GENDER-RELATED WAYFINDING TIME OF MALL SHOPPERS: 
THE MEDIATING EFFECTS OF SHOPPING VALUES 
AND INFORMATION SOURCES

Jean-Charles CHEBAT 
HEC Montreal, Montreal, Canada

Claire GELINAS-CHEBAT 
University of Québec, Montreal, Canada

Karina THERRIEN 
HEC Montreal, Montreal, Canada

ABSTRACT

The relative superiority of males over females with respect to wayfinding performance in real life is not clearly established in the literature. The present study aims at clarifying the issue in the specific case of wayfinding in shopping malls environment. An experimental study using actual shoppers in a mall showed that the relationship between gender and time necessary to find a shop within a mall is mediated by both shopping values and the use of information sources. Female shoppers were found to be more hedonist and to use more people as a source of information, which in turn were shown to reduce wayfinding time. It is proposed that males and females shoppers differ mostly in terms of their learned relation with the mall environment and the specific shopping activity.

Key Words: wayfindings, shopping mall, shoppers, wayfinding efficiency.

Correspondence
jean-charles.chebat@hec.ca
gelinas-chebat.claire@uqam.ca
karina.therrien@hec.ca

The authors gratefully acknowledge the financial and logistic help from Ivanhoe-Cambridge Corp.
GENDER-RELATED WAYFINDING TIME OF MALL SHOPPERS: 
THE MEDIATING EFFECTS OF SHOPPING VALUES 
AND INFORMATION SOURCES

1. Introduction

Gender and Wayfinding Strategies

Which gender is the most time efficient in wayfinding, especially within shopping malls? “Factors [of wayfinding performance] derived from paper-and-pencil tests account only very weakly for performance on large scale spatial tasks” (our emphasis), as pointed out by Montello. Lovelace, Golledge and Self (1999, p.517).

The present study was undertaken in a mall with actual shoppers in order to test which gender was able to find the way to stores more efficiently time-wise. More specifically, based on the reviewed literature, we test if the difference between genders in terms of wayfinding efficiency, if any, can be explained by two potential mediators, i.e., the information sources used by each of the genders and by the general attitudes toward shopping.

A tenacious stereotype is that males are more efficient for several reasons. First males have a better knowledge of geographical maps (e.g., Harris, 1981; Ward et al., 1986) and draw better maps (Harrell et al, 2000), which is usually attributed to the fact that men are more intensely socialized to maps (Lawton, 1994). Second and consequently, men are found to be more confident in their maps and in their wayfinding process (Harrell et al., 2000, Lawton et al., 1996, Harris, 1981, Miller and Santoni, 1986 and Ward et al., 1986), while, conversely, women show a higher level of anxiety (Lawton, 1994) and uncertainty (Lawton and Charleston, 1996) in wayfinding tasks. However, these findings do not say much about the performance of the genders in real-life wayfinding tasks, as shown below.

In experiments in large-scale real-life environments, Waller et al. (1998) found a significant effect of gender in their wayfinding experiment; similarly, Passini et al. (1990), Beaumont et al. (1984), and Lawton and Charleston (1996) found few gender differences in terms of wayfinding skills. In terms of distance estimation, males could prove to be better but the evidence for this is not clear (Evans 1980).

A number of experiments concern landmarks and gender. They show that women recall more landmarks (Galea and Kimura, 1993), rely more on landmarks (McGuiness and Sparks, 1983 and Miller and Santoni, 1986), and refer more to landmarks (Miller and Santoni, 1986), while men are more accurate than women in locating the direction of landmarks (Bryant, 1982 and Holding and Holding, 1989), and in placement of buildings on a map (McGuiness and Sparks, 1983).

Some studies about gender and landmarks report no gender differences in the use of landmarks or buildings to assist wayfinders (Harrell et al., 2000 and Yeung and Savage, 1995), or in accuracy of pointing to landmarks along a route (Montello & Pick, 1993; Sadalla & Montello, 1989). It seems that only Kozhevnikov et al. (2005) can offer a partial explanation for these confusing findings: “females tend to be object visualizers and males tend to be spatial visualizers” (p.725), i.e., females use more object properties (such as shape and colors) while males use more spatial properties (such as location and spatial relations). In other words, this distinction between object –vs- spatial visualizers could explain why females would be more inclined to use landmarks and men more (physical or cognitive) maps to find their way. This distinction is supported empirically by some studies: Montello et al. (1999) for instance show that, in a wayfinding experiment on a University campus (by opposition with paper and pencil tests of spatial abilities), males are better at estimating metric distances and females at recalling landmarks.

In terms of global wayfinding efficiency, Golledge and Stimson (1997) suggest that: there is “no overwhelming evidence at this stage of the consistent dominance by one sex” (p. 546); the differences in spatial abilities of males vs females are “often be mitigated by training, reinforcement, and repeated trials” (p. 546). Montello, Lovelace, Golledge and Self (1999) attribute the problem to methodological processes used in previous studies: “males and females differ on average in their spatial abilities and styles on particular tasks and not only on abstract and artificial spatial tasks that may have little relevance to spatial tasks that may have little relevance to spatial relevance performance in realistic, ecologically valid settings” (p.529; our emphasis).

In other words, the sex-related differences may be real but have to be tested in a real-world environment. Following Montello et al. (1999), we suggest that each gender has developed a relation with specific environments, which reflects their own learning processes. In our study, we focus on actual shopping malls and actual shoppers.

Wayfinding in shopping malls

One of the key criticisms addressed to the way shopping malls are managed in North America is the
lack of consumers’ enjoyment, associated with time scarcity (LeHew and Fairhurst, 2000; Wakefield & Baker, 1998). Shopping in malls is perceived as being insufficiently time-efficient, which is seen as one of the main causes of the commercial stagnation of malls (Cavanaugh, 1996).

Paradoxically, time efficiency was one of the main advantages of shopping in the first malls, due to the short distance between stores located in a mall for the convenience of shoppers. However, the very success of shopping malls leads mall managers and owners to increase the size of malls, which in turn reduced the time advantage.

Shopping trips, if perceived as excessively long, trigger irritation because of wayfinding difficulties (Passini, 1996). Irritation stemming from wayfinding problems may also reduce the amount spent in malls (D’Astous, 2000; Hackett et al., 1993).

While shopping is stereotypically a female activity (Buttle, 1992), men and women search shopping information similarly (e.g., Avery, 1996). As the sexual roles tend to overlap gradually (Darley and Smith, 1995), and as women are almost as numerous as men on the labor market (Roberts and Wortzel, 1979), the shopping efficiency tends to be increasingly important for both genders. This may explain why no gender differences in wayfinding were found in a shopping mall context, even though women are more familiar with the shopping mall (Dogu & Erkip, 2000). Since the effects of gender on spatial ability can be moderated by training, (Golledge & Stimson, 1997), familiarity with the shopping tasks and the shopping environment should be taken into account in the study of the relation between gender and wayfinding ability, which we do in the present study, as shown in the method section. The literature on wayfinding in malls suggests shopping values could be a mediator to be considered (Titus and Everett, 1995). We review the concept and its potential effects in the next section.

**Shopping Values and Wayfinding**

Titus and Everett (1995) conjectured that wayfinding processes could be influenced by (utilitarian and hedonist) shopping values, as defined by Babin et al. (1994), i.e., utilitarian shoppers are expected to strive to complete shopping tasks in an efficient way, whereas hedonist shoppers are expected to enjoy shopping and take more time shopping.

For Titus and Everett (1995), utilitarian shoppers’ wayfinding strategies are based on the use of landmarks and/or other persons, while hedonist shoppers’ strategies aim at enhancing the enjoyment of the shopping space and sensual excitement. Similarly, utilitarian shoppers are hypothesized by Titus and Everett (1995) to have specific behaviors, such as moving rapidly, not changing their way, not stopping, and limiting their contact with the environment to persons and things essential to their problem solving. On the opposite, hedonist shoppers are hypothesized to move more slowly, to stop frequently, and to change their routes. Hedonist shoppers enjoy browsing through the stores, which enhances their experiential pleasure of shopping, at the expense of time efficiency.

Is gender related to shopping values? Some prominent retailing researchers (Babin et al., 1994; Babin et al., 2001) found that women are more hedonist oriented. Some other studies show that women consider shopping very seriously, not as a “fun” activity, and that they are “professional shoppers” (Laermans, 1993), more involved in their role of shoppers (especially during the Christmas period). Shopping in an imposed role on women’s shoulders, proper to females’ role and not always felt as a leisure activity (Jansen-Verbeke, 1987). As for men, they see Christmas gift shopping as ‘play’ (Fischer & Arnold, 1990).

These findings lead us to consider shopping values as a mediating variable between gender and wayfinding efficiency. In other words, female shoppers could differ from male shoppers in the sense that they enjoy more the shopping activity and/or they are more cognitively alert when shopping. In addition, as already reported at the inception of the article, we may also assume that gender-related differences in wayfinding stem from a different relation to the environment, which leads to our research propositions.

**2. Research Propositions**

Following the literature reviewed, we assume that the two genders do not use the same wayfinding strategies within shopping centers. While women are expected to explore the environment and rely on landmarks more than men do, men can be expected to rely more on their sketch map ability. Such strategies should mediate the relation between gender and wayfinding time (WFT). Second, as proposed by Titus and Everett (1995), shopping values are also assumed to mediate this relation. In other words, if the two potential mediators prove to actually mediate the gender->WFT relation, the effects of gender are masking the effects of two constructs, i.e., information sources and shopping values. We test two hypotheses, each related to one of the two potential mediators, i.e., information sources (IS) and shopping values (SV):

Hypotheses related to the mediating effects of shopping values

- H1: Shopping values mediate the relation between gender and wayfinding time.

Hypotheses related to the mediating effects of information sources

- H2: Information sources mediate the relation between gender and wayfinding time

Figure 1 summarizes the proposed model.
FIGURE 1: The model tested

FIGURE 2: Map of the Mall
3. Methodology

Overview

Actual shoppers were intercepted in a mall. The numbers of males and females were approximately equal and that shoppers familiar and unfamiliar with the mall are also equally represented. They were requested to find a store within the mall and were instructed to describe orally on a tape recorder their actions and their thoughts at the very moment when they came to their mind, during the wayfinding process. More precisely, shoppers indicated what they do (e.g., I turn left); why they do what they decide to do (e.g., I read the map to locate myself).

The data collection took place in three subsequent afternoons of the same week (Monday, Tuesday, and Wednesday), in order to control for crowding; during the three afternoons crowding was low, which cancels the additional logistic and psychological hurdles to find one’s way through a dense crowd, like that of a Friday evening. The mall where the data was collected was a regional mall of average size, the architectural structure of which was neither excessively simple (e.g., linear) nor too intricate. A map of the mall is shown in Figure 2.

This approach seems more appropriate than the observation of what shoppers do, since simple observations cannot tell why shoppers decide to come back on their way or what information they ask a passer-by. This method is also more appropriate than self-reporting once the whole wayfinding process is over, since self-reports imply rationalization after the fact and loss of memory of certain steps in the process followed by shoppers.

Sample

One hundred and fifty six shoppers in a regional mall located in the suburbs of a major Canadian city, were recruited during their visit to the mall. They were offered Can$20 to participate in the study. They were first administered a short questionnaire, described below, related to their gender, familiarity with the mall (frequency of visits) and the questionnaire on shopping values (Babin et al., 1994). In addition, the intercepted shoppers indicated their level of education and occupation. All the shoppers lived in the area of the shopping mall.

The interviewers, who were graduate students at the School of the first author, were instructed to recruit four groups of similar size (i.e., N=40 in each of the four cells): two levels of familiarity with the mall and two genders. Since we are mostly interested in the effects of gender, the effects of familiarity have to be cancelled in further analyses, as explained in the results section.

Wayfinding Task

All shoppers started the wayfinding process from the same place where the intercept took place. They were requested to reach a given shop as efficiently as possible. Time at which the shoppers started the wayfinding process was recorded, as well as the time when the shoppers reached their target store. The time recorded varied between 10 and 65 minutes with an average of 18 minutes.

Familiarity with the mall

The shoppers familiarity with the mall was measured with a 5-point Likert scale, i.e., perceived frequency of visits to this mall (several times a week=5; never=1): 84 participants scored 3 or less and were classified as “non familiar” and the other 72 as “familiar” with the mall. Familiarity had a marginal impact on wayfinding time (F1,157=2.02; p=.098). Note that neither occupation nor education had significant effects on wayfinding time (respectively F1,157=.20; p=.82; F1,157=1.33; p=.270).

Shopping values

The Babin, Darden & Griffin (1994) “shopping values” scale was slightly modified for this study to reflect the values that shoppers attribute to shopping in general, not to the specific shopping trip: Instead of “this shopping trip was truly a joy”, we used “shopping is truly a joy”; similarly, instead of “I continued to shop not because I had to, but because I wanted to”, “I shop not because I have to, but because I want to”.

Tasks

The shoppers were instructed to find one of the four stores predetermined by the researchers (i.e., a movie theater, a bank, a liquor store and a boutique). Since some stores are easier to find than others (e.g., department stores are easier to find than boutiques), the four stores selected for the wayfinding task were rotated systematically among the shoppers.

Content analysis of information sources

Once all the recordings were fully typed, they were content-analyzed by the second author, a professional linguist, with a linguistic computer program (SATO), used in a number of previous studies (e.g., Chebat et al., 2003). Two independent graduate linguistics students trained by and under the supervision of the second author had to build two repertories: what shoppers do and think, and the information sources they use.

In the present paper, we focus on the second type of data recorded by the subjects, i.e., the information
sources they used to find their way. From a linguistic viewpoint, only *nouns* characterizing the information sources were taken into account (e.g. “I spoke with a *salesclerk* to ask my way”; “I stopped by a *map*”; “I remember I passed by this *fountain*”; “I remember that the store is located close to a *fast food*”).

Originally, 53 nouns were used to identify the information sources. The two graduate students in linguistics, under the supervision of the second author, were instructed to classify the nouns in a smaller number of categories; some nouns were classified as synonymous or as covering very similar semantic areas (e.g., salesclerks and employees; restaurant and fast foods). This allowed to reduce the nouns used as information sources to 15. For each respondent, we built a vector of 15 cells, corresponding to each of the information sources, the entry of which was the frequency used by a given respondent. This process lead us to regrouping the 15 nouns into factors, as described in the next paragraph.

**Factor Analyses on Information Sources and Shopping Values**

A factor analysis was performed on the 15 variables of “information sources”; it showed four factors, explaining 74% of the variance. The first factor was related to *landmarks* (fountain, restaurants), the second to *people* (employees, passers-by), the third to *maps* (maps and posters) and the fourth to “*internal sources*” (memory, instinct and guess).

A factor analysis was also performed on the shopping values scale (Babin et al., 1994). It showed the two expected factors explaining 59% of the total variance: the first one was related to the *hedonist* dimension (37% of the variance), while the second was related to the *utilitarian* values (22% of the variance).

**4. Results**

The main purpose of the statistical analyses is to verify if “shopping values” and “information sources” mediate the relationship between gender and time. We followed the procedure proposed by Baron and Kenny (1986), for both potential mediators, that is, to assess the degree to which the following relations are significant:

1. The relation between gender and time
2. The relation between gender and each of the two mediators (i.e., either “shopping values” or “information sources”)
3. The relation between each of the two mediators and time

4. The relation between gender and time, with each of the two mediators as covariate.

In the present study, two variables are candidates for mediation: “shopping values” and “information sources”. For a variable (i.e., “shopping values” or “information sources”) to be considered as a genuine mediator, the first three relations should be significant, while the fourth should not. Note that in all analyses, familiarity was used as a covariate in order to cancel its effects.

**H1 related to “shopping values” as mediator between gender and wayfinding time**

1. Relation between gender and time

An ANOVA shows that gender affects wayfinding time (WFT) significantly ($F_{1,157}=5.43; p<.02$); men spend more time than women (20.21 minutes−vs−16.93 minutes).

2. Relation between gender and “shopping values”

A MANOVA shows that gender has significant effects on both shopping values ($F_{2,157}=15.26; p<.001$), and on each of the shopping values, i.e., hedonist values ($F_{1,157}=21.92; p<.001$) and utilitarian values ($F_{1,157}=8.99; p=.003$); men score lower on the factor “hedonist values” (−.41 vs .34) and higher on the factor “utilitarian values” (.28 vs −.19).

3. Relation between “shopping values” and wayfinding time

A linear regression shows significant effects of shopping values on WFT ($F_{1,157}=5.36; p=.006$; $r=.299$): only “hedonist values” affect WFT ($beta=-.058; p=.001$), not “utilitarian values” ($beta=.058; p=.532$).

4. The relation between gender and wayfinding time with “shopping values” as covariate.

The introduction of “shopping values” as covariates in the ANOVA used above in section “i” makes the effects of gender on wayfinding time are insignificant ($F_{1,157}=.491; p=.485$).

In summary, all conditions are met to consider “shopping values” as genuine mediators in the sense of Baron and Kenny (1986):

**H2 related to “information sources” as mediator between gender and wayfinding time**

The process is the same as above. Since we already know that the relationship between gender and wayfinding time is significant; we have to test only the next three relations.

2. Relation between gender and information sources

A MANOVA shows that gender affects significantly the use of information sources ($F_{4,157}=5.16; p=.001$). Two types of information sources are related to gender: landmarks ($F_{1,157}=6.06; p=.01$) and people ($F_{1,157}=13.08; p<.001$); men use *more* landmarks (1.98 vs.1.14) and *less*
people, i.e., salesclerks, other shoppers (0.48 vs 1.47) than women. No significant effects of the other two factors, i.e., “internal sources” and “maps”, were found (F_{1, 157}<1.8; p>.18).

3. Relation between “information sources” and wayfinding time

A linear regression shows that the effects of information sources on WFT is significant (F_{1, 157}=9.07; p<.001; r=.19); “people” affect WFT significantly (beta (people) =-.371; p<.001) and “maps” have a marginal effect on WFT (beta (maps) =.171; p=.09). Neither “landmarks” (beta=.038; p=.72) nor “internal sources” (beta=.068; p=.62) have significant effects.

4. Relation between gender and wayfinding time with “information sources” as covariates

The introduction of “information source” as a covariate in the ANOVA used above in section “i” makes the effects of gender on wayfinding time are insignificant (F_{1, 157}=.602; p=.44).

In summary, all conditions are met to consider “information sources” as genuine mediators in the sense of Baron and Kenny (1986).

5. Discussion

The main conclusions are that women are more efficient in wayfinding in shopping malls and that the significant difference in wayfinding time is not directly due to gender. The effects of gender on wayfinding time are mediated by the two characteristics of shoppers’ gender: hedonist shopping values, and use of information sources. Female shoppers score higher on hedonist values and use information sources that prove to be reduce wayfinding time; only the use of “people” as information sources was proven to reduce the wayfinding time; only the use of “people” as information sources, was shown to reduce it.

Some of the conjectures proposed by Titus and Everett (1995), i.e., utilitarian shoppers strive to complete shopping tasks in an efficient way and shoppers use more people are not supported by our study. Women, who score higher on hedonist values, also use more people as information sources, and find their way more efficiently. They also proposed that utilitarian shoppers use more landmarks; in fact, this is confirmed here; men, who score higher on hedonist values, are more time-efficient. They stay longer in malls because they enjoy the very activity of shopping more intensely. In fact, the hedonist shoppers enjoy shopping all the more since they spend less time in their wayfinding.

Whenever the wayfinding is inefficient time-wise, shopping is less enjoyable (e.g., D’Astous, 2000), which triggers a circular process: since male shoppers are less efficient, they are also fewer hedonists. Should male shoppers be more efficient in terms of WFT (for instance by using other people as information sources), they would also likely enjoy their shopping experience more.

While the literature leads us to expect women to use more landmarks, the opposite was found: men use more this information source than women do. Similarly, while we expected men to use more maps, no significant difference was found. However, none of these information sources was proven to reduce the wayfinding time; only the use of “people” as information sources, was shown to reduce it.

Some of the conjectures proposed by Titus and Everett (1995), i.e., utilitarian shoppers strive to complete shopping tasks in an efficient way and shoppers use more people are not supported by our study. Women, who score higher on hedonist values, also use more people as information sources, and find their way more efficiently. They also proposed that utilitarian shoppers use more landmarks; in fact, this is confirmed here; men, who score higher on utilitarian values, also use more landmarks, but that does not impact WFT.

The finding that the more hedonist the shoppers the less time they spend in their wayfinding, sheds some light on the well documented positive relation between hedonist scores and time spent in stores (e.g., Donovan et al., 1994). Hedonist shoppers are not less efficient than utilitarian shoppers; on the opposite, they are more time-efficient. They stay longer in malls because they enjoy the very activity of shopping more intensely. In fact, the hedonist shoppers enjoy shopping all the more since they spend less time in their wayfinding.

The relation we found between hedonist score and time efficiency, that contradicts conjectural propositions by Titus and Everett (1995), is neither surprising nor really new, for two reasons. First, when exploring a mall, hedonist shoppers enjoy their

<table>
<thead>
<tr>
<th>Gender</th>
<th>Wayfinding Time Mean and (S.D.)</th>
<th>Not familiar With the Shopping Mall</th>
<th>Familiar With the Shopping Mall</th>
<th>Hedonist Scores</th>
<th>Utilitarian Scores</th>
<th>Cognitive Processes</th>
<th>Landmarks</th>
<th>People</th>
<th>Maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>men</td>
<td>20.21 (9.40)</td>
<td>36</td>
<td>32</td>
<td>-.406</td>
<td>.283</td>
<td>.1250</td>
<td>1.980</td>
<td>.482</td>
<td>2.402</td>
</tr>
<tr>
<td>women</td>
<td>16.93 (4.82)</td>
<td>48</td>
<td>40</td>
<td>.342</td>
<td>-.192</td>
<td>.034</td>
<td>1.141</td>
<td>1.470</td>
<td>1.750</td>
</tr>
<tr>
<td>Total</td>
<td>18.39 (7.37)</td>
<td>84</td>
<td>72</td>
<td>.0160</td>
<td>.015</td>
<td>.075</td>
<td>1.640</td>
<td>.958</td>
<td>2.040</td>
</tr>
</tbody>
</table>

| TABLE 1: Means and Standard Deviations of the Variables Used in the Model |

<table>
<thead>
<tr>
<th>Gender</th>
<th>Wayfinding Time Mean and (S.D.)</th>
<th>Not familiar With the Shopping Mall</th>
<th>Familiar With the Shopping Mall</th>
<th>Hedonist Scores</th>
<th>Utilitarian Scores</th>
<th>Cognitive Processes</th>
<th>Landmarks</th>
<th>People</th>
<th>Maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>men</td>
<td>20.21 (9.40)</td>
<td>36</td>
<td>32</td>
<td>-.406</td>
<td>.283</td>
<td>.1250</td>
<td>1.980</td>
<td>.482</td>
<td>2.402</td>
</tr>
<tr>
<td>women</td>
<td>16.93 (4.82)</td>
<td>48</td>
<td>40</td>
<td>.342</td>
<td>-.192</td>
<td>.034</td>
<td>1.141</td>
<td>1.470</td>
<td>1.750</td>
</tr>
<tr>
<td>Total</td>
<td>18.39 (7.37)</td>
<td>84</td>
<td>72</td>
<td>.0160</td>
<td>.015</td>
<td>.075</td>
<td>1.640</td>
<td>.958</td>
<td>2.040</td>
</tr>
</tbody>
</table>
shopping experience, which implies more than a cognitive process. We suggest that the reason why they prove to be more efficient is not solely based on better cognitive processes, but also emotional processes. Hedonist shoppers may associate positive emotions with public places. For instance, hedonist shoppers could qualify places as “lovely”, or “the place where I smelled fresh bread”, or “the place where they play rock music of my adolescence”, and so on. In other words, the emotions felt by hedonist shoppers toward the places serve as labels of the information filed in the long term memory, which facilitates the recognition of places and the wayfinding learning processes.

Second shoppers called “mall enthusiasts” by Bloch, Ridgway and Dawson (1994) in their famous study on shopping malls as “habitat”, i.e., those who intrinsically enjoy shopping in malls, were also those who received and processed more information from the mall stimuli. Mall enthusiasts were also found to perceive malls as a “source of many benefits” (Bloch et al., 1998, p.34) from which they are more likely to learn the layout.

Being time-efficient is a concern for both genders, which impacts all other roles of both genders, including shopping activities. Montello et al. (1999) stress that wayfinding differences are not inherent to the very nature of each gender. They rather insist on the necessity of “training and education of both sexes to enhance their abilities and compensate for their different modes of acquiring and employing spatial information” (p.532). It is also our contention that, should men be more used to shopping in malls, they should enjoy this specific shopping activity as women do, should they use other people to find their way through malls, it’s likely they would be as time-efficient as women are in wayfinding in malls.

6. Limitations and future research

This finding cannot be extended to environments other than malls. In addition, age has not been taken into consideration, which would affect wayfinding efficiency in terms of walking capability and sensitivity to visual and auditory cues. Future studies could be undertaken in shopping malls with bigger samples where age could be varied. The fact that respondents were requested to find a specific store puts them in a utilitarian attitude toward the trip to the mall. Future studies could develop a methodology which encompasses this bias.

In addition, emotions triggered by wayfinding experience should also be taken into account. The pleasure of finding the place searched for, and, conversely, the irritation of not finding it, should impact the identification of shoppers with the place, and in the long run, affect their wayfinding learning processes.

References


