



## Consumer's Perception on M – Commerce

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### **Abstract**

*Businesses and society today have been greatly influenced by Mobile commerce. Hence, in order to better design and deliver m-commerce services, consumers' perception of m-commerce applications must be understood by m-commerce developers and practitioners. This study was conducted by using the survey methodology to gain information about consumer behaviour when shopping through mobile phone or using other m-commerce applications, resulting in a self-completed questionnaire with 207 respondents.*

*As per the results obtained from the questionnaire, consumers' decision of whether to engage in mobile commerce or not can be impacted by numerous critical factors. Furthermore, the results from the questionnaire shows that many consumers prefer to shop online via mobile phones rather than computers. The reason behind was that purchasing through smartphones is fast, easy and more accessible. The result also displays that factors like low speed and too much content can make consumers cancel their purchase. This shows the significance of usability factors in m-commerce applications. The information in this study can be used by businesses for creating m-commerce applications with high user satisfaction.*

**Keywords:** M-commerce, Consumer perception, Questionnaire, Mobile applications, Research methodology

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### **I. Introduction**

In recent years, the concept of e-commerce has developed rapidly, becoming a larger part of everyday life. E-commerce refers to the act of buying and selling products online and m-commerce today has taken a large space within this phenomenon. Purchases can now be made by mobile devices in the palm of your hands instead of visiting physical stores.

Mobile commerce refers to the use of wireless handheld devices such as cellular telephones and personal digital assistants (PDAs) for the buying and selling of goods and services. As a subset of e-commerce, M-commerce has enabled wireless internet access. People can access information anytime and anywhere, even in the absence of a physical network through mobile computing. In India, the number of mobile users and mobile internet subscribers has increased due to the availability of various m-commerce features like ubiquity, reachability, mobility and flexibility. Instead of web applications, mobile applications are preferred by most of the people for the purpose of utility bill payment, ticket booking, fund transfer, Email and so on. Thus, E-commerce is being replaced by M-commerce. Along with these advantages, m-commerce also has disadvantages like tiny screen of device, weak processors, limited memory, poor resolutions, poor data entry, lack of WAP-enabled devices, expensive data speed, shortage of bandwidth, etc.

Lately, Mobile commerce is taking Indian retail customers strongly. India is a big market for m-commerce with more than one-third of people owning smartphones shopping through mobile applications and it will expand more with penetration of online commerce in small villages and towns. This will create a completely new market for the m-commerce developers and companies in India. It turns out to be more and more important for organizations to change and adjust to these peculiarities to meet the customer's expectations and foster in accordance with the society.

While many of the customers are shopping online through their mobile phones, there is still scope for growth in terms of the frequency of online shopping as 44.4% of those surveyed said that they shop online only once or few times a year. Further, only 6.28% of respondents said that they shopped on their phones at least once a week.

## **II. Review of Literature**

Till date, many major e-commerce journals and several business journals have published special editions on the topic of e-commerce: the first edition on the e-Market in 2002, followed by *International E-Commerce Journal*, *DSS and Business Research Journal*, among others. Studies have shown, that the user interface features such as page and content design, are important aspects of online retail sales (Venkatesh, Ramesh & Massey 2003). In addition, Branki, Cross and Diaz (2008) take other key m-commerce issues that need to be addressed: collaboration, usability, security and privacy. Mobile users' perceptions and intentions to use e-commerce will be differentiated by changes in user demographics, purchase motivations, and media usage habits. Several factors are driving the growth of mobile commerce (hereinafter referred to as m-commerce). First, mobile Internet access has become easier and cheaper. Mobile devices such as smartphones and tablet PCs, which are designed to increase usability of the mobile Internet, have gained widespread popularity. Second, companies and retailers are increasingly considering m-commerce as a new venue for future growth; thus, their corresponding efforts are also lifting m-commerce. South Korea is the country with the fastest internet (Akamai 2015). Moreover, there is always a risk that there can be some network disturbance and as a result, different network conditions must be taken into consideration.

The commercial benefits of understanding and improving the usability of wireless communication, such as cell phones is very large. The user interface is the environment in which the user creates connections, create information search and transactions. To be successful in both e-commerce and m-commerce it is important for customers to see through the interface satisfies both their sensory and functional needs. However, m-commerce is facing a new wave challenge. Cell phones can provide access to many new programs; however, they are compelling limits such as small screens, limited screen resolutions and complex input method (Venkatesh, Ramesh & Massey 2003).

Usability is the ease of use and learning ability of manmade objects such as tools or devices. The object of use can be, for example, a software application, website, machine, or anything that a human can interact with (CTI reviews 2015). It is important for merchants, banks, payment service providers etc. to work together to manage the positive balance between creating a secure environment for users who make online payments on their mobile devices and at the same time maintain good user information (Srinivasan 2016). Postnord (2017) summarizes in their report that it is very important for companies to have a clear omnichannel strategy, which means that the customer should focus on the focus and should have the same information regardless of which channel they are passing.

### **Objectives of the study:**

- To study scope of m-commerce
- To study the factors influencing consumers while shopping through mobile phones
- To find out the m-commerce applications used by consumer
- To segment the mobile user based on different factors

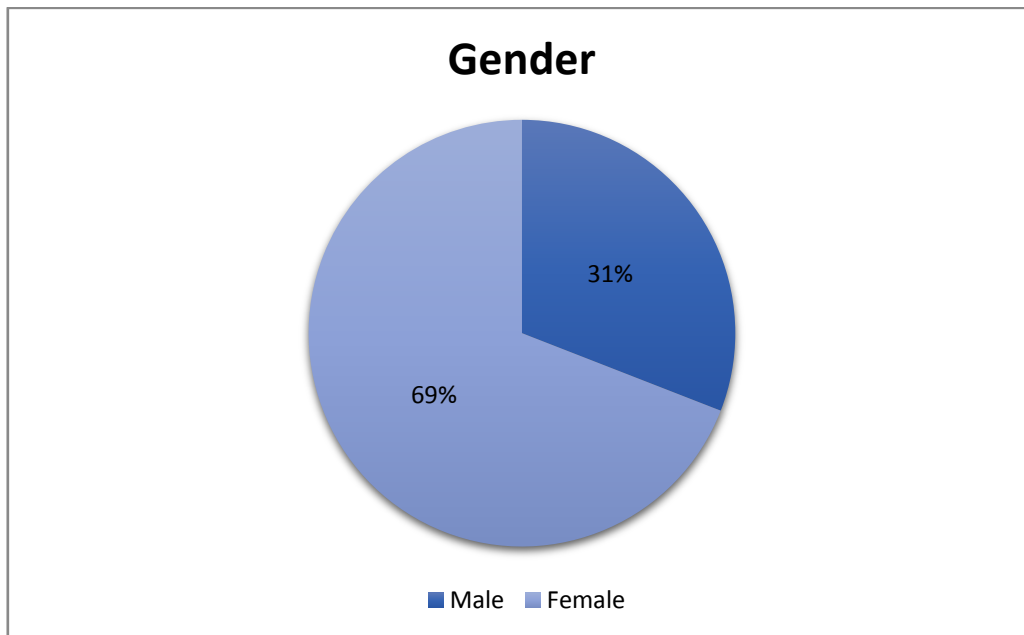
## **III. Methodology:**

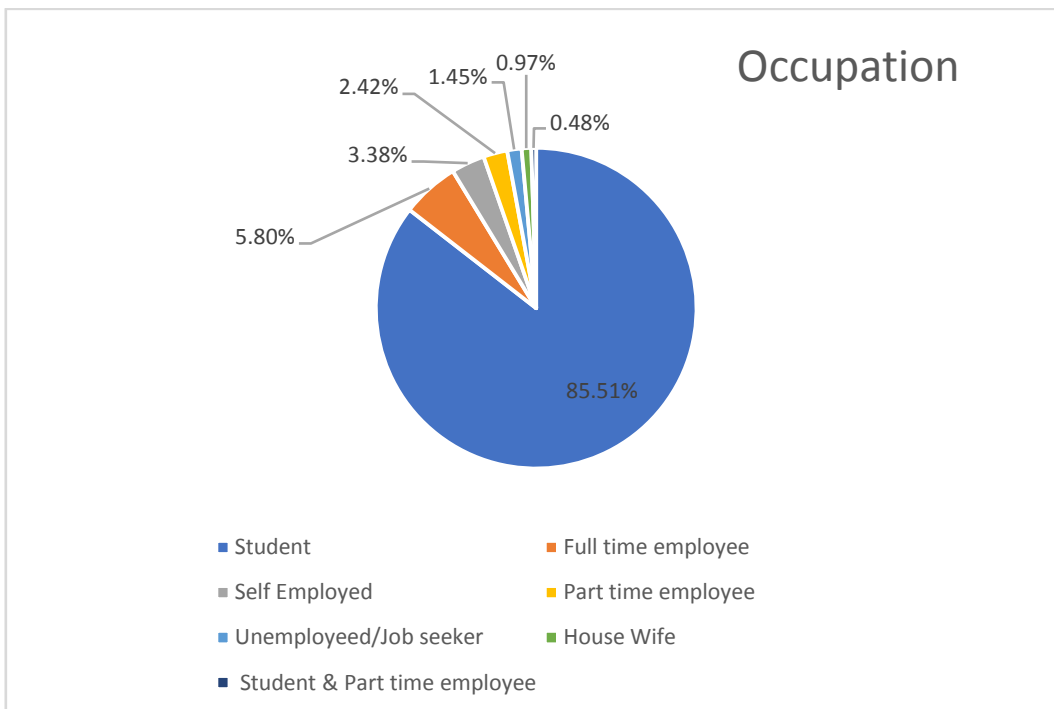
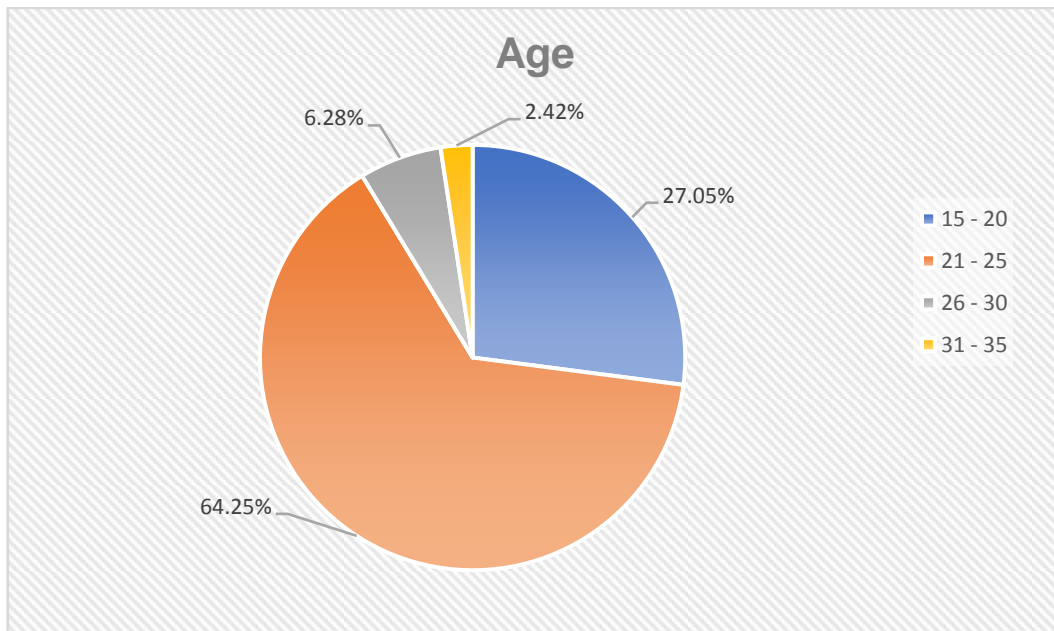
In order to fulfil the above objectives, a self-administered survey was conducted and the sampling unit consists consumers who are purchasing products/services online. In this study, survey research methodology was used and the questionnaire consisted of multiple-choice questions, checkbox question and matrix questions. For the purpose of analysis one way ANOVA test was conducted.

For the survey, we collected 207 responses summarized by percentage. The first three questions in the questionnaire were related to simple and basic respondent information including gender, age and occupation. Responses showed that the majority of respondents were females, who contributed 143 out of 207 responses. This makes up to 69.08% of all respondents. Meanwhile, out of 207 respondents, males provided 64 responses (30.92%).

In addition, respondents were divided into groups of four age groups ranging from 15 to 35 years. The majority of participants were in the 20-25 age group, participating in 133 out of 207 responses (64.25%). The next large age group of respondents were 15-20, 25-30 and 30-35. Continuing with the question about occupation, the respondents who were involved in the study were mainly students. The second largest group was made up of full-time employees, who then self-employed. From these results we can conclude that the average person who participated in this study was a female student between the ages of 20 and 25.

Respondents Segmentation		
	Count	Percent
Total Respondents	207	100%
Gender		
	Count	Percent
Male	64	30.92%
Female	143	69.08%
Age		
	Count	Percent
15-20	56	27.05%
21-25	133	64.25%
26-30	13	6.28%
31-35	5	2.42%
Occupation		
	Count	Percent
Student	177	85.51%
Full time Employee	12	5.80%
Self Employed	7	3.38%
Part time Employee	5	2.42%
Unemployed/ Job Seeker	3	1.45%
House Wife	2	0.96%
Student & Part time Employee	1	0.48%





**Analysis:**

According to Hair et al. (2010), ANOVA is a statistical technique for testing whether there is no significant difference between two or more population means. One-way ANOVA was used on collected data from questionnaire to find association in consumer's buying habits from mobile phones.

The result was Frequency of purchasing product online: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .384$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30-35) with respect to each other. Frequency of purchasing products online via mobile: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .159$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30-35) with respect to each other. Importance of feeling safe while shopping through mobile phones: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .246$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30-35) with respect to each other. Importance of ease

of use while shopping through mobile phones: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = 1.364$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Importance of good mobile application or website design: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Importance of having a good product image on mobile apps and websites: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .384$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Importance of being able to save/print a receipt of the purchase: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other.

Importance of good customer support: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Importance of fast loading time: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Importance of having a clear overview of shopping cart: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Probability of cancelling purchase via mobile if the page/ app is too slow: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Probability of cancelling purchase via mobile if the page/app contains too much information: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Probability of cancelling purchase via mobile if page/app does not have a clear go back button: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = .744$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 20 – 25, 25 – 30 & 30- 35) with respect to each other. Frequency of using mobile payment apps to pay while shopping online: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = 2.630$ ). An LSD post Hoc Test showed that there is no statistically significant difference between the means of age group (20 – 25, 25 – 30 & 30- 35) and the means of age group (15-20, 25-30, 30-35) with respect to each other.

However, there was a statistically significant difference between means of age groups 15-20 and 20-25. The reason behind this difference is that people from age group 20-25 have higher purchasing power and often engaged in online transactions so they prefer easy, fast and secure way of payment whereas people from age group 15-20 do not have much requirements. Frequency of using mobile payment apps to pay while shopping physically: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = 4.475$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (20 – 25, 25 – 30 & 30- 35) and the means of age group (15-20, 25-30, 30-35) with respect to each other. However, there was a statistically significant difference between means of age groups 15-20 and 20-25. Because people from age group 20-25 are more financially independent and are willing to spend but finds it inconvenient to carry cash everywhere and they don't want to depend on cash when they can access more platforms for monetary transactions.

Since when people started using m-commerce app or shopped via mobile phone: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = 2.810$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (20 – 25, 25 – 30 & 30- 35) and the means of age group (15-20, 25-30) with respect to each other. However, there was a statistically significant difference between means of age groups (15-20 and 20-25), (15-20 and 30-35). The younger generation from age group 15-20 does not have much dependency on M-commerce application and their requirements are less and they are having less knowledge about m-commerce applications in comparison to other age groups as the people from age group 20-25 and 30-35 have higher performance expectancy, effort expectancy and knowledge about m-commerce applications.

Frequency of time people respond to mobile apps marketing communication: There was a statistically significant difference between means of age as demonstrated by One-Way ANOVA ( $F(3,203) = 1.927$ ). An LSD post Hoc Test showed that there is no statistically significant difference between means of age group (15 – 20, 25 – 30 & 30- 35) and the means of age group (20-25, 15-20, 30-35) with respect to each other. However, there was a statistically significant difference between means of age groups 20-25 and 25-30. Because people from age group 20-25 are more active on m-commerce platforms due to social influence. They tend to follow latest trends and are easily attracted to marketing efforts or offers provided by businesses whereas people from age group 25-30 are more careful and consider various risks that come with it.

Our survey found that the most important thing when shopping over the phone was not something practical but security. In question 11 “how important the following points are if you shop via mobile phones”, the option to make the app or mobile website “feel safe to use” holds responses with 36.23% of respondents who choose this method “very important”.

Our survey reinforces the theoretical background of the value of useful materials in m-commerce. Although our survey demonstrates the importance of some features, it is proven by research that usability is among the determining factors when it comes to customer information for an app or mobile website. Usability is often a determining factor in whether a customer chooses to go through a purchase or not. The theory section further shows that most advanced applications and mobile websites do not achieve the desired results and often fail. Developers often fail to make it easier for the customer to navigate the site or application and cause frustration as purchasing takes more time and energy than it should.

Although useful features are very important to consider when building m-commerce mobile applications, data collected from research still indicates that security is the most important factor for respondents. What makes a user feel like a website is safe to use can depend on many factors. In the theoretical section one thing was discussed which was the level of error. It is very important that there are a few mistakes and if there are any how easy it is to recover from the mistakes. Also, in order to build a good user experience there must be error resolution and one of the first requirements to meet the needs of the customer, without suffering or worry. Another explanation for the “feel safe to use” question is that the user is concerned about personal information that the user may share in order to make a purchase. It is very important that the mobile app or site ensures that user data is kept secure as mobile devices today contain a lot of personal and sensitive information.

#### **IV. Discussion**

The purpose of this study was to find out what the best m-commerce items are from a usability theory and emphasized the importance of different functional properties affecting customers when shopping online on mobile phones. As a result of this research we found that the importance of incorporating practical thinking into mobile development sites and applications cannot be ignored. Usability of programs is an important factor if so it comes down to the customer's decision to buy a mobile or not.

Almost all of the respondents in our study had access to a computer and everything respondents were able to access the mobile phone. As mentioned, it may be an important step for companies using m-commerce; Is it possible most importantly for them, to develop m-commerce mobile applications in the right way. There are many things to keep in mind when we are developing mobile apps or sites which supports mobile trading, and usability is one of the most important factors.

First, companies need to see that there is a difference between improving applications for computers and cell phones. Cell phones have brought new challenges when creating good user experience and usability. Users of portable devices have never been arrested one area where you interact with applications and wireless network connectivity speed can be difficult to control. There is a limit to processing power, memory, energy and so on input methods. The maximum computer bandwidth provided is no longer available challenge to apply within a very small screen.

The results of our survey showed that most respondents believed that they were too young to purchase anything online. The screen size of mobile phones became a challenge when shopping by phone. Always the feature and function in the target system or mobile site needs to be reconsidered. It is important to adjust the information and layout, so it fits the size of the small mobile screen phone to make usability easier.

We mentioned that our result showed that the security of m-commerce was great it is important for respondents. However, there is not always a clear distinction between and various important issues in m-commerce. For example, two issues of usability and security may go away we hold hands in many cases. What users consider important on a mobile site can be related to safety features. If there are good and clear pictures of the product, they can provide a customer's sense of security when they see what the product looks like and can order product. It reduces the risk of buying a pig in a sack and the customer may feel safe when buying products online rather than what they would have done if there were low quality or no picture at all.



In the case of clear cart control before shipping, it may be considered for safety reasons because the consumer may wish to review the appropriate products in the cart before completing the purchase. But it can also be seen from a user-friendly perspective as the user may want to view all the details to make it as fast and smooth as possible if finish the purchase without getting tired and leave the site before you finish to buy.

## V. Conclusion

People's interest in using m-commerce applications have been increasing. This study aims to understand youth's perception of m-commerce and to find out the factors that affect the customer's decision of using m-commerce.

According to the results, different factors like security, accessibility and customer support are of great importance to customers while shopping through m-commerce applications and can affect their decision to make a purchase or cancel it. While people prefer m-commerce because it is fast, accessible and easy to use; there are factors like slow speed, too much information, lack of a clear go back button and low-quality product images that can make consumers cancel their purchase. Although the importance of different factors varies, they should not be ignored by website developers and businesses while building m-commerce applications.

It is shown that many people prefer shopping through laptops or computers because the webpages on mobile phone appear too different from how they appear on computers. This is because some companies do not consider making mobile-friendly websites and just replicate the web pages from computers or they completely change the layout of the web pages on mobile phones, making them appear different from desktop versions. Companies should consider that the website layout on both platforms does not vary too much and customers can easily navigate through it.

Companies should consider content quality while building mobile applications and include usability factors to increase customer satisfaction. In addition, the security issues regarding mobile applications should be addressed properly as most of the respondents feel that safety is the most important factor that they look for while performing m-commerce.

## References

- [1]. Amit R., Zott C., "Value creation in E-business", *Strategic Management Journal*, Vol. 22, pp. 493-520, 2001.
- [2]. Akamai (2015). State of the internet Q4 2015 report. <https://www.akamai.com/us/en/multimedia/documents/content/state-of-the-internet/q4-2015-state-of-the-internet-connectivity-report-us.pdf>
- [3]. Branki, C., Cross, B. & Diaz, G. (2008). *Techniques and Applications for Mobile Commerce*. IOS Press, pp.vii. ISBN: 9781607503026
- [4]. Chirico Willstedt, G. & Snellman, V. (2016). *Företagenochdigitaliseringen*. Svenskt
- [5]. Clarke III I., "Emerging value propositions for M-commerce", *Journal of Business Strategies*, Vol. 18 (2), pp. 133-149, 2001 (Fall).
- [6]. CTI reviews (2015). *Fundamentals of Mobile Marketing, Theories and practices*. Cram101 Textbook Reviews. ISBN: 9781497030060
- [7]. Davidsson, P. & Findahl, O. (2016). *Svenskarnaoch internet 2016 – Undersökning om svenskarnasinternetvanor*. Stockholm: Internetstiftelsen i Sverige. [https://www.iis.se/docs/Svenskarna\\_och\\_internet\\_2016.pdf](https://www.iis.se/docs/Svenskarna_och_internet_2016.pdf)
- [8]. Mahatanankoon P., Wen H. J., Lim B., "Consumer-based m-commerce: exploring consumer perception of mobile applications", *Computer Standards & Interfaces*, Vol. 27, pp. 347-357, 2005.
- [9]. May P., "Mobile Commerce: Opportunities, Applications, and Technologies of Wireless Business", Cambridge University Press, 2001.
- [10]. Harrison et al. (2013). Usability of mobile applications: literature review and rationale for anew usability model. *Journal of Interaction Science* 2013 1:1. DOI: 10.1186/2194-0827-1-1
- [11]. Heaney, J. (n.d.) Impact of e-Commerce and m-Commerce on Consumer Privacy and Fraud. <https://study.com/academy/lesson/threats-to-e-commerce-and-m-commerce.html> [2017-12-07]
- [12]. Kounelis, I. (2015). *Secure and trusted mobile commerce system based on virtual currencies*. Doctoral Thesis in Information and Communication Technology. Stockholm: Royal Institute of Technology. <https://www.diva-portal.org/smash/get/diva2:811902/FULLTEXT01.pdf>
- [13]. Laudon, K.C. & Laudon, J.P. (2014). *Management Information Systems: Managing theDigital Firm*. 13.ed., Pearson Education Limited. ISBN: 9780133050691
- [14]. Lerner, T. (2013). *Mobile Payment*. Wiesbaden: Springer Fachmedien Wiesbaden. ISBN:9783658032517
- [15]. Mendoza, A. (2013) *Mobile User Experience : Patterns to Make Sense of it All*. United States:Elsevier Science Technology, pp. 8. ISBN-13: 9780124114906
- [16]. Näringsliv. [https://www.svensktnaringsliv.se/migration\\_catalog/Rapporter\\_och\\_opinionsmaterial/Rapporter/foretagen-o-digitaliseringenpdf\\_648145.html/BINARY/F%C3%B6retagen%20o%20digitaliseringen.pdf](https://www.svensktnaringsliv.se/migration_catalog/Rapporter_och_opinionsmaterial/Rapporter/foretagen-o-digitaliseringenpdf_648145.html/BINARY/F%C3%B6retagen%20o%20digitaliseringen.pdf)
- [17]. Norman, S. (2002). *M-commerce technologies, services, and business models*. New York: John Wiley & Sons, pp. 1-31. ISBN: 9780471456575
- [18]. Pedersen P.E., Methlie L.B., Thorbjørnsen H., "Understanding mobile commerce end-user adoption: a triangulation perspective and suggestions for an exploratory service evaluation framework", *Proceedings of the 35th Annual Hawaii International Conference on System Sciences (HICSS-35)*, Big Island, Hawaii, January 7–10, IEEE Computer Society Press, Los Alamitos, 2002.
- [19]. Postnord. (2017). *E-handeln i Norden 2017*. Stockholm: Postnord. <http://pages.postnord.com/rs/184-XFT-949/images/e-handeln-i-norden-2017.pdf> [2017-09-18]
- [20]. Recker, J. (2012). *Scientific Research in Information Systems: A Beginner's Guide*. Berlin, Heidelberg: Springer Berlin Heidelberg. ISBN: 9783642300486
- [21]. Robson, C. & McCartan, K. (2016). *Real world research: a resource for users of socialresearch methods in applied settings*. 4.ed. Hoboken: Wiley. ISBN: 9781118745236

- [22]. Rosson, M. B., & Carroll, J. M. (2002). Usability Engineering: Scenario-based development of human-computer interaction. San Francisco, CA: Morgan Kaufmann. ISBN: 1558607129
- [23]. Rowley J., "Product Search in E-shopping: a review and research propositions", Journal of Consumer Marketing, Vol.17 (1), pp. 20- 35, 2000.
- [24]. Saunders, M., Lewis, P. & Thornhill, A. (2009). Research methods for business students. 5<sup>th</sup>ed. Harlow: Financial Times Prentice Hall, pp.354-402. ISBN: 9780273716860
- [25]. Srinivasan, S. (2016). The State of Security for Mobile Commerce. Nexmo. <https://www.nexmo.com/blog/2016/02/17/the-state-of-security-for-mobile-commerce/> [2017-12-07]
- [26]. Urbaczewski A., Wells J., Suprateek S., Koivisto M., "Exploring cultural differences as a means for understanding the global mobile internet: a theoretical basis and program of research", Proceedings of the 35<sup>th</sup> Hawaii International Conference on System Sciences (HICSS-35), Big Island, Hawaii, January 7-10, IEEE Computer Society Press, Los Alamitos, 2002.
- [27]. Vanhoose, D. (2011). eCommerce Economics. 2.ed., London: Taylor and Francis, pp. 1- 30. ISBN:9780203830369 <https://ebookcentral.proquest.com/lib/boras-ebooks/reader.action?docID=668834&query>
- [28]. Venkatesh V., Brown S.A., "A longitudinal investigation of personal computers in homes: adoption determinants and emerging challenges", MIS Quarterly, Vol. 25 (1), pp. 71-102, 2001.
- [29]. Venkatesh, V., Ramesh, V. & Massey, A. (2003). Understanding usability in mobile commerce. Communications of the ACM – Mobile computing opportunities and challenges. Volume 46 Issue 12, pp. 53- 56. <http://jpkc.fudan.edu.cn/picture/article/217/57/89/b0edb649422587f87d5e7abbb80c/12d98ba9-6b86-4a0f-8763-4915201f76d9.pdf>
- [30]. Wen J., Mahatanankoon P., "M-commerce operation modes and applications", International Journal of Electronic Business, Vol. 2 (3) pp.301-315, 2004 (May–June).
- [31]. Zhang, D., & Adipat, B. (2005). Challenges, methodologies, and issues in the usability testing of mobile applications. International Journal of Human-Computer. [https://doi-org.lib.costello.pub.lb.se/10.1207/s15327590ijhc1803\\_3](https://doi-org.lib.costello.pub.lb.se/10.1207/s15327590ijhc1803_3)
- [32]. Zwass, V. (2017). E-commerce. Britannica Academic. <http://academic.eb.com.lib.costello.pub.lb.se/levels/collegiate/article/e-commerce/126084>