

Attitude theory applied to in-store and online shopping

**Martin Dijst
Sandy Farag*
Tim Schwanen**

Urban and Regional research centre Utrecht (URU)
Faculty of Geographical Sciences
Utrecht University
P.O. Box 80.115
3508 TC Utrecht
The Netherlands

* Corresponding author
Phone: (31) 30 253 2407/1399
Fax: (31) 30 253 2037
S.Farag@geo.uu.nl

Bijdrage aan het Colloquium Vervoersplanologisch Speurwerk 2005,
24 en 25 november 2005, Antwerpen

Contents

	page
1. Introduction	4
2. Theoretical framework	5
3. Methodology	7
4. Results	8
5. Conclusion	11
References	13
Figure 1 A simplified version of the Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000)	15
Table 1 Operationalization and frequency distribution of variables (OL=online shopping, IS=in-store shopping)	16
Table 2 Standardized coefficients of direct and total effects (significance at least $p < 0.05$, unless indicated otherwise)	18

Samenvatting

Attitude theorie toegepast op fysiek en online winkelen

In deze studie is onderzocht of de adoptie van online en fysiek winkelen beter kan worden begrepen als attitude theorie wordt toegepast. Een tekortkoming van gangbare modellen in attitude theorie is het gebrek aan verklaring van de variatie in psychologische constructen zoals *perceived behavioural control*. Een vereenvoudigde versie van het EMGB-model (Extended Model of Goal-directed Behaviour) (Perugini & Conner, 2000) is daarom uitgebreid met externe variabelen zoals de bereikbaarheid van winkels. De data zijn verzameld in midden-Nederland middels een vragenlijst met items over de intentie om de komende maand mediaproducten (bijvoorbeeld: boeken, muziek, DVD's) online en fysiek te kopen. Als analysemethode is Structural Equation Modelling gehanteerd. De resultaten laten zien dat winkelgedrag redelijk goed wordt verklaard door het EMGB. Mensen die mediawinkels binnen twintig minuten fietsen van hun huis kunnen bereiken, hebben een zwakkere intentie om mediaproducten online te kopen. Dit komt door de sociale druk die zij ervaren om niet online producten te kopen als winkels relatief dichtbij huis zijn. Frequente online kopers denken minder controle te hebben over het bezoeken van winkels om mediaproducten te kopen. Geconcludeerd kan worden dat de bereikbaarheid van winkels van invloed is op de intentie om online te kopen, terwijl ervaring met online kopen van invloed is op de intentie om fysiek te winkelen. Het lijkt waarschijnlijk dat er substitutie optreedt tussen online winkelen en fysiek winkelen wat mediaproducten betreft.

Summary

Attitude theory applied to in-store and online shopping

In this study, we investigated whether our understanding of adoption of e-shopping and in-store shopping could be advanced through the application of attitude theory. A shortcoming of the analytical frameworks and models featured in attitude theory is that they do not address the issue of what causes the variation in psychological constructs such as perceived behavioural control. A simplified version of the Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000) was therefore expanded to take into account such external variables as shop accessibility. Data were collected in the centre of the Netherlands, using a questionnaire that included items about the intention to buy media products (books, music, DVDs, for example) online and in-store within the forthcoming month. Structural equation modelling was employed as the method of analysis. The findings show that shopping behaviour is reasonably well explained by the EMGB. The effects of past behaviour and perceived behavioural control on the volition to shop online and in-store were statistically significant. Additionally, the volition to shop in-store was influenced by goal desire and the volition to shop online by subjective norms. People who have media stores within twenty minutes' cycling distance from their home have a weaker intention to buy media products online, because they experience social pressure not to buy online when stores are relatively near home. Frequent online buyers tend to perceive less control over making a shopping trip to buy media products. Thus, shop accessibility affects the volition to buy online, while online buying experience affects the volition to shop in-store. Substitution between e-shopping and in-store shopping seems likely to occur for media products.

1. Introduction

Recently, the interaction between e-shopping and in-store shopping has received considerable attention (Couclelis, 2004; Mokhtarian, 2004, for example). The adoption of online shopping has also been studied extensively (see Chang et al., 2005 for an overview). These studies include variables of various types, falling into three major categories: (i) perceived characteristics of the Internet as a sales channel; (ii) website and products characteristics; (iii) consumer characteristics (Chang et al., 2005). Many studies have also investigated the role of attitudes in the adoption of online shopping (Chang et al., 2005). Their findings indicate that attitudes are important in predicting e-shopping intentions or behaviour. However, attitude theories developed and advanced by social psychologists have not often been used to explain (e-)shopping behaviour.

Studies about the relationships between attitudes and revealed behaviour can be criticized from an attitude theory perspective in two ways. First, preferences for choice alternatives are not stable, but are partly contingent on situations that are not taken into consideration directly in micro-economic utility functions (Fujii & Gärling, 2003). Second, previous research has indicated that the correspondence between attitudes and behaviour tends to be rather low. This implies that attitudes are often poor predictors of behaviour (Kraus, 1995, for example). To address such shortcomings, social psychologists have developed theoretical models in which the relationships between attitudes and behaviour are studied, while other behavioural factors are taken into account (Armitage & Conner, 2001). Examples include the Theory of Planned Behaviour (Ajzen, 1991) and the Extended Model of Goal-directed Behaviour (Perugini & Conner, 2000). In these models the relationship between attitude and behaviour is mediated by intention or stated choice (Gärling et al., 1998).

The models advanced by social psychologists can nevertheless also be criticized. It is unclear what causes the variation in psychological constructs such as perceived behavioural control and subjective norms. There is an implicit assumption that the psychological mechanisms work in the same way for every individual across different contexts. It has, however, been recognized that external and internal constraints could affect these mechanisms in several ways: for example, by constricting the opportunity set and moulding the formation of preferences (Desbarats, 1983). Hägerstrands' capability, coupling, and authority constraints (1970) provide good examples of the limitations in an individual's free choice of behaviour. Thus, intentions are only partly explained, since a conceptualization of the constraints within which intentions and behaviour occur is largely omitted in attitude theory. This omission

could be resolved by using external variables such as shop accessibility and Internet experience as proxy for these constraints.

Summarizing, as in transportation studies, studies explaining shopping behaviour often lack a theoretical framework from which variables are derived as predictors of behaviour. Most studies have included variables on an *ad hoc* basis. In this paper, we have therefore considered the question whether the understanding of adoption of e-shopping and in-store shopping can be advanced through the application of attitude theory. The Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000) has been used to explain intentions to shop online or in-store. Since this model pays little attention to the operationalization of constraints on behaviour, external variables were added to take account of their importance.

2. Theoretical framework

An attitude is defined here as a subjective evaluation of a behaviour, which disposes a person to behave in a certain way towards it (see Eagly & Chaiken, 1993; Gärling et al., 1998). A crucial step in the history of attitude theory has been the development of the Theory of Reasoned Action (TRA) and its successor, the Theory of Planned Behaviour (TPB) (Armitage & Conner, 2001). Both theories are based on the idea that behaviours depend jointly on motivation (intention) and ability (behavioural control) (Ajzen, 1987; 1991). However, empirically, the TRA operationalization (Fishbein & Ajzen, 1975) states that intention intermediates between behaviour and the attitude towards the behaviour. Intention depends not only on attitudes, but also on subjective norms or the perceived social pressure exerted by important others, such as parents and good friends, to perform or not to perform a behaviour.

The TPB (Ajzen, 1991) extended the TRA by including two behavioural control variables. Perceived behavioural control stands for the confidence an individual has to undertake a particular behaviour in a particular situation. It is assumed to have a direct impact on intention and behaviour (Ajzen, 1991). Actual behavioural control, which refers to the availability of requisite opportunities and resources such as time, money, and the cooperation of others, has a direct impact on behaviour. Because this construct is often difficult to measure, perceived behavioural control is usually used as a proxy for actual behavioural control (Eagly & Chaiken, 1993). It is often assumed that perceived and actual behavioural control are correlated (Gärling et al., 1998). However, little attention has been given in

empirical research to the operationalization of external factors that could act as constraints on behaviour.

In the course of time, several researchers have sought to extend the TPB by introducing new predictors of intentions and, in turn, behaviour (Verplanken et al., 1997, for example). One extension is the incorporation of habit. A habit is a learned act that becomes an automatic response to a situation and can be functional in obtaining certain goals or end-states (Verplanken et al., 1997). Another important extension is the addition of goals. These can vary from concrete goals, such as buying clothes, to higher level ends, such as a feeling of wellbeing acquired by wearing new clothes. Goals are considered in the Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000), an advanced alternative to the TPB, in which habits are also taken into account (through the concept of past behaviour). The EMGB extends the Model of Goal-directed Behaviour (MGB) by adding goal desirability (the strength of an action's end state) and goal feasibility (the ease or difficulty of reaching the end state) (Perugini & Conner, 2000).

A crucial construct in the EMGB is behavioural desire, defined by Perugini and Conner (2000, 706) as: "...the motivational state of mind wherein appraisals and reasons to act are transformed into a motivation to do so." Behavioural desire is treated as the most proximal antecedent of intention. In the EMGB, a wider definition of intention is used, namely volition (Perugini & Conner; 2000), which constitutes a further extension of the TPB. This concept takes the engagement in plans to reach a goal into account together with the effort needed to enact the behaviour.

This short overview of attitude theories brings us to a simplified version of the EMGB which could be used for choices in shopping modes (see Figure 1). As mentioned earlier, actual behavioural control has been considered theoretically, but has not often been operationalized in empirical research. Thus, a conceptualization of the constraints within which intentions and behaviour occur has largely been omitted in attitude theory. Nevertheless, constraints could play an important part in an individual's choice process (Hägerstrand, 1970; Desbarats, 1983). We therefore hypothesised that external variables such as sociodemographics and personality traits have an impact on the antecedents of behaviour such as volition, subjective norms, perceived behavioural control, and past behaviour.

3. Methodology

A questionnaire, consisting of questions about daily and non-daily in-store shopping behaviour, Internet use, e-shopping behaviour, attitudes towards e-shopping and in-store shopping, and sociodemographic data, was designed. The research area consists of four municipalities (one urban, three suburban) located in the centre of the Netherlands; they were selected on the basis of their urbanization and shop-availability levels (measured as the total amount of floor space for non-daily goods, expressed in square metres (Locatus, 2003)). (For further details on the research area, see Farag et al. (2005a)).

The data collection took place in two stages. For the first stage, 8000 households were drawn randomly using the municipalities' population administration; the households were sent a selection questionnaire asking whether they would like to participate in the main questionnaire. Nearly a quarter (24 percent) of the households returned the selection questionnaire; of these, 80 percent were willing to participate in the main questionnaire (1566 respondents). Of the respondents willing to participate, 77 percent were Internet users and therefore belonged to our research population (1210 respondents). An Internet user was defined as a person using the Internet for work or private reasons. In the second stage, the 1210 respondents received the main questionnaire. In total, 826 people completed a questionnaire: a response rate of 68 percent.

The questionnaire contained a section that asked about the desire to buy a specific product within the forthcoming month. Half the sample received a questionnaire with a section on buying clothes and shoes, while the other half received a questionnaire with a section on buying media products (books, CDs, videos, DVDs, computer software). This section of the questionnaire was divided in two: one half contained questions about buying a product online and the other half about buying it in-store. Half the 826 respondents reported having a desire to purchase either media products or clothes and shoes in the forthcoming month. Of these respondents, 245 had filled in the section about media products. The analyses in this paper are restricted to the media products, because the majority of products bought online are media products; comparison with buying these products in-store is therefore easier (TNS, 2002).

Structural Equation Modeling (SEM) is a common method of analysis in applications of attitude theory (Perugini & Conner, 2000; Shim et al. 2001; for example). In SEM, a variable can at the same time be both dependent (that is, an outcome variable) and

independent (that is, an explanatory variable). Moreover, SEM distinguishes between direct, indirect, and total effects (Jöreskog & Sörbom, 2001). A total effect consists of a direct and one or more indirect effects. An SEM analysis consists of two parts: a measurement model and a structural model. In the measurement model, latent variables are explained by their indicators (observed variables). In the structural model, relationships between the latent variables can be modelled. The structural model captures the regression effects of exogenous (independent) variables on endogenous (dependent) variables, and the regression effects of endogenous variables on each other. Maximum likelihood was used as the method of estimation. In addition to a covariance matrix, an asymptotic covariance matrix was calculated as input for the analysis. In this way, standard errors and chi-squares were corrected for non-normality (Jöreskog, 2001). We estimated a recursive structural equation model with latent variables using LISREL software version 8.54 (Jöreskog & Sörbom, 2001). The operationalization of the variables and their frequency distribution are shown in Table 1.

4. Results

To what extent can the EMGB explain shopping behaviour? And which determinants of behavioural desire in the EMGB are affected by external variables? Table 2 answers these questions and illustrates the importance of adding external variables to the EMGB. Overall, the EMGB performs reasonably well when applied to shopping behaviour. Although they have an SRMR greater than 0.05, both the e-shopping model (RMSEA=0.000, Satorra-Bentler chi-square not significantly different from zero) and the in-store shopping model (RMSEA=0.000, Satorra-Bentler chi-square not significantly different from zero) perform reasonably well. The e-shopping model performs slightly better (AGFI=0.794, CFI=0.924) than the in-store shopping model (AGFI=0.752, CFI=0.885). In both the e-shopping and in-store shopping models, behavioural desire has a significant positive impact on volition, which is also the strongest effect of all the specified relationships. This finding indicates that the people who have a greater wish to buy media products in the forthcoming month are more willing to do so either online or in-store. However, contrary to our expectations, in neither of the models does attitude have a statistically significant effect on behavioural desire. It seems that other psychological constructs are more capable of explaining the volition to shop.

In the e-shopping model, several external variables affect subjective norms, perceived behavioural control, and past behaviour (Table 2). All the significant direct effects reported

below are also significant total effects on behavioural desire and volition. The subjective norms are affected negatively by shop accessibility: the more media stores one can reach within twenty minutes from home by bicycle, the less encouraging significant others are with respect to buying media products online. It seems that the perceived social pressure to buy online decreases when there are more shops available in the vicinity of the home. This result may possibly be derived from a more individualistic lifestyle of urban residents who are less liable to social pressure concerning the purchase of consumer goods such as media products.

People who perceive that they have a lot of control over buying media products online tend to be: women, experienced Internet users, and car owners. It is well known that Internet experience affects actual online buying behaviour positively (Swinyard & Smith, 2003; Forsythe & Shi, 2003, for example). Most online buyers tend to be male (Swinyard & Smith, 2003). There is no straightforward explanation for the relationship between owning a car and online buying. Perhaps people who own a car are comfort-oriented and perceive online buying as a comfortable method of acquiring goods. People who perceive that they have little control over buying media products online tend to be people who feel time-pressured, have a high income, and have several media stores within twenty minutes from their home cycling. It seems that people who feel time-pressured perceive online buying as difficult (and possibly time-consuming) rather than lifting possible time-constraints. It is difficult to find a simple reason for the result that people on a high income tend to perceive online buying as complicated. Certainly, the actual online buying behaviour of higher income groups does not reflect this relationship, since people with a high income buy more often online (Forsythe & Shi, 2003). This finding demonstrates that there might be a gap between how people perceive certain phenomena and how they actually behave. It seems that people with several media stores near their home find it comparatively more difficult to go to the trouble of buying media products online when they can obtain these products within twenty minutes by bicycle: no waiting time for delivery is required; the product is usually obtained immediately. Hence, online shopping could be perceived as more difficult when stores are relatively near home. It seems that e-shopping and in-store shopping replace each other.

With respect to past behaviour, it was found that people who have often bought media products online in the past tend to be experienced Internet users, credit card owners, people who have relatively few media stores within twenty minutes cycling from home, and people with a relatively low income. Perhaps the latter group of people use the Internet to find cheap

products and so buy online more often than higher income groups. The effect of shop accessibility on online buying behaviour in the past suggests a tradeoff between e-shopping and in-store shopping. Earlier research has found similar results (Farag et al., 2005b). In conclusion, Internet experience has the strongest (positive) effect on the volition to buy online via perceived behavioural control and past behaviour.

Perceived behavioural control and past behaviour are also affected by external variables in the in-store shopping model (Table 2). With regard to perceived behavioural control, we found that frequent online buyers perceive that they have less control over buying media products in-store. Their positive experience with online buying appears to make them reluctant to undertake a shopping trip for media products. Hence, they could perceive in-store shopping to be more difficult than e-shopping. Again, this finding points in the direction of a tradeoff between e-shopping and in-store shopping as far as media products are concerned. In the e-shopping model, it was found that women perceive online buying as easy. Similarly, they also find in-store shopping simple to carry out. This result matches previous findings in a study of revealed behaviour which indicated that women tend to make more shopping trips than men (Farag et al., 2005a). Thus, women feel that they have control over their shopping, whether it is online or in-store. With respect to past behaviour, in order to purchase media products, car owners have made fewer shopping trips than people who do not own a car. Previous studies of actual shopping behaviour have shown that car owners tend to make fewer shopping trips than people who do not own a car (Van and Senior, 2000, for example). All of the external variables discussed above also have significant total effects on behavioural desire and volition, with the exception of car ownership. This variable does not have a statistically significant total effect on desire, but it does have a significant total effect on volition. The number of trips made in the past to purchase media products was also affected by shop accessibility: the more media stores one can reach from home within fifteen minutes on foot, the more shopping trips one makes. Comparable findings have been reported in studies of revealed shopping behaviour (Van & Senior, 2000; Farag et al., 2005a). Comparing the strength of the effects, it becomes clear that the negative effect of car ownership on past behaviour is stronger than the positive effect of shop accessibility (Table 3). This finding suggests that people owning one or two cars bought fewer media products in-store in the past. Online buying experience has the strongest (negative) effect on the volition to buy in-store via

perceived behavioural control. This result supports the notion of a tradeoff between e-shopping and in-store shopping for media products.

Summarizing, the EMGB provides more insight than a model in which attitude is directly related to volition. An expansion of the EMGB with external variables also provides further insights into the determinants of the constructs in the EMGB. It can thus be concluded that an individual's context and resources are important in explaining shopping volition and, ultimately, shopping behaviour. It has been shown that, in such a modified version of the EMGB, Internet experience has the strongest (positive) effect on the volition to buy online, while online buying experience has the strongest (negative) effect on the volition to buy in-store. These external variables affect the volition to shop online and in-store via perceived behavioural control and past behaviour.

5. Conclusion

In this paper we have addressed the question whether the understanding of the adoption of e-shopping and in-store shopping can be advanced through the application of attitude theory. A simplified version of the Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000), which takes external variables into account, has been used. The EMGB performs reasonably well when applied to shopping behaviour. Although no significant effects of attitude on behavioural desire were found, other psychological constructs had statistically significant impacts. The effects of past behaviour and perceived behavioural control on the volition to shop online and in-store were statistically significant. Additionally, the volition to shop in-store was influenced by goal desire and the volition to shop online by subjective norms.

Adding external variables to the EMGB proved to be rewarding for both the e-shop and in-store shopping model. In the former model, experienced Internet users perceive having more control over buying media products online in the forthcoming month and they have also done so frequently in the past. Credit card owners have also often bought media products online in the past. People who have media stores within twenty minutes' cycling distance from their home have a weaker volition to buy media products online, because they have done so infrequently in the past, they perceive having less control over buying, and because they experience social pressure from important others who do not encourage buying online when stores are relatively near the home.

External variables also proved to be statistically significant in the in-store shopping model. Individuals who do not own a car and people with many media stores within fifteen minutes' walking distance from home frequently bought media products in-store in the past. Also, women and older people tend to experience a social pressure to buy media products in-store. Frequent online buyers tend to perceive having less control over making a shopping trip to buy media products within the forthcoming month. Thus, on the one hand, shop accessibility affects the volition to buy online, while on the other hand online buying experience affects the volition to shop in-store. This finding suggests that e-shopping and in-store shopping interact with each other. At least for media products, substitution between e-shopping and in-store shopping is likely to occur.

Our modified version of the EMGB has been quite successful in explaining shopping behaviour. Allowing behavioural desire mediate the effect of attitude on volition and behaviour in studies of individual choice behaviour therefore seems worthwhile. Such an application could be useful not only for future studies of shopping behaviour, but also of other types of personal travel behaviour, for example, mode choice or destination choice. Additionally, applying an expanded version of the EMGB to shopping behaviour has provided more insight into how external variables affect the volition to shop online or in-store. For example, it has become clear that shop accessibility affects e-shopping via past behaviour, perceived behavioural control, and subjective norms. In general, transportation studies might benefit from an application of attitude theory that also conceptualizes constraints in order to achieve a better understanding of the relationships between personal or land use characteristics and personal travel behaviour. Consequently, instead of including variables ad hoc, as is often the case, clearer analytical distinctions can be made. A change is required in the way in which relationships between attitudes and behaviour are currently modelled.

References

- Ajzen, I. (1987), Attitudes, traits and actions: dispositional prediction of behavior in personality and social psychology. *Advances in Experimental Social Psychology* 20, 1-63.
- Ajzen, I. (1991), The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50, 179-211.
- Armitage, J.C., Conner, M. (2001), Efficacy of the theory of planned behavior: A meta-analytic review. *British Journal of Social Psychology* 40, 471-499.
- Chang, M.K., Cheung, W., Lai, V.S. (2005), Literature derived reference models for the adoption of online shopping. *Information & Management* 42, 543-559.
- Couclelis, H. (2004), Pizza over the Internet: E-commerce, the fragmentation of activity and the tyranny of the region. *Entrepreneurship & Regional Development* 16, 41-54.
- Desbarats, J. (1983), Spatial choice and constraints on behavior. *Annals of the Association of American Geographers* 73, 340–357.
- Eagly, A.H., Chaiken, S. (1993), *The Psychology of Attitudes*. Harcourt Brace Jovanovich, Orlando, FL.
- Farag, S., Schwanen, T., Dijst, M.(2005a), Shopping online and/or in-store? A structural equation model of the relationships between e-shopping and in-store shopping. Paper submitted for publication, copy available from S.Farag@geo.uu.nl.
- Farag, S., Weltevreden, J., Van Rietbergen, T., Dijst, M., Van Oort, F. (2005b), E-shopping in the Netherlands: Does Geography Matter? Forthcoming in *Environment and Planning B*.
- Fishbein, M., Ajzen, I. (1975), *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Addison-Wesley, Reading.
- Forsythe, S., Shi, B. (2003), Consumer patronage and risk perceptions in Internet shopping. *Journal of Business Research* 56, 867-875.
- Fujii, S., Gärling, T. (2003), Application of attitude theory for improved predictive accuracy of stated preference methods in travel demand analysis. *Transportation Research A* 37, 389-402.
- Gärling, T., Gillholm, R., Gärling, A. (1998), Reintroducing attitude theory in travel behavior research. *Transportation* 25, 129-146.
- Hägerstrand (1970), What about people in regional science? *Papers in Regional Science* 24, 7-21.

- Jöreskog, K.G. (2001), Analysis of ordinal variables 2: Cross-sectional data. Available at: <http://www.ssicentral.com/lisrel/ord2.pdf> (Accessed at 14 July 2004).
- Jöreskog, K.G., Sörbom, D. (2001), *LISREL 8: User's Reference Guide*. Scientific Software International, Lincolnwood.
- Kraus, S.J. (1995), Attitudes and the prediction of behaviour: A meta-analysis of the empirical literature. *Personality and Social Psychology Bulletin* 21, 58-75.
- Locatus (2003), *Retail Guide 2003* [in Dutch]. Locatus, Woerden.
- Mokhtarian, P.L. (2004), A conceptual analysis of the transportation impacts of B2C e-commerce. *Transportation* 31, 257-284.
- Perugini, M., Conner, M. (2000), Predicting and understanding behavioral volitions: the interplay between goals and behaviors. *European Journal of Social Psychology* 30, 705-731.
- Shim, S., Eastlick, M.A., Lotz, S.L, Warrington, P. (2001), An online prepurchase intentions model: The role of intention to search. *Journal of Retailing* 77, 397-416.
- Swinyard, W.R., Smith, S.M. (2003), Why people (don't) shop online: A lifestyle study of the Internet consumer. *Psychology & Marketing* 20, 567-597.
- TNS Interactive (2002), *Global e-Commerce Report 2002*. Available at: <http://www.tnsfres.com/ger2002/> (Accessed at 5 July 2004).
- Van, U.P., Senior, M. 2000. The contribution of mixed land uses to sustainable travel in cities. In: Williams, K., Burton, E., Jenks, M. (Eds.), *Achieving Sustainable Urban Form*. E. & F. N. Spon, London/New York, pp. 139-148.
- Verplanken, B., Aarts, H., Van Knippenberg, A. (1997), Habit, information acquisition, and the process of making travel mode choices. *European Journal of Social Psychology* 27, 539-560.

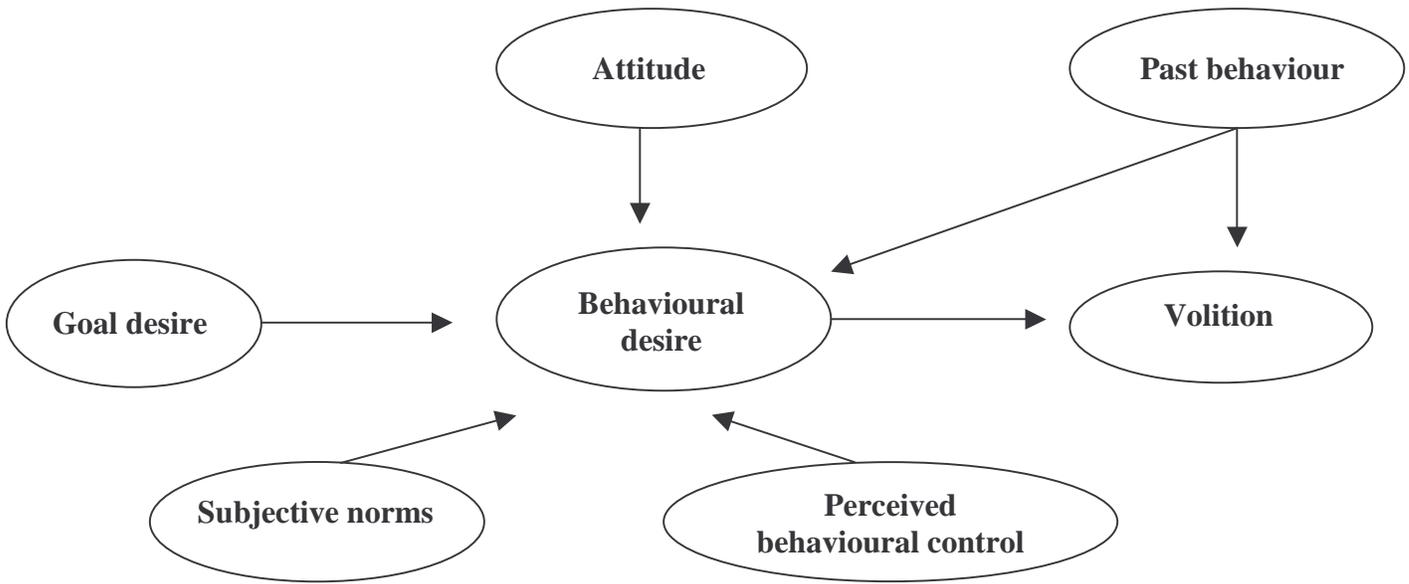


Figure 1 A simplified version of the Extended Model of Goal-directed Behaviour (EMGB) (Perugini & Conner, 2000)

Table 1 Operationalization and frequency distribution of variables (OL=online shopping, IS=in-store shopping)

Variables	N		%	Mean		SD	
	OL	IS		OL	IS	OL	IS
EMGB constructs							
<i>Goal desire</i>							
My desire to buy media products within the forthcoming month is: 1=very weak, 7=very strong	240	240		5.01	5.01	1.39	1.39
<i>Attitude</i>							
I think that to buy media products online* within the forthcoming month would be for me: 1= unpleasant, 7=pleasant	240	239		3.76	4.44	1.81	2.08
1= unenjoyable, 7= enjoyable	240	236		3.67	4.35	1.71	2.04
1= unattractive, 7=attractive	239	237		2.98	4.11	1.93	2.21
<i>Subjective norms</i>							
People who are important to me think I should buy media products online within the forthcoming month 1= strongly disagree, 7=strongly agree	243	240		2.03	3.01	1.54	1.91
<i>Perceived behavioural control</i>							
For me buying media products online within the forthcoming month would be: 1= very difficult, 7= very easy	244	239		5.07	6.09	1.92	1.36
I am confident that I could buy media products online within the forthcoming month if I wanted to 1= strongly disagree, 7=strongly agree	244	240		5.58	5.93	2.01	1.88
<i>Behavioural desire</i>							
My desire to buy media products online within the forthcoming month is: 1=very weak, 7=very strong	244	239		2.86	4.93	1.84	1.62
I want to buy media products online within the forthcoming month 1= false, 7=true	243	239		2.72	4.89	1.96	1.78
<i>Volition</i>							
I will invest time in order to buy media products online within the forthcoming month 1= very unlikely, 7= very likely	241	237		2.72	4.92	1.98	1.80
I intend to buy media products online within the forthcoming month 1= strongly disagree, 7=strongly agree	243	237		2.78	5.03	1.95	1.73
<i>Past behaviour</i>							
How many times did you buy media products online during last year? Number of times during last year (continuous)	238	238		2.05	11.38	2.96	7.94

Table 1 (continued) Operationalization and frequency distribution of variables (OL=online shopping, IS=in-store shopping)

Variables	N		%	Mean		SD	
	OL	IS		OL	IS	OL	IS
External variables							
<i>Frequency of Internet use for work and/or private reasons</i>							
		26	11				
		63	25				
		157	64				
		242		5.33		2.71	
		241		2.78		3.95	
<i>Time-pressured ("I do not have enough time for myself")</i>							
		245		4.37		1.76	
<i>Shop accessibility (number of media stores one can reach from home)</i>							
		242		3.76		9.94	
		242		27.01		24.30	
<i>Gender</i>							
		246	61				
<i>Age (continuous)</i>							
		246		39.67		11.75	
<i>Income (net household income per month)</i>							
		69	29				
		89	37				
		82	34				
<i>Household car ownership</i>							
		56	23				
		132	54				
		56	23				
<i>Credit card ownership</i>							
		246	70				

* = 'Online' was replaced by 'in-store' for the questions about in-store shopping.

Table 2 Standardized coefficients of direct and total* effects (significance at least $p < 0.05$, unless indicated otherwise)

Measurement model	Online Coef.	In-store Coef.
<i>Attitude</i>		
Pleasant to buy media pr.	0.972	0.973
Enjoyable to buy media pr.	0.839	0.972
Attractive to buy media pr.	0.495	0.883
<i>Perceived behav. control</i>		
Easy buying media pr.	0.916	0.497
Confident buying media pr.	0.440	0.577
<i>Behavioural desire</i>		
Desire to buy media pr.	0.918	0.885
Want to buy media pr.	0.929	0.866
<i>Volition</i>		
Invest time to buy media pr.	0.897	0.861
Intend to buy media pr.	0.862	0.828
<i>Internet experience</i>		
Years using Internet	0.527	0.515
Frequency Internet use	0.714	0.889

Table 2 (continued) Standardized coefficients of direct and total* effects (significance at least $p < 0.05$, unless indicated otherwise)

Structural model	Online					In-store					
	BD ^b	VO ^a	SN ^f	PBC ^g	PB ^h	BD ^b	VO ^a	AT ^e	SN ^f	PBC ^g	PB ^h
<i>EMGB constructs</i>											
Goal desire	0.093 ^d					0.569					
	<i>0.093^d</i>	<i>0.103^d</i>				<i>0.569</i>	<i>0.567</i>				
Attitude	-0.012 ^d					-0.003 ^d					
	<i>-0.012^d</i>	<i>-0.013^d</i>				<i>-0.003^d</i>	<i>-0.003^d</i>				
Subjective norms	0.229					0.023 ^d					
	<i>0.229</i>	<i>0.253</i>				<i>0.023^d</i>	<i>0.023^d</i>				
Perceived behav. control	0.295					0.707 ^c					
	<i>0.295</i>	<i>0.326</i>				<i>0.707^c</i>	<i>0.704</i>				
Behavioural desire		1.106					0.997				
		<i>1.106</i>					<i>0.997</i>				
Past behaviour	0.604	-0.109 ^c				0.093 ^c	0.114				
	<i>0.604</i>	<i>0.559</i>				<i>0.093^c</i>	<i>0.207</i>				
<i>External variables</i>											
Internet experience				1.072	0.587			-0.384			
	<i>0.670</i>	<i>0.677</i>		<i>1.072</i>	<i>0.587</i>	<i>0.001^d</i>	<i>0.001^d</i>				
Frequency online buying										-0.436 ^c	
						<i>-0.308</i>	<i>-0.307</i>			<i>-0.436^c</i>	
Time-pressure				-0.282							
	<i>-0.083^c</i>	<i>-0.092</i>		<i>-0.282</i>							
Shop acces. 15 min. walking									-0.127		0.135 ^c
						<i>0.010^d</i>	<i>0.025^d</i>		<i>-0.127</i>		<i>0.135^c</i>
Shop acces. 20 min. cycling			-0.137	-0.162 ^c	-0.210						
	<i>-0.206</i>	<i>-0.205</i>	<i>-0.137</i>	<i>-0.162^c</i>	<i>-0.210</i>						
Female				0.327					0.152	0.411 ^c	
	<i>0.096</i>	<i>0.107</i>		<i>0.327</i>		<i>0.294</i>	<i>0.293</i>		<i>0.152</i>	<i>0.411^c</i>	
Age									0.184		
						<i>0.004^d</i>	<i>0.004^d</i>		<i>0.184</i>		

* Total effects are in *italic* ^a VO= Volition ^b BD= Behavioural Desire ^c significant at $p < 0.10$ ^d not significant
^eAttitude ^fSubjective Norms ^gPerceived Behavioural Control ^hPast Behaviour

Table 2 (continued) Standardized coefficients of direct and total* effects (significance at least $p < 0.05$, unless indicated otherwise)

	Online					In-store					
Structural model	BD ^b	VO ^a	SN ^f	PBC ^g	PB ^h	BD ^b	VO ^a	AT ^e	SN ^f	PBC ^g	PB ^h
Income				-0.392	-0.257						
Car ownership	<i>-0.271</i>	<i>-0.271</i>		<i>-0.392</i>	<i>-0.257</i>						-0.189
Credit card ownership	<i>0.081</i>	<i>0.090</i>		<i>0.275</i>		<i>-0.018^d</i>	<i>-0.039^c</i>				<i>-0.189</i>
	<i>0.175</i>	<i>0.162^c</i>			0.290						0.290
Goodness-of-fit Indicators											
Satorra-Bentler χ^2			52.370					86.176			
SRMR			0.063					0.095			
RMSEA			0.000					0.000			
CFI			0.924					0.885			
AGFI			0.794					0.752			
CAIC			604.977					515.259			

* Total effects are in *italic* ^a VO= Volition ^b BD= Behavioural Desire ^c significant at $p < 0.10$ ^d not significant
^e Attitude ^f Subjective Norms ^g Perceived Behavioural Control ^h Past Behaviour