain	Interface design affects perceived ease of use more for women, and speed affects perceived convenience.
TAM	Zarpou et al. 2012	M-commerce	USA	Perceived usefulness, innovativeness, and relationship drivers (similar to social influence)
TAM & TRA	Wu & Liao, 2011	E-shopping	Taiwan	Perceived usefulness, privacy, and self-efficacy
TPB-TAM	Wei et al. 2008	M-commerce	Malaysia	Usefulness, trust, social influence, and perceived financial cost
TRA	Khalifa & Ning Shen, 2008	M-commerce	Hong Kong	Cost, convenience, privacy, efficiency, and security
TRA, TAM & UTAUT	Mohammed, 2014	E-shopping	Jordan	Perceived usefulness, perceived risk, trust, and peer influence
Own Model ^b	Choi et al. 2008	Comparison of m-commerce & e-commerce	Korea	Transaction process, customization/customer service, content reliability, availability, and perceived price
Own model ^b	Chong, 2013	M-commerce	China	Age and educational level
Own Model	June, 2014	M-commerce	USA	Personal innovativeness and perceived usefulness.
Own Model	Lin & Wang, 2005	M-commerce	Taiwan	Perceived value, trust, habit, and customer satisfaction.
UTAUT	Chong, 2013	M-commerce	China	Perceived value, trust, perceived enjoyment, personal innovativeness, demographic profiles (e.g. age, gender, educational level), effort expectancy, performance expectancy, social influence, and facilitating conditions.
UTAUT	Lai & Lai, 2014	M-commerce	Macau	Performance expectancy, social influence, facilitating conditions, and perceived cost.
UTAUT	Yang, 2010	M-shopping	USA	Performance expectancy, effort expectancy, social influence, and facilitating conditions

^aThe independent variables significantly affecting (positively or negatively) the dependent variable behavioral intention, or other variant of this construct depending on which model was used.

^bThe model was not based on TAM, TRA, TPB or UTAUT. The research model and questionnaire items were constructed by the researcher for that specific study.

The importance of the web shop's perceived ease of use has been supported in previous studies (e.g. Aldás-Manzano, Ruiz-Mafé, & Sanz-Blas, 2009; Çelik & Yilmaz, 2011; Zarpou et al., 2012). Zarpou et al. (2012) also found that the degree of trust is a key driver of consumer's willingness to shop online. Yang (2010) highlighted the need for both hedonic and utilitarian benefits for improving the overall performance of the online shop. Hedonic benefits is whether the web shop is fun to use and utilitarian benefits could for instance be the online store's ability to provide a personal and time effective shopping experience (Yang, 2010). Lu and Su (2009) confirmed the importance of enjoyment, and also found that social influence and habit are important factors for predicting mobile shopping. Demographic factors such as gender can also have an impact on people's intention to shop online, and Okazaki and Mendez (2013) found that women had a larger need of an interface that is easy to use than men. Another demographic factor that affected intention to shop online was age. Holding all other factors constant, it has been found that younger people have a higher intention to shop online than older people (Al-maghrabi et al. 2011; Chong, 2013b).

Whereas almost all of the previous research has only studied the adoption factors of either e- or m-commerce, Ozok & Wei (2010) compared the two online shopping mediums. They did not investigate adoption factors for the mediums, but looked at which of the shopping mediums people thought performed better on aspects such as ease of use, usefulness, navigation, etc. Their result indicates that the computer is superior to mobile devices for online shopping in every aspect. The only aspect that mobile devices were close to match computers was in mobility, but computers were still perceived as better in this regard:

[...] e-shoppers did not have a belief that m-commerce had any kind of user-related features superior to e-commerce. Only in shopping any time and from anywhere did the m-commerce medium come close to being comparable to e-commerce, but still, users did not believe that there was a significant advantage offered by m-commerce in these two aspects. (Ozok & Wei, 2010, p. 129).

M-commerce is in this regard a complement to the computer for online shopping purposes. Ironically, mobile devices' key strength, which is their small size that enables mobility that some users perceive as negative for online shopping. The size of mobile devices negatively affects the interface, perceived ease of use, navigation, and the convenience of the virtual keyboard (Ozok & Wei, 2010). Choi et al. (2008) also conducted a comparison study, but between m-commerce to e-commerce, which includes purchases of services and non-physical products. They found that transaction process and customization/customer service are

determining factors for both mediums. However, m-commerce had three unique factors, which were content reliability, availability and perceived price level of using m-Internet.

2.4 Criticism of Previous Research

The studies by Ozok and Wei (2010) and Choi et al. (2008) highlight a key issue with previous research on m-shopping. When people decide to shop online, they often have the choice between using a computer or a mobile device. It seems like much of previous research has not taken into account that the consumers most often can, and will, choose the computer for online shopping. As shown in the introduction chapter, consumer goods sell worse from mobile devices than computers in Sweden. However, the studies by Ozok and Wei (2010) and Choi et al. (2008) are five and seven years old respectively, and since then smartphone web shops have improved drastically. It is possible that online shopping from smartphones is not seen as worse than online shopping from computers today.

Continuing the discussion on previous research, Lee, Kozar and Larsen (2003) conducted a meta-analysis of the previous literature and data of TAM research. A common criticism towards TAM was that the model did not take into account of variables that measure external effects, which is included in UTAUT with the independent variable social influence. Another critique Lee, Kozar and Larsen (2003) made towards all models and the technology acceptance research field at large, was that the findings were difficult to put into practice and that they were not very useful. The fact that the perceived ease to use is important for the success of a new technology is hardly surprising for a developer or manager of a tech company. Further research is needed to elaborate on what actions can be linked to variables such as perceived ease of use, for instance how to create a web shop that is easy to use. Research is also needed on what drives the consumers' choice of medium for shopping online - when and why consumers choose the smartphone for online shopping at a given moment - in order to tailor each medium to its own strengths so they can complement each other effectively.

2.5 Proposed Conceptual Framework and Hypotheses

Having reviewed the models and findings from previous research, this section describes what research framework was drawn for the study from existing theories and also provides formulations of hypotheses.

We decided use UTAUT since it incorporates elements from all previous theories in the field, and since it has been shown to have a higher a higher predictive power on behavioural intention than previous models (Venkatesh et al. 2003). However, the UTAUT framework was modified to better fit the empirical context of smartphone shopping in Sweden. This was done by excluding constructs from the original UTAUT framework and including external variables. Previous research on m-commerce, e-shopping and m-shopping has identified some constructs as especially important predictors of behavioural intention for shopping online that are not included in UTAUT. Trust is believed to be one such construct, and it has thus been added to the conceptual framework. The construct Facilitating Conditions has not been supported as much in online shopping research and it was therefore excluded. The moderating effect Voluntariness of Use was also dropped since the UTAUT was originally made for predicting technology acceptance in workplaces where the usage of a technology might not be voluntary. In that case it may be important to measure how voluntariness of usage of a technology affects the adoption rate. The act of online shopping is in contrast always voluntary, why this construct is not needed as a moderating effect in our study. Interviews were conducted with online shoppers and industry experts with the purpose to validate the choice of which constructs to include and to potentially identify further important aspects of smartphone shopping that could be used as completely new constructs in the framework.

Drawing from research findings presented in table 5 (p. 17-18), the constructs that were chosen for the preliminary conceptual framework were: performance expectancy, effort expectancy, social Influence, and trust as independent variables. The interviews revealed that the location of the individual was also an important predictor of whether he would choose to use a smartphone for online shopping. This insight was formed into the new construct that we call location, which is an independent variable. Behavioural intention is the dependent variable of the factors performance expectancy, effort expectancy, social influence, trust and location. Behavioural intention also acts as an independent variable in relation to user behaviour. Experience and age are moderating variables for the independent variables.

Figure 7 Proposed Research Model

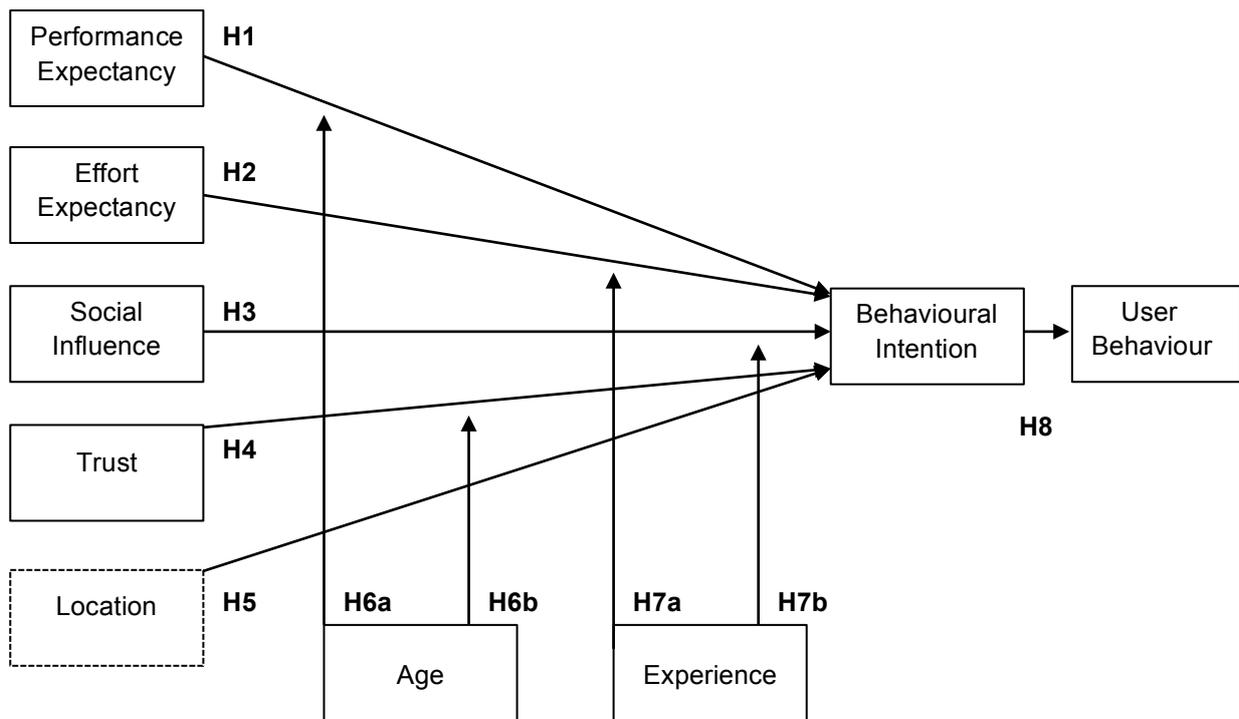


Table 6 Hypotheses

No.	Hypotheses	Path
H1	Performance expectancy has a significant positive effect on behavioural intention	PE → BI
H2	Effort expectancy has a significant positive effect on behavioural intention	EE → BI
H3	Social influence has a significant positive effect on behavioural intention	SI → BI
H4	Trust has a significant positive effect on behavioural intention	T → BI
H5	Location has a significant positive effect on behavioural intention	L → BI
H6a	Age significantly moderates the effect of performance expectancy on behavioural intention	AGE X PE → BI
H6b	Age significantly moderates the effect of trust on behavioural intention	AGE X T → BI
H7a	Experience significantly moderates the effect of Effort Expectancy on behavioural intention	EXP X EE → BI
H7b	Experience significantly moderates the effect of social influence on behavioural intention	EXP X SI → BI
H8	Behavioural Intention has a significant positive effect on user behaviour	BI → UB

Since it seems like only a few studies (e.g. Aldás-Manzano, Ruiz-Mafé, & Sanz-Blas, 2009; Ko, Kim, & Lee, 2009; Lu & Su, 2009) on m-shopping have utilized UTAUT model, the following section will explain the relevance of the UTAUT constructs in a smartphone shopping context.

2.5.1 Performance Expectancy

Performance expectancy is a summarized construct of perceived usefulness, extrinsic motivation, relative advantage, and outcome expectations. Perceived usefulness has in several studies been shown to have a significant effect on online customers intention to shop physical products online with their mobile devices (Aldás-Manzano, Ruiz-Mafé, & Sanz-Blas, 2009; Ko, Kim, & Lee, 2009; Lu & Su, 2009; Yang, 2010). Extrinsic motivation is tied to the utilitarian benefit one believes to achieve from using the technology (Venkatesh, Thong, & Xu, 2013). The intention to use a technology is thought to be higher if it leads to desired outcomes that are not directly tied to the usage of the technology itself, thereby being extrinsic (Venkatesh et al. 2003). The idea of relative advantage stems from the Innovation Diffusion Theory and is defined as “*the degree to which an innovation is perceived as being better than its precursor*” (Venkatesh et al. 2003, p.449). It is thought that the user will be more inclined to use a certain technology if it has a clear benefit over other technologies. Originally brought forward by Bandura (1977), outcome expectancy measures the outcome a person expects to achieve from behaving in a certain way or using a technology. The better outcome one expects to get from using the technology, the more positive attitude towards using it (Venkatesh et al. 2003).

Yang (2010) divided the performance expectancy construct of UTAUT into utilitarian and hedonic performance expectancy. This was done on the basis that the perceived performance of web shops on mobile devices is dependent on both utilitarian and hedonic benefits and that there is a difference between something being useful and fun. Both the utilitarian and hedonic performance expectancies were confirmed to have a positive effect on the behavioural intention for mobile shopping (Yang, 2010). With empirical support for the importance of performance expectancy in predicting intention to use, the following hypothesis was formulated:

H1: Performance expectancy has a significant positive effect on behavioural intention.

2.5.2 Effort Expectancy

As previously mentioned, effort expectancy is almost identical to perceived ease of use. Originally brought forward in TAM by Davis (1989), perceived ease of use is one of the most established constructs in technology acceptance and adoption research. It measures how easy it is to use the technology (Zarmpou et al. 2013).

There are several reasons for why the effort required by the user would predict online shoppers' intention to shop from a smartphone. Many Swedish online shoppers experience smaller screens less appealing for shopping (Svensk E-handel, 2014). Optimizing the interface for the smartphone is thought to improve the ease of use associated with browsing the web page (Criteo, 2014). Siwicki (2014) found that conversion rates on optimized web pages are 160 percent higher than for non-optimized web pages in the US. Studies conducted on mobile optimization for Swedish e-tailers has shown to improve conversion rates up to 50 percent and in some cases even increasing the revenue from m-shoppers with up to 247 percent (Karlsson, 2014). Mobile optimized webpages and payment solutions are thus used to lower the effort for the consumer, and both were shown to have a positive effect on consumers intention to engage in m-commerce or m-shopping (Siwicki, 2014; Slade, Williams, & Dwivdei, 2013; Yang, 2012).

Although perceived ease of use is one of the most established constructs in this research field, and the fact that much speaks for its importance for online shopping, Yang (2010) found that effort expectancy was not significantly positively related to US customers' intention to use mobile devices for shopping. It is thereby still unclear if the construct is a good predictor of intention to use. Its importance in Sweden is also unknown. We thereby want to investigate its effect and hypothesize that:

H2: Effort expectancy has a significant positive effect on behavioural intention.

2.5.3 Social Influence

Due to the uncertainty involved in using unfamiliar technologies and how recently it became possible to shop on smartphones, we assume that some people may be under great influence of what other people think about smartphone shopping. Singh et al. (2010) discovered that individuals' decisions to adopt mobile commerce services were influenced by friends and family members. Khalifa and Cheng (2002) confirmed this, while Fan et al. (2005) found that

social influence had an even higher impact on m-commerce acceptance than the constructs perceived usefulness and perceived ease of use. The same may be true in Sweden when deciding to shop on a smartphone.

Because of cognitive biases, there is a possibility that the respondents may not explicitly say that their peers affect them. One such cognitive bias is the introspect illusion, which states that people in general have a misconception about the origins of their beliefs and behaviour (Pronin, 2009). This means that people think that their beliefs originate from within themselves rather than from external sources. Another study by Pronin et al. (2007) showed that people believe others to be more conforming than what they perceive themselves to be. Still, we assume:

H3: Social influence has a significant positive effect on behavioural intention.

2.5.4 Trust

According to Pavlou (2003, p.103), trust is a “defining feature in most economic and social interactions in which uncertainty is present”. Warrington, Abgrab & Caldwell (2000) saw trust as a necessity for customers’ willingness to engage in an online transaction. There are many different definitions of trust in the context of online transactions. According to Dahlberg, Mallat, and Öörni (2015) trust refers to the perceived security of the technology and its trustworthiness, while Chong (2013a) refers to it as the feelings of privacy associated with making transactions through the technology. Trust can also include the customers’ feelings of benevolence, competence and integrity towards the e-tailer (Al-maghrabi et al. 2013) and the feelings of predictability in the online shopping process (Gefen & Straub, 2003). It is believed that the customer will not shop online if he cannot trust that the e-tailer will act as he expects. This is critical for online shopping success where there is no possibility to try or see the products in person prior to the purchase. Transparency is lacking in online shopping with no in-person interaction with the store, the products, the sales people or the cashier. All interaction is provided through the screen on the computer or mobile device, or potentially over telephone with customer service. Chong (2013c) linked trust in m-commerce to other aspects of risk - the shoppers’ perceived security of making transactions through mobile devices and the feelings of personal privacy when using m-commerce. Trust has thus been defined and measured in several ways in consumer acceptance and adoption research on m-commerce and m-shopping.

Lack of trust has been shown to explain why some consumers do not engage in online transactions (Pavlou, 2013; Warrington, Abgrab & Caldwell, 2000). For m-commerce specifically, trust has been shown to be the strongest predictor of adoption (Chong, 2013a). Trust is thought to be of greater importance for online shopping on smartphones than on computers because of how recently smartphone shopping became possible and since smartphones are less secure and have less privacy than computers (Chong, 2013a; Lu et al. 2003). So, we assume that:

H4: Trust has a significant positive effect on behavioural intention.

2.5.5 Location

Apart from using previous studies to identify suitable constructs to include in the framework, we also conducted interviews to gather insights that could be used as new variables that might be important for predicting Swedish consumers' intention to shop online through their smartphone. The details on the interviews are explained in further detail in the methodology section.

The interviews revealed one new construct, location, which has not been used in previous research. It refers to the location of the person who intends to shop online at a given moment. The construct was identified by the fact that several interviewees stated that they would be more likely to shop through their smartphone when they were not at home, when they were in public transit, or when their computer was not available (interviews with online shoppers, 2015). Almost all of the interviewees expressed that the main benefit of the smartphone for online shopping was that it allowed you to shop from any location, in particular in places where a computer is not available or practical to use. Thus, it seemed like the location of the shopper could be a predictor of his or her intention to shop through their smartphone. We hypothesize that:

H5: Location has a significant positive effect on behavioural intention.

2.5.6 Age

According to Chong (2013), age has a significant relationship with m-commerce activity. Source, Perroti and Widrick found that “*younger consumers were more likely to agree that online shopping was more convenient than older consumers*” (2005, p.130). We assume that

there may be a relationship between age and performance expectancy, where older people have a lower performance expectancy of smartphone shopping and that this affects their intention to shop from a smartphone. Specifically, we think that older users' perception of the usefulness, relative advantage and outcome expectancy of smartphone shopping is lower. Hall and Mansfield (1975) investigated job-related attitudes across age groups, and found that older people put less emphasis on extrinsic motivations, another sub-part of performance expectancy, than their younger colleagues. We thus believe that Age has a significant moderating effect on performance expectancy.

Age has also been found to influence the degree of trust for online shopping. Trocchia and Janda (2000) identified three reasons to why older people were more reluctant to shop online. These were: 1) an aversion to technology, 2) resistance to change, and 3) distrust for purchasing products without trying them on or seeing them in person first. We thereby believe that:

H6a: Age significant moderates the effect of performance expectancy on behavioural intention.

H6b: Age significant moderates the effect of trust on behavioural intention.

2.5.7 Experience

Age may not be the only moderating effect. The shoppers' level of experience of smartphone shopping may also have an effect on the independent variables relation with the dependent variable. We have chosen to include experience as a moderator and test it on the two independent variables that we did not hypothesise that age had an effect on, e.g. Effort Expectancy and Social Influence.

Age has been found to be an insignificant predictor of online shopping attitudes when experience was taken into account (Sorce, Perotti, & Widrick, 2005) or after the user had acquired a sufficient experience level (Hernández, Jiménez, & Martín, 2011). Hernández, Jiménez, & Martín (2011) saw that the experience levels of online shopping were different between the age groups, where the older age group generally has less experience. More experience have also been shown to increase the likelihood of the consumer making further online purchases, as increased experience facilitates the user's browsing and information searching skills (Mohammed, 2014). We therefore assume that the experienced shopper thinks

it is easier to shop online through their smartphone. It is also reasonable to assume that the more experienced smartphone shoppers will listen less to what other people think of smartphone shopping, since they already have formed their own opinion from experience. As with the case of the moderator Age, Experience will not be used as a moderating effect of Location. Because of this, we hypothesize that:

H7a: Experience significant moderates the effect of effort expectancy on behavioural intention.

H7b: Experience significant moderates the effect of social influence on behavioural intention.

2.5.7 Behavioural Intention

As noted previously, behavioural intention measures users' willingness to engage in certain behaviours, and is a function of the independent variables in the model (Fishbein & Ajzen, 1975). Behavioural intention does not by itself say anything about the actual behaviour or even self-reported behaviour; it only measures the extent to which an individual intends to perform that behaviour. However, Ajzen (1991) argued that behavioural intention is a valid predictor of actual behaviour, and a study by Davis et al (1991) concluded that intentions could in fact predict real behaviours. We are thus interested to see if there is in fact a positive connection between online shoppers' intention to shop through a smartphone and past smartphone shopping habits. Thus, the last hypothesis is:

H8: Behavioural intention has a significant positive effect on user behaviour.

3 Methodology

This chapter describes the research design, the data collection methods, and the measures taken to ensure an adequate quality of the results. The first section is about research designs and methodologies. This is followed by a description of how the study was conducted. Finally, a discussed is provided on how satisfactory reliability and validity was met.

3.1 On Research Designs and Methodologies

When conducting a study, the researcher must choose between a qualitative or quantitative approach, or a combination of both. The method should ideally be chosen with the research question in mind, so the researcher can get the appropriate form of information and make appropriate analyses for what is going to be studied.

Qualitative and quantitative research methods may be viewed as paradigms with different ontological and epistemological perspectives, that is, philosophies of what knowledge is and how it is created (Bryman & Bell, 2011). The quantitative perspective, also known as positivist research or constructionism, view knowledge as absolute truths and is concerned with determination, empirical observations, measurements and verification of existing theories where hypotheses are tested (Creswell, 2003). The qualitative perspective, sometimes referred to as the constructivist approach or interpretivism (Bryman & Bell, 2011), is concerned with the interpretation of phenomena, what these mean and how these are constructed socially and historically, which leads to theory generation (Creswell, 2003). In contrast to quantitative research, the qualitative perspective views knowledge as individuals' subjective meanings used to understand the world (Creswell, 2003).

According to Creswell (2003), there is a third perspective called pragmatism. The pragmatists are not bound to only use one of the two methods. Creswell writes that the pragmatists let the situation and the research problem decide the research method, which has opened up for combinations of quantitative and qualitative methods. This is known as the mixed method (Creswell, 2003).

The mixed methods approach has been criticized with the argument that the ontological and epistemological differences between quantitative and qualitative methodology make them impossible to combine (Bryman & Bell, 2011), since paradigms by nature are impossible to mix. The paradigm perspective on research methodologies have however been criticized by Bryman and Bell (2011), who stated that research methods are not universally thought of as paradigms and that the methods have been combined in studies effectively in business research in the past. According to Backman (2008), the distinction between the qualitative and quantitative methodologies does not mean that there is a difference in their perspectives, approaches or paradigms. He emphasizes that the two methods may be combined. This view is shared with Creswell (2002), who writes that mixed methods provide a more complete understanding of the phenomena studied, and Bryman and Bell (2011) believe that the methods complement each other's weaknesses when they are combined.

3.2 A Mixed Methods Study

Previous research on consumer adoption of technology has almost exclusively been quantitative due to the fact that the research in this field has been concerned with measurements of relationships and effects between different constructs for identifying determining key factors for shopping behaviours. Because very few, if any, studies have focused on smartphone shopping in Sweden, we first scrutinized carefully using qualitative research whether the existing constructs and our theoretical framework was appropriate for this study's context. We were also interested in understanding how e-tailers could work with the proposed framework; hence we explored what its constructs meant in a practical sense. For instance, what do the construct Performance Expectancy actually mean in a smartphone web shop context, and how do people think retailers can improve the performance? A quantitative study using the conceptual framework as the research model was then carried out, so that we could determine which factors of smartphone shopping attitudes and beliefs were most important in Sweden. Lastly, we investigated whether there were any discrepancies between what people said were the most important aspects of a smartphone web shop to what they actually believed. That is, this research compares the qualitative and quantitative results.

Thus, this thesis employs a mixed methods approach. Creswell, Lynn and Plano Clark (2010) note that the researcher must be aware of why he chooses to use a mixed method, and argue

why it is needed for the study since it is more complex to combine methods than rely on a single method. Our choice of using a mixed method was made on the basis that:

1. There are already many purely quantitative studies on online shopping. Those studies often lack the deep understanding of online shopping that the qualitative method can provide.
2. Very few online shopping studies have been made on the Nordic countries, why the context first needed to be explored qualitatively to form a suitable conceptual framework.
3. We wanted to understand what the constructs of the conceptual framework meant in a practical sense for a smartphone web shop, and what concrete actions online retailers can make from this understanding to improve their smartphone web shops. This called for qualitative interviews.
4. A quantitative study was still needed to be able to show what a larger group of people think of smartphone shopping for generalization of the results and to quantify the importance of different aspects related to smartphone shopping.

3.2.1 Timing in the Mixed Method

Several researchers have emphasised that it is important to plan the qualitative and quantitative phases and to be aware of which method will be of focus when one is using mixed methods (Creswell, Lynn & Plano Clark, 2010; Hanson et al. 2005). Creswell, Lynn and Plano Clark (2010) classify the timing of the phases in three different ways: concurrent, sequential and multiphase combination timing. Concurrent timing is when the qualitative and quantitative data is fully integrated into a single phase, sequential is when the qualitative and quantitative data collection and analyses are clearly divided into separate phases, and multiphase combination timing is when both concurrent and sequential timing is used in a larger study. The first phase in our study was qualitative and acted as an exploratory study to the quantitative phase. When the quantitative study was completed, the results from both phases were compared.

3.2.2 Priority in the Mixed Method

When using mixed methods, the researcher must be clear over which method is given priority for answering each research questions so the level of complexity related to using a mixed method can be kept under control (Creswell, Lynn & Plano Clark, 2010). The quantitative study will be given priority in this thesis since the literature we have reviewed is almost solely quantitative, the conceptual framework will be tested quantitatively, and the qualitative phase were used to improve and explain the quantitative study. Additionally, we used the literature review in the same way it is most commonly used in quantitative studies - to identify gaps in research knowledge and formulate research question (Creswell, 2012). This reinforces that the quantitative perspective has been dominating in this thesis. We have also simplified the mixed method approach by specifying which method will be used to answer each research question. This is explained in further detail in section 1.5 in the introduction chapter.

3.2.3 Embedded Mixed Methods Design

The next important thing to consider in mixed methods is the actual mixing - how and when the two phases are combined and integrated. Our phases connect in what is called the “level of design” (Creswell, Lynn & Plano Clark, 2010, p.68), e.g. the design stage of the research process. The insights gained from the qualitative phase were used to modify the design of the theoretical framework, which was used as the research model in the quantitative phase. Mixing also occurs at the final stage where we compare the results from the qualitative and quantitative phases in order to detect differences between what people say they believe when asked directly, and what the numbers show that they actually believe when asked about their opinions in certain situations and contexts. According to Creswell, Lynn and Plano Clark (2010) this type of mixed method is usually called embedded design. The qualitative phase is in this study embedded within the quantitative main study to enhance the overall design and to explain it.

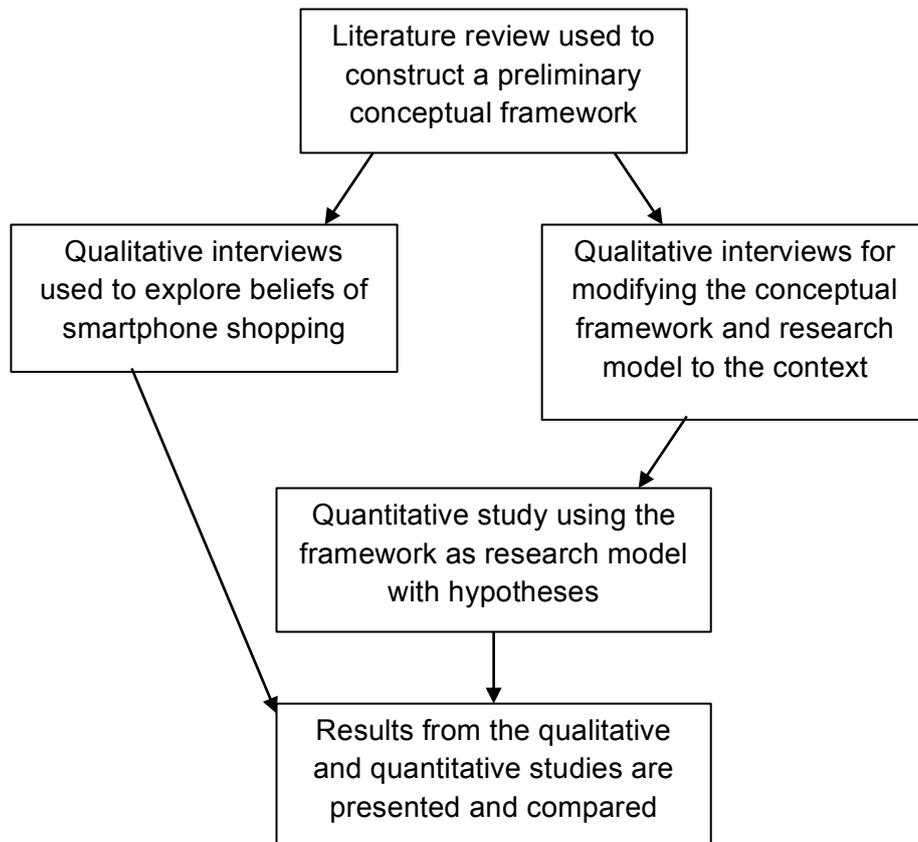


Figure 8 Overview of the Research Process

3.3 Qualitative Phase

The qualitative phase was exploratory in nature. Qualitative exploratory research is characterised by providing insight and understanding of complex phenomena (Creswell, 2012; Malhotra, 2010). According to Creswell (2012), it can also be used to collect data on individuals' unique views on a topic. Interviews were conducted with online shoppers and employees of e-commerce companies. The purpose with the interviews was twofold;

1. To understand the perceptions of online customers and professionals in the industry to modify the research model to the Swedish context so we measure the most central aspects, and
2. To explore and understand what the abstract constructs of the framework mean for a smartphone web shop in a practical sense and how companies can work with these to improve smartphone web shops. This gave us a connection to concrete business practices, which is often lacking in this research field.

3.3.1 Sample Selection for Qualitative phase

Sampling methods can be divided into probability and non-probability methods. Probability sampling means that the sampling elements, the respondents, are selected by statistical probability measures (Malhotra, 2010). Every sampling element has an equal chance of being chosen from the population. Non-probability sampling is in contrast based on the judgment of the researcher. The sampling units are not chosen by chance and every sampling element of the population does not have equal chance of being included in the study. It is the researcher that decides who will be included in the study.

For the interviews with consumers, we chose to do a convenience sampling with people who had purchased consumer goods through a computer and/or smartphone. For those who had not purchased consumer goods through a smartphone, the criterion was that they had at least browsed smartphone web shops.

Table 7 Online shoppers interviewed (n = 11)

Name	Age	Date
Hanna	30	2015-02-23
Max	24	2015-02-23
Felicia	25	2015-02-23
Erik	32	2015-02-24
Viktor	28	2015-02-24
Niels	24	2015-02-24
Klara	16	2015-02-25
Nora	13	2015-02-26
Jacob	17	2015-02-26
Katy	59	2015-03-17
Stefan	56	2015-03-18

The age-span of the interviewees was 13 to 59. As recommended by Kvale and Brinkemann (2009), the sample size was adapted so that it consisted of as many respondents as needed until no new data emerged. After 11 interviews, we no longer saw a need for further interviews as no new useful data was obtained.

For the interviews with the industry experts, we chose a judgmental sampling method, which is a form of non-probability sampling. With judgmental sampling, the researchers choose the respondents on basis of their knowledge in the subject of interest (Malhotra, 2010). For our study, we found it suitable to interview people with important positions in the e-commerce industry. People with different position were chosen, as it was likely that they possessed expertise knowledge in their specific domain. The industry expert interviewees were Niclas Winroth, CEO and co-founder of the e-commerce consulting firm Beyond Retail, Karl Kihlbom, CEO of the e-commerce business development company Vendre, Daniel Hörnqvist, E-commerce manager at Addnature, Arne Andersson, E-commerce Senior Advisor at PostNord, and Marcus Brunsten, back-end developer of Outnorth's online retail store.

Table 8 Interview respondents working with e-commerce (n = 5)

Name	Company	Position	Date
Niclas Winroth	Beyond Retail	CEO and co-founder	2015-03-03
Karl Kihlbom	Vendre	CEO	2015-03-04
Daniel Hörnqvist	Addnature	E-commerce Manager	2015-03-05
Arne Andersson	PostNord	E-commerce Advisor & Spokesman for PostNord	2015-03-10
Marcus Brunsten	Outnorth	Back-end developer	2015-03-18

The sample size for the qualitative interviews was relatively small with 16 interviews being held in total. We estimated this to be sufficient for our goal with the qualitative phase, as it had a supportive role for the quantitative study. Further, there is no need for qualitative research to be generalizable, and so smaller samples can be used in qualitative research (Malhotra, 2010).

3.3.2 Data Collection for Qualitative Phase

The interviews had a semi-structured design, which means that the interviewer has a series of pre-scheduled questions but that their sequence may vary and that follow-up questions may be asked (Bryman & Bell, 2011). The interviewer transcribed the answers on a computer simultaneously as the interviews were conducted. The interviews with the online customers were conducted through telephone and each took approximately 10-15 minutes to complete.

These interviews were structured around eight questions about their attitudes towards smartphone shopping. Some of the questions were concerned with the perceived differences between shopping from a smartphone and a computer, others about how smartphone web shops could be improved, and the remaining questions were tied to the conceptual framework. The full interview guide can be found in appendix A.

The interviews with the industry experts were more in-depth, conducted via telephone, and were 15-30 minutes in length with eleven questions. Some of the questions were similar to those asked to the online shoppers, for instance how smartphone shopping can be improved, but we also asked the industry experts about their view on the industry today and future development of smartphone shopping. Additionally, we asked how the shopping moment differs between e-shopping from smartphones and computers.

3.4 Quantitative Phase

The quantitative phase involved collecting data with a survey that was based on the research model, and then performing statistical analysis on the data. The computer software program SPSS, Statistical Package for the Social Sciences, was used for the quantitative analyses. The quantitative phase included aspects from descriptive research design.

Descriptive research aims to describe, estimate, determine, or measure something (Malhotra, 2010). This was fulfilled by gathering and presenting data of the characteristics of the respondents, and by conducting correlation and regression analyses to measure and determine the relationships among the variables in the research model.

Multiple regression analysis was used to test the model and the hypotheses. According to Malhotra (2010), regression analysis is used to 1) determine whether a relationship exists between the independent and dependent variables, 2) the strength of this relationship, 3) to predict the outcome on the dependent variable, and 4) to evaluate the contribution on the dependent variable caused by a single independent variable by holding the effects of other variables constant (Malhotra, 2010). Multiple regression analysis thus allowed us to determine which variables explained a significant variation in behavioural intention, and that are valuable for predictions of intention to purchase consumer goods through a smartphone.

3.4.1 Sample Selection for Quantitative Phase

As in the qualitative phase, we obtained respondents by a convenience sampling method, which is beneficial when the time frame is short (Malhotra, 2010). Because of the convenience sampling method, the gathered respondents cannot be seen as representable for all smartphone shoppers in Sweden and the results can thus not be generalised to the all smartphone shoppers in the country. Because we used a non-probability sampling method, the population of our study must thus be defined as the gathered respondents, with the sample also being the gathered population, since every respondent from this population was used. Despite this, we made an effort to make this sample representable to smartphone shoppers in the country. By using data from the statistical central bureau (SCB, 2014) on the number of people in Sweden from different ages groups and data from DIBS e-commerce study (DIBS, 2014) of the percent of people from different age groups who had purchased something through a mobile device, we were able to calculate that around 19 percent of all mobile shoppers are between 15-24 years old, 24 percent are between 25 to 34 years old, 26 percent are between 35 to 44 years old, 19 percent are between 45 and 54 years old, and the remaining 19 percent are over 55 years old. Apart from not gathering respondents under 18 years of age due to ethical concerns, we made an effort to match the age distribution of our sample to those numbers. The demographics of the gathered respondents can be found in chapter 5.

The requirements for the respondents were that they should have either browsed a web shop on their smartphone and/or made a purchase. This ensured that they had seen and navigated most aspects of the web shop that are involved in the online shopping process, ranging from looking at products to completing the payment process. The respondents were not required to have actually purchased any consumer goods through the smartphone, as such a requirement would make it much more difficult to obtain enough respondents. We also did not deem it necessary as long as they had experience of the smartphone shopping process. We also wanted input from those that had not completed a purchase, but at least considered shopping through a smartphone when browsing.

3.4.2 Data Collection for Quantitative Phase

The respondents for the survey were obtained inside the shopping mall Emporia in Malmoe, Nova in Lund and Malmoe central station. The two shopping malls were chosen because they are among the largest shopping centres in Scania County, why they are suitable for reaching a

large amount of different shoppers in a short time. Malmoe central station was chosen because it was easy to find people of a presumably good demographic spread who had time to fill out a questionnaire. 309 respondents were obtained. The demographic profile of the respondents is shown in the data analysis section for the quantitative study.

3.4.3 Questionnaire Items and Scale

When designing a questionnaire it is of great importance to make it easy to follow and answer, as this will make the respondents less likely to get bored or tired which may result in non-responses (Malhotra, 2010). The design of the questionnaire must also minimise the risk of response error. Therefore, we made a questionnaire with a reasonable number of items that was easy to understand. We studied previous research that had used the same theories to determine relevant items and a suitable amount of questions. The qualitative interviews also helped us identify new and relevant questions that had not been included in previous research on online shopping. The questions derived from previous research are somewhat abstract and related to the construct itself and the questions we identified from analysing the interviews measure the importance of concrete actions the e-tailers can make to improve the smartphone web shops.

To further minimise response errors, especially systematic response errors that can be caused by a badly constructed questionnaire (Malhotra, 2010); we have pre-tested the questionnaire in two sequences. The first version of the questionnaire was tested on 7 respondents obtained with convenience sampling. The questions related to mobile optimised web shops were found to be unclear by the respondents, why we added a picture that shows the difference in the interface of mobile optimised and non-optimised web shops in the revised version of the questionnaire. We then tested the updated questionnaire on 10 new respondents, which were also obtained with a convenience sampling technique. We then made the final adjustments to the questionnaire. These adjustments were related to the phrasing of the questions, removal of questions that were found to be too similar to other questions and the order of questions so that the most important questions were placed higher to minimise respondents giving ill-executed answers due to mental fatigue. The third version of the questionnaire is the version that was used in the study and can be found in appendix C.

The telescoping effect, or the inability to correctly place events in the past (Malhotra, 2010), may have occurred for some respondents when answering questions regarding their online

shopping habits. This is a natural limitation of surveys. The creation effect, when respondents create memories that have not actually occurred, is less likely to have occurred, as the questions measure beliefs and perceptions, not what is remembered from an event. It is unlikely for us to have obtained any non-responses due to sensitive questions as no items were of private nature.

Table 9 Questionnaire items

Construct	Items	Adapted from
Performance Expectancy	(PE1) Shopping through smartphones is useful.	Venkatesh et al. (2003)
	(PE2) Using a smartphone for online shopping enables me to shop more quickly.	Yang (2010)
	(PE3) I find smartphone shopping enjoyable.	Yang (2010)
	(PE4) I think that mobile optimised smartphone web shops are more useful for me.	New item ^a
Effort Expectancy	(EE1) I find smartphone web shops easy to use.	Venkatesh et al. (2003)
	(EU2) Learning to navigate smartphone web shops is easy for me.	Venkatesh et al. (2003)
	(EE3) I think that a smartphone web shop with a mobile optimised interface is easier to use.	New item
	(EE4) I find it easy to complete the payment process on smartphone web shops..	New item
	(EE5) I find it easy to enter personal and payment information smartphone web shops.	New item
Social Influence	(SI1) I believe that people in my surrounding affect my attitude towards shopping through a smartphone.	New item
	(SI2) If a friend or family member recommends smartphone shopping I will probably try it.	Venkatesh et al. (2012)
	(SI3) If a person whose opinions I value recommends smartphone shopping I will probably try it.	Venkatesh et al. (2012)
Trust	(T1) I think that payments made through smartphones web shops will be processed securely.	Chong (2013c)
	(T2) I believe my personal information will be kept confidential when I shop through my smartphone.	Chong (2013c)
	(T3) Mobile payment solutions increase my trust for the smartphone web shop.	New item
Location	(L1) Smartphone shopping is useful because it allows me to shop wherever I am.	New item
	(L2) I am more likely to shop through my smartphone when my computer or tablet is not available.	New item
	(L3) I will shop through my smartphone even when my computer or tablet is available.	New item
Behavioural Intention	(BI1) My interest towards shopping through a smartphone will increase in the future.	Yang (2010)
	(BI2) I will shop through my smartphone in the future.	Yang (2010)
	(BI3) I will shop more through my smartphone in the future than I do now.	Yang (2010)

^aThe new items were constructed from findings identified in interviews conducted in the qualitative phase.

The variables were measured with multi-items scales from the measurement instruments using a 7-point Likert scale, ranging from “strongly disagree” to “strongly agree”. We chose a 7-point scale, as this allowed us to measure differences in respondents’ answers with higher precision.

Since UTAUT is a model that has merged eight former theories, it thereby included all items from those eight theories’ models. The authors of UTAUT (Venkatesh et al. 2003) ran a cross-validation test to determine which items had the highest predictive power, e.g. factor loadings. These items are the ones we have sourced from UTAUT, and they were all deemed to have adequate validity and reliability in the original study (Venkatesh et al. 2003).

All items sourced from previous studies on online shopping were found to have sufficient validity and reliability in their respective studies (Chong, 2013c; Hernández, Jiménez & Martín, 2011; Venkatesh et al. 2012; Yang, 2010). Some of the constructs sourced from previous studies included items that were not relevant for this thesis, and thus those items were removed from their constructs.

The validity and reliability of the new items had not been tested previously as these items were identified in the qualitative interviews that we conducted. The validity and reliability of the new items was however shown to be satisfactory from our tests, apart from item L3. The results of the validity and reliability test are shown and explained in further detail in chapter 5.2.

3.5 Credibility and Quality Criteria

In this section we continue to discuss the reliability and validity concerns of the qualitative and quantitative studies from their respective perspectives.

3.5.1 Validity of the Qualitative Phase

According to Kvale & Brinkmann, 2009, validity in qualitative studies is concerned with the degree of the validity, or truthfulness, of the interviewees’ responses. The responses of the interviewees may not be objective truths for all online shoppers or for other companies’ or employee’s perspective. The responses will however represent the actual circumstances of the

interviewed customers and the company in question. The interviewees might give false statements, but we did not expect this to be a problem in our study, since the questions were not sensitive. Furthermore, generalizability of the interviews was not needed in our case as their answers were primarily used to control if there are any gaps in our research model and questionnaire.

When conducting interviews it is important to be aware of a possible power asymmetry between the interviewer and the interviewee (Kvale & Brinkmann, 2009). This asymmetry can result in that the interviewee will say what he or she thinks that the interviewer wants to hear and withhold information. This was most likely not a problem in our study since we did not ask any sensitive or leading questions.

Ethics concerning the interviews should also be considered in beforehand. In our case, it was important that we got the interviewees' informed consent and that we gave a correct portrayal of the information they provided. Each respondent was asked if they wanted to be anonymous, which no one requested.

3.5.2 Reliability of the Qualitative Phase

The reliability for interviews concerns the consistency and reliability of the interviews over time; if another researcher will be able to get the same results in the future with the same interview questions (Kvale & Brinkmann, 2009). The reliability of our interviews can be considered fairly low, because the e-commerce industry is a highly dynamic market, meaning that our industry experts will likely answer differently to our questions at any given time in the future.

As an interviewer it is important to not bias the interview-situation (Bryman & Bell, 2010). The behaviour of the interviewer may influence the respondent's answer, which is why the interviewer should try to act in the same manner across different interviews. This is referred to as intra-interviewer variability, and states that the interviewer should act consistently. An effort was made to control this by having an interview guide with a set of pre-defined questions that each interview emanated from. Apart from a few follow-up questions, no interviewee was asked any question that was not asked to the other interviewees. All interviews were made over telephone by the same person, and telephone-interviews are most rewarding if they are completed within 10-15 minutes. Our interviews lasted between 10 and 25 minutes. The interviews conducted in person can be sustainable for a longer period,

although we do not believe that this would be necessary to fulfil our needs. An advantage of telephone interviews is that the interviewee will not be affected by physical characteristics of the interviewer (Bryman & Bell, 2011).

3.5.3 Validity of the Quantitative Phase

Validity in quantitative studies is concerned with if one is measuring what he or she intends to measure, often referred to as measurement validity (Bryman & Bell, 2011). Validity can be divided into internal validity, external validity and ecological validity (Bryman & Bell, 2011).

Internal validity describes the causality of factors, that the independent variable indeed caused the variation in the dependent variable. Extraneous and confounding variables may pose threats to the internal validity. By including the most central independent variables from previous research, we believe we have made an effort to minimise the influence of extraneous variables. By including two moderating variables, we have also controlled the confounding variables that affect the independent variables' relation with the dependent variable. External validity deals with if the results can be generalizable to another context than for the specific study, and is measured by assessing how well the sample is representable towards the whole population. This was not controlled for to the same extent since we used a non-probability sample. An effort was however made by using quotas on each age group. Ecological validity refers to how well a study actually captures what happens in reality (Bryman & Bell, 2011). Ecological validity is almost impossible to control for, but we made an attempt by interviewing consumers and industry experts and using their feedback of what they deemed important factors when constructing the research model for the quantitative phase.

There are three other common measures for assessing the validity in quantitative research. These are content, criterion and construct validity.

Content validity, also known as face validity, is an evaluation of to which extent the scale items of a measurement instrument cover all aspects of this measurement instrument (Malhotra, 2010). In simple words, it is how well the questions of for example the construct effort expectancy includes everything that this construct is about. The content validity is considered good enough when the measurement instrument allows for all necessary data to be collected. We have ensured adequate content validity by only including measurement instruments and survey items that are validated in previous research.

Criterion validity refers to how well a measure can predict or estimate something (Malhotra, 2010). Our questionnaire has predictive validity if it measures the future behaviour of the respondents in respect to their smartphone shopping. Our model only measured the customers' intention to shop and self-reported past shopping, not their actual shopping, but according to Ajzen (1991), intentions are valid predictors of actual behaviour. A regression analysis between behavioural intention and user behaviour, that is, between attitudes towards shopping and self-reported past shopping, was carried out and the result of this analysis is shown in section 5.4.2.

Construct Validity is a measures how well a construct measure what it is supposed to measure (Malhotra, 2010). If external validity deals with the ability to generalise the results to other contexts, construct validity refers to being able to generalise from the measures used in the study to the fundamental concept of the measures. We have ensured adequate construct validity by taking the following actions: 1) using the constructs that has been supported the highest amount of times in previous research, 2) interviewing customers and professionals in order to see whether these constructs capture the most important aspects in the real world, and 3) making a pilot survey to determine whether the constructs items were clear and understandable before sending out the main survey. Construct validity includes convergent validity, which is a statistical test. The result of the convergent validity test is shown in the data analysis section.

3.5.4 Reliability Measures for the Quantitative Phase

Reliability in quantitative research is divided into three different meanings; stability, internal consistency reliability and inter-observer consistency (Malhotra, 2010). Stability is a measure of the consistency of the findings over time. We have not been able to perform a stability test due to time constraints. It is likely that the consistency of our study is moderate, as the e-commerce industry is highly dynamic and online retailing is evolving fast.

Internal consistency reliability refers to the reliability of a scale that consists of several items (Malhotra, 2010). When using summated scales, it is important that the items within that scale measure the same aspect related to the construct. To test the internal reliability, it is common to use the Cronbach's alpha-test, where a score above 0.60 means that the internal consistency of the scale can be considered satisfactory (Malhotra, 2010). The results from the Cronbach's alpha-test from shown in the data analysis chapter.

Inter-observer consistency is the degree of consistency between two researchers' decisions regarding categorisation of observations (Bryman & Bell, 2011). In other words, how well the researchers categorise the data in the same way. This reliability measure was not applicable for our study since the data obtained from the survey was already categorised into their respective constructs.

Other important issues to be aware of is systematic and random errors, which may affect the study. Systematic error refers to errors that are caused by a faulty system, or for example, a badly constructed questionnaire (Malhotra, 2010). Random errors, on the other hand, are caused by chance and may be caused by external factors.

3.6 Methodological Limitations

We believe that using a mixed method has improved this study. There are however some weaknesses with a mixed method in comparison to using a single method. Since the thesis had a limited timeframe, we were not able to commit as much time to each method phase as if the study would only use a single method. For instance, we would have been able to conduct more and longer interviews if we would have used a purely qualitative method. This may have resulted in deeper insights about people's perceptions of smartphone shopping. On the other hand, skipping the quantitative phase would not have allowed us to quantify the beliefs of a larger population and quantify the importance of the factors.

There are some aspects related to our sample selection that can be viewed as limitations. Some of the online shoppers we interviewed in the qualitative phase had not shopped through their smartphone. Many of them had shopped through a computer but only browsed web shops on their smartphone. It is however possibly more valuable to understand the perceptions and attitudes of those who have not yet shopped through their smartphone than those who already have, since this is the group of consumers that needs to be converted. Additionally, if we used a probability sampling technique for the respondents of the survey, we would have been able to generalise our results to larger and other contexts.

4 Results from interviews

In this chapter we present our findings from the interviews conducted with online shoppers and experts within the e-commerce industry, and what implications these findings had for our conceptual framework and research model.

4.1 Adjusted Conceptual Framework

The interviews gave several insights that made us change the initial framework and come up with new constructs and questionnaire items that the previous research had not used. By asking the interviewees to give examples, we gained an understanding of what the constructs meant in a more concrete way. From this, we created some new items that measured more tangible aspects of smartphone web shops. These items are marked as “New item” in the questionnaire items table (table 9, p. 39).

The interviews also revealed the importance of the smartphone’s mobility for online shopping. The interviewees expressed that one of the largest benefits of using a smartphone for online shopping is that it enables you to shop from anywhere and whenever you want. Some respondents also said that they would never use their smartphone to shop online if they could use their computer instead.

The smartphone is not useful [for online shopping] if the computer is available. Then I’ll rather use my computer.” (Niels, interview, 24 February 2015)

On the question “*What are the main benefits of shopping through a smartphone?*” one of the respondents replied “*Mobility and availability. It is always with you, also when you didn’t bring your computer*”. With many of the interviewees expressing similar thoughts, this information made us add the new construct *location* to our conceptual framework. We define location as the location of the shopper at a given online shopping moment. From the respondents’ answers, it seemed like this could be a predictor of people’s intention to use their smartphone for online shopping, e.g. that they are more likely to use the smartphone when they are in certain places where it is not suitable or practical to use a computer.

Similar constructs have been used in previous research, of which one is portability, which Okazaki & Mendez (2013) used in their study on m-commerce acceptance in Spain. Portability refers to the physical aspect of mobile devices; that they are small and light and thus portable, making them easy to carry around. However, the portability construct is not concerned with the benefits this gives mobile devices, including smartphones, in relation to their less portable counterpart for online shopping that is computers. As expressed by the online shoppers we interviewed, the mobility of smartphones and how this makes the user less dependent on a certain location for engaging in online shopping is a large benefit that seems to be crucial for whether they will use their smartphone for online shopping. In addition, we did not find any studies on m-shopping that had included the portability construct, only on m-commerce studies. Lastly, the items of the portability construct were not suited or useful for our study (Okazaki & Mendes, 2013). Thus we felt the need to create our own construct that is location. A more elaborate explanation the importance of the construct and why it is interesting to study is given in section 2.5.5.

4.2 Consumer Interview Findings

The interviews with online shoppers confirmed what most of previous research has shown about the benefits and disadvantages associated with online shopping through computers and smartphones, but they also provided insight of what some of the abstract constructs, such as performance expectancy, corresponds to for a smartphone web shop.

It is notable that for our first open-ended question where we asked the respondents to compare online shopping from a smartphone and a computer, none of the respondents mentioned any positive aspects of smartphone shopping. They only talked about negative aspects associated with shopping through a smartphones and the advantages of shopping through a computer.

It's complicated [to navigate] on the smartphone, easier on the computer - [the smartphone] is too small (Hanna, interview, 23 February 2015).

You have a better overview with a computer, [you have] access to more information (Erik, interview, 24 February 2015).

The payment process on computers is easier [to understand] (Katy, interview, 17 March 2015).

This seems to be in line with the findings by Ozok & Wei (2010), who found that computers are perceived as more useful than smartphones for online shopping and preferred for most online shopping tasks. Thus, the interviews with consumers indicated that the overall performance of smartphones for online shopping is not very good. Interestingly, the respondents had difficulties separating the performance of smartphone web shops and the ease of use associated with smartphone shopping. When asked to mention how companies could improve the performance and perceived usefulness of their smartphone web shops, many consumers mentioned usability aspects, that is, things that are related to the ease of use. This indicates a connection between the constructs performance expectancy and effort expectancy, which is the case in TAM where perceived ease of use is thought to have an effect on perceived usefulness (Davis, 1989). The answers suggested that the ease of shopping online is lower for smartphones than computers. The respondents expressed that it would require more effort to shop online through a smartphone than a computer.

Several online shoppers mentioned the importance of mobile optimising the web shop interface, and that this would lower the required effort of shopping through a smartphone. Some even perceived the mobile optimised web shops as too difficult to use, requesting further simplifications of the interface designs. Another interviewee thought that the mobile optimised web shops and apps were more enjoyable, and thus indirectly improving the perceived performance. This relates to Yang's (2010) separation of utilitarian and hedonic aspects within the perceived usefulness construct, which is closely linked to performance expectancy of UTAUT. Some thoughts of how companies can improve the performance of smartphone web shops and increase the utility of smartphone shopping, were:

[It needs to be] more user-friendly [...]. Even the mobile optimised web shops are complicated. (Hanna, interview, 23 March 2015).

It should be faster. The smartphones need to be easier to use [for online shopping] [the web shop should be] Mobile optimised or an app, so that it becomes a pleasure to browse (Klara, interview, 24 March 2015).

[Online retailers need to] make information more available (Erik, interview, 24 February 2015)

There should be just enough information. The pictures need to be in focus, since they are competing with [text-based] information for space (Felicia, interview, 23 February 2015).

All of the interviewees made remarks about either user friendliness, or the lack thereof, when navigating or making a payment. They also expressed feelings of insecurity and mistrust

towards payment transactions on smartphone web shops. The interviewees did not seem to trust smartphone shopping, and trust itself seemed to be dependent on the required effort.

It's just hard to write down card numbers, to navigate [the website], it makes me irritated (Hanna, interview, 23 February 2015).

[There should] be a service that one could trust [...] for example safe payment solutions. The payment process is demanding today. You notice that a company is serious if their web shop is mobile optimised (Felicia, interview, 23 February 2015).

More focus on the security, that you can trust them [the online retailers]. Something that assures you that you are not deceived. [...] It is more demanding to search for information on the smartphone (Max, interview, 23 February 2015).

[...] it just feels more unsafe [to shop] on a smartphone (Viktor, interview, 24 February 2015).

There were conflicting opinions regarding whether social norms would affect their smartphone shopping habits, but this is what we expected in accordance to the findings of Pronin et al. (2007). Some discarded the beliefs of others as completely irrelevant for their own beliefs and behaviours, while others thought it would have an effect.

If your friends think that something works, you'll do it more. But it depends on who it is (Felicia, interview, 23 February 2015).

[...] I doubt that it [what my friends do] would affect me. I just do what I feel like (Niels, interview, 24 February 2015).

Almost all of the shoppers said that the mobility of the smartphone was its main benefit for online shopping. Some respondents expressed that their location was an important predictor of whether they would use their smartphone or computer for online shopping. They felt that the usefulness and the relative advantage of the smartphone in relation to the computer was directly tied to its mobility, thereby making their location irrelevant for shopping:

The phone is always at hand, it's always accessible (Hanna, interview, 23 February 2015).

You can shop wherever you are; you are always connected [to the Internet] (Jacob, interview, 26 February 2015).

You can use it for information seeking when you are in stores (Klara, interview, 24 February 2015).

The smartphone is [always] with you. You can shop from wherever (Stefan, interview, 18 March 2015).

You don't need to be at home in front of the computer (Katy, interview, 17 March 2015).

The interviews with the consumers fulfilled its purpose by providing insight into shoppers attitudes towards smartphone shopping that is more difficult to capture through surveys, and by identifying a new factor for predicting intention to shop through smartphones; location.

4.3 Company Interview Findings

The interviews with industry experts provided information that was not attainable from consumers. Overall, the discussion was more about what can be accomplished with smartphone shopping and how the experience can be improved, rather than what is requested, as was the case with the interviews with the shoppers.

From a business perspective, the view on performance expectancy and relative advantages of smartphone shopping were similar to those of the consumers, which mainly revolved around smartphones being portable and accessible at most times making the location of the shopper a predictor of smartphone shopping. The industry experts saw an opportunity to be able to reach the customers throughout the day, just as the consumers liked the idea of being able to shop from anywhere.

There's the opportunity to catch the consumer "in the moment" in a whole different way [with smartphones] than for ordinary e-tailing [made through computers] [...] One has to see what is most important at the time, for example to see where [the customers] is through IP and geolocation. You get so much information through the smartphone (Kihlbom, interview, 4 March 2015).

Impulsive buying is more common for physical retailers, but the smartphone could increase impulsive e-shopping because it is always close at hand (Andersson, interview, 10 March 2015).

The industry experts also expressed a negative aspect of performance related to the relatively smaller screens of smartphones. This was in line with shoppers' perception, that there was a trade-off between having pictures of products and product information.

Web shops for computers allow you to have more information, more detailed product descriptions, easier to navigate. For smartphones it is more important with pictures [...] (Hörnqvist, interview, 10 March 2015).

In regards to perceived ease of use or effort expectancy, the experts all agreed on which aspects were important, but also that many companies still had work to do in regards to the usability:

Enthusing, easy to navigate, easy to complete the purchase - but don't lose the shopping experience [...] (Winroth, interview, 3 March 2015).

Few companies even have mobile optimised webpages or responsive design. That has to be taken more seriously. On detail-level: everything needs to be one click away, and there should be a focus on picture conversion (Hörnqvist, interview, 5 March 2015).

Mobile optimisation, the user interface: that it's easy to place an order, but also to enthuse and trigger the shopping experience. The last step is to make it easy to checkout, [for example with] mobile payment solutions. (Winroth, interview, 3 March 2015).

In regards to the design of the interface for the web shop, there may arise trade-offs between functionality and visual appeal. From a technical standpoint, some smartphone models operate more slowly and in certain areas the Internet connection is slower. Simplifying the design will improve the loading times so that they are faster, but this may decrease the functionality due to less information, pictures and functions on the web shop. This trade-off is not as apparent on computers, since they are usually connected to Wi-Fi and have greater hardware performance. Designing a web shop for smartphones thereby seems to create large challenges for the developers.

[The browsing] should be really fast, even if you're on a slow connection, and that's up to the web-platform to handle. Older phones are slower and [the systems] is growing; a new button [on the web shop] will make it slower. (Brunsten, interview, 18 March 2015)

Although all of our interviewees seemed to share opinions of how to lower the effort required by the users, Kihlbom pointed out that the solution is not always as simple as people make it out to be.

[...] if anyone is very certain [of how to improve mobile-websites], ask them if they did any tests. Have they done any tests? Many have a gut-feeling but haven't done any tests. Even the larger [companies] don't have a clue. They don't even do A/B tests¹ [...] (Kihlbom, interview, 4 March 2015).

In regards to the conversion rates for smartphones, Hörnqvist said that it is fairly low in relation to that of conventional e-shopping from computers, with around 3 percent conversion rate for computers and 1 percent for smartphones (Hörnqvist, interview, 5 2015). He also gave further tips on how to increase the ease of use for smartphone shoppers.

Above all, to connect a recurring behaviour; with reminders, wish lists, functions that will remember ones purchases and behaviours. For example, with food; you

¹ A/B tests in this context refer to when a web developer has two or more different versions of a website or web shop in regards to design, and tests each version on different users in order to see which version has the higher conversion rate (Optimizely.com, 2015)

always know what you're going to get. You turn it into a facilitator [that has an] enormous potential in the future. What you're selling is in fact buying the customer more time [and to] facilitate processes (Hörnqvist, interview, 5 March 2015).

A low level of trust has been shown to be one of the main reasons for cancelling online purchases (DIBS, 2014), and the level of trust seems to be especially low for online purchases made through smartphones (interviews with online shoppers, 2015). The industry experts provided information on why consumers are doubtful when shopping through smartphones, which was also in line with what the online shoppers expressed in their interviews.

[...] Insecurity. People aren't rational and act on emotions [...] (Hörnqvist, interview, 5 March 2015).

The industry experts also provided examples of factors that they believed would increase customers' trust towards smartphone shopping. These factors were more or less the same as those named by the consumers, and mainly had to do with the web shop design and the importance of working together with well-known companies.

[...] the foundation is that the mobile site shouldn't be messy, it will lower the [perceived] seriousness and will create suspicion. Design and structure is very important. [...] For all forms of e-commerce one needs to work with guarantors, for example PostNord, known suppliers of payment solutions but also [have] available customer support so that [customers] can reach the company [...](Andersson, interview, 10 March 2015).

In sum, the interviews with the industry experts provided us with adequate information regarding the state of smartphone shopping, the challenges regarding its adoption, and what concrete measures can be linked to the constructs in order to improve smartphone web shops.

5 Results from survey and data analysis

This chapter describes the data that was collected through the survey and how it was analysed. Explanations of the statistical methods and the results are provided.

5.1 Descriptive Statistics

309 respondents answered the questionnaire of which 6 were excluded because they contained too many missing values. Of the remaining 303 valid questionnaires 13 had an acceptable amount of missing values.

Table 10 Profile of Respondents (Demographic Variables) (Percentage)

Age	Gender	
	Male	Female
18-25	53 (31,9)	43 (31,6)
26-35	29 (17,5)	30 (22,0)
36-45	41 (24,7)	23 (16,9)
46-55	20 (12,0)	24 (17,6)
56+	23 (13,9)	16 (11,8)
Total	166 (55,0)	136 (45,0)
Education		
Primary school	14 (8,4)	18 (13,2)
High school	68 (41,0)	43 (31,6)
Started university	27 (16,3)	16 (11,8)
Finished University	54 (32,5)	57 (41,9)
Postgraduate education	3 (1,8)	2 (1,5)

Note. n= 303

As seen in table 10, 55 percent of the respondents were male and 45 percent female. The skewed distribution may be caused by unconsciously approaching more men than women or that a higher number of men answered.

The percent of online shoppers from different age groups were estimated to be: 19 percent between 15 to 24 years old, 24 percent between 25 to 34 years old, 26 percent between 35 to 44 years old, 19 percent between 45 and 54 years old, and the remaining 19 percent over 55

years old. This distribution can be compared to respondents we gathered. A large portion of the gathered respondents fell into the lowest age category of 18-25 years (31,6 percent). Younger people were more likely to participate, why this age group is overrepresented. The rest of the age groups were better matched to the calculated quotas. Data was also collected on the type of consumer goods that the respondents had purchased.

Table 11 Type of Products Purchased Categorised by Age and Gender (Percentage)

	Age												Total
	Male						Female						
	18-25	26-35	36-45	46-55	56+	Total	18-25	26-35	36-45	46-55	56+	Total	
Physical media	11,0	10,4	6,7	7,3	6,1	41,5	13,9	10,9	10,9	9,5	3,6	48,9	44,9
Clothing and shoes	18,9	11,6	9,8	5,5	1,8	47,6	20,4	16,1	10,9	8,8	2,2	58,4	52,5
Home electronics	12,2	9,1	12,2	7,9	6,1	47,6	6,6	6,6	2,2	4,4	1,5	21,2	35,5
Cosmetics and haircare	4,3	4,9	1,8	2,4	0,6	14,0	15,3	9,5	5,1	7,3	2,2	39,4	25,6
Sports and leisure equipment	11,6	5,5	9,1	4,9	1,8	32,9	10,9	5,8	2,9	3,6	1,5	24,8	29,2
Furniture and interior decorations	3,7	4,9	3,7	1,2	1,2	14,6	3,6	5,8	5,1	0,7	0,7	16,1	15,3
Toys	2,4	1,8	4,3	1,2	0,6	10,4	1,5	4,4	3,6	3,6	0,7	13,9	12,0
Nutrition supplements and pharmaceutical products	8,5	4,3	3,0	4,9	1,2	22,0	6,6	5,8	3,6	2,9	0,7	19,7	20,9
Jewellery and watches	9,2	1,2	2,5	1,8	0,6	15,3	9,5	6,6	5,8	5,1	0,0	27,0	20,7
Children's products	1,2	2,4	1,8	0,0	0,0	5,5	0,7	2,2	2,9	2,2	0,0	8,0	6,6
Eye lenses and glasses	0,6	0,6	1,8	0,6	1,8	5,5	1,5	2,9	1,5	1,5	0,0	7,3	6,3
Car accessories	6,1	2,4	4,3	3,7	3,0	19,5	1,5	0,0	0,7	1,5	0,0	3,6	12,3
Food stuffs	2,4	1,8	1,8	1,2	0,6	7,9	0,7	3,6	0,7	1,5	0,0	6,6	7,3
Construction and garden materials	1,2	0,6	0,6	1,8	1,2	5,5	0,0	0,0	0,7	0,0	0,0	0,7	3,3
Wine and alcoholic drinks	1,8	0,6	3,0	1,2	1,2	7,9	0,7	0,0	0,0	0,0	0,7	1,5	5,0
Flowers and plants	1,2	1,2	1,2	0,6	1,2	5,5	2,9	2,2	1,5	0,7	0,7	8,0	6,6
Nothing	2,4	1,8	6,7	1,8	3,0	15,9	5,8	2,2	2,2	5,1	6,6	21,9	18,6
Other	0,6	0,0	0,0	0,0	0,6	1,2	0,0	0,0	0,0	0,0	0,7	0,7	1,0

Note. n = 303

Table 11 shows that all categories of consumer goods as defined by PostNord (2014) were represented in the sample. This ensured that no product categories were left out from the analysis.

The most commonly purchased product categories across both genders and all age groups were 1) clothing and shoes, 2) physical media, and 3) home electronics.

In regards to age, the younger consumers bought more clothing and shoes, home electronics, sports and leisure equipment, and nutritional supplements and pharmaceutical goods. The middle-aged respondents purchased more children's products, toys, eye lenses and glasses, and wine and alcoholic drinks. The oldest age group bought much less of every product category apart from flower and plants.

With respect to gender, females had more commonly purchased physical media, clothing and shoes, cosmetics and hair care, and jewellery and watches. Men had purchased more home electronics, sports and leisure equipment, car accessories, construction and garden material, and wine and alcoholic drinks through their smartphones.

5.2 Construct Validity and Reliability

Internal consistency reliability was measured with Cronbach's alpha and convergent validity was determined with tests of the item-to-total correlation and item-to-item correlation.

Table 12 Validity and Reliability Analysis of Multi-item Scales

Item	Cronbach's Alpha	Convergent Validity (Corrected Item-Total Correlation)	Alpha if Item is Deleted
Performance Expectancy (N of items = 4)	$\alpha = 0.812$		
PE1		0.650	0.762
PE2		0.695	0.735
PE3		0.625	0.772
PE4		0.585	0.787
Effort Expectancy (N of items = 5)	$\alpha = 0.821$		
EE1		0.632	0.783
EU2		0.666	0.771
EE3		0.576	0.799
EE4		0.664	0.771
EE5		0.547	0.806

Social Influence (N of items = 3)	$\alpha = 0.803$		
S11		0.493	0.900
S12		0.757	0.616
S13		0.724	0.657
Trust (N of items = 3)	$\alpha = 0.749$		
T1		0.655	0.577
T2		0.661	0.560
T3		0.432	0.822
Location (N of items = 3)	$\alpha = -0.338^a$		
L1		0.118	-1.082
L2		0.105	-1.335
L3		-0.426	0.736 ^b
Behavioural Intention (N of items = 3)	$\alpha = 0.883$		
BI1		0.780	0.827
BI2		0.751	0.853
BI3		0.787	0.821
Experience (N of items = 2)	$\alpha = 0.870$		
EX1		0.773	- ^c
EX2		0.773	-

^aCronbach's Alpha was negative due to a negative covariance among items. This was caused by a scaling problem with item L3 and assumed misunderstanding of the questions.

^bRemoving item L3 changes Cronbach's Alpha of the location construct to a satisfactory alpha-value ($\alpha = 0.736$). Item L3 was thus removed from further analyses.

^cAlpha if deleted was not provided for the experience construct since the item consist of only two items.

The Cronbach's alpha test revealed problems with the internal consistency reliability of the location construct, caused by item L3. Upon reviewing the completed questionnaires, we suspect this issue was caused by the item's inverted scale and possibly misunderstanding of the question. Table 12 shows that if item L3 would be removed, the location construct's internal consistency reliability would become satisfactory ($\alpha = 0.736$). L3 was thus removed from all further data analyses. After removing L3, all constructs were shown to have satisfactory internal consistency reliability ($\alpha > 0.6$). This means that all items within each summated scale contribute to what the construct is supposed to measure.

Convergent validity is a form of construct validity that measures how well the items of the same construct correlate positively with each other (Malhotra, 2010). The corrected item-to-total correlations within the same multi-item scale, e.g. construct, are provided in table 12, and the item-to-item correlations are presented in table 13.

Table 13 Item-to-Item Correlations

	EX1	EX2	PE1	PE2	PE3	PE4	EE1	EE2	EE3	EE4	EE5	SI1	SI2	SI3	T1	T2	T3	L1	L2	BI1	BI2	BI3	
EX1	1																						
EX2	.773**	1																					
PE1			1																				
PE2			.609*	1																			
PE3			.512*	.592*	1																		
PE4			.508*	.511*	.470*	1																	
EE1							1																
EE2							.683*	1															
EE3							.473*	.518*	1														
EE4							.477*	.468*	.476*	1													
EE5							.343*	.405*	.360*	.626*	1												
SI1												1											
SI2												.491*	1										
SI3												.448*	.818*	1									
T1															1								
T2															.700*	1							
T3															.389*	.406*	1						
L1																		1					
L2																		.592*	1				
BI1																				1			
BI2																				.696*	1		
BI3																				.743*	.706*	1	

** Correlation is significant at the 0.01 level ($p < 0.01$) (2-tailed).

As seen in table 13, all items positively correlate to their respective construct total. Table 13 shows strong positive correlations between the all items within the same construct ($p < 0.01$). The convergent validity of all constructs can thus be considered satisfactory. This means that the items within each scale measured the same concept.

5.3 Correlation Matrix

A correlation analysis was conducted to investigate the relationships between the variables. Spearman's correlation coefficient is normally used when the data has been measured with an ordinal scale, as the items used for the questionnaire for this study. However, the items were summated to their respective constructs and thus forming an index, which may be likened to an interval scale. Pearson's correlation coefficient is used for data measured with an interval scale, and so Pearson's correlation coefficient was chosen.

The correlation analysis showed that all independent variables and dependent variables were significantly correlated ($p < 0.01$).

Table 14 Correlation Matrix

	Performance Expectancy	Effort Expectancy	Social Influence	Trust	Location	Behavioural Intention	Use Behaviour
Performance Expectancy	1						
Effort Expectancy	0.711 ^{***a}	1					
Social Influence	0.409 ^{**}	0.331 ^{**}	1				
Trust	0.551 ^{**}	0.521 ^{**}	0.343 ^{**}	1			
Location	0.621 ^{**}	0.525 ^{**}	0.475 ^{**}	0.520 ^{**}	1		
Behavioural Intention	0.577 ^{**}	0.435 ^{**}	0.385 ^{**}	0.428 ^{**}	0.585 ^{**}	1	
User Behaviour	0.531 ^{**}	0.491 ^{**}	0.348 ^{**}	0.366 ^{**}	0.425 ^{**}	0.461 ^{**}	1

** Correlation is significant at the 0.01 level ($p < 0.01$) (2-tailed).

^asign of multicollinearity between Performance Expectancy and Effort Expectancy ($R > 0.70$)

Table 14 also revealed signs of multicollinearity. Multicollinearity refers to the issue when two predicting variables are significantly related to each other (Malhotra, 2010). The problem with this is that constructs that are thought to be separate should measure different aspects of something that contribute to the overall prediction of the dependent variable. If two separate constructs are positively related to each other, they are not totally different. A correlation coefficient greater than 0.70 is typically considered to indicate multicollinearity. This value was exceeded by the independent variables performance expectancy and effort expectancy ($R = 0.711$, $p < 0.01$). We thus needed to further investigate multicollinearity when conducting the multiple regression analysis and pay close attention to the relationship between performance expectancy and effort expectancy.

5.4 Regression Analysis

Regression analysis was conducted to determine the effect of the independent variables on the dependent variable in the research model.

5.4.1 Predictors of Behavioural Intention to Shop Through a Smartphone

The first multiple regression analysis was done without the moderating variables age and experience, as we first wanted to test the direct effect of the independent variables on the dependent variable. This multiple regression model is called model 1.

Table 15 Multiple Regression Model 1: Predicting Variables and Behavioural Intention

Independent Variables	Dependent Variable				
	Behavioural Intention				
Direct Effect	Coefficient (β)	t-value	Sig.	Tolerance	VIF
Performance Expectancy	0.319	4.528	$p < 0.001$	0.397	2.517
Effort Expectancy	-0.030	-0.463	ns ^a	0.474	2.111
Social Influence	0.084	1.641	ns	0.749	1.335
Trust	0.068	1.197	ns	0.616	1.623
Location	0.329	5.322	$p < 0.001$	0.519	1.928

Notes. Overall model $F = 49.921$, $p < 0.001$, $R^2 = 0.424$, Adjusted $R^2 = 0.415$

^ans = not statistically significant

The overall multiple regression model was accepted ($p < 0.01$). The p-value here means that there is less than 1 percent chance that the predicting, e.g. independent, variables do not have a significant effect on the response, e.g. dependent, variable. In other words, the model can be used to predict the respondents' intention to use smartphones for online shopping of consumer goods. The coefficient of determination revealed that the independent variables predict 42.4 percent of the variance in behavioural intention ($R^2 = 0.424$). The F -statistic is greater than 1, confirming that at least one of the independent variables has a statistically significant effect on the dependent variable behavioural intention.

When interpreting the effects of the predicting variables, the coefficient (β), significance level (p) and t-value are of importance. The coefficient shows the amount of change in the response variable, behavioural intention, associated with a one-point change in the predicting variable. The p-value reveals whether the predicting variable has a statistically significant effect on the

response variable; where the value should be lower than 0.05. The t-value reveals how important the variable is in the model. It tests the hypothesis that the coefficient is not 0. In order to reject this hypothesis, the t-value needs to be larger than 1.96, if the confidence interval is 95 percent. In regards to the direct effects of the independent variables, performance expectancy and location have statistically significant positive effects on behavioural intention ($\beta = 0.344$, $p < 0.01$, $t\text{-value} = 4.528$; $\beta = 0.288$, $p < 0.01$, $t\text{-value} = 5.322$). The effects of effort expectancy, social influence and trust on behavioural intention are not statistically significant.

Next, we tested the full research model with the moderators as described in section 2.5. This multiple regression model is called model 2. This model was used to test the hypotheses.

Table 16 Multiple Regression Model 2: Predicting Variables and Behavioural Intention with Moderators Age and Experience

Independent Variables	Dependent Variable Behavioural Intention				
	Coefficient (β)	t-value	Sig.	Tolerance	VIF
Performance Expectancy	0.173	1.471	ns ^a	0.139	7.190
Effort Expectancy	-0.199	-2.046	$p < 0.05$	0.204	4.900
Social Influence	0.322	2.585	$p < 0.05$	0.124	8.075
Trust	0.119	1.082	ns	0.159	6.274
Location	0.315	5.195	$p < 0.001$	0.516	1.938
Age X Performance Expectancy	0.214	1.029	ns	0.044	22.492 ^b
Age X Trust	-0.098	-0.470	ns	0.044	22.551
Experience X Effort Expectancy	0.486	2.589	$p < 0.05$	0.055	18.328
Experience X Social Influence	-0.403	-2.128	$p < 0.05$	0.053	18.710

Notes. Overall model $F = 26.188$, $p < 0.001$, $R^2 = 0.453$, Adjusted $R^2 = 0.435$

^ans = not statistically significant

^bSigns of multicollinearity for all moderators ($VIF \geq 10$)

Model 2 was found to be significant ($p < 0.01$). In comparison to model 1, the coefficient of determination had increased ($R^2 = 0.453$), which means that adding the moderating effect age and experience improved the predictive power of the model on behavioural intention. The F -statistic decreased in comparison to Model 1 ($F = 26.188$). However, the F -statistic of model 2 was still much greater than 1, indicating that some of the variables had an effect on behavioural intention.

When taking the moderating effect into account, the variables that were shown to have a statistically significant effect on behavioural intention were changed. Performance expectancy no longer had a significant effect, rejecting H1. Effort expectancy was now shown to have a

significant effect on behavioural intention, but since it was negative ($p < 0.05$, $\beta = -0.199$, t -value = -2.046) H2 was rejected. Social influence also changed from an insignificant to a significant positive effect ($p < 0.05$, $\beta = 0.322$, t -value = 2.585), accepting H3. H4 was rejected, as trust remained insignificant, while location was now shown to have the strongest positive effect on behavioural intention ($p < 0.001$, $\beta = 0.315$, t -value = 5.195). H5 was thus accepted. In regards to the moderators, age did not have a moderating effect on performance expectancy or trust. Hypotheses H6a and H6b were thereby rejected. Experience was however found to positively moderate the effect of effort expectancy ($p < 0.05$, $\beta = 0.486$, t -value = 2.589) and negatively moderate the effect of social influence on behavioural intention ($p < 0.05$, $\beta = -0.403$, t -value = -2.128). H7a and H7b were accepted.

Since table 14 (p. 57) revealed indications of multicollinearity among the independent variables, multicollinearity in multiple regression model 2 was analysed. As shown in table 16 (p. 59), all moderating variables had problems with multicollinearity ($VIF \geq 10$). This means that the moderating variables have interaction effects, e.g. that they measure the same concept as another predicting variable (Wahlgren, 2012). This may cause confusing or misleading results that are difficult to interpret. It is therefore important to not overestimate the implications that can be drawn from the results of the multiple regression model 2 with the moderators, and it can be considered safer to draw implications from the independent variables effect on the dependent variable behavioural intention. Because of issues with multicollinearity in this study, further research is needed to investigate the effect of moderating variables. Another result of the multicollinearity analysis that is worth mentioning is that the VIF value of location is much lower than those of the other constructs ($VIF = 1.938$). This suggests that location is the most distinct construct in what it measures, and that it has the lowest interference with the other constructs.

5.4.2 The Effect of Intention on Behaviour

Having explored the independent and moderating variables effect on intention to shop through a smartphone, the next step was to determine whether behavioural intention had an effect on user behaviour. That is, if intention to engage in smartphone shopping could be used to predict the online shoppers' self-reported smartphone shopping behaviour.

In order to analyse this relationship we conducted simple regression analysis with behavioural intention as the independent variable and user behaviour as the dependent variable.

Table 17 Simple Regression Analysis: Behavioural Intention's effect on User Behaviour

Independent Variable	Dependent Variable		
	User Behaviour		
	Coefficient (β)	t-value	Sig.
Behavioural Intention	0.461	8.955	$p < 0.001$

Notes: Overall model $F = 80.195$, $p < 0.001$, $R^2 = 0.213$, Adjusted $R^2 = 0.210$

The simple regression model was accepted ($p < 0.001$). The dependent variable had a relatively strong predicting power on the dependent variable ($F = 80.195$). Behavioural intention has a statistically significant effect on user behaviour ($p < 0.001$, $\beta = 0.461$, t -value = 8.995), accepting H8, and explaining 21.3 percent of its variance ($R^2 = 0.213$).

The results of the regression analyses, e.g. the strength of the relationships and effects of the full research model, are summarised in figure 9 below.

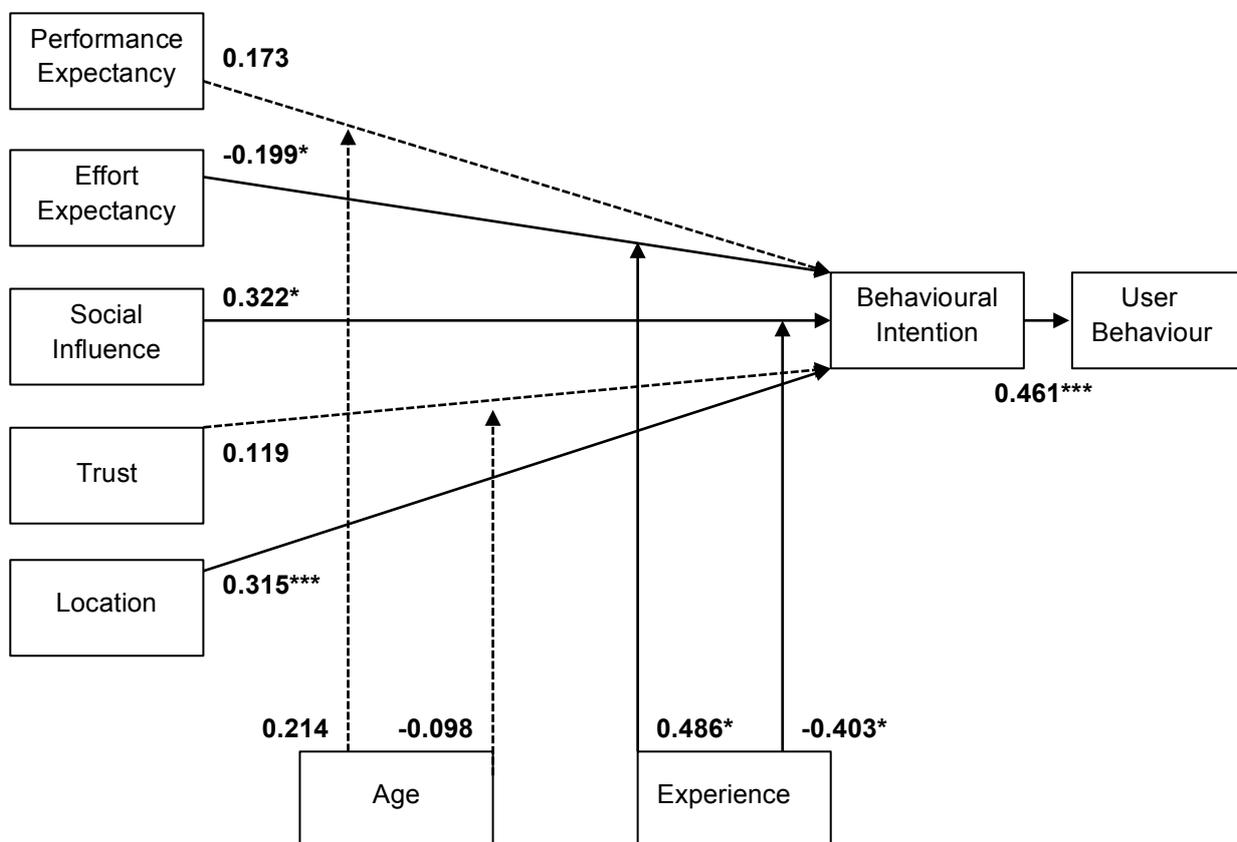


Figure 9 Strength of Relationships and Effects

- significant effect
- ... not significant effect
- * significant at 0.05 level ($p < 0.05$) (2-tailed)
- *** significant at 0.001 level ($p < 0.001$) (2-tailed)

5.4.3 Investigating the Moderating Effect of Experience

The negative effect of effort expectancy on behavioural intention was surprising, as it was not in line with previous research findings where the effect had been positive (Lai & Lai, 2014; Yang, 2010). Conventional wisdom is that those who think it is easy to shop through a smartphone would have a higher intention to actually shop through their smartphone, not lower. We also found that experience positively moderated the effect of effort expectancy on behavioural intention, e.g. that the more experienced users perceived smartphone shopping as easier. This seemed to be in conflict with the negative effect of effort expectancy on behavioural intention when not taking experience into account. As a result of these findings and to rule out any confusion, we investigated the moderating effect of experience on the independent variables more closely. This closer inspection of the effect of experience was not related to the research model or the hypotheses, but was instead an extra analysis specifically conducted to clarify the effects of effort expectancy and experience in order to provide more specific recommendations for managers. Previous research on adoption of technology has been criticised for not being relevant for decision-makers in businesses (Lee, Kozar & Larsen, 2003). This analysis was conducted as a response to this critique.

Three segments of the respondents were created based on their self-reported experience of smartphone shopping. Table 18 illustrates how the segments were formed.

Table 18 Segmentation of Respondents based on Experience Level

Segment ^a	Experience Score	Frequency	Percentage	Cumulative Percentage
Least Experienced (n = 98)	1.00	17	5.6	5.6
	1.50	6	2.0	7.6
	2.00	19	6.3	14.0
	2.50	6	2.0	15.9
	3.00	12	4.0	19.9
	3.50	11	3.6	23.6
	4.00	27	8.9	32.6
Moderately Experienced (n = 98)	4.50	21	6.9	39.5
	5.00	43	14.2	53.8
	5.50	34	11.2	65.1
Most Experienced (n = 105)	6.00	52	17.2	82.4
	6.50	18	5.9	88.4
	7.00	35	11.6	100.0

^aLeast experienced: approx. the 33.3 percent of respondents that scored lowest on Experience (experience score 1.00 to 4.00); Moderately experienced: the 33.4 percent with moderate experience, ranging from approx. 33.3 to 66.6 percent (experience score 4.5 to 5.5); most experienced: the 33.3 percent with most experience, ranging from approx. 66.7 to 100 cumulative percent (experience score 6.00 to 7.00).

The first segment (least experienced) was made up of the 33.3 percent of respondents with the lowest reported experience level. As seen in table 18, this segment consisted of the respondents that scored between 1 and 4 on the experience construct (cumulative percentage of respondents reaches 32.4 on experience level score 4). The second segment (moderately experienced) included the respondents that were between approximately the 33.4 and 66.6 cumulative percentage, corresponding to experience scores between 4.5 and 5.5. The third segment of respondents (most experienced) was the 33.3 percent of respondents with the highest experience scores. This was the respondents with experience scores from 6 to 7 as this was approximately the range from 66.6 to 100 cumulative percent.

Next, each segment was filtered from the data set and analysed separately. This ensured that only the data from one segment at a time would be analysed so individual characteristics of each segment could be identified. Multiple regression analyses of each segment were made to quantify the effects and importance of each independent variable for predicting behavioural intention based on experience. Since this analysis was not made to answer any of the research questions, but was an extra investigation to clarify the results in order to provide better recommendations for managers, the results are shown and explained in section 7.2 managerial implications.

6 Discussion

In this section we discuss how the results relate to the research questions and findings from previous research.

6.1 Results for Research Question 1

RQ1. How can adoption of online shopping from smartphones be modelled for the Swedish market?

A preliminary model was identified from an extensive review of theories and previous research findings in the research field. This model consisted of the independent variables performance expectancy, effort expectancy, social influence, and trust, the moderating variables age and experience, and with behavioural intention as the dependent variable. An additional construct, location, which was also an independent variable in the model, was identified from interviews with online shoppers.

The variables that were used to predict intention to shop consumer goods through smartphones were related to 1) the performance of the smartphone for online shopping, 2) the required effort to use the smartphone for online shopping, 3) the influence people in one's social surroundings may have on one's smartphone shopping habits, 4) the trust towards using the smartphone for online shopping, and 5) the importance of the shopper's location for shopping from a smartphone. The performance and trust were thought to be moderated by the age of the shopper, while the shopper's experience of smartphone shopping was believed to moderate their required effort and the degree to which they were affected by social norms.

Two multiple regression models were tested, one without moderating variables only testing the direct effects of the predictors, and one model which included moderation effects. Both models were found to be statistically significant ($p < 0.001$), but the latter had a higher predictive power, explaining 45.3 percent of the variance ($R^2 = 0.453$), of behavioural intention. Another simple regression model revealed that behavioural intention can predict

user behaviour ($p < 0.001$, $R^2 = 0.213$), and so attitudes can be used to predict self-reported shopping habits.

Relating to previous research, Aldás-Manzano, Ruiz-Mafé, and Sanz-Blas (2009) used two TAM models for studying m-shopping adoption factors, one with moderating variables, of which age and experience were included, and one without. Consistent with our results, their model with moderating variables had a stronger prediction of m-shopping intention.

6.2 Results for Research Question 2

RQ2. What do the constructs of the research model mean in a practical smartphone shopping context and how can online retailers work with these aspects to improve their smartphone web shop?

The interviews with smartphone shoppers and industry professionals provided insight into what the constructs mean in a smartphone shopping context. The first construct of the research model is performance expectancy. When asked about their expected performance of smartphone web shops, the smartphone shoppers frequently mentioned that it is limited by the small size of the devices. The small screen size creates a dependency on a well-designed interface with a need of simple payment process and product navigation, where mobile optimised web shops are believed to perform better than non-optimised web shops. From the user's perspective, the performance thereby seems to be improved with mobile optimisation.

Although the small size of smartphones creates limitations that make them difficult to use, the small size was also believed to be a utilitarian benefit related to mobility. According to the shoppers and especially the industry experts, the main benefit and relative advantage of using smartphones for online shopping over a computer or tablet, was that the smartphone is always carried with you and thus makes it possible to shop from anywhere at any time. This is a strong utilitarian benefit related to performance for customers.

In regards to the construct effort expectancy, the interfaces were perceived as difficult to navigate and scroll through. The payment process was perceived as tiresome when it consisted of many stages, and the touch screen makes it difficult to enter information in the text fields. The latter was said to negatively affect all processes where information has to be written in text fields. Automating this process and saving personal information may decrease

the frustration. The interviewed industry experts generally agreed that smartphone web shops are not user-friendly enough, and that mobile optimisation in most instances improves this. To improve the ease of use associated with shopping through smartphones, web developers may want to focus their efforts on simplifying payment processes and product navigation on web shops. A/B testing (or even A/B/C/D...-testing) can be used for this (Brunsten, interview, 18 March 2015).

Regarding trust, it was believed to increase if the web shop offered the customer the option to pay with well-known and established payment solutions, such as Klarna, PayPal, and Payson, and if the retailer cared about their customers' personal integrity. The industry experts made connections between trust and the design of the interface, where a well-designed interface was thought to create a positive image of the online retail store and thus increase its trustworthiness. Trust in smartphone web shops may thereby be dependent on the available payment options, the integrity, and the overall impression the customer gets from the interface design.

Social influence has the same meaning in a smartphone shopping context as any other context, e.g. whether the beliefs of people of importance to the person will affect their own perception of the object of interest. Due to a general disbelief of the importance of social influence, we did not gather much information about how companies can work with this concept to improve smartphone shopping adoption. However, it is possible that a more aggressive marketing of smartphone shopping showcasing its usefulness for shopping anywhere, would increase adoption among people and thereby the number of people who use it.

The shoppers believed that their location was the most important factor for whether they would shop from a smartphone or not. If they were at any location where a computer was readily available, such as their home, they expressed that they would in almost all instances choose to shop through the computer. This choice was based on their belief that computers outperformed the smartphone on all aspects involved in the online shopping experience, ranging from navigation, to entering information, to finding and searching for products. Ozok and Wei (2010) found similar results in their comparison of perceptions of online shopping through stationary computers or mobile devices, where the stationary computer received higher scores on all measurement items. Thus, in the choice of using different devices, the location of the shopper at the given shopping moment was thought to be a central determining factor of their use of smartphones for online shopping.

6.3 Results for Research Question 3

RQ3. What are the determining factors for adoption of online shopping from smartphones?

Five of our hypotheses were accepted and five were rejected. The following section will discuss the results of the hypotheses tests and make comparisons to previous research.

Table 19 Hypothesis Test Results: Model 2

Hypotheses	Path	Coefficient (β)	t-value	Supported
H1: Performance expectancy has a significant positive effect on behavioural intention	PE \rightarrow BI	0.173	1.471	No
H2: Effort expectancy has a significant positive effect on behavioural intention	EE \rightarrow BI	-0.199	-2.046	No
H3: Social influence has a significant positive effect on behavioural intention	SI \rightarrow BI	0.322	2.585	Yes
H4: Trust has a significant positive effect on behavioural intention	T \rightarrow BI	0.119	1.082	No
H5: Location has a significant positive effect on behavioural intention	L \rightarrow BI	0.315	5.195	Yes
H6a: Age significantly moderates the effect of performance expectancy on behavioural intention	AGE X PE \rightarrow BI	0.214	1.029	No
H6b: Age significantly moderates the effect of trust on behavioural intention	AGE X T \rightarrow BI	-0.098	-0.470	No
H7a: Experience significantly moderates the effect of effort expectancy on behavioural intention	EXP X EE \rightarrow BI	0.486	2.589	Yes
H7b: Experience significantly moderates the effect of social influence on behavioural intention	EXP X SI \rightarrow BI	-0.403	-2.128	Yes
H8: Behavioural intention has a significant positive effect on user behaviour	BI \rightarrow UB	0.461	8.955	Yes

H1: Performance expectancy has a significant positive effect on behavioural intention.

Performance expectancy did not have a significant positive effect on behavioural intention, rejecting H1. This finding is in conflict with existing research on adoption factors of m-commerce and m-shopping (Al-maghrabi et al. 2014; Çelik & Yılmaz, 2011; June, 2014; Lu & Su, 2009). Lu and Su (2009) found that the usability was one of the strongest predictors of

mobile shopping intention. Çelik & Yılmaz (2011) studied e-shopping, e.g. including computers, and found perceived usefulness to be a strong and valid predictor. However, when comparing to previous research it is important to remember that the studies may have used different geographical context, samples and questionnaire items. Upon closer inspection, June's (2014) sample consisted entirely of university students.

H2: Effort expectancy has a significant positive effect on behavioural intention.

Although the effect of effort expectancy was significant, it was negative ($p < 0.05$, $\beta = -0.199$, t -value = -2.046), thereby rejecting H2. This indicates that even if the act of smartphone shopping may demand some effort, the respondents of our study would still use it and even reported that they intend to shop more from smartphones in the future. It also suggests that the fulfilment of the respondents' shopping-needs may be of greater importance and outweigh some experienced inconvenience and frustration associated with smartphone shopping. Comparing with previous research, Chong (2013a) did not find any support for the effect of perceived ease of use, which is practically the same construct as effort expectancy. On the other hand and in line with our findings, Yang (2010) found support for effort expectancy in m-shopping in South Korea, while Lai and Lai's (2014) recent study in Macau found support for it for m-commerce.

H3: Social influence has a significant positive effect on behavioural intention.

Social influence had a statistically significant effect on behavioural intention ($p < 0.05$, $\beta = 0.322$, t -value = 2.585). This is partly in contrast with the results from the qualitative interviews, where the majority of respondents did not believe that their smartphone shopping habits would be affected by their social environment. Yang (2010) found that social influence had an effect on American consumers' intention to use mobile shopping services. Mohammed (2014) studied young consumers in Saudi Arabia and found that the construct peer influence, which is closely linked to social influence, did not only have a significant effect on the construct online shopping intention, but also on perceived usefulness. His findings indicate that the opinions of others' may even affect an individual's perceived utility of shopping online. This relationship was however not investigated in our study. Wei et al. (2008) studied m-commerce in Malaysia and also found that social influence had an effect on intention to use, but in that instance for m-commerce.

H4: Trust has a significant positive effect on behavioural intention.

Trust did not have a statistically significant effect on behavioural intention. It seems counterintuitive that the degree of trust does not have an effect on intention, but it may be that one will continue to use a service if it fulfils their needs irrespective of any security concerns. This finding is in conflict with the interviews we conducted, where issues with trustworthiness seemed to be of concern for the vast majority of interviewees. It is also in conflict with previous research. Our result is in line with that of Zarpou et al. (2012), but in conflict with others' findings. Çelik and Yılmaz's (2011) results showed that trust positively affected Turkish consumers' attitude and perceived usefulness of e-shopping, and Wei et al. (2008) found a valid connection between trust and intention.

H5: Location has a significant positive effect on behavioural intention

Our results showed that location had a statistically significant effect on behavioural intention, and that the effect was the strongest of all predicting variables ($p < 0.001$, $\beta = 0.315$, $t\text{-value} = 5.159$). These findings are supported by our interviews, where the interviewees almost univocally agreed that being able to shop from anywhere at any time was the largest benefit of smartphones shopping, but that they would not shop from their smartphone if the computer was available. This implicates that their location is the most important determinant of smartphone shopping. We have not found any previous research on m-commerce or m-shopping utilising the TRA, TPB, TAM or UTAUT models that has included the location of the shopper as a determining factor of intention.

Four of the hypotheses were related to the moderating effects of age and experience. Two of these hypotheses were accepted. Both of these show signs of severe multicollinearity, and because of this it is high uncertainty involved in their moderating effects and the conclusions that can be drawn from them.

H6a: Age significantly moderates the effect of performance expectancy on behavioural intention.

The results suggest that age positively moderates the effect of performance expectancy on intention, but as it was not statistically significant, H6a was rejected. This suggests that age was not tied to specific expectations of the performance and utility of smartphone shopping. Interestingly, the moderating effect has in opposite to our findings been negative in the past

(Source, Perroti & Widrick, 2005), which means that the older shoppers perceived online shopping as less convenient.

H6b: Age significantly moderates the effect of trust on behavioural intention.

Trocchia and Janda (2000) found that older people were less likely to shop online, because of distrust for technology and desire to see the products in person prior to purchase. Our results indicate the same thing; that age negatively moderates the effect of trust on behavioural intention, but the effect was not significant. H6b was thereby not supported. This is in line with our findings from the qualitative interviews, where we found no clear connection between a respondent's age and their trust towards smartphone shopping.

Hernández, Jiménez, and Martín (2011) also investigated the moderating effects of age on past online shopping behaviour and intention to engage in it, and similarly to our study, no differences between the age groups were observed.

H7a: Experience significantly moderates the effect of effort expectancy on behavioural intention.

H7a was accepted as experience was found to significantly moderate the effect of effort expectancy on behavioural intention ($p < 0.05$, $\beta = 0.486$, $t\text{-value} = 2.589$). The moderation effect was positive, meaning that users with more experience perceive smartphone shopping as less demanding and have a high intention to engage in smartphone shopping.

H7b: Experience significantly moderates the effect of social influence on behavioural intention.

The effect of social influence on behavioural intention was significantly negatively moderated by experience ($p < 0.05$, $\beta = -0.403$, $t\text{-value} = -2.128$). The negative moderating effect suggests that the more experienced a respondent is, the less he or she believes that their peers will influence their intention to shop through their smartphone. Thereby it also means that the less experienced a respondent is with smartphone shopping, the more he or she will be influenced by their peers.

H8: Behavioural intention has a significant positive effect on user behaviour.

The final hypothesis was that the online shopper's intention to shop through their smartphone had an effect on smartphone shopping behaviour. This hypothesis was accepted ($p < 0.001$, $\beta = 0.434$, $t\text{-value} = 8.995$). We can thereby conclude that for our population, the shoppers with a more positive view of smartphone shopping who had a higher willingness to engage in it also reported that they had been shopping more through their smartphone in the past.

7 Conclusions

Here, we synthesise the discussions on the different research questions into contributions, conclusions and implications that can be drawn from the study. The meaning and interpretation of the results are in focus. Limitations and recommendations for future research are discussed at the end of the chapter.

7.1 Theoretical Contribution

The purpose with this thesis was to examine and determine key factors for adoption of shopping consumer goods through smartphones in Sweden. The findings have contributed to knowledge of attitudes towards smartphone shopping in Sweden, where previous research on the topic is scarce.

We found that a model with moderating variables offer superior prediction of intention to shop online in comparison to a model without moderating variables. Our study and previous research (Ozok & Wei, 2010) showed that the performance, ease of use, and trust are better for computers than smartphones. The new construct location was identified and shown to have the strongest effect on behavioural intention of the predicting variables. We thereby believe we have found a central reason to why people chose to shop through their smartphone.

It should be in this research field's interest to determine the most important factors for online shopping intention. In this study, location had a stronger effect on intention than the factors commonly used in previous research. When synthesising the results of the statistical analyses with the information gathered from interviews, this study has also provided several important implications that contribute to the field.

First, consumers expressed the importance of a well performing web shop in interviews, but performance expectancy did not have a statistically significant effect on behavioural intention. This indicates that although consumers can appreciate the utilitarian and hedonic aspects of smartphone shopping, it does not have a substantial effect on their adoption. Similar results were found for trust, where the trustworthiness of smartphone web shops was expressed as

one of the most important aspects in the interviews. However, trust did not have a statistical significant effect on behavioural intention. A web shop that is perceived as secure, caring about their customers' personal integrity, and that offers several well-known payment solutions, may be very appreciated, but we found no support that people have a higher willingness to make a purchase from the web shop because of this.

Secondly, effort expectancy had the third strongest effect on behavioural intention, but the effect was negative when we analysed the shoppers as a single group. This finding is inconsistent with previous research where the effect has either been insignificant (Chong, 2013a) or positive (Lai and Lai, 2014; Yang, 2010). Many of the interviewed consumers said that smartphone shopping was difficult and frustrating. It is possible that the vast majority that feel this way still have a high intention to shop through their smartphone.

Third, social influence was the second strongest predictor of behavioural intention. The fact that social influence has a positive predicting effect means that people will choose to shop through their smartphone because others do it, regardless of its utility, ease of use, trustworthiness, or where they are at the shopping moment. When interviewing online shoppers and asking them whether they would be affected by others' beliefs, the majority did not think that it was important for their adoption of smartphone shopping. This shows that people may not outright express that their peers affect them, and that the commercial success of online retailing through smartphones may also be dependent on social norms.

Fourth, the finding that location was the strongest driver of customers' intention to shop from a smartphone was consistent with the findings from interviews, where both the shoppers and industry experts said that the biggest benefit was smartphones' mobility, enabling shopping regardless of location.

Fifth, experience had significant positive moderating effects on predicting variables while age did not. This suggests that age is not a suitable differentiator between consumers for predicting their attitudes of smartphone shopping.

Lastly, the significant positive relation between behavioural intention and past user behaviour of smartphone shopping implies that attitudes can in fact predict self-reported behaviours. Ajzen's (1991) intent with developing the Theory of Reasoned Action, the foremost theory in this research field, was thereby confirmed. This supports using marketing research on consumer behaviours for assessing the potential of new online shopping solutions.

7.2 Managerial Implications

The findings of our study offer several important implications for Swedish online retailers that wish to increase their sales and widen their customer base. By getting a better understanding of customers' attitudes, today's low conversion rates for physical goods bought through smartphones may be improved. Previous research on key drivers of online shopping has been criticised for not having much practical relevance for businesses. To adhere to this critique and to offer practical solutions for online retailers, we conducted further investigations beyond our primary research. The results of this investigation offer substantial and highly valuable recommendations for managers of online retailers that are applicable to their marketing strategies.

We divided the respondents from the survey into three segments based on their self-reported experience of smartphone shopping. The results reveal that consumers with different levels of experience perceive the factors as more or less important for their intention to shop consumer goods through a smartphone. The differences between the segments are shown in table 20.

Table 20 Multiple Regression Analysis for Experience Segments

Independent Variables	Dependent Variable					
	Behavioural Intention					
	Least Experienced		Moderately Experienced		Most Experienced	
	β	<i>t</i> -value	β	<i>t</i> -value	β	<i>t</i> -value
Performance Expectancy	0.234*	2.039	0.363**	3.308	0.098 ^{ns}	0.882
Effort Expectancy	-0.180 ^{ns}	-1.755	-0.076 ^{ns}	-0.731	0.241*	2.238
Social Influence	0.313**	3.174	-0.019 ^{ns}	-0.201	-0.045 ^{ns}	-0.500
Trust	0.069 ^{ns}	0.655	0.153 ^{ns}	1.645	-0.116 ^{ns}	-1.228
Location	0.224 ^{ns}	1.969	0.337**	3.352	0.466***	4.591

Notes: Overall model "Least Experienced" $F = 9.989$, $p < 0.001$, $R^2 = 0.359$, Adjusted $R^2 = 0.323$

Overall model "Moderately Experienced" $F = 12.428$, $p < 0.001$, $R^2 = 0.403$, Adjusted $R^2 = 0.371$

Overall model "Most Experienced" $F = 10.630$, $p < 0.001$, $R^2 = 0.356$, Adjusted $R^2 = 0.323$

*significant at the 0.05 level ($p < 0.05$) (2-tailed).

**significant at the 0.01 level ($p < 0.01$) (2-tailed).

*** significant at the 0.001 level ($p < 0.001$) (2-tailed).

ns = not statistically significant

A discussion of the results of this analysis and how it relates to our primary research is first provided. The hands-on recommendations are thereafter given.

Whereas effort expectancy was found to have a negative effect on behavioural intention for all respondents analysed together (table 15, p. 58, and table 16, p. 59), this closer analysis reveals that the negative effect only applies to the least and moderately experienced online shoppers and that it is not significant. For the most experienced respondents, effort expectancy has a significant positive effect on behavioural intention. This means that there is no connection between ease of use and intention for those who are not extensively experienced with smartphone shopping. Furthermore, performance expectancy is not significant for the most experienced group. This means that the utilitarian and hedonic aspects of smartphone shopping are not drivers of intention for those who are very experienced. The effect of social influence is only positive and significant for the least experienced, which means that social norms have no effect on intention to shop from a smartphone when sufficient experience has been gained. The effect of trust remains insignificant for all groups, meaning that trust has no importance for intention. Lastly, the effect of location on behavioural intention is stronger the more experienced the shopper is. This indicates that the perceived value of being able to shop from anywhere with the smartphone increases with use. It may be that consumers are first hesitant to shop through their smartphone but that they get a more positive view of it with experience. However, the positive relation between experience and location also means that increased use makes one less likely to shop from their smartphone when a tablet or computer is available.

The practical managerial implications and marketing recommendations are given below:

Customers with low levels of experience are likely to place more emphasis on the performance of the web shop, the utility of shopping from a smartphone and other's attitudes towards smartphone shopping. Additionally, mobile optimising the web shop may have a large impact on this group of customers' smartphone shopping experience, by improving the usability. These customers value what others say about smartphone shopping and whether others use it, meaning that if many other people shop from a smartphone and recommend that they should do so too, they likely will. In practice, this means that marketing and communication for the least experienced segment can focus on messages that signal that;

- Smartphone shopping is effective, useful, and enjoyable.
- Many others use it - social proof of its usefulness.

We have not yet seen any retailers communicate similar messages through advertisement, but doing so may positively affect conversion rates for this group of customers that have little

experience of smartphone shopping. E- and m-tailers that are successful in doing this may get a head start when the adoption of smartphone shopping reaches its critical mass and becomes widespread.

Those with moderate experience of smartphone shopping were more willing to shop from a smartphone if a computer, tablet and physical retail store was not available at that moment. This group of customers understand that the benefit of the smartphone is that it enables shopping regardless of their location. Their perception of usefulness of smartphones for online shopping also had an effect on their willingness to shop from a smartphone. It is likely that some e-tailers have data for the moderately experienced segment, and should target them with marketing efforts that highlight;

- Smartphone shopping is effective, useful, and enjoyable.
- The smartphone enables you to shop from wherever you are.

As the smartphones makes it possible to shop from almost anywhere, the medium is very well suited for impulse shopping. In order to capitalise on this opportunity, M-tailers should streamline the smartphone shopping experience and process to make it faster from start to completion, and openly communicate how well suited the smartphone is for quick and smaller purchases.

Although statistically insignificant, there are signs that indicate that the least experienced and moderately experienced customers perceive smartphone shopping as difficult to use. It could be a good idea to increase the ease of using the web shop, or show that it is actually easy to use. Mobile optimising the web shop, simplifying the payment process, and making it easier to enter personal information will likely accomplish this.

The most experienced users valued the smartphone's ability to let them shop from any place the most of all users. The most experienced smartphone shoppers also distinguish themselves from the less experienced in that the perceived effort of shopping on a smartphone had a direct effect on their intention to shop from a smartphone. So if they think it is easy, they will have a higher intention. The results also indicated that the most experienced group had the lowest trust of smartphone shopping, but this effect was not significant. However, potential marketing efforts directed towards the most experienced segment should focus on that;

- Smartphone shopping is easy.
- The smartphone enables you to shop from wherever you are.

A relatively straightforward way to increase the ease of use is mobile optimisation. Many Swedish e-tailers still have not done this, and doing so will increase the performance and lessen the effort for all customers with different levels of experience. Our interviews with consumers also revealed demands for simplifying of the payment process, to make it easier to enter information in text fields, and to improve navigation and scrolling on the web shops.

Both our interviews and survey provided strong support for the idea that the greatest aspect of smartphone shopping is being able to shop from anywhere. The smartphones' function to provide the location of its users opens up a variety of possibilities for e-tailers to capture their customers when they are on the go. The location of the shopper may be used in conjunction with existing data of the customer to send out personalised and direct advertisements and notifications, for example sending a sales notification to the consumer when he is close to a physical store. The interviews with shoppers and industry experts also revealed that the smartphone might be exceptionally well suited for impulse buying. The success of this is however dependent on a streamlined shopping experience with few processes, little effort required and a short time from starting to browse the web shop to finalising the order.

Even though our survey did not show any connection between the perceived trustworthiness of a web shop and the customers' willingness to shop through a smartphone web shop, our interviews with online shoppers revealed that this could still be important. The trustworthiness could be improved with social proof of web shops' functionality through advertisements and communication with customers, as social influence had a significant effect. Online retailers may want to offer credible and well-known payment solutions (PayPal, Klarna, Payson, etc) although we found no statistical support of its importance.

Smartphone shopping is a relatively new phenomenon, why we believe that e-tailers striving to get a competitive advantage need to act soon to have a head start when smartphone shopping becomes an everyday habit for the general population. An early start can be used for further tests of web shop systems and designs, and thereby become a competitive m-tailer in a future Sweden when smartphone shopping is a central part of the shopping experience.

7.3 Research Limitations

There are several limitations of this study that are worth mentioning. First, the findings are limited to what the research model includes. It is likely that there are other determining factors for smartphone shopping that have not been taken into consideration in this study. In fact, the factors were able to explain 45.3 percent of the variance in behavioural intention, indicating that there are other factors that make up the remaining amount of the prediction. Further, we did not test whether the moderating variables influenced all predicting variables' effects on the response variable, since we suspected this would create large problems with multicollinearity. Despite that age and experience only moderated two variables each, multicollinearity surfaced, and so further moderation effects would make the multicollinearity worse.

Secondly, we used multiple regression analysis whereas a large part of previous research on online shopping has analysed data with structural equation modelling, which is a sophisticated multivariate method that uses a system of regression methods simultaneously and algorithms for path analysis to determine causal relationships and reveal hidden variables (Alavifar, Karimimalayer, & Anuar, 2012). Structural equation modelling has also been shown to reveal more statistically significant effects than multiple regression analysis when applied on the same data in an e-commerce study (Nusair & Hua, 2010). Structural equation modelling was not used in this study due to foreseen time constraints and difficulties with learning a new analysis technique and software program.

Third, a non-probability sampling method was used, which means that the key factors cannot be considered representable for all smartphone shoppers in Sweden, and that the results can thus not be confidently generalised.

Forth, and finally, surveys only provide self-reported data and are thereby not fully reliable. This is not a problem for measuring attitudes and beliefs of smartphone shopping since that is by default subjective. It can however be seen as a limitation for the truthfulness of the respondents past smartphone shopping habits, which was linked to the construct user behaviour. There is a risk that the data on the respondents past smartphone shopping habits is not accurate.

7.4 Recommendations for Future Research

The chosen methodology and findings of this thesis open up for several recommendations for future research. Since we used a non-probability sampling technique, future research on smartphone shopping adoption may want to use a probability sampling technique in order to be able to generalise with higher confidence to the whole population of interest. Future research may also want to include tablets to capture all mobile devices that can be used for shopping online.

Self-reported data as gathered through surveys is not fully reliable and accurate since respondents have a tendency to bias their answers and not fully remember what they have done in the past. It would be interesting to use actual shopping data sourced from an online retailer's customer database to study which demographic aspects correlate with online shopping habits, preferences and behaviours. Future research on online shopping adoption could also use a case study method to uncover company practices to gain further insight into business practice in the online retailing industry.

Our model was able to explain 45.3 percent of the variance in intention to shop from a smartphone. That means that there are several other factors not taken into account in this thesis that can explain the adoption of smartphone shopping. Future research should continue to explore new constructs in order to increase the predictive power on intention to shop online. Additional moderating effects may also be explored, such as demographic factors. For instance, future research may want to study if e-shopping is more adopted in rural areas where physical shops are not as available as in metropolitan areas. Knowledge regarding this would be of value to e-commerce delivery practices, and would also elaborate on the importance of the construct location, which was identified in this study.

Some of our findings were conflicting, such the effect of trust being statistically insignificant while the interviews with online shoppers and industry reports strongly advocate the importance of trustworthiness in online shopping. The negative effect of effort expectancy when applied to the whole group was also inconsistent with conventional wisdom. Further research is needed to investigate and clarify what effects these factors have on consumers' intention to shop online.

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APPENDICES

Appendix A - Interview Guide for Online Shoppers

- Q1. What do you consider are the biggest differences between shopping on a computer and smartphone?
- Q2. What are the biggest advantages of shopping on a computer?
- Q3. What are the biggest advantages of shopping on a smartphone?
- Q4. How can smartphone web shops be improved to make you want to shop more with smartphones?
- Q5. How can online retailers increase your utility of shopping on a smartphone, and how can the performance of smartphone web shops be improved?
- Q6. How can online retailers make it easier to shop on a smartphone?
- Q7. How can online retailers increase your trust for shopping on a smartphone?
- Q8. Do you have any friends that shop on smartphones, and if so, would this increase your intention to shop on a smartphone?

Appendix B - Interview Guide for Industry Experts

- Q1. Could you rank the three most important factors for a successful web shop for smartphones?
- Q2. What advantages does smartphones have in comparison to computers for online shopping?
- Q3. How do web shops for smartphones differ from those of computers?
- Q4. From a consumer's perspective, does the act of shopping differ between shopping on a smartphone or a computer? Does that affect the design of the web shop?
- Q5. In what ways do you think web shops for smartphones need to be improved for getting more customers to shop through their smartphone?
- Q6. How can companies increase the benefit from shopping on a smartphone versus a computer?
- Q7. How can companies increase the usefulness of their smartphone web shops?
- Q8. What do you think is the reason that few consumer goods are purchased through smartphones?
- Q9. How can companies increase the perceived trust for shopping through smartphones?
- Q10. In what ways do believe e-commerce will develop in the future in the short- and long-term perspectives?

Appendix C - Swedish Questionnaire Guide

Undersökning av shopping genom smartphones

Denna enkät är en del av vårt examensarbete på Lunds Universitet. Enkäten avser att undersöka shopping av konsumentvaror genom smartphones. Med smartphone avses mobiltelefoner med touch-skärm, t.ex. iPhone och liknande.

Tänk på att frågorna endast handlar om köp av fysiska produkter (t.ex. böcker, kläder, skor, mat, hushållsprodukter, etc) och inte tjänster.

Frågorna handlar om dina tankar och åsikter kring att köpa konsumentvaror genom smartphones. Det finns inga "rätta" svar. Vi är intresserade av din åsikt.

Markera med kryss i rutorna.

Tack för din medverkan!

Kön

Sätt ett kryss i rutan för ett av alternativen.

- Man
- Kvinna

Ålder

Sätt ett kryss i rutan för ett av alternativen.

- 18-25
- 26-35
- 36-45
- 46-55
- 56+

Utbildning

Sätt ett kryss i rutan för ett av alternativen.

- Avklarad grundskola
- Avklarad gymnasieutbildning
- Påbörjad universitets- eller högskoleutbildning
- Avklarad universitets- eller högskoleutbildning
- Forskarutbildning (påbörjad eller avklarad)

Erfarenhet

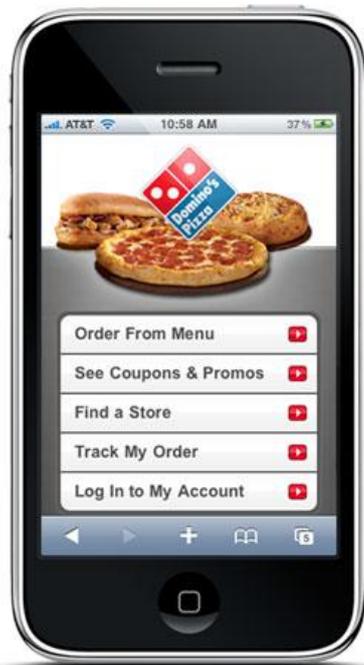
Med erfarenhet avses kunskap eller vana.

(Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Jag anser mig vara erfaren av att surfa på webbshoppar genom smartphones.
- Jag anser mig vara erfaren av att shoppa genom smartphones.

Skillnaden mellan hur en mobilanpassad och ej mobilanpassad webbshop ser ut.

Nedan är en bild på en mobilanpassad och ej-mobilanpassad webbshop. Kom ihåg skillnaden när du svarar på frågor som rör detta.



Mobile Website

VS



Standard Website

Förväntad prestanda

Dessa frågor handlar om användbarheten och nyttan av shopping genom smartphones. (Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Shopping genom smartphones är användbart.
- Jag tror att shopping genom smartphones gör att jag kan shoppa snabbare.
- Jag tycker det är roligt att shoppa på min smartphone.
- Jag tycker mobilanpassade webbshoppar är mer användbara för mig.

Förväntad ansträngning

Dessa frågor handlar om användarvänligheten av shopping genom smartphones. (Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Jag tycker att webbshoppar på smartphones är enkla att använda.
- Jag har lätt för att lära mig navigera på webbshoppar med smartphones.
- Jag tycker att en mobilanpassad webbshop är enklare att använda.
- Jag tycker betalningen är enkel att genomföra på webbshoppar på smartphones.
- Jag tycker det är enkelt att skriva in person- och betalningsuppgifter på webbshoppar på smartphones.

Socialt inflytande

Dessa frågor handlar om hur folk i din närhet (t.ex. familj, vänner, bekanta) påverkar din attityd till shopping genom smartphones.

(Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Jag tror att folk i min närhet kan påverka mina shoppingvanor.
- Om en vän eller familjemedlem rekommenderar smartphone-shopping så kommer jag nog testa det.
- Om en person vars åsikter jag värdesätter rekommenderar smartphone-shopping så kommer jag nog testa det.

Förtroende

Dessa frågor handlar om ditt förtroende för shopping genom smartphones.

(Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Jag tror betalningar genom webbshoppar på smartphones behandlas på ett säkert sätt.
- Jag tror mina personliga uppgifter kommer skyddas när jag shoppar på min smartphone.
- Jag tror att kända betalningslösningar (t.ex. PayPal, Klarna, Payson) hade ökat mitt förtroende för webbshoppar på smartphones.

Plats

Dessa frågor handlar om var du befinner dig och hur det påverkar ditt shoppingbeteende.

(Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Jag tycker att smartphone-shopping är värdefullt eftersom det tillåter mig att shoppa var som helst.
- Jag är mer benägen att shoppa genom min smartphone när min dator eller tablet inte är tillgänglig .
- Jag shoppar genom min smartphone även om min dator eller tablet är tillgänglig.

Avsikt att shoppa genom smartphone

Dessa frågor handlar om din avsikt att shoppa genom smartphones i framtiden.

(Föremålet mättes med en 7-gradig Likertskala där 1 = Instämmer inte alls, 2 = Instämmer inte, 3 = Instämmer delvis inte, 4 = Neutral, 5 = Instämmer delvis, 6 = Instämmer, 7 = Instämmer fullständigt)

- Mitt intresse för smartphone-shopping kommer öka i framtiden.
- Jag kommer att shoppa genom min smartphone i framtiden.
- I framtiden kommer jag shoppa mer genom min smartphone än jag gör idag.

Typ av fysiska produkter

Sätt ett kryss i rutan för de produkter du har köpt genom en smartphone.

- Media (Böcker, tidningar, filmer, cd-skivor)
- Kläder/skor
- Hemelektronik
- Skönhetsprodukter
- Sportutrustning
- Möbler/Heminredning

- Leksaker
- Kosttillskott/apoteksvaror
- Smycken/Klockor
- Barnartiklar
- Linsprodukter och/eller glasögon
- Biltillbehör
- Livsmedel
- Bygg- och trädgårdsmaterial
- Vin/alkoholhaltiga drycker
- Blommor och växter
- Inget
- Övrigt:

Användarbeteende

Ange hur ofta du shoppar konsumentvaror genom din smartphone.

Sätt ett kryss i rutan för ett av alternativen.

- Någon gång per vecka
- Någon gång per månad
- Någon gång per kvartal
- Någon gång per år
- Aldrig

Appendix D - Questionnaire Guide (Translated)

Study on smartphone shopping of consumer goods

This questionnaire is part of our master thesis at Lund University. The intention with the questionnaire is to study people's perceptions of shopping consumer goods online through smartphones.

Please consider that the questions are about purchases of consumer goods (for instance books, clothes, shoes, home appliances, etc.) and not services.

The questions are about your subjective perceptions and attitudes towards shopping consumer goods through smartphones. There are no "right" answers. We are interested in your opinion.

Thank you for your participation!

Gender

Chose one of the alternatives

- Male
- Female

Age

Chose one of the alternatives

- 18-25
- 26-35
- 36-45
- 46-55
- 56+

Education

Chose one of the alternatives

- Completed primary school
- Completed secondary school
- Completed high school
- Started College/University
- Completed College/University
- Started or completed Postgraduate education

Experience

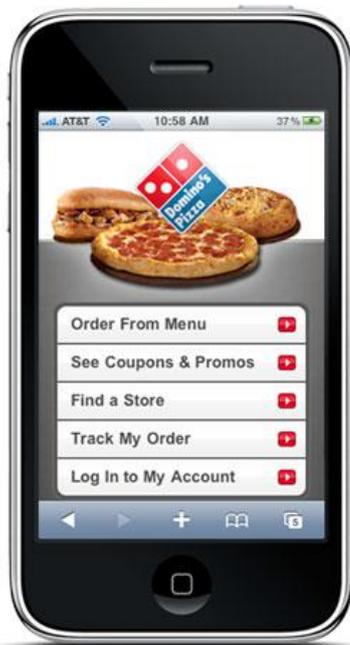
Experience means your knowledge, habit and experience of shopping consumer goods through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- I think that I am experienced with browsing on smartphone web shops.
- I think that I am experienced with shopping on smartphone web shops.

Mobile optimized vs. Standard web shop

Below is a picture of a mobile optimized web shop and a standard web shop on a smartphone. Please remember the difference when you answer questions related to this.



Mobile Website

VS



Standard Website

Performance Expectancy

These questions are concerned with the usefulness and utility of shopping through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- Shopping through a smartphone is useful.
- Using a smartphone for online shopping enables me to shop more quickly.
- I find smartphone shopping enjoyable.
- I think that mobile optimized smartphone web shops are more useful for me.

Effort Expectancy

These questions are concerned with the ease of shopping through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- I find smartphone web shops easy to use.
- Learning to navigate smartphone web shops is easy for me.
- I think that a smartphone web shops with a mobile optimized interfaces is easier to use.
- I find it easy to complete the payment process on smartphone web shops.
- I find it easy to enter personal and payment information on smartphone web shops.

Social Influence

These questions are concerned with the whether people in your surroundings (such as family, friends and relatives) affect your attitude towards shopping through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- I believe that people in my surrounding affect my attitude towards shopping through a smartphone.
- If a friend or family member recommends smartphone shopping I will probably try it.
- If a person whose opinions that I value recommends smartphone shopping I will probably try it.

Trust

These questions are concerned with your trust towards shopping through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- I think that payments made through smartphones web shops will be processed securely.
- I believe my personal information will be kept confidential when I shop through my smartphone.
- Mobile payment solutions increase my trust for the smartphone web shop.

Location

These questions are concerned with whether your location affects your intention to shop through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- Smartphone shopping is useful because it because it me to shop wherever I am
- I am more likely to shop through my smartphone when my computer or tablet is not available.
- I will shop through my smartphone even when my computer or tablet is available.

Behavioural Intention to shop through a smartphone

These questions are concerned with your intention to shop through a smartphone.

(The item was measured on a 7-point Likert scale where 1 = Completely Disagree, 2 = Disagree, 3 = Disagree Somewhat, 4 = Neutral, 5 = Agree Somewhat, 6 = Agree, 7 = Completely Agree)

- My interest towards shopping through a smartphone will increase in the future.
- I will shop through my smartphone in the future.
- I will shop more through my smartphone in the future than I do now.

Types of physical products

Chose the products that you have bought through your smartphone at some time.

- Media (books, magazines, movies, CDs)
- Clothing/Shoes
- Home electronics
- Beauty products
- Sports equipment
- Furniture/Home decorations

- Toys
- Nutrition supplements/pharmaceutical products
- Jewellery/watches
- Children's products
- Eye lens products/glasses
- Car equipment
- Foodstuffs
- Construction and garden material
- Wine/alcoholic beverages
- Flowers and plants
- Nothing
- Other:

User Behaviour

State how often you purchase consumer goods through your smartphone

Chose one of the alternatives

- A couple of times per week
- A couple of times per month
- A couple of times per quarter
- A couple of times per year
- Never

Appendix E - SPSS Output

Descriptive Statistics

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	166	54,8	54,8	54,8
	Femal	137	45,2	45,2	100,0
	Total	303	100,0	100,0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	97	32,0	32,0	32,0
	26-35	59	19,5	19,5	51,5
	36-45	64	21,1	21,1	72,6
	46-55	44	14,5	14,5	87,1
	56+	39	12,9	12,9	100,0
	Total	303	100,0	100,0	

Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary school	32	10,6	10,6	10,6
	High school	111	36,6	36,8	47,4
	Started university	43	14,2	14,2	61,6
	Finished University	111	36,6	36,8	98,3
	Postgraduate education	5	1,7	1,7	100,0
	Total	302	99,7	100,0	
Missing	System	1	,3		
Total		303	100,0		

Frequencies of type of purchased products

Type of product		Frequency	Percent
Physical media	Unchecked	166	54,8
	Checked	135	44,6
Clothing and shoes	Unchecked	143	47,2
	Checked	158	52,1
Home electronics	Unchecked	194	64,0
	Checked	107	35,3
Cosmetics and haircare	Unchecked	224	73,9
	Checked	77	25,4
Sports and leisure equipment	Unchecked	213	70,3
	Checked	88	29,0
Furniture and interior decorations	Unchecked	255	84,2
	Checked	46	15,2
Toys	Unchecked	265	87,5
	Checked	36	11,9
Nutrition supplements and pharmaceutical products	Unchecked	238	78,5
	Checked	63	20,8
Jewelry and watches	Unchecked	238	78,5
	Checked	62	20,5
Childrens products	Unchecked	281	92,7
	Checked	20	6,6
Eye lenses and glasses	Unchecked	282	93,1
	Checked	19	6,3
Car accessories	Unchecked	264	87,1
	Checked	37	12,2
Food stuffs	Unchecked	279	92,1
	Checked	22	7,3
Construction and garden materials	Unchecked	291	96,0
	Checked	10	3,3
Wine and alcoholic drinks	Unchecked	286	94,4
	Checked	15	5,0
Flowers and plants	Unchecked	281	92,7
	Checked	20	6,6
Nothing	Unchecked	245	80,9
	Checked	56	18,5
Other	Unchecked	298	98,3
	Checked	3	1,0

Reliability and Validity Tests

Experience

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,870	,872	2

Inter-Item Correlation Matrix

	EXP1	EXP2
EXP1	1,000	,773
EXP2	,773	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EXP1	4,39	3,591	,773	,598	
EXP2	5,13	3,053	,773	,598	

Performance Expectancy

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,812	,820	4

Inter-Item Correlation Matrix

	PE1	PE2	PE3	PE4
PE1	1,000	,605	,508	,508
PE2	,605	1,000	,589	,511
PE3	,508	,589	1,000	,470
PE4	,508	,511	,470	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PE1	14,32	14,790	,650	,438	,762
PE2	14,66	13,431	,695	,495	,735
PE3	15,64	12,210	,625	,405	,772
PE4	14,99	13,323	,585	,348	,787

Effort Expectancy

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,821	,824	5

Inter-Item Correlation Matrix

	EE1	EE2	EE3	EE4	EE5
EE1	1,000	,684	,472	,476	,346
EE2	,684	1,000	,518	,466	,406
EE3	,472	,518	1,000	,476	,362
EE4	,476	,466	,476	1,000	,627
EE5	,346	,406	,362	,627	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
EE1	20,15	18,948	,632	,508	,783
EE2	19,90	17,879	,666	,535	,771
EE3	19,98	17,732	,576	,350	,799
EE4	20,09	17,738	,664	,500	,771
EE5	20,28	18,669	,547	,411	,806

Social Influence

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,803	,809	3

Inter-Item Correlation Matrix

	SI1	SI2	SI3
SI1	1,000	,491	,448
SI2	,491	1,000	,818
SI3	,448	,818	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SI1	9,42	8,762	,493	,248	,900
SI2	9,03	7,653	,757	,689	,616
SI3	8,87	8,137	,724	,672	,657

Trust

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,749	,749	3

Inter-Item Correlation Matrix

	T1	T2	T3
T1	1,000	,700	,389
T2	,700	1,000	,406
T3	,389	,406	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
T1	9,62	5,717	,655	,503	,577
T2	9,98	5,192	,661	,511	,560
T3	9,16	6,708	,432	,186	,822

Location

Reliability Statistics

Cronbach's Alpha ^a	Cronbach's Alpha Based on Standardized Items ^a	N of Items
-,338	-,199	3

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Inter-Item Correlation Matrix

	L1	L2	L3
L1	1,000	,591	-,414
L2	,591	1,000	-,352
L3	-,414	-,352	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
L1	9,27	4,432	,118	,397	-1,082a
L2	9,72	3,542	,105	,363	-1,335a
L3	9,76	8,428	-,426	,189	,736

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Behavioural Intention

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,883	,883	3

Inter-Item Correlation Matrix

	BI1	BI2	BI3
BI1	1,000	,696	,743
BI2	,696	1,000	,706
BI3	,743	,706	1,000

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
BI1	10,05	6,888	,780	,611	,827
BI2	9,57	6,963	,751	,564	,853
BI3	9,83	6,633	,787	,621	,821

Correlation Analysis

Correlations

		Performance Expectancy	Effort Expectancy	Social Influence	Trust	Location	Behavioral Intention	User Behavior
Performance Expectancy	Pearson Correlation	1	,711**	,409**	,551**	,621**	,577**	,531**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000
	N	301	299	300	300	301	300	298
Effort Expectancy	Pearson Correlation	,711**	1	,331**	,521**	,525**	,435**	,491**
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,000
	N	299	300	299	299	300	299	297
Social Influence	Pearson Correlation	,409**	,331**	1	,343**	,475**	,385**	,348**
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,000
	N	300	299	302	302	302	301	299
Trust	Pearson Correlation	,551**	,521**	,343**	1	,520**	,428**	,366**
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,000
	N	300	299	302	302	302	301	299
Location	Pearson Correlation	,621**	,525**	,475**	,520**	1	,585**	,425**
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,000
	N	301	300	302	302	303	302	300
Behavioral Intention	Pearson Correlation	,577**	,435**	,385**	,428**	,585**	1	,461**
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000
	N	300	299	301	301	302	302	299
User Behavior	Pearson Correlation	,531**	,491**	,348**	,366**	,425**	,461**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	
	N	298	297	299	299	300	299	300

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

Multiple Regression Analyses

Model 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,652a	,424	,415	,97344

a. Predictors: (Constant), Location_without_L3, Social Influence, Effort Expectancy, Trust, Performance Expectancy

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	203,356	5	40,671	42,921	,000b
	Residual	275,746	291	,948		
	Total	479,103	296			

a. Dependent Variable: Behavioral Intention

b. Predictors: (Constant), Location_without_L3, Social Influence, Effort Expectancy, Trust, Performance Expectancy

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,255	,312		4,020	,000		
	Performance Expectancy	,344	,076	,319	4,528	,000	,397	2,517
	Effort Expectancy	-,037	,079	-,030	-,463	,644	,474	2,111
	Social Influence	,078	,048	,084	1,641	,102	,749	1,335
	Trust	,075	,063	,068	1,197	,232	,616	1,623
	Location_without_L3	,288	,054	,329	5,322	,000	,519	1,928

a. Dependent Variable: Behavioral Intention

Collinearity Diagnosticsa

Model	Eigenvalue	Condition Index	Variance Proportions						
			(Constant)	Performance Expectancy	Effort Expectancy	Social Influence	Trust	Location_without_L3	
1	1	5,839	1,000	,00	,00	,00	,00	,00	,00
	2	,056	10,245	,02	,02	,03	,85	,04	,01
	3	,043	11,692	,23	,01	,01	,07	,00	,61
	4	,027	14,760	,01	,13	,09	,00	,87	,00
	5	,023	15,832	,62	,20	,05	,07	,09	,37
	6	,013	21,284	,12	,65	,82	,01	,00	,01

a. Dependent Variable: Behavioral_Intention

Model 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,673a	,453	,435	,95885

a. Predictors: (Constant), AgexT, Effort_Expectancy, Social_Influence, Trust, Location_without_L3, Performance_Expectancy, EXPxEE, EXPxSI, AgexPE

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	216,694	9	24,077	26,188	,000b
	Residual	262,029	285	,919		
	Total	478,723	294			

a. Dependent Variable: Behavioral_Intention

b. Predictors: (Constant), AgexT, Effort_Expectancy, Social_Influence, Trust, Location_without_L3, Performance_Expectancy, EXPxEE, EXPxSI, AgexPE

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,284	,384		3,343	,001		
	Performance_Expectancy	,186	,127	,173	1,471	,142	,139	7,190
	Effort_Expectancy	-,243	,119	-,199	-2,046	,042	,204	4,900
	Social_Influence	,298	,115	,322	2,585	,010	,124	8,075
	Trust	,132	,122	,119	1,082	,280	,159	6,274
	Location_without_L3	,276	,054	,315	5,159	,000	,516	1,938
	EXPxEE	,053	,021	,486	2,589	,010	,055	18,328
	EXPxSI	-,046	,021	-,403	-2,128	,034	,053	18,710
	AgexPE	,039	,038	,214	1,029	,305	,044	22,492
	AgexT	-,018	,038	-,098	-,470	,638	,044	22,551

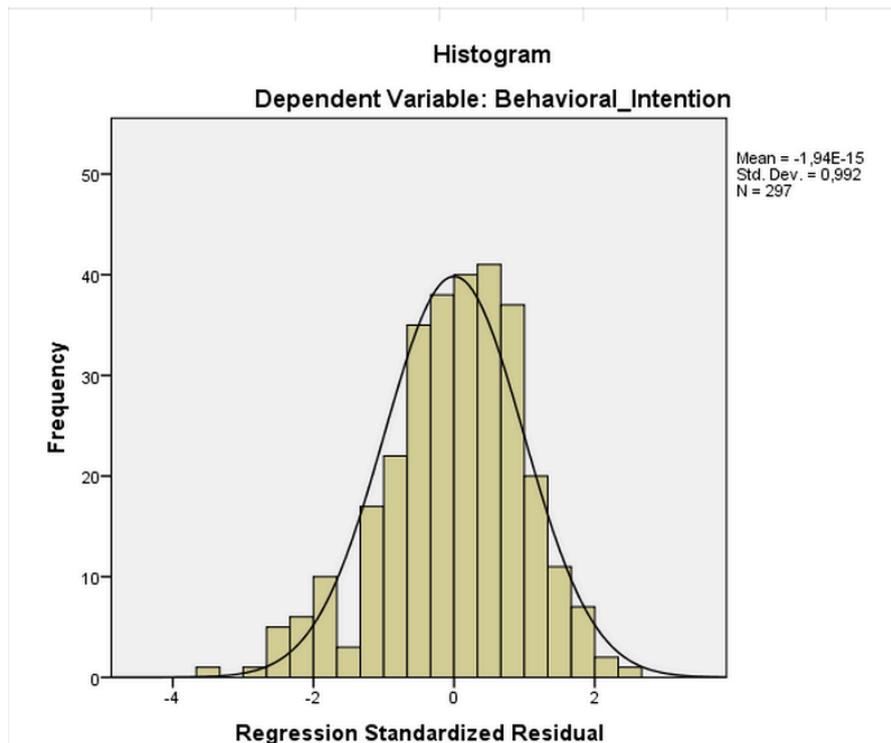
a. Dependent Variable: Behavioral_Intention

Collinearity Diagnostics

Mo del	Eigenv alue	Condi tion Index	Variance Proportions										
			(Const ant)	Performance Expectancy	Effort Expectancy	Social Influence	Trust	Location _without L3	EXP xEE	EXP xSI	Agex PE	Age xT	
1	9,221	1,000	,00	,00	,00	,00	,00	,00	,00	,00	,00	,00	,00
2	,417	4,704	,00	,00	,00	,00	,00	,00	,00	,00	,00	,01	,01
3	,152	7,800	,03	,00	,00	,00	,00	,01	,01	,01	,03	,00	,00
4	,089	10,199	,00	,00	,01	,06	,00	,00	,00	,03	,02	,00	,00
5	,047	13,952	,02	,01	,00	,00	,06	,00	,00	,00	,00	,05	,06
6	,041	15,043	,08	,00	,01	,01	,00	,00	,78	,00	,00	,00	,00
7	,018	22,692	,18	,19	,03	,00	,08	,18	,02	,00	,01	,01	,01
8	,011	29,351	,69	,00	,33	,13	,00	,01	,00	,08	,00	,00	,00
9	,003	53,775	,01	,10	,47	,61	,18	,01	,69	,65	,19	,17	,17
10	,003	59,637	,00	,69	,14	,20	,67	,00	,25	,21	,73	,74	,74

a. Dependent Variable: Behavioral_Intention

Normal distribution of data



Simple Regression Analysis Behavioural Intention and User Behaviour

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,461a	,213	,210	1,060

a. Predictors: (Constant), Behavioral Intention

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	90,186	1	90,186	80,195	,000b
	Residual	334,001	297	1,125		
	Total	424,187	298			

a. Dependent Variable: User Behavior

b. Predictors: (Constant), Behavioral Intention

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,617	,246		2,510	,013
	Behavioral Intention	,434	,048	,461	8,955	,000

a. Dependent Variable: User Behavior

Segmentation of respondents based on experience level

Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1,00			
	1,00	17	5,6	5,6
	1,50	6	2,0	7,6
	2,00	19	6,3	14,0
	2,50	6	2,0	15,9
	3,00	12	4,0	19,9
	3,50	11	3,6	23,6
	4,00	27	8,9	32,6
	4,50	21	6,9	39,5
	5,00	43	14,2	53,8
	5,50	34	11,2	65,1
	6,00	52	17,2	82,4
	6,50	18	5,9	88,4
	7,00	35	11,6	100,0
	Total	301	99,3	100,0
Missing System		2	,7	
Total		303	100,0	

Multiple Regression Model for Least Experienced

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,600 ^a	,359	,323	1,01233

a. Predictors: (Constant), Location_without_L3, Effort_Expectancy, Social_Influence, Trust, Performance_Expectancy

b. Dependent Variable: Behavioral_Intention

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51,185	5	10,237	9,989	,000 ^b
	Residual	91,208	89	1,025		
	Total	142,393	94			

a. Dependent Variable: Behavioral_Intention

b. Predictors: (Constant), Location_without_L3, Effort_Expectancy, Social_Influence, Trust, Performance_Expectancy

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1,820	,560		3,251	,002		
Performance_Expectancy	,254	,125	,234	2,039	,044	,545	1,834
Effort_Expectancy	-,225	,128	-,180	-1,755	,083	,685	1,459
Social_Influence	,309	,097	,313	3,174	,002	,740	1,351
Trust	,073	,111	,069	,655	,514	,654	1,528
Location_without_L3	,182	,092	,224	1,969	,052	,556	1,798

a. Dependent Variable: Behavioral_Intention

Collinearity Diagnostics^a

Model	Eigenvalue	Condition Index	Variance Proportions						
			(Constant)	Performance Expectancy	Effort Expectancy	Social_Influence	Trust	Location_without_L3	
1	1	5,778	1,000	,00	,00	,00	,00	,00	,00
	2	,070	9,096	,08	,00	,08	,14	,03	,44
	3	,062	9,692	,03	,05	,03	,60	,00	,24
	4	,038	12,314	,13	,01	,13	,00	,83	,03
	5	,031	13,653	,03	,93	,05	,02	,13	,20
	6	,021	16,509	,73	,01	,71	,23	,00	,09

a. Dependent Variable: Behavioral_Intention

Multiple Regression Model for Moderately Experienced

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,635 ^a	,403	,371	,94722

a. Predictors: (Constant), Location_without_L3, Effort_Expectancy, Trust, Social_Influence, Performance_Expectancy

b. Dependent Variable: Behavioral_Intention

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55,755	5	11,151	12,428	,000 ^b
	Residual	82,545	92	,897		
	Total	138,300	97			

a. Dependent Variable: Behavioral_Intention

b. Predictors: (Constant), Location_without_L3, Effort_Expectancy, Trust, Social_Influence, Performance_Expectancy

Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	,977	,662		1,475	,144		
Performance_Expectancy	,461	,139	,363	3,308	,001	,540	1,851
Effort_Expectancy	-,111	,152	-,076	-,731	,467	,594	1,684
Social_Influence	-,016	,080	-,019	-,201	,841	,744	1,343
Trust	,163	,099	,153	1,645	,103	,749	1,336
Location_without_L3	,319	,095	,337	3,352	,001	,642	1,557

a. Dependent Variable: Behavioral_Intention

Collinearity Diagnosticsa

Model		Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Performance Expectancy	Effort_Expectancy	Social_Influence	Trust	Location_without_L3
1	1	5,851	1,000	,00	,00	,00	,00	,00	,00
	2	,055	10,276	,03	,01	,02	,76	,06	,03
	3	,037	12,533	,05	,01	,04	,15	,08	,69
	4	,030	14,032	,01	,05	,02	,08	,85	,22
	5	,017	18,733	,67	,47	,01	,00	,01	,04
	6	,010	24,068	,24	,45	,92	,00	,00	,03

a. Dependent Variable: Behavioral_Intention

Multiple Regression Model for Most Experienced

Model Summaryb

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,597a	,356	,323	,88506

a. Predictors: (Constant), Location_without_L3, Social_Influence, Effort_Expectancy, Trust, Performance_Expectancy

b. Dependent Variable: Behavioral_Intention

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41,634	5	8,327	10,630	,000b
	Residual	75,200	96	,783		
	Total	116,833	101			

a. Dependent Variable: Behavioral_Intention

b. Predictors: (Constant), Location_without_L3, Social_Influence, Effort_Expectancy, Trust, Performance_Expectancy

Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1,329	,779		1,705	,091		
	Performance_Expectancy	,138	,156	,098	,882	,380	,545	1,834
	Effort_Expectancy	,336	,150	,241	2,238	,028	,578	1,731
	Social_Influence	-,036	,071	-,045	-,500	,618	,822	1,216
	Trust	-,140	,114	-,116	-1,228	,223	,746	1,340
	Location_without_L3	,424	,092	,466	4,591	,000	,652	1,535

a. Dependent Variable: Behavioral_Intention

Collinearity Diagnosticsa

Model		Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	Performance Expectancy	Effort_Expectancy	Social_Influence	Trust	Location_without_L3
1	1	5,891	1,000	,00	,00	,00	,00	,00	,00
	2	,052	10,612	,01	,00	,01	,92	,03	,00
	3	,025	15,477	,06	,02	,03	,04	,01	,82
	4	,017	18,866	,00	,07	,04	,04	,89	,12
	5	,009	25,246	,88	,05	,31	,00	,04	,03
	6	,006	30,462	,05	,86	,61	,01	,03	,03

a. Dependent Variable: Behavioral_Intention

En guldgruva i varmans ficka – mobilhandeln är här

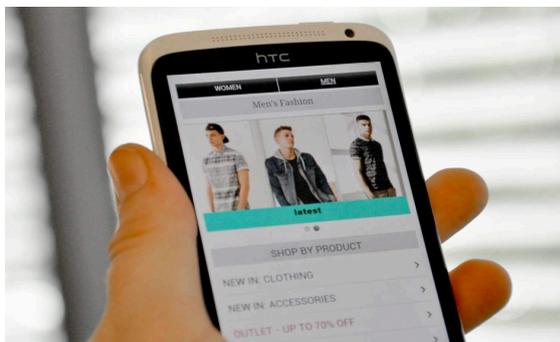
LUND

■ **Detaljhandeln har de senaste åren mött stora förändringar som en följd av e-handels popularitet. Nu är nästa generations e-handel på frammarsch - mobilhandeln - men många företag hänger inte med i utvecklingen.**

I dagens Sverige har nästan alla någon gång köpt en vara på Internet, men mobiltelefonen används inte i stor utsträckning för att handla saker. Färre än vart femte svensk köpte under 2014 en produkt genom sin mobiltelefon.

- **Många verkar tro** att det beror på de mindre skärmarna, men i Japan står mobilhandel för över 50 procent av den totala e-handeln” säger Joel Persson som tillsammans med Jonas Berndtsson nyligen skrev sin magisteruppsats kring m-handel på Lunds Universitet.

- Den svenska uppfattningen är väl att vi är ganska långt fram i den tekniska utvecklingen, men vad gäller mobilhandeln har vi mycket kvar att jobba med, fortsätter Jonas.



Shoppingen genom mobiler ökar, men de flesta föredrar fortfarande datorn.

Även när det gäller andelen besökare som slutför ett köp så är Sverige med sina knappt 1 procent långt ifrån Japan som har

FAKTA

Om undersökningen

11 intervjuer med konsumenter

5 intervjuer med företag

309 enkätsvar från konsumenter

över 9 procent. En faktor som spelar in är att många företag inklusive stora e-handlare fortfarande inte har mobilanpassade webshoppar. Detta kan göra att kunder inte återkommer till en sida, något som en undersökning från Google bekräftar. Undersökningen visade att nästan varannan inte gör ett återbesök om inte sidan är mobiloptimerade.

- **Företag** i vår undersökta bransch är nästan uteslutande dåliga på att utforma användarvänliga mobilshoppar, säger Jonas.

Jonas och Joel undersökte vad som påverkar konsumenters avsikt att handla via mobiltelefonen, och faktorer som kan anses självklara visade sig inte vara viktiga. Förtroendet för en webshop, exempelvis säker behandling av personliga uppgifter och betalning, hade exempelvis inget samband med viljan att handla på mobilen.

Däremot fann de att kunders erfarenhet av m-handel var centralt för vilka faktorer som påverkade mest. Till exempel visade sig sociala normer och andras åsikter vara centralt för dem med liten erfarenhet medan de med mest erfarenhet värderade faktorer som enkelhet och betalningslösningar. Företag kan gynnas av att anpassa sin marknadsföring utefter kunders erfarenhet av m-handel, vilket är möjligt idag med all data som finns tillgänglig.

Joel och Jonas menar att företag måste smida järnet *innan* det är varmt för att möta de förändrade konsumentbeteendena, och att de måste informera potentiella kunder om fördelarna med m-handel.

- Det finns fördelar för både kunder och företag med m-handel, avslutar Joel.

KAJ KAJSSON

