ONLINE SHOPPING AGENTS: AN EXPLORATORY STUDY OF USERS' PERCEPTIONS OF SERVICE QUALITY

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Abstract: The use of online shopping agents has increased dramatically in the last 10 years, as a result of e-commerce development. Despite the importance of these online applications, very few studies attempted to identify and analyse the main factors that influence the users' perception regarding the service quality of online shopping agents, and consequently, the elements that determine the users' choice of online shopping agents. The present study attempts to fill this literature gap, identifying on the basis of primary data analysis, the various circumstantial or personal factors that can determine the choice of a specific searching strategy and shopping agent.

1   INTRODUCTION

The sheer amount of information available on the Internet has introduced new challenges for companies and buyers. In the information-rich online environment, the firms must increase the distinctiveness of their offer, in order to make it visible to their targeted consumer segments. The buyers also have particular problems: although they might know exactly the technical specifications and the type of the desired product, how can they quickly identify the best offer in terms of quality-price? In many cases the amount and the variety of information available to customers create a situation of information overload.

Specific online applications have been created to solve this problem: search engines and intelligent agents. The use of these applications raises important questions related to their quality and reliability. The present study attempts to investigate the users' perceptions about the quality of shopping agents, answering to the following research questions:

1. What are the characteristics that define the quality of shopping agents in users' mind?

2. Are there any differences determined by the customer profile in the usage of shopping agents?

3. What are the transaction-related factors that influence the perceived quality regarding shopping agents?

2   SHOPPING AGENTS: A LITERATURE REVIEW

Shopping agents can be defined as specialised software applications which help users to search specific types of products or services offered online, and to collect additional information about these offers. After the users enters a query into the shopping agent, the software visits various e-shops or online merchant sites, collecting information about the product or service demanded (Rowley, 2002). The search is usually done on the basis of keywords or product categories, which are listed on the shopping agent's web page (Rowley, 2000a).

The use of shopping agents to search for the lowest possible price offer will increase the pressure for vendors to reduce the selling price, aligning it to the smallest existing level (Iyer and Pazgal, 2003). However, several studies showed that the differences in the online prices remain significant (Iyer and Pazgal, 2003, Sen et al, 2006). This can be explained by the choice of some vendors to focus on quality and personalisation rather than price, in order to increase the loyalty of their customers. Other online vendors decide to restrict the access of shopping agents to their offers (Iyer and Pazgal, 2003) in order to reduce the visibility of their price levels.

On the other hand, the services offered by shopping agents to customers significantly reduce their time and effort to search and compare online information. Some authors have developed mathematical models that attempt to predict the shopping behaviour of

online customers when using shopping agents (Iyer and Pazgal, 2003, Sen et al, 2006). Rowley (Rowley, 2000b) developed a model which presents the stages of product/service search using a shopping agent. The process is sequential and logical, but does not provide any clues regarding the attitudes/behaviour of consumers during the search process. In terms of e-marketing, the factors that influence the consumers' perceptions about the quality of shopping agents will determine their choice and use of a specific shopping agent, and finally, their level of satisfaction. A somehow different model of consumer behaviour is presented by Guttman et al. (Guttman et al., 1998) which comprises six successive stages: (1) need identification, (2) product brokering, (3) merchant brokering, (4) negotiation, (5) purchase and delivery, and (6) service and evaluation. Their analysis indicates that online shopping agents are particularly useful for the stages of product brokering, merchant brokering, and, sometimes, negotiation.

It is also logical to consider various elements that can influence the use of shopping agents and the satisfaction derived from their services. Sproule and Archer (Sproule and Archer, 2000) indicate a series of factors that determine a change in the type of information accessed by users and in their searching strategies, such as the purchasing situation (new versus frequent purchase) and the level of perceived risk (high versus low risk). Cooke et al. (Cooke et al., 2002) indicate that the online search strategy will be different for familiar and for unfamiliar products, focusing in their paper on the online marketing of unfamiliar products.

3 RESEARCH METHODOLOGY

In order to answer to the three research questions presented in Introduction, both secondary and primary data have been accessed and analysed. In the first stage of the research process, a series of texts published online or in academic journals or books have been used in order to obtain a comprehensive overview of the state of research in the area of shopping agents. In the second stage of data collection process, 200 people have been approached in Internet cafes located in London, Southampton and Edinburgh, UK, and invited to participate in a 20 minute face-to-face interview, regarding their use of shopping agents and their perception about the quality of shopping agents. 146 people accepted to take part in the survey, but only 121 had a direct experience of using shopping agents, and therefore, only the data provided by these people was retained and used for analysis. The interviews have been recorded and then transcribed

in order to facilitate their analysis. During the interviews, the respondents were asked to:
- describe their general experience in using shopping agents;
- provide a series of elements that, in their opinion, determines the users' perception about the quality of shopping agents;
- discuss the elements that could influence the users' perceptions about the quality of shopping agents;
- indicate their usual searching strategy and the type of shopping agent they prefer.

Data about the profile of respondents was also collected, such as: gender, age, frequency of Internet usage, frequency of e-shopping and frequency of shopping agents' usage. The transcribed interviews were than analysed manually, the identified patters of answers being codified and introduced into the SPSS software for frequency and cross-tabulation analysis.

4 USERS' PERCEPTIONS REGARDING THE QUALITY OF SHOPPING AGENTS

4.1 The Profile of Respondents

From 121 respondents, 79 (65.3%) were men and 42 (34.7%) women. Most of respondents were young, 85 (70.2%) having between 18 and 25 years old, 27 (22.3%) were aged between 26 and 40, and the remaining 9 (7.5%) of respondents between 41 and 60. 66 respondents reported a high frequency of e-shopping (at least once a week), 38 indicated a medium frequency (at least once a month) and the remaining 17 a low e-shopping frequency (less than once a month). In terms of shopping agents usage, 42 respondents indicate that they use this service regularly, 67 occasionally, and 12 rarely.

4.2 The Characteristics that Define the Quality of Shopping Agents

The respondents have indicated during the interviews the perceived characteristics that define, for them, the quality of shopping agents. The capacity of the shopping agent to find the lower price offer is considered important by 81% of respondents. These are probably the 'bargain-oriented shoppers', which use the Internet primarily of the opportunity to find competitive price offers. Ease of interaction is outlined by 80.2% of respondents as an important quality element of the shopping agent. This characteristic is a rather complex concepts which includes: the reliability of shopping agent website, the ease of navigation within the site, the clarity of various

information/indications provided on the website, the tools available on the web site (search, select from a list, order the results in relation to various headings). 76.8% evaluate as important the precision of the shopping agent, defined as its capacity to find the required product. 70.2% of respondents expect to receive additional information about the offer and/or about the vendor, either in the form of short reports, or as links, that can then be explored by the user. Finally, 58.7% of respondents like the shopping agents that, beside the online offers, provide also access to product rankings or product reports written by previous customers. This service requires the existence of a specific software function which has to be actively implemented by the shopping agent.

4.3 The Differences determined by the Customer Profile in the Perception of Shopping Agents' Quality

Considering the relative and subjective nature of perceiving services quality, it can be expected that the characteristics defining the quality of online shopping agents will vary in relation to the personal profile of respondents. In order to identify this variation, the four elements which have been selected to define the profile of the respondents in this study: (1) gender, (2) age, (3) frequency of e-shopping and (4) frequency of shopping agents usage have been cross-tabulated with the quality characteristics indicated by respondents. The results indicate the influence of respondents' gender on the perceived quality characteristics of online shopping agents. Male respondents seem to consider more than the female respondents that the precision of the shopping agent (in terms of finding the right product and the lower price), represents an important quality element. On the other hand, a large proportion of women respondents, indicated as important quality elements the provision of additional information about the offer and/or vendor (92.5%), the ease of interaction (97.5%) and the access to previous clients' ranking and/or recommendations. These differences can be explained by the differences in the shopping behaviour of men and women. Men seem to be more focused on the efficiency of the search process, while women like to have access to additional data in order to make an informed choice. The age of respondents is also determining a variation in the respondents' perception of the defined quality characteristics. The younger respondents are focused on the precision of shopping agents (both in terms of price and specific product), while the older respondents appreciate positively the capacity of the search engine to provide additional information and ease of interaction. At interesting trend is the progression (or regression) of

percentages from one to another group age. The regression is significant in what concern the capacity to find the lower price offer (from 91.8% to respondents aged between 18 and 25 years old, to 22.2% of respondents aged between 41 to 60 years old). Similarly, the progression of percentages is important in what concerns the capacity of the shopping agent to provide additional information about the product and/or vendor, ease of interaction and the access to previous clients' rankings and recommendations. The results can be interpreted by the need of older users to easily interact with the software application, and to compare in more detail the various offers selected by the shopping agent.

The frequent online shoppers seem to appreciate particularly the capacity of the shopping agent to find the lower price offer (97% of respondents from this category). On the other hand, the people that are using less frequently the online market are interested in rich information and ease of interaction (the totally of respondents defined as less frequent shoppers indicated this element as important), but also in the capacity of the shopping agent to identify properly the required product (94.1% of respondents from this category). These results are logical, considering the fact that the less frequent shoppers associate online transactions with high levels of risk, and therefore require precise and extensive information about the offer and the vendor.

The trends identified in relation to the e-shopping frequency are similar with the results based on the frequency of shopping agent usage. This might indicate that frequent e-shoppers are also using frequently online shopping agents, projecting in their responses their specific behavioural profile. However, this is not entirely true, because the frequent users of online shopping agents represent only 63.6% of the respondents that have indicated a frequent e-shopping. Again, more research is necessary to understand why some frequent shoppers are not also frequent users of online shopping agents. A possible explanation is their preference to shop mostly from known and trusted online vendor, which eliminates the need for shopping agent services.

4.4 The Transaction Factors influencing the Perceived Quality of Shopping Agents

The relative importance of quality factors is different in relation to various transaction-related elements. The respondents indicated that the most important transaction elements influencing the perceived quality of shopping agents are: level of selling price, familiarity of with the product, familiarity with the vendor, length of product use, time available for

decision and purchasing. In a situation of a high selling price the capacity of the shopping agents to identify the lower price offer is considered important by the majority of respondents. High percentages are also provided for the capacity of the shopping agent to select the required product, to provide additional information about offer and/or vendor, as well as the rankings and comments of previous customers. These results can be explained by the high transaction risk that is associated with a high product price. Gradually, as the price level is medium and low, the need for additional information becomes less important. The need for a precise selection of the lower price offer and of the required products is lower when the price is small, but the percentage of respondents that consider these factors as important still remains relatively high. The proportion of people that indicated the ease of interaction as important remains quite stable in all three price situations.

As expected, a low familiarity of the customer with the product determines a high request for information related to the offer, vendor and previous customers' experience. Inversely, the shoppers familiar with the product indicate a low importance of additional information, focusing their needs on the capacity of the shopping agent to identify precisely the best price offer and a specific product. When the product acquired online will be used a long time, the respondents consider as particularly important the capacity to obtain rich information about the product, vendor and previous customers' experience. This tendency is determined by the risk associated with the transaction, taking into account that, usually, the products with a long life-time are also relatively expensive. However, the other quality characteristics are also considered important by a large proportion of respondents, the profile of results being quite similar with the data provided in the case of expensive products. This similarity is also preserved in the evolution of percentages for the situation of a product with a medium lifetime and for a product with a short lifetime. Interestingly, in this last situation, the shopper is specifically interested to in the capacity of the shopping agent to provide the best price offer, indicating that the shopping decision might be determined by the level of price.

The answers provided are particularly interesting in the situation when the shopper has a very short time to find desired product and to conduct the transaction. In this case, all the five quality characteristics are indicated as highly important by a very large proportion of respondents. The percentages are decreasing progressively when the customer has more time to conclude the transaction, which creates better conditions for a thorough information search and comparison of various available offers.

5 CONCLUDING REMARKS

Despite the increased importance of shopping agents for the development of online consumer markets and transactions, the existing literature has not yet considered the specific quality characteristics of shopping agents, as they are perceived by the users, in relation to their personal profile and the specific circumstances of various transactions.

The study has a number of limitations, determined by its exploratory approach. The sample of respondents is relatively small, and the data provided was analysed at a superficial level. The focus of this project was more to understand what are the perceived quality dimensions of the online shopping agents, and what are the factors that influence this perception (personal and transactional), and not to find out why the respondents are perceiving a specific way the quality of e-shopping agents. This empirical dimension requires further research, in which the statistical analysis of quantitative data has to be complemented by a qualitative approach, which can provide a better understanding of the way in which online customers interact with shopping agents.

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