Cronfa - Swansea University Open Access Repository

What do we know about consumer m-shopping behaviour?

Hannah R. Marriott

School of Management, Swansea University, Swansea, United Kingdom

Michael D. Williams

School of Management, Swansea University, Swansea, United Kingdom

Yogesh K. Dwivedi

School of Management, Swansea University, Swansea, United Kingdom

About the authors

Hannah Marriott received her MSc in Business Management from Swansea University (UK) and is currently a PhD candidate at the same University. Marriott's interests are in electronic and mobile commerce in the retail environment with focus on consumer behaviours. Hannah Marriott is the corresponding author and can be contacted at: 632527@swansea.ac.uk.

Michael Williams is a Professor (Personal Chair) in the School of Management, Swansea University (UK). Williams has an academic and professional background in computer science with previous experience in both private and public sectors with firms including British Telecom, Standard Chartered, and Canon. His research interests are in two pillars of data science, being domains and analytics.

Yogesh Dwivedi is a Professor in the School of Management, Swansea University (UK). His research interests are in the area of Information Systems (IS) including analysis of usage trends of IS theories and research approaches in areas such as e-commerce, e-government, m-commerce, m-payments and m-government

Abstract

Purpose – This paper provides a review of mobile shopping (m-shopping) acceptance literature to bring international marketing and consumer research attention to m-shopping acceptance factors and limitations in current understandings to propose recommendations for further academic and retailing attention.

Design/methodology – Keyword searches identified consumer-focused literature across mobile commerce, mobile shopping, mobile browsing, and mobile purchasing, published in English language journals. A classification framework is created and a time frame established to provide more focused direction for research.

Findings – Despite the growing popularity of consumers adopting m-shopping activities and the increasing academic attention, consumer m-shopping utilisation remains low and research into its causes remains in its infancy. This paper has subsequently identified a variety of recommendations for further research, including further insights into perceived risk, user vs non-user behaviours, the multi-stage shopping process, incorporation of time considerations and theoretical development.

Originality/value – There has yet been a review of m-shopping literature collaborating literary findings and limitations in the consumer m-shopping environment. Three major themes arise in this paper. First, there are a variety of factors affecting consumer willingness to accept m-shopping which are often incorporated in existing theory in a sporadic manner. Second, factors can create positive and/or negative consumer perceptions, requiring further insight. Finally, research limitations predominantly surround theoretical and methodological constraints, prompting for wider geographical and more longitudinal approaches to research.

Keywords Consumer behaviour, mobile shopping, m-shopping, acceptance, mobile devices

Paper type Literature Review

1. Introduction

Smartphones are the new generation of mobile phone with an operating system allowing for an array of computer functions (Persaud and Azhar, 2012; Matthews *et al.*, 2009) and provides consumers with supplementary convenience and comfort when using them for online shopping (Bouwman *et al.*, 2009). Mobile shopping (m-shopping) has been in existence for 14 years; the first study exploring differences between traditional technology and mobile commerce (m-commerce) technology adoption behaviour conducted in 2002 (see Pedersen *et al.*, 2002). However, m-shopping has only recently become the most contemporary alternative approach for searching, browsing, comparing, and purchasing products and services on the Internet (Groß, 2014; Holmes *et al.*, 2014; Lu and Su, 2009; Yang and Kim, 2012).

Many successful online companies have created mobile apps and mobile-compatible websites to accommodate for this expanding market, such as Amazon, eBay, Argos, and Auto Trader, and have developed effective business strategies and marketing techniques as a result (Milnes, 2015). Implementation of m-shopping within business strategies provides consumers with an additional shopping platform and increases the likelihood of initial interest and subsequent revenue. Practitioners have stressed the importance of understanding consumer behaviour in marketing as it is critical for the successful management and development of m-shopping in the retail industry (Hung *et al.*, 2012).

Despite increased functionality and convenience of mobile devices and successful practitioner implementation of m-shopping systems, m-shopping remains the least preferable means of online shopping and maintains a relatively low consumer adoption rate (Heinemann and Schwarzl, 2010). It therefore becomes questionable as to why consumers choose to, or choose not to, adopt m-shopping activities. Due to the infancy of m-shopping literature, practical and theoretical understanding remains limited, prompting for a more systematic and focussed examination of recommendations for further research.

The aim of this research is to gain an accurate understanding into the current situation regarding consumer m-shopping acceptance behaviour literature surrounding what factors have been explored in literature, and which are considered the most significant predictors of m-shopping intention, alongside what limitations remain unresolved. This requires the development of an appropriate classification framework to identify consumer-based m-shopping literature, an examination into research approaches and theoretical developments, and analysis into methodological, contextual, and theoretical constrains. Through examination into common considerations and limitations, a more accurate understanding into current consumer m-shopping acceptance willingness can be achieved and further scopes for research be addressed. Understanding the current literary situation not only enhances theoretical developments but also provides international marketers with greater appreciation for their consumers' attitudes and behaviours and recommendations for marketing opportunities.

This review, firstly, identifies the approach to the review and provides a definition of 'm-shopping'. It then identifies various m-shopping acceptance factors that have both positive direct effects on consumer behaviour and negative implications. These factors are categorised as follows; product category impact, personality variables, self-efficacy, technology cluster, attitude, innovativeness, impulsivity, satisfaction, subjective norms, and demographics. Key

findings and limitations will then be discussed and scope for further research identified, followed by conclusion and limitations.

2. Scope of the literature review

The purpose of this review is to provide a comprehensive review of literature examining consumer m-shopping acceptance behaviour, requiring insight into m-commerce, mobile purchasing (m-purchasing), mobile browsing (m-browsing) and m-shopping. Although literature reviews examining m-shopping acceptance have been published, for example Groß (2015), this review examines literature findings with the aim to identify common themes in research findings. As far as the authors are aware, no literature review has compiled m-shopping research across multiple stages of the shopping process nor identified common findings and limitations across literature.

Through development of a classification framework, two m-shopping contexts have arisen in literature, one being consumer focused with the other concerning systems development. Attention has subsequently focussed on the consumer acceptance of m-shopping, with no significant investigation into systems development literature. In establishing a literary scope, focus turns to establishing themes and trends in literature surrounding findings and limitations. This approach is necessary in fully identifying what has been achieved in current literature and what is further required to enrich understanding in this research area.

3. Definition of m-shopping

In accordance with the definitions outlined in Table I, m-shopping requires insight into the entire consumer purchasing process, including preliminary m-shopping stages such as m-browsing, and the final purchasing stage. Practitioners stress the importance of understanding consumer behaviour in marketing as it is critical for the successful management and development of m-shopping in the retail industry (Hung *et al.*, 2012).

For the purpose of this research, m-shopping can be defined as being the online searching, browsing, comparing and purchasing of goods and services by consumers through wireless handheld, or mobile, devices; in particular, Smartphones and Tablets (as adapted from Chong, 2013b; Groß, 2014). This definition has been adapted to primarily concern business-

to-consumer consumption relationships, as well as those concerning consumer-to-consumer; consumer behaviour is at the baseline of this research with the consumer being the target subject within this definition.

[Insert Table I about here]

4. Literature review method

4.1 Literature Search

The majority of articles in this review are published in major Information Systems and Marketing journals and were identified through undergoing keyword searches using *Google Scholar*, *EBSCO Business Source Complete* and journal websites. Keyword searches comprised of common terms such as "mobile shopping", "m-shopping", "mobile browsing", "mobile purchasing", "consumer behaviour" and "acceptance", applied in various algorithms to suit specific research aims.

Despite literature emerging in the late 1990s, academic interest in m-commerce primarily began in 2003; therefore, to provide a more concise approach to the volume of mobile-related literature, this review considers only mobile related literature published after 2003. However, much of the literature published between 2003 and 2008 concern use of mobile devices to conduct in SMS-based transactions; as this review aims to analyse online shopping on mobile devices, only literature in this period are considered in this review if concerning online shopping on mobile devices. As Internet-enabled mobile devices were developed in 2007, most literature included in this review are post-2007. Therefore, this review examines m-shopping related literature over a 13-year period.

4.2 Descriptive analysis of identified journal articles

Table II presents a list of journals with two or more mobile related articles; mobile related articles include those relating to m-commerce and m-services in their broad terms as well as its sub-sections, being m-Internet, m-payments, m-banking, m-purchasing, m-browsing and m-shopping. Table II incorporates both quantitative and qualitative research but does not include

published conference proceedings. Furthermore, the table only includes articles published post-2002, due to the development of 3G in the early 2000's, with many articles being published post-2006, due to the development and worldwide adoption of new smartphone devices in 2006-2007, such as Blackberry, iPhone, Windows and Android. Table III displays the list of journals directly relating to m-shopping, m-browsing and m-purchasing literature. Both Table II and Table III display Journals with two or more relevant publications and refer to the number of other Journals having published only one relevant article.

[Insert Table II about here]

[Insert Table III about here]

4.3 Classification framework

Technology acceptance literature has primarily considered consumer acceptance behaviour surrounding e-commerce and m-commerce, and their various services independently. The development of a classification framework (Figure 1) allows for a comprehensive understanding of the breadth of literature across the m-shopping environment and provides understanding into areas requiring further academic attention. Figure 2 draws attention to the number of m-shopping articles related to other areas of interest since 2002; consumer behaviour related articles are categorised as 'mobile distribution channel', as adapted from Groß (2015). Figure 1 and Figure 2 reveal that most literature relates to consumer perspectives, contributing 60% of published literature, which can be predicted to increase based on yearly trends. Although this suggests consumer consideration in m-shopping to be a well-researched area, many research gaps have yet been filled.

The mobile distribution channel concerns consumer behaviours regarding technology acceptance and adaptation of m-shopping. This category has been adapted from Groß (2015), whereby the online distribution channel category concerned literature surrounding consumer behaviour. However, this classification framework has drawn on four consumer-related contexts, being general shopping, mobile marketing, mobile coupons, and fashion. General shopping refers to all literature examining non-specific m-shopping acceptance behaviour and constitutes much of the literature examining consumer behaviour. Figure 2 displays the annual

distribution of published articles surrounding m-shopping and reveals a growing trend in the number of m-shopping related articles in the mobile distribution channel from 2012.

[Insert Figure 1 about here]

[Insert Figure 2 about here]

The body of literature regarding m-commerce acceptance is primary seen in China (Chong *et al.*, 2012; Chong, 2013a; Chong, 2013b; Chong, 2013c; Min *et al.*, 2009; Zhang *et al.*, 2012; Zhou, 2013), Jordan (Al-Louzi and Iss, 2011; Faqih and Jaradat, 2015; Jaradat and Rababaa, 2013; Nassuora, 2013) and USA (Dai and Palvia, 2008, 2009; Dholakia and Dholakia, 2004; Hwang, 2010; Kim *et al.*, 2009a; Mahatanankoon *et al.*, 2005). Other literature in this field is occasionally seen from Canada (Coursaris and Hassanein, 2002; Cyr *et al.*, 2006), Taiwan (Hung *et al.*, 2003; Wang and Liao, 2007), Malaysia (Sreenivasan and Noor, 2010; Wei *et al.*, 2009) and Spain (Bigné *et al.*, 2007) with no significant acceptance research being conducted solely in the UK (Harris *et al.*, 2005; Su and Adams, 2004).

The majority of literature surrounding m-shopping has been seen in Spain (Aldás-Manzano *et al.*, 2009; Bigné *et al.*, 2005, 2007; San-Martin and Lopéz-Catalán, 2013; San-Martin *et al.*, 2013), Taiwan (Chen, 2013c; Hung *et al.*, 2012; Jih, 2007; Jih *et al.*, 2003; Lai *et al.*, 2012; Lu and Su, 2009; Wu and Wang, 2006), USA (Hahn and Kim, 2013; Kim *et al.*, 2009b; Ozok and Wei, 2010; Taylor and Levin, 2014; Yang, 2010, 2012, 2015; Yang and Kim, 2012) and in Germany (Barnes *et al.*, 2007; Groß, 2014; Singh *et al.*, 2006). Few other studies have taken place in France (Agrebi and Jallais, 2015) and Canada (Hillman *et al.*, 2012; Mahmoud and Yu, 2006), with only one from the UK (Holmes *et al.*, 2014).

Figure 3 depicts the geographical origins of articles relating to the mobile distribution channel and reveals many articles originating from Asia and USA. The increased academic interest in consumer behaviour surrounding m-shopping, the limited contextual scope of literature originating from the UK and the heightened recommendations for further work (e.g. Agrebi and Jallais, 2015; Groß, 2015; Holmes *et al.*, 2014) suggests an inherent requirement for further research in this area.

[Insert Figure 3 about here]

5. Overview of existing literature

To obtain an in-depth view of current understandings of m-shopping acceptance behaviour, this review comprises of theoretical and practical insight across m-commerce and m-shopping related literature surrounding the mobile distribution channel. This section of the paper draws on overviews of existing literature in relation to four themes; (1) research findings, (2) approaches to literature, (3) theoretical constraints, and (4) methodological constraints.

The first step in this review comprised of an initial analysis of the objectives, methodologies, key findings, theoretical contributions, and limitations within existing literature. As many m-shopping research aims to expand understanding into what factors contribute to overall consumer m-shopping acceptance behaviour, literature has revealed a vast variety of influential factors. Table IV displays factors explored in more than two journal articles relating to consumer acceptance of m-browsing, m-purchasing and m-shopping acceptance behaviour, and key research findings.

[Insert Table IV about here]

As seen in Table IV, most exploratory research focuses on extending existing theoretical models to incorporate a variety of additional antecedents to predict behavioural intention or use behaviour. Factors of high significance have been segregated into the following categories; geographical significance, attitude, experience, self-efficacy, product category impact, impulsivity, social influence, and demographics. Although these have been outlined as primary m-shopping acceptance factors, a theme exists whereby factors work simultaneously and collaboratively with each other and have varying influential effects on consumer behaviour.

The current models that have been utilised in m-shopping research are the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Theory of Planned Behaviour (TPB) (Ajzen, 1991), the Technology Acceptance Model (TAM) (Davis *et al.*, 1989), the Diffusion

of Innovation (DOI) theory (Rogers, 2003), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003). Of these models, TAM is the most frequently adopted theoretical model with over 44% of studies utilising it (Marriott *et al.*, 2016), with UTAUT being the least frequently adopted model. However, those adopting TAM have drawn attention to its limitations as having reached saturation point; as TAM has been frequently extended to varying degrees, literature makes recommendations to either integrate TAM factors into other theoretical models or to adopt different models to better enhance understanding in this area (e.g. San-Martin *et al.*, 2013; Taylor and Levin, 2014). UTAUT, established in 2003 (Venkatesh *et al.*, 2003) incorporates TAM in including 'performance expectancy' and 'effort expectancy', alongside 'social influence', and 'facilitating conditions', modified by age, gender, experience, and voluntariness of use, all of which having significant effect on behavioural intention. Although the application of UTAUT is increasing, its extension of UTAUT2, established in 2012 (Venkatesh *et al.*, 2012), which incorporates additional factors of 'hedonic motivation', 'price value', and 'habit', is considered a more appropriate theoretical basis as it applies TAM alongside other social-focused models within a voluntary setting (Venkatesh *et al.*, 2012). It is therefore appropriate to recommend the utilisation of UTAUT2 in future m-shopping research, due to its contemporary and comprehensive nature.

It is commonplace throughout literature that research limitations derive from empirical, rather than theoretical, constrains. M-shopping literature draws awareness to limitations surrounding data collection methods (Groß, 2014; Hillman *et al.*, 2012; Wang *et al.*, 2015), the size of their samples (Chen, 2013a; Chen, 2013b; Wu and Wang, 2006; Yang and Kim, 2012), sample characteristics (Yang, 2010, 2012; Yang and Kim, 2012), and geographical origins of collected data (Groß, 2014; Yang and Kim, 2012; Zhou, 2013). Most empirical results derive from samples primarily comprising of University students, resulting in a lack sufficient age varieties within samples (Groß, 2014; Yang, 2010; Yang and Kim, 2012; Yang and Forney, 2013). In addition, most m-shopping research originates from Asia (Chen, 2013c; Hung *et al.*, 2012; Lu and Su, 2009; Wu and Wang, 2006; Yang, 2015; Yang *et al.*, 2008; Zhou, 2013) and USA (Hahn and Kim, 2013; Ozok and Wei, 2010; Taylor and Levin, 2014; Yang, 2010; Yang and Kim, 2012; Yang and Forney, 2013; Wang *et al.*, 2015), limiting the applicability of findings to the UK.

M-shopping research often refers to ways in which such methodological limitations can be overcome in future research and draw on two main recommendations relating to time and research methods. In relation to research methods, researchers have praised the notion of future

research in m-shopping adopting a more qualitative or experimental approach to data collection (e.g. Agrebi and Jallais, 2015; Groß, 2014; Ko *et al.*, 2009; San-Martin *et al.*, 2013). Allowing for a more qualitative approach to research methods may further enhance understanding into what factors influence m-shopping acceptance behaviour and further aid in the explanations of 'why' certain factors affect decisions. Regarding time in data collection, studies have addressed limitations surrounding data representing a snap-shot in time, potentially limiting understanding into a more long-term idea of m-shopping acceptance behaviour (Yang and Forney, 2013); this is especially relevant for research examining time dimensions, such as experience (e.g. Yang, 2010, 2012).

6. Discussion and scope for further research

Through analysing literature across the m-shopping environment, various themes have arisen surrounding research findings, theoretical developments, and methodological constraints. Due to various limitations throughout literature, potential scopes for further work have emerged. This section draws attention to recommendations for further research surrounding incorporation of risk-related research, adopting a multi-stage lens, examining differences between user and non-user adoption intentions, adopting a more longitudinal outlook on acceptance, conducting in geographical comparisons, and theoretical developments.

Unlike other mobile-related research, m-shopping literature has seldom examined the effect of perceived risk on acceptance behaviour, with only one article addressing 'perceived risk' (Wong *et al.*, 2012), two articles addressing privacy and security concerns (see Gao *et al.*, 2015; Wu and Wang, 2006), and two articles examining anxiety (see Lu and Su, 2009; Yang and Forney, 2013). These articles highlight the significance of understanding the potential negative effects of perceived or experienced risks associated with m-shopping. However, findings are limited according to how risk is examined; for example, Wong *et al.* (2012) examine risk in a direct relationship with intention whereas Yang and Forney (2013) examine anxiety as a moderating effect to intention. Furthermore, most risk-based observations are examined in relation to issues with vendor trust and issues with financial/payment information disclosure, with no inclusion of a multi-dimensional perspective. Despite developments in m-shopping literature through the introduction of the prospect of risk, literature remains in its infancy in this respect, requiring further research to identify what types of risk are the most influential on overall consumer m-shopping acceptance behaviour (e.g. Ha and Im, 2014; San-

Martin *et al.*, 2013; Taylor, 2015). In understanding what types of risk are the most significant deterrents of m-shopping acceptance, organisations can more effectively market m-shopping according to consumer assurance requirements; for example, if consumers fear that m-shopping is a more time-consuming means of online shopping, retailers can either develop more time-efficient, or simple, m-shopping systems, or market existing systems in a more effective way to draw greater attention to its convenient nature and encourage consumer utilisation.

Although some literature has emerged from m-browsing (e.g. Broeckelmann and Groeppel-Klein, 2008; Ono *et al.*, 2012) and m-purchasing (e.g. Gao *et al.*, 2015; Taylor and Levin, 2014) perspectives, it is a commonplace for m-shopping related literature to consider the various stages of m-shopping in a one-dimensional manner. As defined in this paper, m-shopping is defined as the online searching, browsing, comparing, and purchasing of goods and services by consumers through wireless (handheld) mobile devices; it can therefore be recommended for further research to consider acceptance factors across the m-shopping process, from the initial searching stage to the final purchasing stage (Groß. 2015). As there is only one article exploring m-shopping as a multi-stage process (see Holmes *et al.*, 2014), it is appropriate to recommend further examination into the multi-stage decision-making process; doing so has the potential to offer more accurate practical and theoretical insights into where in the decision-making process consumers are most comfortable with m-shopping and where they are least confident. In establishing such, organisations can more effectively target what m-shopping systems require attention and developments to comply with consumer reservations. For example, if consumers are less familiar and more sceptical or uncertain about m-shopping payment procedures, retailers can concentrate on making the payment process easier and market such developments to consumers.

Despite research suggesting that mobile device users are more likely to develop positive attitudes towards m-shopping, only one article examines differing attitudes between users and non-users (e.g. Agrebi and Jallais, 2015; San-Martin *et al.*, 2013); however, these articles consider 'users' as consumers who have purchased using mobile devices at least once, which can provide inconsistent results between 'users' attitudes. Future work can more clearly specify an appropriate measurement tool for how much experience is appropriate to consider an individual as a mobile device or shopping 'user' (Bigné *et al.*, 2005; Bigné *et al.*, 2009); qualitative research can specifically examine the amount of time, frequency of use, activities and overall experience consumers require to consider themselves 'users'. Accordingly, further work can undergo comparison research between both Internet and mobile users and non-users

m-shopping attitude generation to categorise 'likely' and 'non-likely' m-shopping adopters. In establishing discrepancies between user and non-user behaviours, retail marketers can more effectively target potential m-shopping consumers to an encouraging degree. Furthermore, this can better advise which type of consumer to avoid targeting, being the 'unlikely' adopters, as doing so could be portrayed as pestering, which could generate negative repercussions on organisation reputation.

Technology acceptance research has drawn attention to the prospect of consumer resistance to adopt new technologies or services whereby consumers decide not to adopt it at a particular point in time but are typically more willing to do so when the technology becomes more mainstream (e.g Kleijnen *et al.*, 2009). Accordingly, research has seen merit in conducting more longitudinal approaches to data collection to account for the significance of time dimension on the consumer decision making process (Yang and Kim, 2012; Zhou, 2013). Research has also drawn on the importance of understanding occurring differences in behaviour over time (e.g. San-Martin *et al.*, 2013), such as comparing m-browsing and m-purchasing behaviours, user vs non-user behaviours, and whether risk perceptions increase or decrease over time. Therefore, longitudinal examination into acceptance behaviour will offer further understanding into adoption trends over time, of which findings will be of high theoretical and practical significance. A more time-conscious lens is significant for retailers as it offers greater understanding into trends over time and can provide more accurate information which can be relied on to make future projections and to establish the most effective marketing techniques in accordance with developing consumer perceptions and attitudes.

In analysing the origins of literature that academic insight into m-shopping consumer acceptance is becoming geographically widespread. Contextual insight into geographical differences in acceptance based on varying factors is significant for the further enhancement of m-shopping acceptance research. Although some research has undergone geographical comparison research (e.g. Chong *et al.*, 2012; Dai and Palvia, 2008), there has been no empirical investigation into geographical comparisons between developed and developing countries. Alongside theoretical advancements, understanding differences and similarities between developed and developing countries could offer practical significance in identifying potential variances in marketing strategies according to geographical locations and cultural norms (Faqih, 2016).

Due to addressed limitations regarding theoretical development, it can be recommended for further research to find similarities between factors across m-shopping literature and adopt a grounded theoretical model to better explain specific m-shopping acceptance behaviour. As most m-shopping articles utilise TAM, it can be recommended to examine the significance of perceived usefulness (PU) and perceived ease of use (PEOU) among different research settings. However, in analysing the existing m-shopping literature, there is a significant 'social' overlap whereby the primary focus of extended antecedents derive from social motivations. It can therefore be recommended for future research to adopt an alternative dominant model to TAM that maintains the cost-benefit approach to m-shopping acceptance. An appropriate suggestion is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) theory (Venkatesh *et al.*, 2012). The reasons for recommending further work in this area to incorporate UTAUT2 is threefold; (1) UTAUT2 was created in relation to mobile utilisation, (2) UTAUT2 incorporates the cost-benefit factors of PU and PEOU as 'performance expectancy' and 'effort expectancy', and (3) UTAUT2 accounts for voluntary situations and allows for time considerations. Although UTAUT2 is a significant theoretical model to explain behavioural intention and use behaviour of m-shopping, it can also be recommended for further research to conceptually develop a theoretical model incorporating more precise cost-benefit and social factors relating to m-shopping acceptance behaviour.

7. Conclusions

M-shopping has been an established online shopping medium for over a decade and academic attention into consumer behaviour and shopping systems development continues to increase in recent years. Despite apparent research advancements in consumer m-shopping behaviour, research remains in its infancy and there is a consensus throughout literature that findings are often geographically and methodologically constrained, prompting for more geographically diverse and time sensitive research. In obtaining a more accurate understanding into the current findings and limitations surrounding consumer m-shopping behaviour, areas requiring theoretical concern have emerged to incorporate risk-related factors, behavioural comparisons between m-shopping users and non-users, and adopting a more multidimensional analysis of the m-shopping process to future m-shopping studies. Furthermore, it has been recommended to adopt a contemporary theoretical model based on established significant m-shopping acceptance factors to more systematically enrich understanding into consumer acceptance

behaviour. Such theoretical advances will enhance international marketers' understanding into current consumer attitudes and behaviours towards m-shopping and subsequently offer recommendations into potential scopes for developments into m-shopping systems, marketing opportunities and retailing strategies.

7.1 Practical and theoretical implications

This review contributes to academic understanding surrounding consumer m-shopping acceptance behaviour in systematically compiling research findings and limitations and makes recommendations for further research based on contextual, methodological, and theoretical developments. In identifying scopes for further theoretical consideration, potential advantages for practitioners have arisen. First, understanding potential deterrents, alongside encouragers of m-shopping, may advance practitioners development of m-shopping systems to comply with more specific consumer needs and assurances. Further systems developments can also be designed to accommodate for the multi-stage m-shopping process; if it is found that consumers are more willing to browse than purchase on their mobile devices, based on interface difficulties when disclosing information at the purchasing stage, a more appropriate purchasing interface can be designed. In addition, awareness of behavioural changes over time, regarding users and non-users and level of experience, practitioners can better target existing m-shoppers to encourage non-users rather than engaging in 'pestering' behaviour, such as spam emailing. Lastly, understanding different motivational factors across geographical contexts can further enhance international marketers' ability to target consumers and develop m-shopping systems according to cultural norms and requirements.

These practical advantages accumulate to accommodate for the developing retail environment alongside potential marketing and financial constraints. As mobile device usage is at a record high, with the utilisation of m-shopping services slowly increasing, it is significant for retailers to take advantage of m-shopping marketing opportunities to effectively compete in the marketplace. Empirical research, based on recommendations for further work explored in this review, will provide marketers with supportive evidence that various systems developments and marketing techniques will be financially beneficial. As such, if future studies discover high significance of perceived risk on consumer willingness to engage in m-shopping activities, retailers investing in expensive safety systems developments and consumer support services becomes increasingly justifiable. Therefore, due to high practical implications

for further work to be conducted in consumer m-shopping acceptance behaviour and the extensive nature of this review, it can be recommended for research to base future studies on academic recommendations explored in this review.

7.2 Limitations and further research

Although this paper provides an in-depth review of literature surrounding consumer acceptance of m-shopping activities, some limitations arise. First, despite identification of two core m-shopping research categories, being the mobile distribution channel and the mobile shopping systems categories, this review has only analysed literature surrounding the former category. Subsequently, there is scope for further work to analyse literature surrounding mobile shopping systems developments and identify limitations and future research possibilities. Second, although this paper has focused on consumer perspectives of adopting m-shopping, it can be recommended for further research to explore retailers' m-shopping adoption. Accordingly, research examining mobile shopping systems development and retailer willingness to adopt m-shopping systems can collaborate to fill an apparent gap in the current literature. Finally, this review has summarised research findings, limitations and recommendations but has failed to theoretically or empirically contribute in providing a better understanding into what factors affect consumer m-shopping acceptance behaviour. As m-shopping research remains in its infancy, with several research gaps arising, further research examining consumer acceptance is required.

References

Agrebi, S. and Jallais, J. (2015). "Explain the intention to use smartphones for mobile shopping", *Journal of Retailing and Consumer Services*, Vol. 22, pp. 16-23.

Ajzen, I. (1991). "The theory of planned behaviour", *Organizational behavior and human decision processes*, Vol. 50 No. 2, pp. 179-211.

Aldás-Manzano, J., Ruiz-Mafe, C. and Sanz-Blas, S. (2009), "Exploring individual personality factors as drivers of M-shopping acceptance", *Industrial Management and Data Systems*, Vol. 109 No. 6, pp. 739-757.

Al-Louzi, B. and Iss, B. (2011), "Factors influencing customer acceptance of m-commerce services in Jordan", *Journal of Communication and Computer*, Vo. 9, pp. 1424-1436.

Barnes, S. J., Bauer, H. H., Neumann, M. M. and Huber, F. (2007), "Segmenting cyberspace: a customer typology for the internet", *European Journal of Marketing*, Vol. 41 No. 1/2, pp. 71-93.

Bigné, E., Ruiz, C. and Sanz, S. (2005), "The impact of internet user shopping patterns and demographics on consumer mobile buying behaviour", *Journal of Electronic Commerce Research*, Vol. 6 No. 3, pp. 193-209.

Bigné, E., Ruiz-Mafé, C. and Sanz-Balz, S. (2007), "Key Drivers of Mobile Commerce Adoption. An Exploratory Study of Spanish Mobile Users", *JTAER* Vol. 2 No. 2, pp. 48-60.

Bigné, E., Ruiz, C. and Sanz, S. (2009), "New technologies and purchase behaviour. An analysis of the determinant variables in M-shopping decision", *EsicMarket Economics and Business Journal*, Vol. 134, pp. 71-97.

Bouwman, H., Carlsson, C., Walden, P. and Molina-Castillo, F. (2009), "Reconsidering the actual and future use of mobile services", *Information Systems and E-Business Management*, Vol. 7 No. 3, pp. 301-317.

Broeckelmann, P. and Groeppel-Klein, A. (2008), "Usage of mobile price comparison sites at the point of sale and its influence on consumers' shopping behaviour", *The International Review of Retail, Distribution and Consumer Research*, Vo. 18 No. 2, pp. 149-166.

Chen, C. (2013a), "Perceived risk, usage frequency of mobile banking services", *Managing Service Quality: An International Journal*, Vol. 23 No. 5, pp. 410-436.

Chen, L. Y. (2013b), "Antecedents of customer satisfaction and purchase intention with mobile shopping system use", *International Journal of Services and Operations Management*, Vol. 15 No. 3, pp. 259-274.

Chen, L. Y. (2013c), "The quality of mobile shopping system and its impact on purchase intention and performance", *International Journal of Managing Information Technology*, Vol. 5 No. 2, pp. 23-32.

Chong, A. Y. L. (2013a), "A two-staged SEM-neural network approach for understanding and predicting the determinants of m-commerce adoption", *Expert Systems with Applications*, Vol. 40 No. 4, pp. 1240-1247.

Chong, A. Y. L. (2013b), "Predicting m-commerce adoption determinants: A neural network approach", *Expert Systems with Applications*, Vol. 40 No. 2, pp. 523-530.

Chong, A. Y. L. (2013c), "Mobile commerce usage activities: The roles of demographic and motivation variables, *Technological Forecasting and Social Change*, Vol. 80, No. 7, pp. 1350-1359.

Chong, A. Y. L., Chan, F. T. and Ooi, K. B. (2012), "Predicting consumer decisions to adopt mobile commerce: Cross country empirical examination between China and Malaysia", *Decision Support Systems*, Vo. 53 No. 1, pp. 34-43.

Coursaris, C. and Hassanein, K. (2002), "Understanding m-commerce: a consumer-centric model", *Quarterly journal of electronic commerce*, Vol. 3, pp. 247-272.

Cyr, D., Head, M. and Ivanov, A. (2006), "Design aesthetics leading to m-loyalty in mobile commerce", *Information and Management*, Vol. 43 No. 8, pp. 950-963.

Dai, H. and Palvia, P. (2008), "Factors affecting mobile commerce adoption: a cross-cultural study in China and the United States", *AMCIS 2008 Proceedings*, pp. 204.

Dai, H. and Palvia, P. C. (2009), "Mobile commerce adoption in China and the United States: a cross-cultural study", *ACM SIGMIS Database*, Vol. 40 No. 4, pp. 43-61.

Davis, F.D., Bagozzi, R.P. and Warshaw, P.R. (1989), "User acceptance of computer technology: a comparison of two theoretical models", *Management science*, Vol. 35 No. 8, pp. 982-1003.

Dholakia, R. R. and Dholakia, N. (2004), "Mobility and markets: emerging outlines of m-commerce", *Journal of Business Research*, Vol. 54 No. 12, pp. 1391-1396.

Faqih, K. M. and Jaradat, M. I. R. M. (2015), "Assessing the moderating effect of gender differences and individualism-collectivism at individual-level on the adoption of mobile commerce technology: TAM3 perspective", *Journal of Retailing and Consumer Services*, Vol. 22, pp. 37-52.

Fishbein, M. and Ajzen, I. (1975), "Belief. *Attitude, Intention and Behavior: An Introduction to Theory and Research Reading", MA: Addison-Wesley*, pp. *6*.

Gao, L., Waechter, K. A. and Bai, X. (2015), "Understanding consumers' continuance intention towards mobile purchase: A theoretical framework and empirical study–A case of China", *Computers in Human Behavior*, Vol. 53, pp. 249-262.

Groß, M. (2014), "Exploring the acceptance of technology for mobile shopping: an empirical investigation among Smartphone users", *The International Review of Retail, Distribution and Consumer Research*, (ahead-of-print), pp. 1-21.

Groß, M. (2015), "Mobile shopping: a classification framework and literature review", *International Journal of Retail and Distribution Management*, Vol. 43 No. 3, pp. 221-241.

Ha, Y. and Im, H. (2014), "Determinants of mobile coupon service adoption: assessment of gender difference", *International Journal of Retail & Distribution Management*, Vol. 42 No. 5, pp. 441-459.

Hahn, K. H. and Kim, J. (2013), "Salient antecedents of mobile shopping intentions: Media dependency, fashion/brand interest and peer influence", *Journal of Global Fashion Marketing*, Vol. 4 No. 4, pp. 225-246.

Harris, P., Rettie, R. and Cheung, C. K. (2005)", Adoption and usage of m-commerce: A cross-cultural comparison of Hong Kong and the United Kingdom", *Journal of Electronic Commerce Research*, Vol. 6 No. 3, pp. 210-224.

Heinemann, G. and C. Schwarzl (2010), "New Online Retailing: Innovation and Transformation", 1st ed. Wiesbaden: Gabler.

Hillman, S., Neustaedter, C., Bowes, J. and Antle, A. (2012, September), "Soft trust and mCommerce shopping behaviours", In *Proceedings of the 14th international conference on Human-computer interaction with mobile devices and services*, pp. 113-122. ACM.

Holmes, A., Byrne, A. and Rowley, J. (2014), "Mobile shopping behaviour: insights into attitudes, shopping process involvement and location", *International Journal of Retail and Distribution Management*, Vol. 42 No. 1, pp. 25-39.

Hung, S. Y., Ku, C. Y. and Chang, C. M. (2003), "Critical factors of WAP services adoption: an empirical study", *Electronic Commerce Research and Applications*, Vol. 2 No. 1, pp. 42-60.

Hung, M. C., Yang, S. T. and Hsieh, T. C. (2012), "An examination of the determinants of mobile shopping continuance", *International Journal of Electronic Business Management*, Vol. 10 No. 1, pp. 29.

Hwang, Y. (2010), "The moderating effects of gender on e-commerce systems adoption factors: An empirical investigation", *Computers in Human Behavior*, Vol. 26 No. 6, pp. 1753-1760.

Jaradat, M. I. R. M. and Al Rababaa, M. S. (2013), "Assessing key factor that influence on the acceptance of mobile commerce based on modified UTAUT", *International Journal of Business and Management*, Vol. 8 No. 23, pp. 102.

Jih, W. J. (2007), "Effects of consumer-perceived convenience on shopping intention in mobile commerce: an empirical study", *International Journal of E-Business Research*, Vol. 3 No. 4, pp. 33-48.

Jih, W. J. K., Suzanne, D., Lee, S. F. and Suzanne, D. (2003), "AN EXPLORATORY ANALYSIS OF RELATIONSHIPS BETWEEN CELLULAR PHONE USES' SHOPPING MOTIVATORS AND LIFESTYLE INDICATORS", *Journal of Computer Information Systems*, No. 44 No. 2, pp. 65-73.

Kim, H. B., Kim, T. T. and Shin, S. W. (2009a), "Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites", *Tourism Management*, Vol. 3- No. 2, pp. 266-277.

Kim, J., Ma, Y. J. and Park, J. (2009b), "Are US consumers ready to adopt mobile technology for fashion goods?: An integrated theoretical approach", *Journal of fashion Marketing and Management*, Vol. 13 No. 2, pp. 215-230.

Kleijnen, M., Lee, N. and Wetzels, M. (2009), "An exploration of consumer resistance to innovation and its antecedents", *Journal of Economic Psychology*, Vol. 30 No. 3, pp. 344-357.

Ko, E., Kim, E. Y. and Lee, E. K. (2009), "Modeling consumer adoption of mobile shopping for fashion products in Korea", *Psychology & Marketing*, Vol. 26 No. 7, pp. 669-687.

Lai, I. K. and Lai, D. C. (2014), "User acceptance of mobile commerce: an empirical study in Macau", *International Journal of Systems Science*, Vol. 45 No. 6, pp. 1321-1331.

Lu, H. P. and Su, P. Y. J. (2009), "Factors affecting purchase intention on mobile shopping web sites", *Internet Research*, Vol. 19 No. 4, pp. 442-458.

Mahatanankoon, P., Wen, H. J. and Lim, B. (2005), "Consumer-based m-commerce: exploring consumer perception of mobile applications", *Computer standards and interfaces*, Vol. 27 No. 4, pp. 347-357.

Mahmoud, Q. H. and Yu, L. (2006), "Havana agents for comparison shopping and location-aware advertising in wireless mobile environments", *Electronic Commerce Research and Applications*, Vol. 5 No. 3, pp. 220-228.

Marriott, H. R. and Williams, M. D. (2016, September), "Developing a Theoretical Model to Examine Consumer Acceptance Behavior of Mobile Shopping", In *Conference on e-Business, e-Services and e-Society*, pp. 261-266. Springer International Publishing.

Matthews, T., Pierce, J. and Tang, J. (2009), "No smart phone is an island: The impact of places, situations, and other devices on smart phone use", *IBM RJ10452*, pp. 1-10.

Milnes, H. (2015, July 24). Christmas in July: The 2015 online holiday shopping forecast in 5 charts. *Digiday*, available at: http://digiday.com/brands/christmas-july-2015-holiday-shopping-forecast-5-charts/ (accessed 15 August 2015).

Min, Q., Li, Y. and Ji, S. (2009, June), "The effects of individual-level culture on mobile commerce adoption: An empirical study", In *Mobile Business, 2009. ICMB 2009. Eighth International Conference on Mobile* Business, pp. 305-312. IEEE.

Nassuora, A. B. (2013), "Understanding factors affecting the adoption of m-commerce by consumers", *Journal of Applied Sciences*, Vol. 13 No. 6, pp. 913-918.

Ono, A., Nakamura, A., Okuno, A. and Sumikawa, M. (2012), "Consumer motivations in browsing online stores with mobile devices", *International Journal of Electronic Commerce*, Vol. 16 No. 4, pp. 153-178.

Ozok, A. A. and Wei, J. (2010), "An empirical comparison of consumer usability preferences in online shopping using stationary and mobile devices: results from a college student population", *Electronic Commerce Research*, Vol. 10 No. 2, pp. 111-137.

Pedersen, P. E., Methlie, L. B. and Thorbjornsen, H. (2002, January), "Understanding mobile commerce end-user adoption: a triangulation perspective and suggestions for an exploratory service evaluation framework", In *System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on System Sciences*, pp. 8-16. IEEE.

Persaud, A. and Azhar, I. (2012), "Innovative mobile marketing via smartphones: are consumers ready?", *Marketing Intelligence and Planning*, Vol. 30 No. 4, pp. 418-443.

Rogers, E. M. (2003), "Elements of diffusion", *Diffusion of innovations*, Vol. 5, pp. 1-38.

San-Martin, S. and López-Catalán, B. (2013), "How can a mobile vendor get satisfied customers?", *Industrial Management and Data Systems*, Vol. 113 No. 2, pp. 156-170.

San-Martín, S., López-Catalán, B. and Ramón-Jerónimo, M. A. (2013), "Mobile Shoppers: Types, Drivers, and Impediments", *Journal of Organizational Computing and Electronic Commerce*, No. 23 No. 4, pp. 350-371.

Singh, N., Fassott, G., Chao, M. C. and Hoffmann, J. A. (2006), "Understanding international web site usage: A cross-national study of German, Brazilian, and Taiwanese online consumers", *International Marketing Review*, Vol. 23 No. 1, pp. 83-97

Sreenivasan, J. and Noor, M. N. M. (2010), "A conceptual framework on mobile commerce acceptance and usage among Malaysian consumers: the influence of location, privacy, trust

and purchasing power", *WSEAS Transactions on Information Science and Applications*, Vol. 7 No. 5, pp. 661-670.

Su, Q. and Adams, C. (2004), "Differences in mobile adoption and use between China and the West (UK): Implications for future M-commerce development", In *Proceedings of the Eighth Pacific Asia Conference of Information Systems, Shanghai, China*, pp. 2328-2334.

Taylor, E. (2016), "Mobile payment technologies in retail: a review of potential benefits and risks", *International Journal of Retail & Distribution Management*, Vol. 44 No. 2, pp. 159-177.

Taylor, G. D. and Levin, M. (2014), "Predicting mobile app usage for purchasing and information-sharing", *International Journal of Retail & Distribution Management*, Vol. 42 No. 8, pp. 759-774.

Venkatesh, V., Thong, J.Y. and Xu, X. (2012), "Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology", *MIS quarterly*, Vol. 36 No. 1, pp. 157-178.

Wang, Y. S. and Liao, Y. W. (2007), "The conceptualization and measurement of m-commerce user satisfaction", *Computers in human behavior*, Vol. 23 No. 1, pp. 381-398.

Wang, R. J. H., Malthouse, E. C. and Krishnamurthi, L. (2015), "On the Go: How Mobile Shopping Affects Customer Purchase Behavior", *Journal of Retailing*, Vol. 91 No. 2, pp. 217-234.

Wei, T. T., Marthandan, G., Yee-Loong Chong, A., Ooi, K. B. and Arumugam, S. (2009),"What drives Malaysian m-commerce adoption? An empirical analysis", *Industrial Management and Data Systems*, Vol. 109 No. 3, pp. 370-388.

Wong, C. H., Lee, H. S., Lim, Y. H., Chua, B. H. and Tan, G. W. H. (2012), "Predicting the consumers' intention to adopt mobile shopping: an emerging market perspective", *International Journal of Network and Mobile Technologies*, Vol. 3 No. 3, pp. 24- 39.

Wu, J. H. and Wang, Y. M. (2006), "Development of a tool for selecting mobile shopping site: A customer perspective", *Electronic Commerce Research and Applications*, Vol. 5 No. 3, pp. 192-200.

Yang, S. (2015), "Role of transfer-based and performance-based cues on initial trust in mobile shopping services: a cross-environment perspective", *Information Systems and e-Business Management*, pp. 1-24.

Yang, K. (2012), "Consumer technology traits in determining mobile shopping adoption: An application of the extended theory of planned behaviour", *Journal of Retailing and Consumer Services*, Vol. 19 No. 5, pp. 484-491.

Yang, K. (2010), "Determinants of US consumer mobile shopping services adoption: implications for designing mobile shopping services", *Journal of Consumer Marketing*, Vol. 27 No. 3, pp. 262-270.

Yang, K. and Kim, H. Y. (2012), "Mobile shopping motivation: an application of multiple discriminant analysis", *International Journal of Retail and Distribution Management*, Vol. 40 No. 10, pp. 778-789.

Yang, K. and Forney, J. C. (2013), "The Moderating Role of Consumer Technology Anxiety in Mobile Shopping Adoption: Differential Effects of Facilitating Conditions and Social Influences", *Journal of Electronic Commerce Research*, Vol. 14 No. 4, pp. 334-347.

Zhang, L., Zhu, J. and Liu, Q. (2012), "A meta-analysis of mobile commerce adoption and the moderating effect of culture", *Computers in Human Behavior*, Vol. 28 No. 5, pp. 1902-1911.

Zhou, T. (2013), "An empirical examination of the determinants of mobile purchase", *Personal and ubiquitous computing*, Vol. 17 No. 1, pp.187-195.

Table I. Summary of academic definitions of m-shopping

Author	M-Shopping definition
Agrebi and Jallais (2015)	A transaction made for goods or services using mobile devices to either initiate or confirm payments of such.
Aldás-Manzano *et al.* (2009)	The purchasing of products or services online using the mobile device medium.
Bigné *et al.* (2005)	Consists of wireless internet transactions made using mobile devices.
Chen (2013b)	Involves the browsing, purchasing and payment of goods or services using mobile phones, smartphones or other mobile devices. This definition has been adapted for the purpose of this research.
Groß (2014)	An alternative approach for searching, browsing, comparing and purchasing products and services online at any time and place whilst using a mobile device.
Groß (2015)	Entails the gathering of product information from multiple sources, checking product availability and offers, and alter product selection throughout the purchasing process; m-shopping is a critical part of m-marketing.
Hillman *et al.* (2012)	The shopping for and purchasing of items online using mobile devices, such as smartphones, e-readers and tablets.
Holmes *et al.* (2014)	Is not restricted to purchase; m-shopping also includes activities such as checking prices, comparing products, gathering product information and reading user reviews.
Hung *et al.* (2012)	Involves consumers paying for goods using mobile devices.
Jih (2007)	The searching, communication and purchasing of products and services over the internet from anywhere at any time.
Ko *et al.* (2009)	M-shopping is a sub-section of m-commerce, which refers to any transaction with monetary value being implemented using a wireless telecommunication network.
Lai *et al.* (2012)	Empowers shoppers with the ability to gather information on the spot from multiple sources, check product availability, special offers and alter their selection at any time.
Lu and Su (2009)	Involves the entire flow of the traditional shopping experience, involving product searches, price and product comparisons, ordering, paying, and advertising but through a mobile device.
Ozok and Wei (2010)	Is a descendent of e-commerce and involves shopping for goods or services online using mobile devices.
San-Martin and Lopéz-Catalán (2013)	M-shopping is a sub-set of m-commerce which involves activities conducted by consumers using a wireless internet connection when m-shopping.
Wang *et al.* (2015)	Includes transactional purchases using mobile devices as well as using them to plan pre-shopping activities, such as finding directions and store hours.
Wong *et al.* (2012)	Any monetary transaction related to the purchasing of goods or services through internet-enabled mobile phones or over the wireless telecommunications network.
Wu and Wang (2006)	M-shopping is a subsidiary of m-commerce and broadly refers to monetary transactions conducted over a wireless telecommunication network.

Yang (2010)	Simply the conducting of online transactions using the mobile shopping medium.
Yang and Kim (2012)	Includes the browsing, researching and purchasing products and services on the move.
Yang and Forney (2013)	Has become a personalised shopping assistant for consumers in making purchases across channels.
Yang (2015)	Allows consumers to purchase products and services using mobile devices; it is subsequently often referred to as m-purchasing.

Table II. Journals with 2 or more mobile related articles

Journal	No.
Computers in Human Behaviour	8
Expert Systems with Applications	7
International Journal of Information Management	7
International Journal of Retail & Distribution Management	6
Journal of Electronic Commerce Research	6
Journal of Retailing and Consumer Services	5
Computer Standards & Interfaces	4
Decision Support Systems	4
Electronic Commerce Research and Applications	4
Industrial Management & Data Systems	4
Information & Management	4
International Journal of Bank Marketing	4
Internet Research	4
Electronic Commerce Research	3
Journal of Business Research	3
The International Review of Retail, Distribution and Consumer Research	3
Technological Forecasting & Social Change	3
Telematics and Informatics	3
Psychology & Marketing	3
Communications of the Association for Information Systems	2
Information Development	2
International Journal of Mobile Marketing	2
Journal of Computer Information Systems	2
The Service Industries Journal	2
Telecommunications Policy	2
Other journals have published only one article	38
Total	**133**

Table III. Journals with 2 or more m-shopping articles

Journal	No.
International Journal of Retail & Distribution Management	6
Journal of Retailing and Consumer Services	4
International Review of Retail Distribution and Consumer Research	3
Journal of Electronic Commerce Research	3
Computers in Human Behaviour	2
Electronic Commerce Research and Applications	2
Industrial Management & Data Systems	2
International Journal of Mobile Marketing	2
Journal of Computer Information Systems	2
Conference proceedings	18
Other journals have published only one article	45
Total	**87**

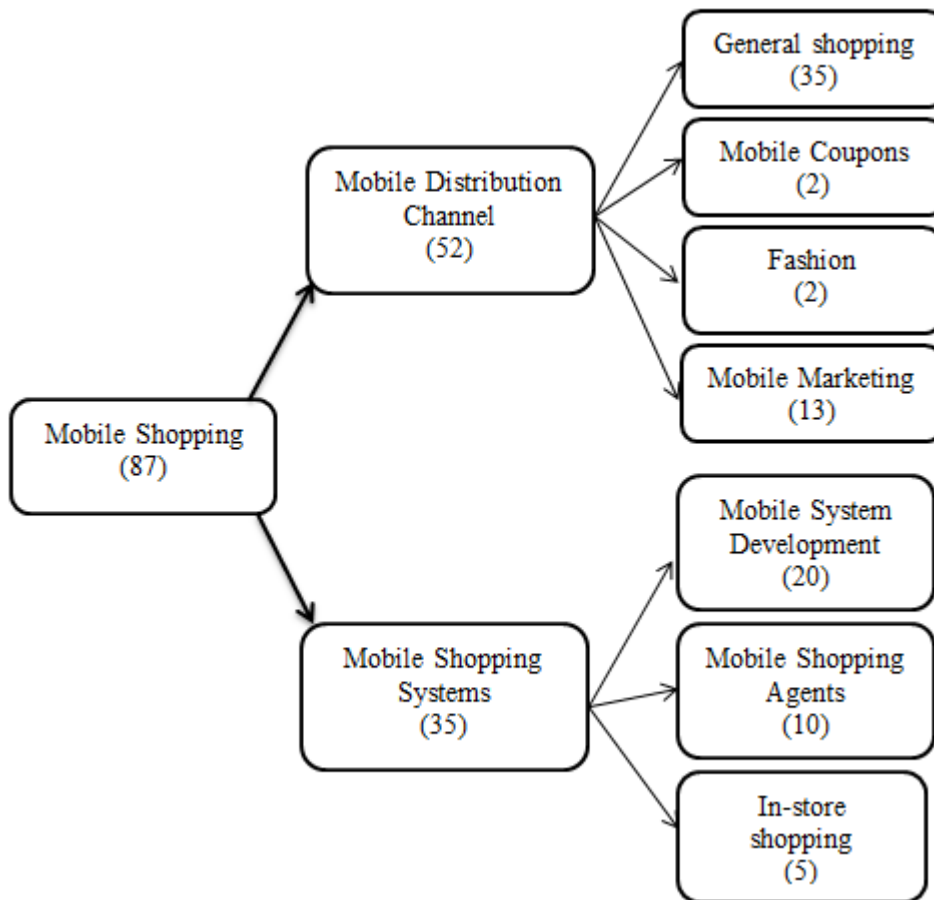Figure 1. Classification Framework of M-Shopping Literature

Figure 2. Annual distribution of published m-shopping articles
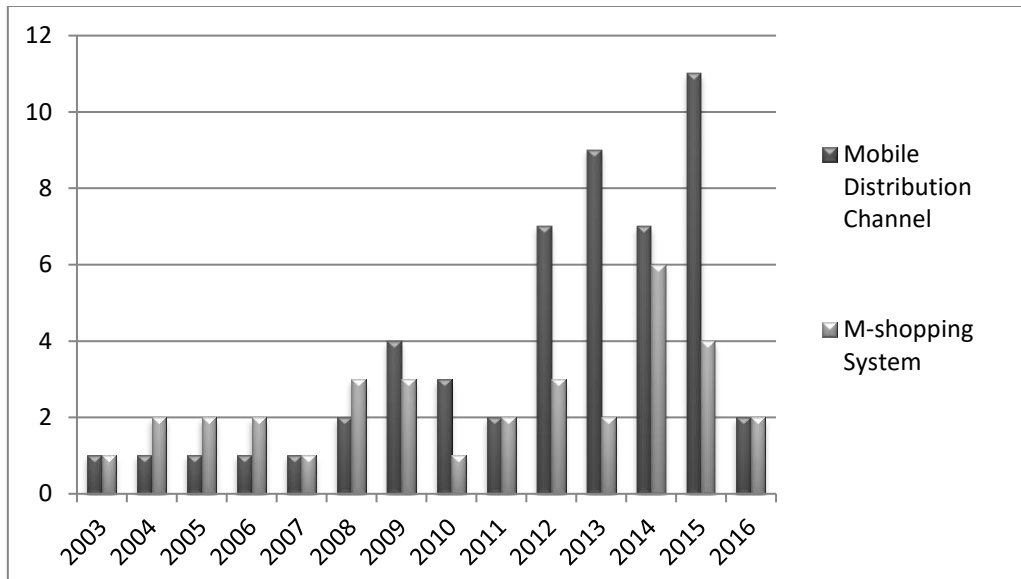

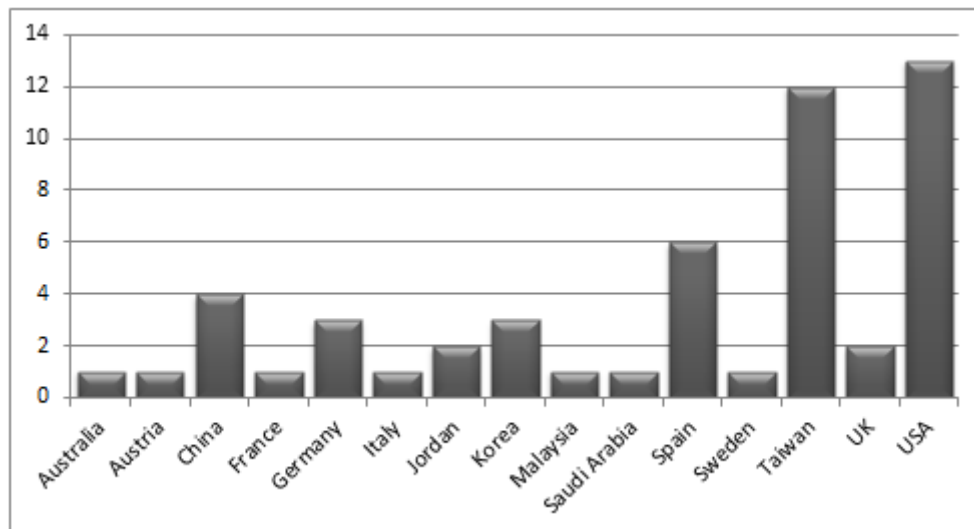Figure 3. Geographical origins of m-shopping literature

Table IV. List of factors and key findings explored in m-shopping related research

Factors explored	Key findings	Citations
Perceived usefulness	If m-shopping is considered to be useful when deciding to shop online, consumers are more likely to adopt it	Agrebi and Jallais, 2015; Aldás-Manzano *et al.*, 2009; Amin *et al.*, 2014; Bilgihan *et al.*, 2016; Dmour *et al.*, 2014; Groß, 2015b; Hung *et al.*, 2012; Ko *et al.*, 2009; Lu and Su, 2009; Moon and Domina, 2015; Pagani, 2004; San-Martin *et al.*, 2013; Wong *et al.*, 2012; Yang, 2010, 2012; Zhou, 2013
Perceived ease of use	If m-shopping is perceived as being easy to use consumers will generally be more willing to adopt it	Agrebi and Jallais, 2015; Aldás-Manzano *et al.*, 2009; Amin *et al.*, 2014; Bilgihan *et al.*, 2016; Dmour *et al.*, 2014; Groß, 2015b; Ko *et al.*, 2009; Lu and Su, 2009; Moon and Domina, 2015; Pagani, 2004; San-Martin *et al.*, 2013; Wong *et al.*, 2012; Wu and Wang, 2006; Yang, 2010, 2012
Mobile affinity	The closer consumers are to their mobile device, the higher probability they will use it for online services, such as m-shopping	Aldás-Manzano *et al.*, 2009; Barkhuss and Polichar, 2011; Bigné *et al.*, 2007; Bilgihan *et al.*, 2016; Hahn and Kim, 2013; Hillman *et al.*, 2012; Lu and Su, 2009; Matthews *et al.*, 2009
Mobile aesthetics	Factors such as instant connectivity and interface design, contribute to consumers' overall acceptance willingness to engage in m-shopping activities	Ko *et al.*, 2009; Pagani, 2004; Yang. 2015; Yu and Kong, 2015; Zhou, 2013
Facilitating conditions	Ensuring consumers have the required technology to shop online using mobile devices is necessary	Yang, 2010; Yang and Forney, 2014
Cultural influences	Consumer attitude and overall m-shopping acceptance willingness varies between cultural settings	Barnes *et al.*, 2007; Groß, 2014; Singh *et al.*, 2006
Attitude	The more positive the attitude generation the higher probability of adopting m-shopping	Aldás-Manzano *et al.*, 2009; Bigné *et al.*, 2009; Groß, 2015; Moon and Domina, 2015; Pagani, 2004; San-Martin *et al.*, 2013; Yang, 2010, 2012
Innovativeness	If consumers are innovative they will be more willing to adopt new m-shopping activities	Aldás-Manzano *et al.*, 2009; Moon and Domina, 2015; Pagani, 2004; Wong *et al.*, 2012; Yang, 2012
Experience	The more experience in shopping online, the higher the likelihood of consumers adopting m-shopping	Agrebi and Jallais, 2015; Aldás-Manzano *et al.*, 2009; Bigné *et al.*, 2005, 2009; Bilgihan *et al.*, 2016; Hernández *et al.*, 2010; Venkatesh *et*

		al., 2003; Wang *et al.*, 2015; Yang, 2012; Yang and Forney, 2014
Satisfaction	The higher the level of satisfaction the more loyalty and overall willingness to conduct in m-shopping activities	Agrebi and Jallais, 2015; Amin *et al.*, 2014; Amoroso, 2015; Gao *et al.*, 2015; Hung *et al.*, 2012
Trust	The more trust consumers have in m-shopping activities the more likely they will become satisfied, loyal and overall adopters	Amin *et al.*, 2014; Amoroso, 2015; Dmour *et al.*, 2014; Gao *et al.*, 2015; Groß, 2015b; Hillman *et al.*, 2012; Yang, 2015, Zhou, 2013
Perceived behavioural control	If consumers feel that they are in control of the m-shopping process they are more likely to adopt it	San-Martin *et al.*, 2013; Yang, 2012
Anxiety, risk, privacy and security	Any anxiety, risk or privacy and security concerns present in the minds of consumers will deter acceptance of it	Gao *et al.*, 2015; Lu and Su, 2009; Wu and Wang, 2006; Yang and Forney, 2014
Hedonic motivation/ enjoyment	If m-shopping is perceived as being fun or enjoyable, consumers in certain cultures are more likely to adopt it	Agrebi and Jallais, 2015; Bilgihan *et al.*, 2016; Groß, 2015b; Holmes *et al.*, 2014; Hung *et al.*, 2012; Ko *et al.*, 2009; Lai *et al.*, 2012; Lu and Su, 2009; Moon and Domina, 2015; Pagani, 2004; Yang, 2010, 2012; Yang and Forney, 2014
Utilitarian motivation	If consumers feel that using mobile devices to shop will facilitate their online shopping tasks they will adopt it	Bilgihan *et al.*, 2016; Holmes *et al.*, 2014; Moon and Domina, 2015; Wu and Wang, 2006; Yang, 2010; Yang and Forney, 2014
Self-efficacy	Consumers feel more comfortable with the mobile channel when self-efficacy is present	Faqih and Jaradat, 2015; Lu and Su, 2009; Ström *et al.*, 2014; Yang, 2012; Yang, 2015
Product category impact	Consumers are more likely to use mobile devices for information searches involving high or medium-involvement products rather than 'routine' purchases	Chong *et al.*, 2012; Hahn and Kim, 2013; Holmes *et al.*, 2014; Groß, 2015b; Ko *et al.*, 2009; Moon and Domina, 2015; Wu and Wang, 2006
Impulsivity	Using mobile devices to browse online encourages impulse purchasing behaviour	Chong, 2013b; Groß, 2014; Holmes *et al.*, 2014; Lu and Su, 2009; Ono *et al.*, 2012; Verhagen and van Dolen, 2011; Yang and Kim, 2012
Social influence	Social cues from credible sources encourages m-shopping acceptance behaviour, of which younger consumers are more susceptible to, due to social networking sites	Al-Louzi and Iss, 2011; Bilgihan *et al.*, 2016; Faqih *et al.*, 2015; Hahn and Kim, 2013; Kim *et al.*, 2009b; Min and Ji 2009; Moon and Domina, 2015; San-Martin *et al.*, 2013; Wei *et al.*, 2009; Wong *et al.*, 2012; Yang, 2010, 2012; Yang and Forney, 2014
Gender	Although the majority of research finds that men and women are generally influenced by different	Bigné *et al.*, 2005, 2009; Faqih and Jaradat, 2015; Hahn and Kim, 2013;

	factors, recent research finds that both genders are equally accepting of m-shopping	Lip-Sam and Hock-Eam, 2011; Serenko *et al*., 2006
Age	Younger consumers are more likely to accept m-shopping than older consumers	Bigné *et al.*, 2005, 2009; Yang, 2010; Yang and Kim, 2012; Yang and Forney, 2014