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Quelles sont les variables qui influencent les perceptions d'utilisabilité et les intentions comportementales des hommes et des femmes sur un site Web? Le cas des internautes canadiens-français

RÉSUMÉ: L'objectif principal de cette recherche est d'étudier si les facteurs influençant les perceptions d'utilisabilité et les intentions comportementales vis-à-vis d'un site web diffèrent selon le sexe. À cette fin, une étude a été réalisée auprès de 3,970 internautes canadiens-français qui ont navigué sur un des 57 sites retenus pour l'étude. Il en ressort que les perceptions d'utilisabilité sont formées différemment selon le sexe mais non les intentions comportementales.
Mots Clés: Modèle de la sélectivité; Différences entre les sexes; Recherche d'information en ligne; Intentions comportementales; Perceptions d'utilisabilité; Qualité d'un site web,

 What drives ease of use perceptions and behavioral intentions toward websites for men and women? A study of French-Canadian Internet users

ABSTRACT: The main objective of this research is to examine whether the drivers of websites' usability perceptions and behavioral intentions vary between men and women. Nearly 4,000 French-Canadian Internet users navigated on one of 57 websites chosen for the study. Results show that usability perceptions are shaped differently for men and women but behavioral intentions are not.
Keywords: Selectivity model**;** Sex Differences; Internet Search; Usability perceptions; Behavioral Intentions; Website quality

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INTRODUCTION

The growth and promise of Internet applications have stimulated a sizeable research effort to develop instruments to assess user perception of website quality (Yoo and Donthu, 2001; Barnes and Vidgen, 2003; Wolfinbarger and Gilly, 2003; Bressolles, 2004; Loiacono, Watson and Goodhue, 2007; Aljukhadar and Senecal, 2009). These tools are useful for website designers because they clarify the attributes that are the most significant in forming consumers' intention to revisit websites. Sex[2] might be a key moderating variable in ease of use formation and intentions to revisit websites: considerable empirical research supports the idea that men and women process information differently (Meyers-Levy, 1989; Meyers-Levy and Maheswaran, 1990; Meyers-Levy and Sternthal, 1991) and exhibit different personality traits (Costa, Terracciano and McCrae, 2001; Feingold, 1994). Sex differences in Internet adoption, motivation to use the Internet and in the content that attracts users online have also been consistently reported (eMarketer, 2005; eMarketer, 2008; Smith and Whitlark, 2001; Phillips, 2009). Studies also identify varying factors driving males' and females' adoption of information systems (Venkatesh and Morris, 2000). However, despite these recognized sex differences, no research to date has investigated whether men and women are influenced by the same key attributes when forming ease of use and behavioral intentions (BIs) when they search for information on a specific website in their natural environment.

Further, few studies have explored the antecedents of ease of use, a key construct in information system acceptance (Benbasat and Barki, 2005). The rare exceptions, e.g. Venkatesh (2000) and Venkatesh and Davis (1996), highlight the importance of individual variables in defining ease of use but did not study the impact of sex. Sex has generally been missing from IT behavioral research (Gefen and Straub, 1997). This study attempts to fill this gap by positing that, when navigating online with a specific goal in mind, men and women differ in the weight attached to various website attributes that form ease of use perceptions and behavioral intentions.

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[2] The American Psychological Association Publication Manual (4th Edition) states that the word "gender" is cultural whereas the word "sex" is biological. However, in the literature, the terms "gender" and "sex" are often used interchangeably. Whether the differences discussed in this study are cultural or biological (or both) is as yet unresolved and lies beyond the scope of this study. An effort has been made to use the term "sex" whenever possible because the variable of interest is biological sex.

The present study differs significantly from previous research done in this area. First, it does not use a convenience sample, but relies on a large and fairly representative sample of French-Canadian Internet users (n=3,970). Second, 57 websites, representing 12 sectors of the economy, were used, rather than a few websites. Third, participants evaluated the website visited and expressed their intentions regarding the site after performing a goal-oriented search task from their homes, not in a laboratory context that could limit the external validity of the results. Therefore, we are confident that our results closely mimic the way consumers behave when they search for information at home.

Sex has long been considered a market segmentation variable. It is easily identifiable and the segments are large enough to generate profit. Specifying the moderating role of sex can thus help e-tailers design strategies tailored to various consumer profiles.
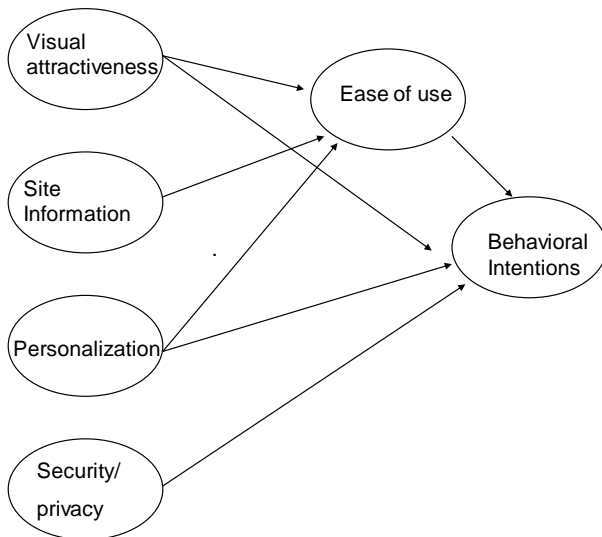
LITERATURE REVIEW AND HYPOTHESES

Measurement of key website characteristics

Because the attributes of online retailing differ from those of traditional "brick and mortar" retailing, it has been suggested that existing concepts of service and retailing quality might be ill-adapted to the online context (Wolfinbarger and Gilly, 2003). In consequence, researchers have developed tools to capture the important dimensions of web quality, including Sitequal (Yoo and Donthu, 2001), Webqual (Barnes and Vidgen, 2003; Loiacono, Watson and Goodhue, 2007), eTailQ (Wolfinbarger and Gilly, 2003), Netqu@l (Bressolles, 2004). Netqu@l originally included 19 items measuring five underlying dimensions of website quality: visual attractiveness, ease of use, site information, security/privacy, and personalization of the interaction. It has since been used in a number of studies using different samples and types of websites and has proven to reliably measure important dimensions of website quality (Nantel, Senecal and Mekki-Berrada, 2005; Nantel and Bressolles, 2006). Aljukhadar and Senecal (2009), working with a large representative sample of Internet users, proposed a new structural pattern of the Netqu@l

constructs with more parsimonious scales, highlighting the central role of ease of use on attitude and behavioral intentions. Zeithaml, Berry and Parasuraman (1996) suggest that behavioral intentions (BIs) are the best indications of customer satisfaction and service quality as measured by repeat visits/purchases, recommendations and positive comments. Because this conceptualization has been used in a study modeling BIs on the web (Liu *et alii*., 2005), we opted for a similar definition of BIs. We adopted the research framework and key Web characteristics developed by Aljukhadar and Senecal (2009) for our study. The research framework of reference is presented in Figure 1.

Figure 1. - Research framework

Differential information processing between men and women

Joan Meyers-Levy (1989) developed a framework that unified a variety of sex differences within the selectivity model that stipulates that males and females differ in the strategies they use to process information. Accordingly, males are selective processors; they do not engage in comprehensive, extensive processing of all available information. Instead, they employ various heuristics that serve as surrogates for more detailed processing on which they base their judgment, such as focusing on self-relevant information, on cues that are highly available and salient in the

context or on cues that converge to imply a single inference. Men are not likely to pay attention to subtle details (Meyers-Levy and Maheswaran, 1990; Meyers-Levy and Sternthal, 1991; Graham *et alii*., 2002). In contrast, women are comprehensive processors that tend to assimilate all available information, encode more cues, and elaborate more on them. Women attempt to engage in a rather effortful, comprehensive, piecemeal analysis of all information. Further, Meyers-Levy and Sternthal (1991) posit that women have a lower threshold at which they notice these subtleties. The selectivity model is the core framework underlying the proposed sex differences in this study.

Sex and visual attractiveness

Because women, as comprehensive processors, encode and elaborate on cues more than men do, we believe that they should also be more sensitive to the visual attractiveness of the site. Costa, Terracciano and McCrae (2001) contend that men and women differ in the aspects of experience to which they are preferentially open. Women score higher than men in openness to aesthetics and should therefore be more receptive to and influenced by beauty, colors or design. Several studies support this view. For example, color coded material seems to improve learning and decision accuracy for females but not for males compared with black-and-white coded material (Dwyer and Moore, 2001; So and Smith, 2002). More recently, Moss, Gunn and Heller (2006) show that women are more concerned by aesthetics and colors than men when designing their own websites. It has been argued that girls make more elaborate and more subtle color distinctions than boys do (Green and Gynther, 1995). Different anatomy of the eye between males and females is believed to be an underlying factor explaining males' and females' aesthetic preferences (Kaplan and Benardete, 2001; Meissirel *et alii*., 1997; Iijima *et alii*., 2001). This biological difference may explain why women tend to be more critical of the aesthetics/design of websites than men (Arcand and Nantel, 2005; Cyr and Bonnani, 2005). Web design specialists such as Nielsen (1999) and Ladwein (2001) highlight the crucial links between web design and usability. Maximizing web pages readability or "scannability" (Nielsen, 1999), by ensuring that links on pages are easy to find and by using graphic/colors adequately to organize information are key factors to enhance usability. A site well designed provides easy access to the content and

ensures users are in optimal dispositions to perform useful tasks, such as gathering the information they are looking for (Ladwein, 2001; Nielsen, 1999). We believe that women can cue, more than men, into the detailed visual aspects of a website, including colors and design. Therefore, we posit that:

H1: The relation between visual attractiveness and ease of use is stronger for women than for men.

H2: The relation between visual attractiveness and BIs is stronger for women than for men.

Sex and site information

In the Information Systems (IS) literature, ease of use and information are closely related. According to Keevil (1998), "usability refers to how easy it is to find, understand and use the information displayed on a web site." When modeling usability, site information/content is viewed as an important antecedent or dimension of the usability construct (Palmer, 2002; Grange, 2007). The selectivity model states that females have more subcategories in memory within which they store information. Males, in contrast, employ broader, more inclusive categories. Females are also more attentive to details and can then establish more differentiated, narrower category structures to organize their finer distinctions (Meyers-Levy, 1989). This could suggest that as "experienced" comprehensive processors, women might be better equipped to deal with substantial amounts of information. Observation of children engaged in search tasks on the Web indicate that boys find Web pages lengthy to read, are especially impatient when pages contain only text instead of text with pictures, and tended to spend less time per page than girls (Leong and Hawamdeh, 1999; Large, Beheshti and Rahman, 2001). These studies conclude that women tend to assimilate all available information while men are more selective in their approach. Accordingly, site information should be more salient for women in forming ease of use perceptions than for men. Therefore, we posit that:

H3: The relation between site information and ease of use is stronger for women than for men.

Sex and personalization of the interaction

Personalization is seen as "the ultimate form of customization, the final result of understanding the unique needs of the customer" (Holland and Menzel-Baker, 2001). Personalization in the Internet context contributes to the creation of brand loyalty by improving search accuracy, and speeding the completion of transactions, therefore increasing the efficiency of achieving goals (Holland and Menzel-Baker, 2001). Recently, Liang, Lai and Ku (2006-2007) find that some forms of personalization can increase user satisfaction with an interactive website. However, consumers must both desire and value personalization for it to have effect on their behavior or loyalty. In the IS discipline, interactivity and customization features affect usability perceptions (Palmer, 2002; Grange, 2007; Agarwal and Venkatesh, 2002).

The literature portrays men as being task-oriented and instrumental. In contrast, women are believed to adopt a communal orientation (Costa, Terracciano and McCrae, 2001; Bakan, 1966; Carlson, 1971). These differences in traits are also salient in the Internet environment (Jackson *et alii.*, 2001; Akhter, 2003; Smith and Whitlark, 2001). The relative importance of personalization of the interaction for men and women has received little attention in academia. As a feature that increases task effectiveness, personalization of the interaction should be more desired by men than women, owing to their traits and processing style. Further, because men tend to streamline the processing of external world information by focusing on self-relevant information, (McGivern *et alii.*, 1997; Meyers-Levy, 1989), they may find personalization features particularly valued and relevant. We predict that the personalization features of websites will be more important for men than for women in conditioning their intention to use, make purchases on or recommend the site. A similar pattern should be expected in the modeling of ease of use. Therefore, we posit that:

H4: The relation between personalization of the interaction and ease of use is stronger for men than for women.

H5: The relation between personalization of the interaction and BIs is stronger for men than for women

Sex and security/privacy

Consistent with the selectivity model, because men focus on the most salient cue, they are more likely to focus on task effectiveness of a technology, i.e. convenience of online purchasing, without considering risk because it does not converge to a single inference. In contrast, as detailed processors, women will consider all information available, including that which is subtle and potentially disconfirming. Women are then more likely to incorporate risk and other secondary information in their decision and behavior (Graham *et alii*., 2002). Further, women are generally portrayed as being more risk adverse than men in a variety of contexts (Byrnes, Miller and Schafer, 1999), including the Internet (Garbarino and Strahilevitz, 2004). Findings regarding sex and privacy concerns are mixed. Faja and Trimi (2008) conclude that men and women do not differ in their concern about information privacy online, while other studies (Bartel-Sheehan, 1999; Phillips, 2009) show that women report greater concern than men about the potential impact of the Internet on their privacy; However, men seem more likely than women to adopt protective behaviors that are congruent with their privacy concerns (Bartel-Sheehan 1999; CEFRIO 2008). Overall, despite disparate findings, the literature suggests that women should consider the *privacy/security* dimension as more diagnostic when deciding on intention to buy a product on a web site or revisit the site. Therefore, we posit that:

H6: The relation between security/privacy and BIs is stronger for women than for men.
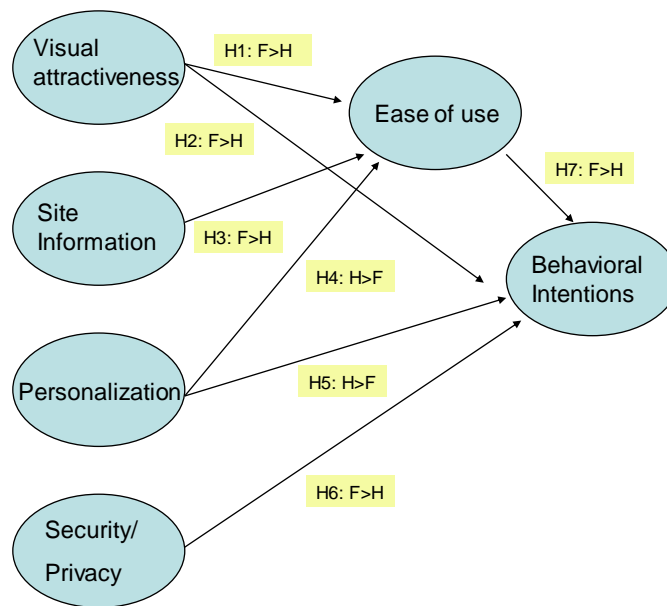
Sex and ease of use

Substantial research shows that women experience higher anxiety with computers (Rosen and Maguire, 1990; Igbaria and Chakrabarti, 1990) and lower perceived self-efficacy or computer-related confidence than men (Brosnan, 1998; Whitley, 1997). Lower self-evaluation and lower computer-related confidence by women might result from consideration of more cues during evaluation, as suggested by the selectivity model. Venkatesh and Morris (2000) underline the moderating role of sex in the adoption of a new software system using the Technology Acceptance Model (TAM). Perceived usefulness of the technology was the major factor driving

men's acceptance of new software. In contrast, software's perceived ease of use was a key determinant for women, whereas it was insignificant for men. Chiu, Lin and Tang (2005) assert that the influence of ease of purchasing on online purchase intentions is stronger for female than for male Taiwanese Internet users. *Ease of use* is thus putatively more salient for women than for men in the modeling of behavioral intentions toward a website. Therefore, we posit that:

H7: The relation between ease of use and BIs is stronger for women than for men.

The research model and the related hypotheses are illustrated in Figure 2.

Figure 2. - The hypothesized moderating role of sex in the model

METHOD AND PROCEDURES

Sample and data collection

In order to test the hypotheses related to the moderating role of sex in the model, we used data gathered via questionnaire from consumers that completed a goal-oriented task on a website. Data were collected as part of a nationwide online study conducted in collaboration with a large

Canadian marketing research firm. Every two months, several sites from a given industry were chosen. An email was sent to a representative sample of the firm's French-Canadian Internet panel. After the panel was stratified according to conventional socio-demographic variables, participants were randomly selected to participate in the study. They were invited to navigate on a specific website (B2C) from a given industry to accomplish a goal-oriented task. A fairly representative sample was thus formed for each of the twelve sectors studied.

Tasks were identical for each sector and had comparable difficulty levels. After they finished navigating, participants were directed to an online questionnaire in which they evaluated the website on five dimensions (visual attractiveness, ease of use, site information, security/privacy, and personalization of the interactivity) and indicated their BIs toward the website. Socio-demographic variables and information on experience with the Internet and with the website at hand was also gathered. Respondents were entered in a monthly drawing in exchange for their participation. A control mechanism was put in place to ensure that subjects would navigate on their assigned website only once. Data from completed questionnaires were transmitted automatically to a secure site managed and hosted by the marketing research firm, where they were saved individually for each industry. Table 1 summarizes the industries, tasks and number of men and women that participated in the study and whose reports on the relevant variables were complete. In total, 3,970 respondents (50% women) participated in the research, which encompassed 57 websites representing 12 industries. Participants navigated on their assigned website from their home. This procedure was intended to improve the external validity of the study by offering an environment that was similar to that consumers typically use when they search for information or shop online. The response rate (completed surveys/email read) for the twelve surveys ranged from 18,3% to 23,0% which is in the average to high end of the response rate continuum obtained in recent academic email surveys (for reviews, see Deutskens *et alii*., 2004 and Kaplowitz, Hadlock and Levine, 2004).

Table 1 - Nature of the tasks

Industry sector	Task	Number of women	Number of men
Banks	Find the interest rate for a one-year fixed rate mortgage	156	167
Home renovation & decoration	Find the price of the cheapest jigsaw	142	130
Electronics	Find the brand and the model of the cheapest 4-megapixel digital camera	188	150
Travel & Tourism	Find the price for two adult tickets to Cancun with a specific departure date	204	179
Books	Find the retail price of a dictionary	207	239
Auto manufacturers	Find the suggested retail price of a vehicle previously selected across the best selling models of each manufacturer	119	111
Media	Find the main economic news published on the day of their visit	139	192
Communication service providers	Find the price of the cheapest package allowing unlimited use of cell phone during weekends	157	142
Retail stores	Find the address and phone number of the store closest to their home	105	102
Insurance services	Complete an online quote request for home insurance	210	146
Classifieds	Find ads for winter tires and report if such ads exist on their assigned website	182	212
Real estate	Find information on condominiums for sale with detailed specifications and prices	171	220
No. of tasks performed		**1,980 (49,9%)**	**1,990 (50,1%)**

The majority of subjects (73%) had never navigated on their assigned site before, regardless of sex, and 62% had previously made an online purchase. Only 55% of women had closed a purchase online compared with 70% of men, a difference that reflects a real variation in the population (Zamaria, Caron and Fletcher, 2005). Men and women did not differ significantly on education but significantly more men than women aged 55 and over took part in the study, which is also consistent with a similar variation in the Canadian population (Zamaria and Fletcher, 2008). Overall, the sample was highly representative of French-Canadian Internet users.

Measures of the constructs

In order to maximize the content validity of the constructs, we used or adapted scales that have been used by other researchers in the field.

The dependent variable: behavioral intentions

Zeithaml, Berry and Parasuraman (1996) suggest that BIs are the best indications of customer satisfaction and service quality as measured by repeat visits, recommendations, positive comments, and repeat purchases. This conceptualization of BIs has been used in a recent study modeling behavioral intentions on the Web (Liu *et alii*., 2005). Therefore, we proposed an adapted version of this scale. In our study, BIs are defined by 3 items, measured on Likert-type 7-point scales (1-"Completely Disagree" to 7-"Completely Agree"):

-I would recommend this site to friends, colleagues and family.

-This site is my reference when searching for information regarding (product type).

-I would like to visit this site again in the future.

Independent variables: website characteristics

As previously noted, key website characteristics are measured using the Aljukhadar and Senecal (2009) model. It includes 16 items measuring 5 dimensions of website quality: visual

attractiveness, ease of use, site information, security/privacy, and personalization of the interaction. Item details are available in A1.

Moderating variable: sex

The moderating variable is biological sex as reported by participants.

RESULTS

Convergent and discriminant validity of the measures

Convergent and discriminant validity of the measures were assessed to ensure internal consistency and sound psychometric properties of our constructs for both sexes. Individual item lambda coefficients were all above 0,70, with a significant t statistic for each path, which is indicative of good convergent validity (Gefen, 2000). The average variance extracted for each construct ranged from 0,82 to 0,86, well above the squared correlation coefficients between factors (which ranged from 0,30 to 0,73), as recommended by Fornell and Larcker (1981) for evidence of discriminant validity.

All further analyses were based on the EQS 6.0 program (Bentler, 2004). Confirmatory Factor Analysis (maximum likelihood method) was used to test the invariance of our model across the sexes. We first started by establishing a baseline model separately for men and women. We then tested for measurement equivalence of the instrument to assess its stability. Finally, we tested the invariance of the full causal model, using multigroup analysis. A 2-index strategy was used to assess model fit using CFI (cut-off value of 0,95) and RMSEA (cut-off value of 0,06), supplementing chi-square tests (Hu and Bentler, 1999). Additionally, because our data presented limited degrees of skewness and kurtosis, we used the robust methodology available with EQS 6.0 to address these issues, including the Satorra-Bentler corrected chi-square (S-B X^2) and adjusted fit indexes (*CFI and *RMSEA).[3]

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[3] Four outliers, all women, were deleted from the sample to reduce potential adverse effects in the analysis.

The baseline model for men and women

The goal is to establish baseline models for men and women that represent the best-fitting option to the data from the perspective of parsimony and substantive meaningfulness (Byrne, 2006).

The baseline model presented an excellent fit for both men and women, as measured by *CFI and *RMSEA fit indices. However, since chi-square is extremely sensitive to sample size, it is artificially inflated here: for men, chi-square = $430,65_{(139)}$ (p=0,000), *CFI=0,989, *RMSEA= 0,036 (0,032-0,039); for women, chi-square=$534,04_{(139)}$ (p=0,000), *CFI=0,988, *RMSEA=0,038 (0,035-0,041). No further adjustments to the baseline models are deemed necessary.

Multigroup invariance tests

In testing for equivalencies across groups, sets of parameters are tested in a logically ordered and increasingly restrictive fashion. As such, these models are hierarchically nested (Byrne, 2006). We tested first for invariance of factor-loading paths (model 2). We then tested factor variance and covariance (model 3) to ensure equivalency of the measurement model across groups. Finally, invariance of causal paths was tested between sex groups (model 4). The latter is the most relevant test of our hypotheses. Table 2 summarizes the results of the multigroup invariance tests. Considering chi-square differences that are not significant between models 2 and 1, or between models 3 and 1, all parameters in the measurement models are invariant across sex groups, indicating good stability of the measurements across groups. However, when adding equality constraints on the 7 causal paths, the fit is good in that chi-square=$1089,52_{(308)}$ (p=0,0000), *CFI= 0,98, *RMSEA = 0,026, but the S-B chi-square difference = $56,96_{(30)}$ is significant (model 4). Two causal paths are non-equivalent across groups: the path originating from information to ease of use (p < 0,05), and the one from personalization of the interaction to ease of use (p < 0,05).
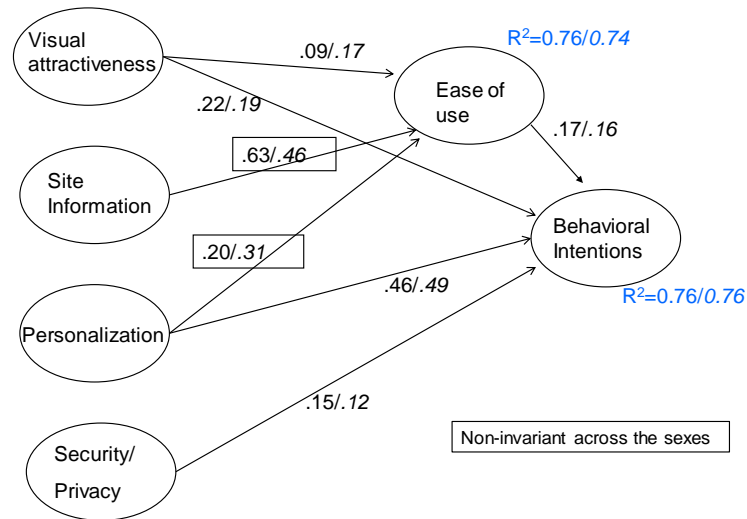
Table 2. - Tests for invariance across the sexes

Model and constraints	S-B X^2	df	*CFI	Model comparison	[4]Δ S-B X^2	p value
Model 1 No constraint	1024,48	278	0,99	----	----	----
Model 2 Factor loadings	1049,11	291	0,98	2 vs. 1	15,49 (13)	>0,05
Model 3 Factor loadings, variance and covariance	1066,66	301	0,98	3 vs. 1	32,84 (23)	>0,05
Model 4 Factor loadings, variance, covariance and causal paths	1089,52	308	0,98	4 vs. 1	56,96 (30)	**<0,05**

The structural paths for men and women based on standardized coefficients are shown in Figure 3. For both men and women, the model explains approximately 75% of ease of use perceptions and 75% of BIs, which is indicative of good criterion validity. Personalization of the interaction is the most important factor explaining BIs for both men and women (invariant), considering its direct effect as well as indirect influence via ease of use. All factors driving BIs are invariant across the sexes. However, different dimensions seem to play a prominent role in defining ease of use for men and women. For men, *personalization* of the interaction has a greater impact when forming ease of use perceptions than for women. In contrast, information quality contributes to enhancing women's ease of use perceptions of a website to a greater degree than men's. These latter results support H3 and H4, but H1, H2, H5 and H6 must be rejected.

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[4] After correction

Figure 3. - Confirmatory causal model for men and women

Standardized coefficients (Women/*Men*)

DISCUSSION AND CONCLUSION

Few studies have focused on the antecedents of ease of use (Benbasat and Barki, 2005) even though it is a key construct in technology acceptance. Venkatesh (2000) and Venkatesh and Davis (1996) are exceptions. They highlighted the importance of individual variables in defining ease of use such as computer self-efficacy, perceived control, perceived computer playfulness, and anxiety. Better understanding of the relationship between important dimensions of websites and ease of use may be helpful in guiding website development and marketing actions. In the IS literature, Palmer (2002), Grange (2007) and Agarwal and Venkatesh (2002) show that information content and personalization are related to usability perceptions. Our study contributes to the literature by affirming that ease of use perceptions are shaped differently for men and women. For women, site information and ease of use are more closely related than for men. This is indicative of females' more comprehensive style of information processing. It is also consistent with the narrower category structures women use to organize information (Meyers-

Levy, 1989). For men, personalization features improve ease of use perception to a greater extent than for women.

However, contrary to our expected results, no significant differences in the factors that influence the BIs of men and women emerged across the sexes. If men and women process information differently and differ on certain traits, those differences do not affect the weight they attribute to ease of use, visual attractiveness, security/privacy and personalization when forming their behavioral intentions toward websites. These results may be indicative of a narrowing gap regarding the differences between men and women when performing Internet searches.

Overall, our results partially support the theory of the selectivity model in the Internet environment, in particular that women are comprehensive processors and men are selective ones. We can assume a moderating role of sex in the formation of usability perceptions but not in the formation of BIs.

These results have interesting managerial implications for the design of quality websites. When marketing managers work to improve relevance, quality and depth of information on a website, the changes improve consumers' perceptions of ease of use, especially for women. Due to the fact that women are more prone to a comprehensive mode of information processing, when the site presents appropriately detailed high quality content, it will have more impact on them compared to men. Clickable links to relevant extra information and comparison matrix are tools that should be particularly well-suited to women's processing style. By contrast, providing features that allow for personalization reinforce, for men more than for women, the perception that a website can be used without effort (adaptation of Venkatesh, 2000: ease of use definition), because men enjoy the ability to control the amount of information presented at them. For men, customization tools provide a way to avoid processing a vast quantity of information, which is consistent with males' tendency to use shortcuts to streamline information processing (Meyers-Levy, 1989). Because men are more task-oriented and instrumental, they prioritize efficiency above anything else in achieving their goals, and personalization supports efficiency in directed search tasks (Holland and Menzel-Baker, 2001). Therefore, functionalities allowing users to do

research "their way", such as providing filters with their own search criteria or searching within saved research would be to implement first and prior for sites targeting at male patrons. However, because no noticeable differences across the sexes emerges on factors driving BIs, it appears unnecessary to differentiate neither the content (i.e.: information architecture) nor the design of a website for appeal based on sex in order to increase customer loyalty or to gain more favorable word-of-mouth referrals. Finally, in addition to ease of use, it seems that the visual attractiveness of the site and personalized interaction with the consumer are key drivers of BIs for both male and female audiences. This is evident even in a utilitarian context when consumers visit a website in search of a particular piece of information. Our findings support the recommendation of Novak, Hoffman and Yung (2000) that "creating a compelling online experience for cyber customers is critical to creating competitive advantage on the Internet." Personalization is especially important in that it also affects BIs indirectly via its impact on ease of use.

Compared with many studies of Internet searches and marketing, our study has three methodological strengths that have enhanced the generalizability of our findings, at least with respect to the French-Canadian population. First, our study did not use a convenience sample, but relied on a large and fairly representative sample of Internet users (n=3,970). Second, numerous websites that are representative of twelve important sectors of the economy were tested, rather than only a few websites. Finally, participants tested websites from their homes, not from a laboratory, an environment that could limit the external validity of the results. Therefore, we are confident that our research method closely approximates consumers' behavior when they search for information while in their usual environment in order to determine what drives them to return to a website or to recommend it to friends.

LIMITATIONS

As with all behavioral research, there are limitations to this study that must be mentioned. Even though we asked participants to navigate the Internet in a context that was as close as possible to their usual environment (their home), they had to accomplish a task at the request of the researcher, which may have rendered the context somewhat artificial. For example, they may have had limited interest or involvement with some product categories for which they were asked

to find information. We believe a fruitful avenue for future research could be to manipulate the consumer's involvement level with a product or website to evaluate the potential impact on the saliency of various factors on BIs. The informational nature of many tasks in this study might partly explain why sex differences did not manifest themselves in the formation of BIs. Concentrating on tasks where consumers actually choose and buy products might be more suitable for observing manifestations of sex differences on key dimensions such as security/privacy or ease of use. Most of the research focusing on *ease of use* in relation to sex has been done using the Technology Acceptance Model (i.e., Venkatesh and Morris, 2000; Ong and Lai, 2006; Amin, 2007). This study did not use the typical constructs of the TAM model, namely perceived usefulness. This difference may explain the lack of saliency of the ease of use construct for women in our study.

Our research investigated a utilitarian context and required participants to accomplish a specific task, because consumers generally use the Internet with a specific goal in mind. We encourage researchers to study sex differences in a more hedonic context (games, virtual worlds, etc.) and to include constructs such as enjoyment and flow. Such studies could explore the relative influence of various dimensions that drive intentions to return to those websites, and how these intentions might vary between men and women.

We are hopeful that these findings will contribute to the theoretical body of knowledge in marketing and IS. We also hope they will help practitioners design and improve websites based on the understanding that ease of use perceptions is sex-specific. As a final note, we encourage researchers to replicate this study using different settings in order to enrich the understanding of the role that individual variables such as sex play in behavioral intentions in a web-based context. Studies exploring the differences in response to personalization and interactivity based on sex are lacking. New information would be welcome because these issues are especially relevant in the Internet environment.

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A1 – Aljukhadar and Senecal (2009) scale[5]

Visual attractiveness

This site is colorful

This site is creative

This site has an attractive appearance

Ease of use

This site is easy to use

It is easy to search for information

This site is easy to navigate

Site Information

This site provides relevant information

This site provides accurate information

This site provides in-depth information about the product(s) or service(s) proposed

Security/Privacy

I am confident about the security on this site

This site guarantees me secure navigation

I feel like my privacy is protected on this site

I trust that the web site administrators will not misuse my personal information

Personalization of the interaction

This site is personalized to my needs

This site provides interactive functions that help me navigate

This site memorizes my preferences and offers supplementary services or information based on these preferences

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[5] Items measured on 7-point Likert-type scales ranging from 1-Completely disagree to 7-Completely agree