

ASAC 2008  
Halifax, Nova Scotia

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## PURCHASING TECHNOLOGY: DO MEN SHOP DIFFERENTLY THAN WOMEN?<sup>44</sup>

This research contrasts the way men and women shop for a variety of technology products. Differences were found in professed knowledge and predicted ease of shopping and emotional experience for some but not all the products. Sex differences were also found in the amount and type of information search and the amount of time participants expected to spend in the store.

### **Introduction**

Anecdotal evidence suggests that sex differences exist in how men and women feel about shopping. For example, a cursory Google search using the term “why do men hate shopping” yields approximately 1160 hits. A similar search on “why men like shopping” resulted in zero hits. Empirical research also supports the notion that there are important differences in how men and women feel about shopping. Men have a less positive attitude towards shopping and are more likely to express the idea that shopping is work (Alreck & Settle, 2002; Campbell, 1997). It has been suggested that men and women have different motives for shopping.

“Women are motivated by emotional and social factors and tend to focus on the (often enjoyable) process of buying whereas men are more motivated by functional factors and tend to focus on the outcome to obtain the actual goods with the least fuss” (Dittmar, Long and Meek, 2004, p. 424). If hedonic motives are more important for female shoppers than male shoppers (Arnold & Reynolds, 2003), this would explain why women are more likely to be recreational shoppers (Bellenger and Korgaonkar, 1980; Buttle, 1992; Campbell, 1997; Dholakia, 1999; Jansen-Verbeke, 1987). Recreational shoppers embrace notions of shopping as an interesting, enjoyable, entertaining and leisurely activity (Ohanian & Tashchian, 1992). Shopping is appreciated in its own right, irrespective of getting planned purchasing done (Rintamaki, Kanto, Kuusela, & Spence, 2006).

Women shop more frequently and for longer periods of time than men (Boedeker 1995, Dennis & McCall, 2005; Dholakia, 1999). Men tend to spend less time shopping because they have a more utilitarian (Campbell, 1997) or task oriented shopping style. Task oriented shoppers like to have an idea about what they are going to buy before they go shopping; they shop quickly and buy only the products

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<sup>44</sup> This research was supported by a grant from Cape Breton University. We would like to thank the faculty and students at Cape Breton University for their cooperation in conducting the research.

they had planned to buy. Men also tend to simplify the shopping process by attending to a smaller number of information sources (Laroche, Saad, Browne, Cleveland & Kim, 2000; Monsuwe, Dellaert, & de Ruyter, 2004; Westbrook & Black 1985). Some men may be task oriented shoppers because they dislike shopping and disliking shopping and being task oriented appear to go hand in hand. According to Babin, Darden & Griffin (1994), individuals who view shopping as work limit the amount of time spent shopping because they perceive the cost of shopping to exceed the value gained in terms of pleasure. However there have been other reasons suggested for why men limit shopping time.

Campbell (1997) argues that many men still view shopping as effeminate; in this light, reducing shopping time can be seen as a way to protect one's masculinity (Bakewell & Mitchell, 2004). In the context of grocery shopping, Dholakia, Pedersen and Hikmet (1995) reported that only 10% of all men claim to be the primary grocery shopper in their family. Zeithaml (1985) found that men were less involved in grocery shopping than women, spent less time shopping than women did, and reported that grocery shopping was a less important task than women did. They planned less, used supermarket information less, and economized less than females. In the context of Christmas gift buying, Laroche et al. (2000) found that women buy Christmas gifts for more recipients, they make more shopping trips when Christmas shopping and they begin their Christmas shopping earlier than men. Women also spend more time shopping per recipient than men and "appear to be socialized to take it quite seriously as real and important work" (Fischer & Arnold, 1990, p. 343). But just how different is male and female shopping behaviour when men are shopping for products that fall clearly within the male domain and products that by all accounts men *love*?

Few studies have actually contrasted the way men and women shop for the same types of goods (Otnes & McGrath, 2001) and the present authors are unaware of any study that examines sex differences when shopping for products that are considered to be within the male domain. We attempt to address this gap in the literature by examining sex differences in the purchase of technology including cell phones, digital cameras, DVD recorders, mp3 players and computers.

Focusing on electronic products has merit for a number of reasons. First, purchasing technology is clearly within the male domain (Dholakia & Chiang, 2003) so men should feel little need to restrict shopping time in order to protect their masculinity. Second, anecdotal evidence seems to suggest that men love electronics. To illustrate, on one blog entitled *Television and Stuff: Understanding Men*, under the heading "Top 13 Lesser Known Universal Man Facts," was the following statement posted on February 28, 2007 "Men love electronics. Be it a TV remote, a computer, a stereo, a Game boy, even an RC car or an old Atari, we love them. Best Buy is nirvana."

If men really do love electronic products, men will not limit their shopping when shopping for these products because the value gained in terms of pleasure and/or information should exceed the cost of shopping. Third, the literature suggests that men are more highly involved with technology than women. According to Scherhorn, Reisch & Raab (1990), men experience novelty through buying electronics and high tech goods; moreover, computers are brought primarily by men (Dittmar, Long, & Meek, 2004). Finally, in previous research on time estimation, time allocation, and emotions (MacNeil & MacIntyre, 2007) found that men tend to feel happier and less anxious when shopping for computers than women. However, despite experiencing more positive emotions when contemplating shopping for a computer, men estimated that they would need 50% less time to buy a computer than women needed. We are interested in finding out if this pattern holds true for other electronic products.

To examine the issue of sex differences, we formulated six hypotheses:

H1. The electronic products in this study will be highly involving to both men and women in our sample. That is, participants will be likely to already own the products, and will be likely to have considered buying a new one in the future.

H2. Consistent with the notion of task-oriented shopping, men will predict greater ease in purchasing the electronic products than will women.

H3. Men will profess to have greater product knowledge about electronic products than women.

H4. Though it is reasonable to expect women (as recreational shoppers) to report more positive emotions overall in regards to shopping, pair wise comparisons will likely reveal nuanced differences in emotionality towards shopping for each product. That is, we expect an interaction between sex and type of product when predicting positive emotions towards shopping.

H5. Men will use more task-efficient forms of researching products (such as the Internet) while women will be more likely to use interpersonal, or recreational sources (such as friends or family).

H6. Overall, men will allocate more time for researching and purchasing electronic products than women.

## **Method**

### **Participants**

University students were chosen for this study because the demographic characteristics of university students were not dissimilar to the demographic characteristics of technology adopters. “Initial adopters of a wide variety of new technologies are more likely to be young, male, better educated, more affluent, urban, and not members of a racial or ethnic minority group than the population as a whole” (Rogers, 1995; Norris, 2001) as cited by Ono and Zavodny (2003). A total of 326 people were recruited from a variety of courses at a primarily undergraduate Canadian university. An equal portion of male and female participants ( $n = 159$ ) completed a questionnaire (8 did not indicate their gender). Participants ranged in age from 18 to 50 years, with a mean age of 20.6 years ( $sd = 3.37$ ). The majority of the sample was single (82.4%) and another 7.2% were married. Participants came from various university programs (almost 40 different majors were identified) with approximately 42% of the sample in first year, 22% in second year, 20% in third year and 15% in fourth year or above. Total household income was provided in five categories (% reporting each category): under \$10000 (16%), \$10,000-19,999 (8%), \$20,000-39,999 (16%), \$40,000-59,999 (16%) and \$60,000 or more (44%).

### **Materials**

Our survey requested information on 5 categories of electronic products: Cell Phones, Digital Cameras, MP3 players, DVD Recorders, and Laptop Computers. For each product category, the following questions were asked:

- (1) Ease / Difficulty of shopping: Participants rated how easy or difficult this shopping task would be on a 7-point scale with the anchors very difficult and very easy.
- (2) Future purchase of the product (Yes or No). Participants indicated whether they had contemplated the purchase of each of the electronic products.
- (3) Current ownership of the product, (Yes or No) and if yes, whether it was purchased by the respondent or by another person.

- (4) Knowledge ratings in seven areas: price, features, best brands, best models, local store availability, the best place to buy the product, and where the product is located in a store that sells it. Each rating was made on a seven-point scale with the anchors Not Knowledgeable (1) and Very Knowledgeable (7). A total score was computed for each product.
- (5) Prospective research time. The following question was posed: “If you decided to get a new [product] for yourself in the near future, how much time do you think you would spend doing research on the best [product] to buy before you went shopping (minutes/hours)?
- (6) Sources of product information. Respondents indicated where they would search for information about the product, checking all of the following categories that apply: Magazines, Advertisements, Internet, Family/Friends, Flyers, Phone the store in advance, and Other.
- (7) Sources of information in the store. Respondents indicated where they would search in the store for product information from store personnel, product packaging, and/or in-store displays.
- (8) Purchase time. Respondents indicated the estimated time to purchase the product in the store (in minutes).
- (9) Emotion. A list of consumption emotion words was adapted from (Richins, 1997) and respondents were asked to imagine how they would feel when they were shopping for a particular product and to check all the words that described these feelings.

	Anger		Frustrated		Irritated
	Discontented		Unfulfilled		Relieved
	Nervous		Worried		Tense
	Depressed		Sad		Miserable
	Scared		Afraid		Panicky
	Embarrassed		Bashful		Humiliated
	Envious		Jealous		Encouraged
	Lonely		Homesick		Pride
	Peacefulness		Calm		Guilty
	Contentment		Fulfilled		Eager
	Optimism		Hopeful		Pleased
	Joy		Happy		Enthusiastic
	Excited		Thrilled		Indifferent

- (10) Emotional Intensity. Ratings of the emotional intensity of the purchase were made using the following scale:

Strongly Unpleasant	Moderately Unpleasant	Mildly Unpleasant	Neutral	Mildly Pleasant	Moderately Pleasant	Strongly Pleasant
-3	-2	-1	0	+1	+2	+3

## Procedure

Respondents were recruited during regularly scheduled class time in a wide variety of courses including business, psychology, history and political science. Fewer than 5% of the participants contacted refused to participate.

## Analysis

The focus of this study is on sex differences. The responses from categorical-type questions (variables 2, 3, 6, 7, and 9) were analyzed using Pearson's chi-square test of independence. Responses that come from Likert-style ratings (variables 1, 4, 5, 8 and 10) were analyzed using Mixed Model Analysis of Variance because there is a combination of a between subjects factor (sex) and a within subject factor (product). This type of analysis produces at least two error terms for the various *F*-tests. When examining interaction effects, the error terms and degrees of freedom will be pooled (Gardner, 2000). The means from the interactions will be tested for sex differences (male vs. female) in each product type using Tukey's HSD procedure. This produces a complete, orthogonal (each mean is used but only once) set of comparisons with the minimum number of post hoc tests.

## Results

Our first set of results deal with product involvement, specifically ownership of the products, thoughts of future purchase, ratings of how easy or difficult that purchase might be, and the respondents' knowledge of the products (Hypotheses 1 through 3). Following this, we examine the emotion ratings of the products (Hypothesis 4). Finally, we conclude the results from the sources of product information and an analysis of time data (Hypotheses 5 and 6).

Sex differences in ownership of the electronic products were assessed using chi-square tests. Females were more likely than males to own a cell phone and a digital camera. Males were more likely to own a MP3 player. Approximately half the sample did not currently own a DVD recorder or laptop computer. For all 5 products, females were more likely than males to have another person purchase the product for them.

**Table 1: Sex difference in rates of electronic product ownership.**

	Self-Purchase		Other Purchase		Do not Own		Chi-square <sup>#</sup>
	Male	Female	Male	Female	Male	Female	
Cell Phone	45.9	45.6	26.3	38.6	27.7	15.8	8.7*
Camera	27.7	18.4	27.7	63.9	44.7	17.7	44.2**
MP3 player	53.8	26.6	19.9	36.7	26.3	36.7	25.1**
DVD Recorder	25.8	19.1	24.5	37.6	49.7	43.3	6.5*
Laptop	25.2	22.2	20	28.5	54.8	49.4	3.1

# df = 2

\*  $p < .05$

\*\* $p < .01$

The vast majority of respondents indicated that they had thought about future purchases of these products. With respect to cell phones, 91.8% had thought about a future purchase. The DVD recorder was thought about by 60.6%, and purchasing a laptop computer was contemplated by 78.3% of the sample. Sex differences were not observed in the case of these three products (cell phone, DVD recorder

and laptop) suggesting that they interested males and females to a similar degree. We did observe sex differences for digital cameras and MP3 players. Almost all of the females in the sample had thought about buying a digital camera (94.9%) a significantly higher percentage than observed for males (71.7%) chi-square (1) = 30.7,  $p < .001$ . The reverse was true for MP3 players, a significantly higher percentage of males (91.7%) thought about buying a MP3 player compared with 81% of females chi-square (1) = 7.5,  $p < .01$ .

To test for sex differences in the data on the ease of purchasing the five products, we used 2 x 5 Mixed Model ANOVA, with the between subjects factor sex (2) and the within subjects factor product (5). Significant main effects emerge for sex  $F(1, 251) = 6.46, p < .05$ , product  $F(4, 1004) = 33.0, p < .001$ , and the interaction  $F(4, 1004) = 2.58, p < .05$ . Table 1 shows that the MP3 player was rated easiest to purchase and the digital camera was rated as least easy (no ratings fell into the “difficult” range, that is, a negative rating). The means from the interaction were tested for sex differences. The interaction can be explained by noting that there were significant sex differences only for MP3 players and Laptop computers. In both cases, men rated those products easier to buy than did women.

**Table 2: Sex differences in mean rating of ease of purchase**

	Male	Female	Total	Q
Cell Phone	1.05	0.79	0.92	1.86
Camera	0.40	0.16	0.28	1.69
MP3 player	1.78	1.13	1.45	4.57*
DVD Recorder	0.64	0.61	0.63	0.21
Laptop	0.73	0.14	0.42	4.14*

\*  $p < .05$

Sex differences in product knowledge also are examined using a 2 x 5 Mixed Model ANOVA. We found significant main effects for both sex  $F(1, 301) = 9.57, p < .002$  and product  $F(4, 1204) = 27.5, p < .001$ , as well as a significant interaction  $F(4, 1204) = 10.68, p < .001$ . The interaction emerged because there were significant sex differences in knowledge about MP3 players and Laptop computers. In both cases, men rated themselves more knowledgeable about the product than did women.

**Table 3: Sex differences in mean rating of product knowledge**

	Male	Female	Total	Q
Cell Phone	34.3	32.2	33.3	2.53
Camera	31.1	32.3	31.7	1.51
MP3 player	38.8	32.4	35.6	7.56*
DVD Recorder	29.9	28.3	29.1	1.85
Laptop	34.6	30.1	32.3	5.35*

\*  $p < .05$

Overall, these analyses show that members of our sample were highly involved with these products. There are, however, significant sex differences.

Turning our focus to the results of the emotion ratings, we find that the specific emotion words endorsed by the respondents were surprisingly consistent; chi-square tests reveal on only a handful of sex

differences in choosing emotion words. Table 5 indicates that women were more excited, happy and thrilled when contemplating a cell phone purchase, and men said they were more irritated. Similarly, women said that they would be content, excited, happy, thrilled, and pleased at purchasing a digital camera. In something of a reversal, men indicated more optimism and thrill at the purchase of an MP3 player but women more often chose frustration. For both DVD recorders and laptop computers, only one emotion word showed sex differences, compared to men, women were more pleased at the prospect of purchasing both items.

**Table 4: Significant sex differences in individual emotion words selected\***

	Women More often chose	Men More often chose
Cell Phone	Excited, happy, thrilled	Irritated
Camera	Contentment, excited, happy, thrilled, pleased	
MP3 Player	Frustrated	Optimism, thrilled
DVD Recorder	Pleased	
Laptop	Pleased	

\*Based on chi-square tests of independence

The ratings of emotional intensity felt for each product also show an interesting pattern. We again used a 2 x 5 mixed model ANOVA for the analysis and found significant main effects for both sex  $F(1, 304) = 8.04, p < .005$  and product  $F(4, 1216) = 19.5, p < .001$ , and a significant interaction  $F(4, 1216) = 7.09, p < .001$ . The interaction results from significant sex differences in emotional intensity for MP3 players and cell phones. In both cases, women indicated more positive emotional intensity than did men.

**Table 5: Sex differences in emotional intensity**

	Male	Female	total	Q
Cell Phone	0.80	1.53	1.2	8.67*
Camera	0.80	0.95	.09	1.74
MP3 player	1.01	1.45	1.2	5.29*
DVD Recorder	1.41	1.58	1.5	2.04
Laptop	1.51	1.42	1.5	1.09

\*  $p < .05$

Our final set of analyses involves data from the sources of product information and judgments of time allocated for research and in store purchases. The source of product information was analyzed using a series of chi-square tests and the time data using ANOVA.

Table 6 shows the percentages of Males and Females using each source of information. Consistently, males employ the internet more than females do. Females consistently seek information from family and friends, more than do males.

**Table 6: Percentages of Males, Females using each source of product information**

	Cell Phone	Digital Camera	MP3 Player	DVD Recorder	Laptop Computer
<b>Research</b>					
Magazines	11, 8	20, 17	21, 23	23, 21	32, 29
Advertisements	31,40	39, 49	41, 53	41, 53*	46, 57
Internet	82, 70*	89, 72**	88, 67**	81, 66**	88, 79*
Family/Friends	63, 86**	67, 85**	60, 84**	67, 79**	68, 87**
Flyers	18,25	28, 33	27, 43**	34, 44	36, 45
Phone the store	29, 30	21, 26	17, 22	14, 24*	21, 36**
<b>In Store</b>					
store personnel	79, 88*	79, 86	67, 76	79, 75	84, 92**
Product packaging	37, 29	46, 51	53, 55	47, 56	50, 48
in-store displays	35, 31	39, 38	36, 34	37, 39	50, 41

Note: All percentages are rounded.

\*  $p < .05$

\*\*  $p < .01$

The analysis of time estimates is made complex because of the tendency for time data to be positively skewed. For this reason, a square root transformation was performed prior to the ANOVA (as recommended by Tabachnick and Fidell, 1996). The Means presented below have been restored to their original scale by reversing the transformation.

Table 7 shows the results of a 2 x 2 x 5 Mixed Model ANOVA conducted on the time estimates for research and in store shopping. The between subjects factor is sex (Male vs. Female) and the within subjects factors are estimate type (Research vs. In Store) and product (cell phone, camera, MP3 player, DVD recorder, and laptop). Significant main effects can be observed for estimate type and product. It is clear that more time is spent researching the products than shopping for them in store, especially for laptop computers, but also for cell phones and digital cameras. The differences in time estimates among the products are substantial, with laptop computers taking the most time and MP3 players the least. Significant two-way interactions were observed for sex x estimate type and sex x product. All of these effects are superseded by a significant three-way interaction.

The three-way interaction is shown in Figure 1. For each product, compared to females, males contemplate investing more research time and less time in store. Females show the reverse pattern, they are more willing than males to spend time in store and less time doing prior research of the products.

**Table 7: ANOVA Summary Table for the Research and In-Store Time Estimates**

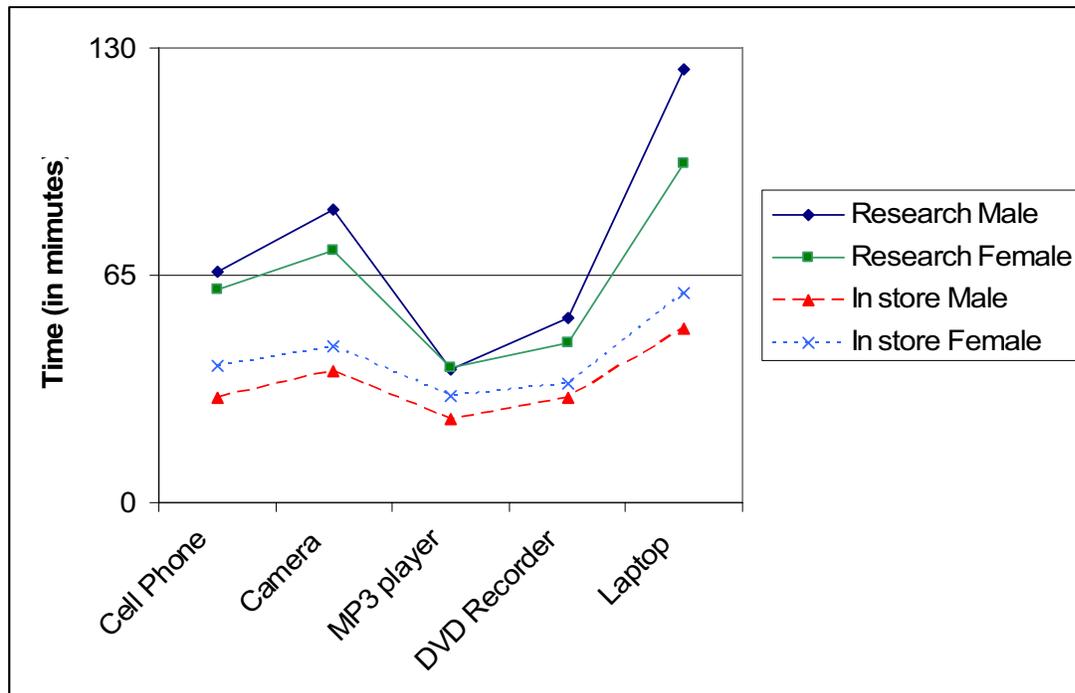
Source	DF#	MS	F	Partial Eta <sup>2</sup>
Sex	1, 259	0.33	0.007	< .001
Estimate type	1, 259	2577.1	144.6**	.358
Product	3.7, 1036	813.5	102.2**	.283
Sex x Estimate	1, 250	216.4	12.1**	.045
Sex x Product	3.7, 1036	8.82	10.1**	.004
Estimate x Product	3.5, 1036	102.9	27.4**	.096
Sex x Estimate x Product	3.5, 1036	8.39	2.512*	.010

# Greenhouse- Geisser adjusted because the assumption of sphericity was violated

\* p < .05

\*\* p < .0

**Figure 1: Prospective time estimates for electronic products.**



### Discussion

The results of this study confirm prior research that places the purchase of electronic products within a male domain (see Dholakia & Chiang 2003), but it is not appropriate just yet to hang out a sign that says “no women allowed.” Our data show that, even with the technology domain some electronic products may be perceived as more masculine (e.g., MP3 player), others more feminine (e.g., Cell Phone) and still others as neutral (e.g., Laptop). Men clearly report substantial interest in acquiring and owning

electronic products, and in researching their purchase. Women also show interest in electronic products, as shown in their more positive ratings of emotional intensity; they appear to take a different approach.

Perhaps electronic products have different functional roles in the context of their users' lives. In terms of product ownership, females were more likely to own a cell phone and a digital camera; men were more likely to own an MP3 player. The digital camera and cell phone provide opportunities for networking and collaboration, to move toward participating in a social group (Laroche et al., 2000). The MP3 player often is used for the opposite purpose, to move away from a group and isolate one's self. The source of product ownership supports this notion of participation versus isolation motives. Twice as many men as women bought their own MP3 player; twice as many women as men received their digital camera from another person (e.g., as a gift). Women have substantial interest in future purchase of a digital camera even though they do not see it as an easy purchase. The emotional terminology associated with the products sheds further light on this subject; whereas women were more likely than men to feel excited, happy and thrilled by cell phones, men said that they felt irritated. It was the MP3 player that thrilled men and frustrated women. These ratings emerged in spite of the tendency for women to be more emotionally positive than men about shopping for electronics in general and in particular for cell phones and, ironically, MP3 players.

The major analysis examined sex differences in time spent researching a product and time spent purchasing the product in store. Although women say they spend more time in-store than men, men spend more time searching for electronic products than women do. Having a clear an idea about what men are going to buy before they go shopping is consistent with the idea that men are more task oriented. Do men perceive that there is more risk association with the purchase of electronic products? Perhaps men and women approach these products with different goals. If men have a protection goal orientation they will tend to worry about making a mistake in a purchase. If women have an achievement orientation, they will tend to focus on the benefits that owning a product will bring. The differences we are reporting in emotions suggest that women and men may place different value on the benefits provided by cell phones, digital cameras and MP3 players. These results should be investigated further.

In terms of product knowledge, men professed to have more knowledge about cell phones, MP3 players and notebook computers did than women. This is consistent with our finding that men are more likely to use the Internet to research an electronic product, and spend more time doing research in advance of going into a retail store. Women said that they were more likely to ask family or friends for assistance, or rely on in-store personnel. If men and women are using different types of information sources when shopping for same product, it raises the possibility that sex differences may exist not just in the perception of risk involved in a purchase, but also in the handling of that risk. Gumpert and Drucker (1992) suggested that men prefer web based shopping over bricks and mortar shopping because e-shopping offers "an alternative to anxiety producing shopping situations which provides convenience, enjoyment, trust, ease and social interaction all without opening the front door." It appears that e-shopping can be a way to avoid stressful retail shopping experiences, and also a way to minimize the amount of time that men have to spend shopping in a retail store in situations where it is unavoidable. The notion that these tendencies to purchase and use electronics play themselves out within the context of the consumer's interpersonal relationships and socialized motives warrants future research.

The results of this research show the advantage of contextualizing shopping rather than making sweeping generalizations about sex differences. Indeed, even in the relatively male-oriented domain of consumer electronics, we find nuanced differences between women and men. The overall shopping time was similar for both sexes, yet time was allocated more by men for research and more by women for in store shopping. Results such as these will be useful for retailers in designing strategies for their web presence and the allocation of resources in-store.

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