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Investigating attitudes towards mobile commerce for travel products

Abstract

This paper focuses on investigating the relationship between the advantages and drawbacks of mobile shopping for travel products (mobile commerce), in contrast to conventional in-store shopping from brick and mortar travel agents, and consumers' perception of the innovation characteristics (relative advantage, compatibility and complexity) of m-shopping. In this vein, the present survey investigates also the correlation between consumers' perception of these characteristics and their intention to adopt m-shopping. The above relationships were examined on a sample consisting of 116 individuals in Greece that have used electronic commerce or mobile commerce (or both) in the past. According to the findings, it appears that the advantages and drawbacks of physical effort and time pressure associated to conventional in-store shopping from a travel agent have a positive impact on consumers' perception of the characteristics of mobile shopping (m-shopping). The findings also provide evidence that consumers' perception of the relative advantage and compatibility of mobile travel shopping have another positive impact on their future behavioural intentions to adopt m-shopping. Last, it was also examined if income, education and age moderate these relationships. Overall, these findings have significant implications for the content of mobile commerce services for travel products and the segmentation and targeting strategy of providers of such services.

Keywords:

mobile commerce; travel shopping; adoption of innovations; Greece

Introduction

The development of electronic travel services over the Internet has assisted greatly travel agents to better anticipate to changes in consumers' shopping behaviour as well as to changes resulting from socio-demographic profiles of consumers (Go, Van Rekom, & Teunissen, 1999; Bedard, 2000). For instance, the mounting average age of consumers increases the need for more convenience in travel shopping (Sigala, 2001; Anckar, & D'Inkau, 2002). E-commerce in travel services provides this convenience by enabling consumers to make reservations and order tickets from home, and either having the tickets or vouchers subsequently delivered at home or receiving an elec-

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tronic confirmation of the reservation; m-commerce (mobile commerce) utilises all e-commerce advantages and combines them with the added benefit of enhanced flexibility and mobility. Furthermore, the number of consumers experiencing time pressure is growing due to many reasons, like for example the case of families where all its members are working, or single-parent families, or families including members whose work has an ad hoc or flexible pattern. It may be assumed that mobile commerce for travel products - same as electronic commerce - provides consumers the opportunity to save time by making visits to a traditional travel agent redundant (Marcussen, 2001).

It is possible to identify in generic the marketing literature various surveys that have examined characteristics and patterns of home shopping for a number of industries. Darian (1987) performed a pioneering study of the advantages and disadvantages of home shopping in contrast to conventional in-store shopping. However, home shopping using electronic channels, such as the Internet or a mobile telephone, appears significantly different from home shopping using conventional channels, such as catalogues and mail. These differences are related to the characteristics of the Internet and of the mobile phone, such as more and better accessible information, ordering convenience, enhanced mobility and enjoyment. Given these differences there is a need to assess whether Darian's (1987) advantages and disadvantages of traditional home shopping also hold for mobile commerce (mobile shopping in this case) of travel products.

This paper focuses on investigating the relationship between the advantages and drawbacks of mobile shopping for travel products (mobile commerce), in contrast to conventional in-store shopping from brick and mortar travel agents, and consumers' perception of the innovation characteristics (relative advantage, compatibility and complexity) of m-shopping. In this vein, the present survey investigates also the correlation between consumers' perception of these characteristics and their intention to adopt m-shopping. The above relationships were examined on a sample consisting of 116 individuals in Greece that have used electronic commerce or mobile commerce (or both) in the past.

Background literature

M-commerce for travel products, in contrast to conventional in-store travel agency shopping, provides its users with two major benefits. First, it provides consumers a greater level of convenience (Licata, Buhalis, & Richer, 2001; Andreou, Leonidou, Chrysostomou, Pitsillides, Samaras, & Schizas, 2005). This stems from the fact that consumers do not face any transportation and physical problems, because they can make reservations and receive tickets and booking confirmations from and at home or anywhere else. Second, on-line reservations over a mobile telephone save consumers time (O'Connor, & Frew, 2001; Sigala, 2006). Due to less transportation time and less waiting and planning time, the overall time required for m-shopping is less than the time required for in-store shopping. Another rather minor advantage of m-shopping for travel products is the larger geographic coverage that can be selected; furthermore, consumers can choose from a larger product assortment when they shop at home or at any other place, even on the move (Peterson, Balasubramanian, & Bronnenberg, 1997; Balasubramanian, Peterson, & Jarvenpaa, 2002).

According to Darian (1987) it is possible to identify two purchasing needs that, when aroused to an adequate degree of intensity, stimulate consumers to visit conventional retail stores rather than to shop from home: a) personal needs encompass the need for sensory stimulation, physical activity and learning while shopping; b) social needs comprise the need for social experiences, communication with other shoppers and the pleasure of bargaining. Both needs are related to the hedonic function of shopping - shopping enjoyment (O'Brien, 1999). Shopping from home (or from distance in general) has been criticised for limited enjoyment, because consumers cannot communicate with other consumers, they cannot bargain, and they cannot see the products (Darian, 1987; Sigala, 2003a; Wang, & Cheung, 2004). The loss of shopping enjoyment, even for travel products, is a major disadvantage of traditional distance shopping. However, m-shopping allows consumers to communicate with other consumers using discussion groups, forums and various Web 2.0 social networks. Therefore, the Internet element of mobile commerce may (partly) offset the loss of shopping enjoyment that consumers encounter while not going to the traditional travel agent. A minor advantage of m-shopping might be higher search costs and waiting times.

ADOPTION PROCESS OF MOBILE SHOPPING FOR TRAVEL PRODUCTS

Similar with any service innovation, mobile commerce and m-shopping needs time to be adopted by the social system. The innovation diffusion process can be described as the spread of a new service from its source of invention to its ultimate adopters (Mahajan, Muller, & Bass, 1995; Barnes, 2002). The consumer adoption process focuses on the mental process through which an individual passes from first hearing about mobile shopping for travel products to final adoption. Marketers recognize that consumers' perceptions of the characteristics of an innovation affect its rate of adoption (Pan, & Fesenmaier, 2000; Bouwman, Carlsson, Walden, & Mollina-Castillo, 2008). Rogers (1983) distinguishes five characteristics that influence the rate of adoption of an innovation: perceived relative advantage; perceived compatibility; perceived complexities; perceived divisibility; and perceived communicability. These characteristics can be considered in relation to m-shopping for travel products as: a) perceived relative advantage refers to the degree to which consumers perceive m-shopping to be superior to in-store traditional travel agent shopping; b) perceived compatibility refers to the degree to which consumers perceive m-shopping to match their shopping needs; c) perceived complexity refers to the degree to which consumers find m-shopping difficult to understand and use in practice; d) perceived divisibility refers to the degree to which mobile shopping for travel products can be tried on a limited basis; e) perceived communicability refers to the degree to which the benefits of use of m-shopping are observable or describable to others (Buellingen, & Woerter, 2004).

It is interesting to note that relative advantage, compatibility and complexity relate to consumers' perceptions before using mobile shopping. Furthermore, divisibility and communicability refer to consumers' perceptions after using m-commerce (Lembke, 2002). At the time of the study a significant number of providers of travel products (hotels, airlines, travel agents) in Greece and in other countries were experimenting with m-shopping services. Keeping this in mind, this study had to focus on the three

characteristics that consumers were able to evaluate prior to using a mobile travel shopping service. Furthermore, this study was limited to investigating consumers' behavioural intentions to adopt mobile commerce for travel products instead of the actual adoption.

RESEARCH HYPOTHESES

Most of the convenience of m-shopping is due to the fact that the physical effort required is significantly lower compared with the physical effort required to visit a conventional travel agent outlet (Darian, 1987; Lin, & Wang, 2006). Therefore, consumers who experience in-store shopping to be physically strenuous are expected to perceive a high relative advantage of m-shopping. Thus, it can be hypothesised that: The larger the perceived physical effort of in-store travel shopping, the larger the perceived relative advantage of m-shopping for travel products will be (H1).

In a pioneering study, Srinivasan and Ratchford (1991) define time pressure as the extent to which consumers consider themselves busy. Busy people will perceive the time consuming aspect of visiting travel agent stores as disadvantageous. M-shopping for travel products offers busy consumers the opportunity to save time (for example, an airline ticket can be booked and ordered from practically anyplace and can be delivered at a mobile telephone or at the departing airport). Furthermore, consumers who experience time pressure generally do not satisfy their personal and social shopping needs through traditional in-store shopping (McDonald, 1994; Sigala, 2004; Mallat, Rossi, Tuunainen, & Öörni, 2008). As a result, busy consumers are more likely to consider m-shopping compatible with their needs. Thus, it can be hypothesised that: The larger the perceived time pressure, the larger the perceived relative advantage of m-shopping for travel products will be (H2a). The larger the perceived time pressure, the larger the perceived compatibility of m-shopping for travel products will be (H2b).

It is interesting to note that based on the work of Alba, et al. (1997) shopping is perceived by the majority of people as an activity that leads to product or service purchase. Consumers who satisfy their personal and social shopping needs by means of visiting traditional outlets to buy travel products, are likely to consider the loss of shopping enjoyment an important disadvantage of m-shopping (Wang, & Liao, 2004). Consumers who consider in-store travel shopping to be enjoyable derive personal and social values from visiting travel agent stores (Ngai, & Gunasekaran, 2007). These consumers are not likely to find m-shopping compatible with their shopping behaviour and experience. Thus, it can be hypothesised that: The larger the perceived enjoyment of traditional in-store travel shopping, the smaller the perceived relative advantage of m-shopping for travel products will be (H3a). The larger the perceived enjoyment of in-store shopping, the smaller the perceived compatibility of m-shopping for travel products will be (H3b).

The findings of previous studies on the intention-behaviour relationship imply that behavioural intention measures are most suitable when the objective is to maximize

prediction (Miniard, & Obermiller, 1983; Christou, 2003). The behavioural intention captures the perceived likelihood that consumers adopt m-shopping for travel products. In this study the behavioural intention of consumers to adopt m-shopping is influenced by their perception of the characteristics of m-shopping for travel products (Yuan, & Zhang, 2003). Therefore, we expect that consumers who perceive m-shopping to be superior, compatible and easy to understand, to be more willing to adopt it (Christou, & Kassianidis, 2002; Sigala, 2007). Hence, it can be hypothesised that: There is a positive relationship between the perceived relative advantage and the behavioural intention to adopt m-shopping for travel products (H4a). There is a positive relationship between the perceived compatibility and the behavioural intention to adopt m-shopping for travel products (H4b). There is a negative relationship between the perceived complexity and the behavioural intention to adopt m-shopping for travel products (H4c).

Past surveys on the socio-demographic characteristics of home or distance buyers suggest that these consumers are expected to have higher incomes and to be better educated (Darian, 1987; Sigala, 2003b). Likewise, the marketing literature on adoption and diffusion of innovations suggests that consumer innovators tend to be older, are higher in social status and enjoy higher incomes (Rogers, 1983; Kotler, Bowen, & Makens, 1996). Consumer innovators are also known to use personal and subjective criteria in their adoption decisions (Foxall, & Bhate, 1993; Vrechopoulos, Constantiou, Sideris, Doukidis, & Mylonopoulos, 2003; Christou, 2006). Altogether, these findings suggest that the consumer characteristics of age, income and education are likely to moderate the investigated relationships in the proposed hypotheses (H1, H2a, H2b, H3a, H3b, H4a, H4b and H4c). To help m-shopping travel marketers facilitate consumer movement through the adoption process, this study explores the possible moderating effects of the consumer characteristics of age, income and education on the hypothesised relationships.

Survey methodology

The population of the study consisted of all consumers that have visited a conventional travel agent and had also used either e-shopping or m-shopping (or both) until the survey date; the exact number of this population is not known (and cannot be measured), hence in terms of sample size a convenience sampling method was adopted. The sample consisted of 134 randomly selected individuals in Thessaloniki in Greece; all respondents were intercepted by the interviewers while exiting from traditional travel agent outlets. The travel agents were selected randomly, and the random sampling size method was used by interviewing every 10th person exiting for the 8 travel agents that participated in the survey. To ensure that the respondents fit the population, a screening question was used in order to exclude the respondents who have never tried both e-shopping and m-shopping in the past. The interviews resulted in 116 usable questionnaires. All questionnaires were completed through personal interviews; in total, 6 interviewers worked for the survey. The majority (approximately 58%) of the respondents were male. The plurality (approximately 28%) of the respondents was between 30 and 39 years old. Overall, almost 78% of them resided in households with two or

more persons. Most of the respondents held a first degree (approximately 34%), or reported having attended graduate school (18%). Almost 46% of the respondents had a household monthly net income of more than 2000 euro.

Pre-testing was performed in two sequential stages. Initially, a draft of the questionnaire was pre-tested in interviews with a panel of three marketing and ICT academics. The second pre-test involved administering the questionnaire to twenty-five students at the author's institution. At each stage participants in the pre-tests were asked to identify items that were confusing or difficult to respond to, and any other problems they encountered. Items that were identified as problematic were either revised or eliminated, and new items were developed. To minimize concern about carry-over effects the scales in the final questionnaire were not marked and the order of the items belonging to the different constructs was changed (Bickart, 1993).

All responses were recorded on a seven point Likert scales anchored by 1 (strongly disagree) and 7 (strongly agree), with the exception of the intention of consumers to adopt m-shopping for travel products. To measure shopping enjoyment, four items were adapted from Dawson and Bloch. (1990). Three items adapted from Srinivasan and Ratchford (1991) were used to measure the time pressure experienced by consumers. To measure the behavioural intention of consumers to adopt m-shopping, this study utilises a single-item measure adapted from Juster (1966). The responses were recorded on an 11-point scale anchored by 0 (absolutely not) and 10 (absolutely yes). To measure consumers' perceived relative advantage, perceived compatibility and complexity of m-shopping, 12 items adapted from Frambach, Barkema and Wedel (1998) were used. A three-step item purification procedure was accomplished taking one multi-item scale at a time (Anderson, Gerbing, & Hunter, 1987). The following steps were applied: (1) inter-item and item-to-total correlations were computed for each of the items. The requirement for retaining an item was a significant correlation coefficient at the 0.01 level; (2) the Cronbach's α was computed and, in case of a low α , the item with the lowest item-to-total correlation was removed; (3) an exploratory factor analysis was performed using an eigenvalue of 1.0 as the cut-off point. This procedure resulted in a reduced set of 19 items. Means, standard deviations, inter-item correlations and Cronbach's α for each purified summed scale are presented in Table 1.

Table 1

CRONBACH'S α , MEANS, STANDARD DEVIATIONS & INTER-CORRELATIONS

	Mean	S.D.	EF	TP	EN	AD	CP	CX	items	α
Physical effort (EF)	3.55	1.90							2	0.72
Time pressure (TP)	3.72	1.79	0.20						3	0.82
Shopping enjoyment	3.45	1.72	0.14	0.06					2	0.58
Relative advantage (AD)	4.22	1.83	0.22	0.29	-0.06				3	0.77
Compatibility (CP)	3.91	1.87	0.17	0.35	-0.05	0.63			3	0.73
Complexity (CX)	3.64	1.76	0.05	-0.2	0.13	-0.3	-0.5		5	0.91
Intention (IN)	3.21	2.71	0.19	0.20	-0.15	0.51	0.47	-0.3	1	

Additional examination indicated that the composite reliability of all scales, with the exception of shopping enjoyment, exceeds the 0.70 threshold for acceptable reliability. After calculations, the values for the extracted variance were found to exceed, with the exception of shopping enjoyment, the recommended cut-off level of 0.5 as suggested by Bagozzi and Yi (1988). Convergent validity was indicated by the fact that all items loaded significantly (i.e., $t > 2.0$) on their corresponding latent construct, with the lowest t -value being 2.31. Discriminant validity was established as none of the 95% confidence intervals around all latent-trait correlations encompass 1.0. Together the results of the tests for unidimensionality, reliability, convergent and discriminant validity provide evidence of internal and external validity of the scales used.

Findings

As it can be seen in Table 2, the physical effort of traditional in-store shopping is positively related to the perceived relative advantage of m-shopping for travel products (hence, H1 is supported). The results also support H2a, as time pressure positively influences perceived relative advantage. However, no support is found for H3a, as shopping enjoyment is not related to relative advantage. The results support H2b as time pressure is positively related to perceived compatibility. No support is provided for H3b, because shopping enjoyment is not related to perceived compatibility. The results further show that perceived relative advantage and perceived compatibility are related positively to the intention to adopt m-shopping for travel products, providing support for H4a and H4b. The results also reveal that perceived complexity is related negatively to the intention of consumers to adopt m-shopping, providing support for H4c. Together, the three innovation characteristics explain just over one third of the variance of the behavioural intention measure. Finally, the results show that perceived relative advantage co-varies with perceived compatibility and perceived complexity, and that perceived compatibility co-varies with perceived complexity.

Table 2
TESTING OF HYPOTHESES

Path to:	Path from:	Hypothesis	Co-efficients	t-value
• Compatibility	Enjoyment	3b	0.05	0.21
	Time	2b	0.24	5.27
	Complexity		-0.37	-8.14
• Relative advantage	Enjoyment	3a	-0.06	-0.4
	Phys. effort	1	0.25	3.68
	Time	2a	0.33	4.91
	Complexity		-0.26	-0.8
• Intention to adopt e-shopping of travel services	Compatibility		0.18	8.17
	Relative adv.	4a	0.51	3.16
	Complexity	4c	-0.29	-3
	Compatibility	4b	0.68	2.85

The testing for possible moderating effects of consumers' characteristics, for each moderating variable (age, income and education) was carried out by median splitting

the sample subgroups. For testing the equality of the structural paths, constrained and unconstrained models were estimated with the multi-group procedure as suggested by Jöreskog and Sörbom (1993). Hence, individual paths were separately examined across sub-samples and it was tested whether the estimated coefficients for each subgroup are equal using a Chi-square difference test.

The estimation results of the unconstrained models (Table 3) show that income has no significant effect on any of the path coefficients in the unconstrained models. The findings regarding education reveal that physical effort has a significant positive impact on relative advantage only in the well-educated group. Time pressure was found to have a significant positive effect on relative advantage only in the low-educated subgroup. The estimates for the path between time pressure and perceived compatibility are unlike for higher and lower educated consumers. The relative advantage is found to significantly affect positively consumers' intention to adopt m-shopping for travel products in the well-educated subgroup, while no effect is found in the lower educated subgroup. The perceived compatibility is found to affect positively consumers' intention to adopt m-shopping only in the subgroup of lower educated consumers.

Table 3
RESULTS OF MULTIGROUP ANALYSIS

Path to:	Path from:	Education		Income		Age group	
		High	Low	High	Low	Young	Old
• Compatibility	Enjoyment	0.10	-0.14	0.09	0.09	0.00	0.00
	Time	0.23*	0.47*	0.17	0.30	0.24	0.33
• Relative advantage	Enjoyment	-0.05	-0.18	-0.07	-0.18	-0.09	0.12
	Phys. effort	0.15*	0.00*	0.27	0.31	0.29*	0.05*
	Time	0.14*	0.77*	0.11	0.30	0.26*	0.38*
• Intention to adopt m-shopping for travel products	Relative adv.	1.27*	-0.16*	0.73	0.70	0.62	0.46
	Complexity	0.44	-0.28	-0.21	-0.26	-0.34	-0.18
	Compatibility	0.46*	1.44*	0.57	0.39	0.59	0.59

*The chi-square difference test shows that the coefficients in the two groups are unequal.

Finally, the findings reveal that physical effort affects relative advantage positively in the younger subgroup of consumers, but not in the subgroup of older consumers. The results also show that time pressure significantly influences relative advantage for the subgroup of older consumers, while it has no influence in the younger consumers.

Further discussion of findings

The survey results point out that people who consider themselves as busy perceive mobile shopping for travel products as very compatible with their purchasing experiences. These results suggest that busy consumers consider m-commerce for travel products as a means to reduce the time pressure associated with traditional in-store travel agency shopping; time pressure is closely related to shopping convenience. This suggests that convenience is a decisive factor in shaping consumers' perceptions of the characteristics of m-shopping, and hence their intention to adopt it. In addition, the findings show that consumers perceive the reduction in the physical efforts of travel shopping an im-

portant advantage of m-shopping. Thus, the advantages of traditional home and distance shopping in comparison to in-store travel agency shopping also appear to hold for m-shopping for travel products.

An interesting finding that shopping enjoyment appears to be unrelated to consumers' perception of the characteristics of m-shopping, in contrast to traditional home shopping. This might be caused by the fact that m-shopping is considered more enjoyable than traditional bricks and mortar travel shopping, because the Internet over a mobile phone provides consumers opportunities to communicate with other consumers (Wang, Yu, & Fesenmaier, 2001; Sigala, Mich, & Murphy, 2007). The findings regarding the relationship between consumers' perception of the characteristics and their behavioural intention to adopt m-shopping, reveal that, consumers who consider m-shopping to be superior, compatible and uncomplicated show a high willingness to buy travel products from home. This confirms that consumers consider m-shopping as a service innovation that is different from traditional home and distance shopping.

The survey reported here, also aimed at examining the moderating effect of the consumer characteristics of age, income and education on the relationships between the advantages and disadvantages of m-shopping for travel products, consumers' perception of the innovation characteristics of m-shopping and consumer's behavioural intention to adopt m-shopping. It appears that, for well-educated consumers, the perceived relative advantage is the most important determinant of the behavioural intention to adopt m-shopping. For less-educated consumers, time pressure is the most important factor influencing their perception of the innovation characteristics of mobile shopping. These results might be explained by the fact that well-educated and less-educated consumers have different shopping needs and hence consider the advantages and disadvantages differently in their decision to adopt m-shopping. The results further reveal that physical effort is the most important determinant of young consumers' perception of the relative advantage of mobile shopping, while time pressure is the most important perceived relative advantage of m-shopping for old consumers.

Conclusions

Overall, the findings of this survey appear to have significant implications for the content of mobile shopping services for travel products and the segmentation and targeting strategy of providers of such services. The finding that convenience is a decisive factor in determining consumers' perceived relative advantage and compatibility of m-shopping, means that - for example - virtual travel agents should emphasize this benefit in order to facilitate the movement of consumers through the adoption process. Convenience is closely related to time saving and physical efforts. Therefore, m-commerce content providers should design simple reservation, ordering and ticketing procedures that are convenient to consumers.

It was also established that, people that perceive the purchasing for travel products to be physically strenuous and have limited free time appear to be important market

segments. Furthermore, older consumers, as well as better-educated consumers with time-consuming jobs, are important socio-demographic market segments too. This knowledge can be used to fine-tune m-commerce travel providers' marketing programs within the targeted market segments. For example, virtual travel agents should treat consumers differently, according to their education level; in better-educated consumers, the agent should stress the reduction of the physical problems, while time saving aspects and focus on the compatibility of m-shopping with their life-style should be emphasised in the less-educated group.

Finally, the survey reported here is limited by a number of factors that may be taken into account in suggestions for future research. It should be noted that, the sample was drawn from the population of a city in Greece; the survey needs to be carried out further, with other samples drawn from different populations. Hence, these exploratory findings cannot be easily generalised to consumers at large; however, they might be used as a significant indication of consumers' behavioural intentions in countries with similar characteristics as Greece. Another limitation arises from the fact that although the scales used for measuring physical efforts and shopping enjoyment share similarities with existing scales from generic marketing literature, further research might consider developing more elaborate measures to allow for a richer coverage of these advantages and disadvantages of m-shopping for travel products. Also, the present survey focused on consumers' behavioural intention to adopt m-shopping for travel products; it would be interesting to include measures with regard to actual m-shopping behaviour in further research. Last, based on the results of moderating effects of age and education, it is recommended that they should receive more attention in future studies.

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