

## From E-Quality and Brand Perceptions to Repurchase: A Model to Explain Purchase Behaviour in a Web-Store

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### Abstract

This study proposes an explanatory model of repurchase behaviour in web-stores introducing certain relationships not taken into consideration before. However, some established relationships are taken from the literature, such as that between web-store quality, satisfaction and trust. A detailed exploration of measurements was performed to design a structured questionnaire. With a sample of n=500 web-store buyers, a structural statistic model was developed to confirm the hypotheses that support the model. A high degree of determination for behavioural intentions was found, and a moderate one for repurchase. Contrasting with previous research, this model proposes product brand perception and store brand perception as predictors of trust and intentions in a web-store. As the final dependent variable, a multi-item measurement for repurchase is proposed, tested and discussed; this has not been attempted before for this kind of model.

**Keywords:** Web-store quality, Store brand perception, Customer satisfaction, Trust, Store loyalty, Repurchase

## 1 Introduction

The Internet has increasingly attracted the attention of established retailers and new e-commerce website endeavors. E-commerce operations now span to all industries. The question is no longer whether to go e-commerce, but how to create a more competitive strategy in this business channel. Firms are making significant investments in this growing online market. A multi-channel environment like this offers consumers convenient additional channels to make purchases. Given the significant expansion in the uses of e-commerce, and the ever-greater dependence on it of both consumers and businesses as a major means for transactions and procurement, it is important to identify factors that could enable e-businesses to achieve customer satisfaction and firm competitiveness. This requires the understanding of customer needs in the context of virtual services. Despite the practicality of e-commerce and the growth of this channel worldwide, we believe that several areas of research relevant to e-commerce operations remain unexplored.

The present study attempts to enrich the understanding of the factors behind behavioural intentions and repurchase in a web-store. These include e-quality dimensions, product and store brand perceptions, satisfaction, and customer trust. Thus, a conceptual framework for an explanatory model is proposed to account for the hypothesized relationships between these constructs, thereby lending support to the model. In addition to supporting the proposed model, this study seeks to address three gaps in the research literature on web-store consumer behaviour: 1) the effect of store brand perception on trust and behavioural intentions; 2) the effect of product brand perception on trust and behavioural intentions; and 3) the effect of trust and behavioural intentions on repurchase patterns.

Hence, an ampler model than is to be found in previous research literature is offered to explain customer loyalty in a web-store. Although many of the constructs outlined here have been partially related to each other in previous studies [66], [79], [92], [112], [128], new relationships are also proposed here for analysis and discussion (such as the effects of store brand and product brand on a web-store and the relationships between trust and behavioural intentions with repurchase patterns in the same context). In addition, according to the authors' best review of the literature, no previous empirical web-store model takes repurchase (rate or pattern) as its final dependent variable, going only as far as behavioural intentions to repurchase. This has been confirmed in a recent meta-analysis where the results of 150 empirical studies involving the relationship of trust with loyalty measurements were analysed [70]. Moreover, in no previous studies has the attempt been made to offer a multi-item approach to enhance the validity and reliability of repurchase pattern measurement, assessing it as a dimension and not merely as a single-item variable. According to an empirical study by [30], a multi-item scale can be a more valid and stable measurement technique than a single-item measurement for the assessment of a specific construct. This is thanks to the multiple cross-confirmation between the various indicators for a given latent variable. Therefore, to test this model and its supporting hypotheses empirically, a structural equation model was developed with data gathered from a sample of web-store shoppers. Thus, conclusions, implications, limitations and new research proposals are discussed.

This study is structured as follows. First, a conceptual framework is offered in which a series of rationalizations are presented to propose a system of hypotheses, relating different constructs. This system of hypotheses taken together constitutes a conceptual model designed to explain the purchase behaviour of customers in a web-store. In order to test these hypotheses, an empirical methodology is proposed. Measurements for a structured questionnaire are also presented, and the results regarding their reliability and validity are shown. The statistical results are then presented in the form of a path SEM model, in which the coefficients of the fit indexes of the statistical model are analysed, and the relationship between the latent variables are deliberated in order to weather-support the hypotheses. Conclusions are then discussed. Lastly, limitations of the study and propositions for future research are outlined.

## 2 Conceptual Framework

In the following lines, a conceptual framework is developed linking the hypotheses that support the model schematized in Figure 1. For the assessment of web-store quality, an adapted four-dimensional approach is taken. This approach is partially based on the four phases of a consumer's online shopping experience proposed by [124]. These phases outline the process that a customer commonly follows to make a purchase in a web-store, and constitute the source from which the current conceptual framework was developed and the proposed model was conjectured. Nevertheless, a thorough examination was also made of other web-store quality measurement scales to determine the specific measurements used in the current study. Definitions of the constructs involved in this model are shown in Table 1 as conceptualized for the current study.

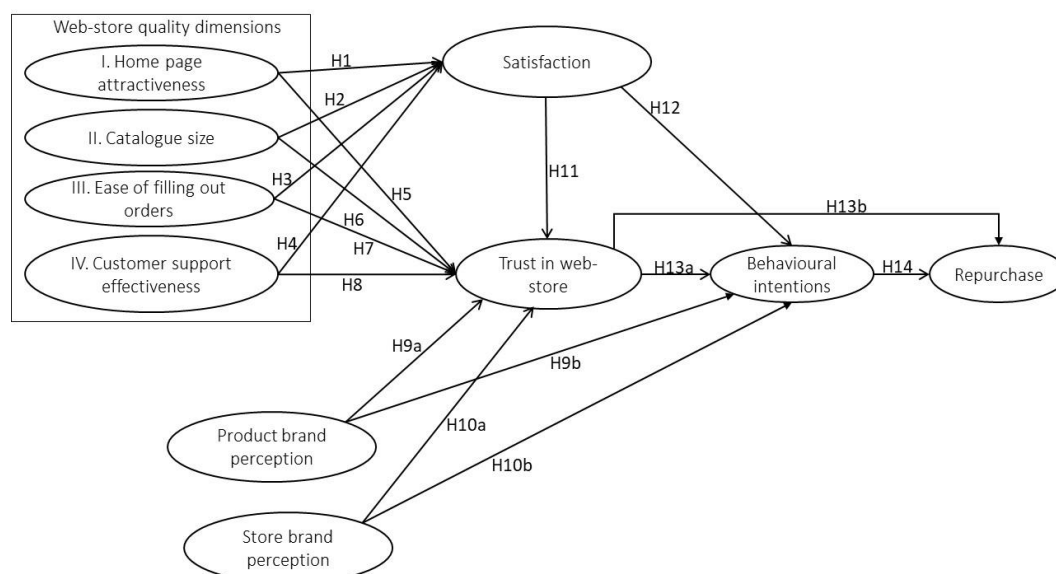


Figure 1: Conceptual Framework and hypotheses

Table 1: Constructs and dimensions

Construct/dimension	Definition	Adapted from
Web-store quality	The perceived extent to which a web site facilitates efficient and effective shopping, purchasing and delivery, including information search, navigation, order form, interactions and delivery.	[135], [146]
Home page attractiveness	Visual appeal and image, interactivity, and web innovativeness that can reflect the value proposition.	[50], [60], [61], [73]
Product catalogue size	The wide range of products and brands within the product categories offered that enable the web-store to differentiate itself through the variety offered to customers.	[2], [49], [120], [123]
Ease of filling out order form	The degree to which the layout of the order form is self-explanatory so that online operations may be completed promptly without problems.	[83]
Customer support effectiveness	The ability to provide customers with quick and effective responses to questions or queries concerning purchases, while transmitting sincere interest in customer needs.	[47], [83]
Product brand perception	Cognitive associations with the brands of the products that are offered with promises of fulfilment based on reputation and previous experiences.	[63], [100]
Store brand perception	Cognitive associations with the name and logo of the store with the promise of delivery based on reputation and previous experience as indication of quality and value added.	[54], [109]
Satisfaction	A post-purchase assessment and affective response to the overall service experience, based on previous encounters.	[4], [37], [82]
Trust in the web-store	The perception held by the consumer that the service provider is dependable and can be relied upon to deliver on its promises.	[3], [18], [85], [89], [110], [119]
Behavioural intentions	The consumer's commitment to consistently purchase a brand, and, in this case, to visit a brand store, because of a personal preference.	[23], [24], [26], [36], [75], [97], [117]
Repurchase pattern	The actual purchase rate or frequency of purchasing behaviour (or purchasing pattern) of a given brand within a particular category (in this case within the same store brand).	[98], [116], [129]

A significant number of web shoppers abandon their transactions due to websites with poor performance [88]. [25] found that satisfaction has a significant mediating effect between online service quality and loyalty. Website quality is considered an important antecedent of satisfaction [139]. Aspects such as accessibility, information quality and user-friendliness are likely to have positive repercussions on the level of consumer website satisfaction. According to [111], dimensions such as ease of use, e-scape, responsiveness, customer engagement and customization indirectly influence online loyalty through satisfaction. Homepages are gateways to major resources; when these pages are free of accessibility errors, they provide successful pathways to other information [142]. Thus, the homepage is likely to be

understood as an indicator of the accessibility to the entire website [48]. Therefore, website design is of great importance for achieving overall user satisfaction, and thus affects customer purchase decisions [25], [65].

*H1: Home page attractiveness has a positive effect on customer satisfaction in a web-store purchase.*

Once a customer has engaged with the homepage, the challenge is to provide an engaging product catalogue that can increase the customer's interest in finding the product that matches her/his needs.

[136] proposed that availability of information is one of the most important aspects of online purchasing. Therefore, an important benefit for Internet users is the reduction in search costs, especially for product information [7], [8]. The potentially larger range of products has been identified as an advantage of web shopping over traditional stores [71]. Some evidence shows that a larger coverage of products and information in the catalogue of a web-store that offers more options may attract more clients [32], [83], [123], [137]. Thus, an ample range of products and well-organized information is mentioned frequently by customers as a major factor in customer satisfaction [25], [77] and in web-store purchasing [136]. Hence:

*H2: Catalogue size has a positive effect on customer satisfaction in a web-store purchase.*

Once the customer has chosen a product in the web-store, filling out the order form should be easy enough to ensure placement of the order. Certain key elements of information exchanges between a web-store and the customer are likely to have a positive effect on confidence, satisfaction and purchase intention [104]. Specifically, it has been found that effectiveness in order management is an important antecedent of consumer satisfaction [135]. [101] indicate that order fulfilment management is an influential factor in perceived quality and loyalty. Thus, ease of filling orders has been conceptually suggested as an important predictor of online satisfaction [124]. Therefore:

*H3: Ease of filling out orders has a positive effect on the satisfaction that the customer experiences when purchasing in a web-store.*

Once the order form has been submitted, the next issue is how the web-store can make a good impression in terms of service and support up until the customer receives his order. Common complaints online refer to confusing business rules, unsatisfactory delivery issues, product failure, problems with after-sales service and payment/billing issues [19]. Both the form of the unpleasant experience and the way the company handles the complaint, are likely to affect future online purchase intentions [35], [105], [106] and thus could determine the growth of an online retailer [15], [105], [106]. Customers expect to be able to complete transactions correctly, to have products delivered on time and to receive prompt information [25]. Customer satisfaction with online stores may drive repeat purchases, but when customers encounter undesirable purchase-related experiences, they are likely to become dissatisfied [15], [17], [28], [105], [106] and to complaint [17], [20], [58], [78]. Consequently, concern for the customer has been considered one of the most important drivers of online service satisfaction [103], [127], [134], [138]. Therefore:

*H4: Customer support effectiveness has a positive effect on the satisfaction the customer experiences when purchasing in a web-store.*

[46] proposed a set of brand trust antecedents that can strengthen the effect of trust-assuring arguments in a web-store: security, privacy, brand name, word-of-mouth, online experience and information quality. [94] propose that trust exists *when one party has confidence in an exchange partner's reliability and integrity*. Moreover, [93] define trust as *a willingness to rely on an exchange partner in whom one has confidence*. In addition, [62] stress the importance of website design and provide guidelines for creating a favourable store image. Therefore, a virtual shopping environment with a favourable store image may effectively encourage transactions and help build trust [62]. Thus, home page attributes can lead to customer trust in a website [72]. Consequently:

*H5: Home page attractiveness has a positive effect on the customer's trust in a web-store.*

An online commerce web site can attract more customers by providing multiple product options with complete information [32], [137]. A wider assortment of products in a web-store may be attractive to customers [83], [123]. The product catalogue has been identified as an advantage of web shopping, as it can offer a wider variety of products than a physical store [71]. Good search results for the customer can help to increase customer trust in a web-store [41]. As there is a larger product catalogue offering more options to the customer, it is likely to obtain better and more focused search results. Hence:

*H6: Catalogue size has a positive effect on customer trust in a web-store.*

Even though a user-friendly catalogue is likely to foster customer intentions, filling out the order form can inhibit purchase finalization. A secure and safe transaction is likely to be a major factor in an online company's perceived reliability [64]. Ease of use of a technological system that can provide a stress-free online buying experience can save customer's time and in part reflects the convenience of online shopping [83]. Therefore, order management effectiveness carries considerable weight in the assessment of a commercial service [69], [84], [135]. Thus, a website

is likely to foster negative attitudes when there are billing and payment difficulties and complex delivery arrangements [74]. Accordingly:

*H7: Ease of filling out order forms has a positive effect on customer trust in a web-store.*

Once the order form has been submitted, the customer has to wait for the product to arrive. The buyer may be anxious due to online shopping factors such as the exchange policy and possible additional charges and delivery among other things [13]. When encountering a problem, customers may expect a rapid response from sellers [139]. Accurate support from the store to customers in terms of rapidness, concrete answers and clear solutions to requests can become important for online commerce, considering the absence of a physical store and face-to-face salespeople who can provide guidance and answer complaints [139]. Responsiveness refers to the online retailer's commitment to provide rapid feedback and is generally associated with receptivity to customer needs [29]. Thus, interactivity and responsiveness tend to favour trust development [21], [139]. Therefore:

*H8: Customer support effectiveness has a positive effect on customer trust in a web-store.*

Since customers purchasing through a website do not have personal contact with a retailer, they may depend on their trust in the offered brands [41]. Certain product brands may invoke such levels of trust in the customer that a spill-over effect can occur, benefitting the retailer and its website [143]. If retailers can create a connection in the minds of consumers with the brands they carry, they can likely benefit from this association [143]. Therefore, it is in the best interest of retailers to bolster customer perception of the brands they offer [143]. By working together, both manufacturers and retailers can benefit from each other's brands [131]. Thus, retailers may be able to increase trust in the web-store by carrying strong brands [143], and reap a number of benefits including image enhancement and pre-established demand [131]. Hence:

*H9a: Product brand perception has a positive effect on consumer trust in a web-store.*

*H9b: Product brand perception has a positive effect on behavioural intentions in a web-store.*

While the product catalogue plays a significant role, it has been found that the store as a brand could turn out to be as important [90]. The corporate image of the store can be defined as a combination of the store as a brand with the store brands and manufacturer brands offered by the store [43]. A positive online store image favours customer satisfaction and store loyalty [10], [90]. A favourable brand image tends to have a positive effect on relevant outcomes, such as premium price capability and positive word-of-mouth [10], [99]. In clothing markets, customers tend to be sensitive to store brand personality, suggesting that the image of the store can make a difference [41]. Thus, a strong store image offers recognition, familiarity, confidence and other associations that make it easier for customers to build trust [31]. Therefore:

*H10a: Brand store perception has a positive effect on customer trust in a web-store.*

*H10b: Brand store perception has a positive effect on behavioural intentions in a web-store.*

Customer satisfaction is a cumulative global evaluation based on experience with a firm over time [53]. It has been found that satisfaction can be an antecedent of trust [39]. Similar results have been found in retail settings [11], and proposed as well in services [118]. Trust is a complex phenomenon with important implications for online commerce [6], [40]. Some researchers have suggested that trust is likely the most significant factor of success in an online environment [73], [115]. It has been suggested that satisfaction has a direct effect on customer trust in online commerce [102]. Hence:

*H11: Satisfaction has a positive effect on customer trust in a web-store.*

In general, satisfaction may lead to customer loyalty [91], [113]. In turn, satisfaction and loyalty may help to achieve a stronger competitive position for the brand and a higher market share [37]. Thus, satisfaction is a key antecedent of loyalty measurements such as revisiting the store, re-purchasing in the store and giving favourable word-of-mouth [4], [38], [145]. Nevertheless, good web-store quality does not always result in repurchases when customers have more satisfying experiences elsewhere [77]. Given that customer satisfaction captures past behaviour as an evaluative summary of consumption experiences, it is likely that it has a direct effect on consumer intentions [112], [121]. Hence:

*H12: Satisfaction has a positive effect on customer behavioural intentions in a web-store.*

Trust in web-stores includes incorporating security elements, guaranteeing confidentiality and conveying a reliable image [25]. The lack of confidence caused by the absence of security and privacy is considered a major obstacle to online commerce development [84], [135]. Online buyer confidence tends to be reinforced by the ability of online sellers to assess and fulfil customer needs and expectations [128]. Thus, online customers prefer to make their purchases from websites they trust [59]. This is because trust can reduce buyer uncertainty [5]. Therefore, trust tends to encourage loyalty in an Internet environment [111], constituting a stronger antecedent of behavioural intentions than



other variables, such as customer-perceived value and perceived price level [66], [122]. Furthermore, some suggest that trust overcomes satisfaction as the dominant antecedent of repurchase intentions [21], [70], [82]. Therefore:

*H13a: Trust in a web-store has a positive effect on behavioural intentions.*

*H13b: Trust in a web-store has a positive effect on repurchase patterns.*

Customers do not necessarily purchase from the lowest-priced stores [107]. Non-monetary aspects, such as time and effort, are also considered in making purchase decisions [144]. Thus, customers carefully consider savings in time and effort when making on-line purchases [126]. Customer retention and repeating buyers are sources of profit because loyal customers are likely to be less sensitive to price, can be served at a lower cost and are inclined to pass on positive recommendations to others [81], [107], [108]. As convenience in Internet shopping is related to time and effort involved, customers are motivated to decide repurchases based on time savings and reduced hassles, especially for routine repurchase items [45]. Repurchase behaviour is considered an objectively observed indicator [116]. It has also been proposed that repurchase is a valid measurement of store loyalty [87], [95]. Previous literature has suggested that perceived value and behavioural intentions can lead to repurchase patterns [33], [144]. Thus, behavioural intentions have been established as an antecedent of actual loyalty [97]. Hence:

*H14: Behavioural intentions in a web-store have a positive effect on repurchase patterns.*

### 3 Methodology

A post-hoc study was implemented for which a structured questionnaire was designed. As latent variables were required for the data analysis, the questionnaire was designed incorporating multiple items for each construct/dimension involved in the study. Autonomous purchase decision-makers familiar with Internet shopping were required as participants. These had to be habitual web-store shoppers who had bought products for themselves with their own money, choosing themselves what to buy. Furthermore, in order to ensure that the participants had purchased from a formal web-store with service attention procedures of the type assumed in the model, it was important to recruit customers who had made regular purchases in web-stores that are well known in Mexico. Therefore, participating subjects had to possess the following characteristics: having purchased in at least one of eight selected department web-stores (Liverpool, Sears, El Palacio de Hierro, Sanborns, Best Buy, Amazon, Fabricas de Francia and Walmart) at least five times in the previous twelve months. The selected points of purchase are very well known web-stores in Mexico. A number of pilot tests were carried out in the validation process of the questionnaire. Through these pilot tests, the participants' awareness of the web-store names was tested. All the participants in these preliminary trials recognized these eight web-stores. Criteria for participation were that subjects had to have bought items for their own use, had to be in the age range of 25 to 50 and had to be residents of Mexico City. They had to like purchasing online and be holders of at least one credit card. The study does not consider business-to-business buyers. For variability control over the measurements, only department web-stores were considered. For the fieldwork, the questionnaire was uploaded to an Internet survey platform. Thus, a convenience sample of 1,540 respondents was collected. As it was an Internet survey, the intention was to keep strict control over who would participate, sending the Internet link only to those meeting participation requirements. Nevertheless, in many cases, the invitation was forwarded from respondent to respondent, entailing some loss of control over the process. Therefore, a verification of the participants was carried out in which, after careful screening, the sample was scaled down to 500 observations that met the required features mentioned above.

### 4 Measurements

For measurements of all constructs, except repurchase, seven-point Likert scales were used. Internal consistency reliability was assessed through Cronbach's alpha coefficients. Thus, internal consistency was measured unidimensionally within the items related to each construct or dimension established in the conceptual framework. To complement reliability assessment, average variance extracted and composite reliability were also calculated following this same fashion. As can be seen in Table 2, highly acceptable reliability coefficients above .8 and .9 were obtained in all cases, except for the measurements of repurchase. According to [42] p.231, [27] p.53, and to [133], an alpha coefficient above .9 is considered an indicator of excellent internal consistency.

To verify the convergent and discriminant validity of the items, a principal component (factorial) analysis with oblique (non-orthogonal) rotation was carried out. Oblique rotation was used, as some interdependency between latent variables was expected and therefore between components as well (see Appendix 1). A clear convergence in a single statistical component (factor) of the items related to the corresponding construct or dimension was confirmed (except for repurchase) with factorial loadings above .6 and up to .9 or higher. Discrimination between items for the different constructs in different factors also was observed in almost all cases, although, as expected, there is some correlation between some of the latent variables (dimensions or constructs). There cannot be full discrimination or independence, as relationships in this analysis are expected to form among some of these variables, as is expected to occur with the relationships proposed in the hypotheses. For this factorial analysis, a Kaiser-Meyer-Olkin (KMO) coefficient of .95

and a significant Bartlett coefficient show a good fit of the data to the model, where the factorial solution can be interpreted as the adequate representation of the observed variables [34], [125].

Table 2: Items, alpha internal reliability ( $\alpha$ ), average variance extracted (ave), and composite reliability (cr)

Construct	$\alpha$	ave	cr	Items (translations from Spanish)	Adapted from
Home page attractiveness	.94	.85	.96	The homepage of the web-store is very attractive The design of this web-store looks professional The homepage is of high quality I like the appearance of the homepage of this web-store	[18], [84], [132], [138], [140]
Product catalogue size	.97	.91	.98	The web-store offers a wide line of products The web-store offers a good selection of products The web-store offers a complete range of products In this web-store there is a great variety of products	[12], [41], [44], [132], [140]
Order form	.97	.92	.97	The web-store facilitates the process of filling out the purchase order It is very easy to generate a purchase order in this web-store I have no difficulty filling in the information required by the web-store	[1], [22], [76]
Customer support	.94	.90	.96	When a problem arises, the web-store shows a sincere interest in solving it Complaints are answered quickly by the web-store Customer support for this online store is easily accessible	[18], [47], [83], [67]
Satisfaction	.96	.94	.98	The service in the web-store is excellent I am very satisfied with my shopping experience at this web-store The web-store meets my expectations	[22], [44], [47], [67], [132]
Trust on the web-store	.97	.94	.98	This web-store protects my credit card details I feel secure in the transactions I make in this web-store This web-store protects my privacy	[22], [44], [47], [67], [114], [132]
Products brand perception	.97	.93	.98	This web-store offers products from well-known brands This web-store offers products from leading brands This web-store offers reliable brand products	[41], [44], [143]
Brand store perception	.97	.94	.98	The brand of this web-store has a good reputation The brand of this web-store is recognized The brand of this web-store is reliable	[116], [143]
Behavioural intentions	.97	.90	.97	If I had to, I would buy again from this online store I would use this online store again to meet my needs For future purchases this online store is recommendable I will buy again from this online store	[12], [22], [44], [132]
Repurchase pattern	.06	.32	.43	Transactions made in this web-store in the last twelve months ÷ total web-store transactions made in all web-stores in the last twelve months. Of the total online transactions, what percentage has been in this web-store? How many times have you bought something in this web-store? I buy frequently in this online store	[98], [116], [129]

As stated above, one of the differentiators of this study, in contrast to previous ones, is that the intention of the current web-store purchase behavioural model is not only to explain behavioural intentions, but also to assess repurchase pattern as the final dependent variable, giving the study more internal validity. The intention is thus not only to include a single observed variable indicator for repurchase, but also to propose a multi-item measurement for this variable, which has never been attempted before in this kind of study. Regrettably, under the reliability and validity tests, the results were not as good as those shown above for the other variables. Nevertheless, this multi-item approach for repurchase was retained for two reasons. First, in the structural equation model used to test the hypotheses, the observed variables used for the repurchase latent variable showed statistically significant measurement weights (Table 3). The measurement weights between a latent variable and observed variables in a structural equation model can constitute a rigorous alternative method of confirming convergence validity of the items and construct reliability for the latent variable [57]. Second, as mentioned above, this approach was considered worth keeping because of the innovative introduction of a multi-item measurement for this variable. As noted above, this form of measurement can outperform single-item measurement in terms of reliability and stability [30]. While this problem is acknowledged as one of the limitations of the study, the multi-item approach is nevertheless retained here to emphasize the need for further research into improving multi-item measurement of customer repurchase patterns.

## 5 Results

The demographic composition of the obtained sample ( $n=500$ ) is as follows. Purchasers by web-store in México: Sanborns 0.4%, Sears 1.2%, Liverpool 34.6%, Fabricas de Francia 0.4%, Amazon 45%, Bestbuy 4.4%, Palacio de Hierro 3% and Walmart 8%. Gender: male 58%, female 42%. Age (in years): 25 to 33, 58%, 34 to 42, 31% and 43 to 50, 11%. Number of cars they possess in the family: 0 or 1, 36%, 2 or 3, 49% and 4 or more, 15%. Number of credit cards they have: 1 or 2, 67%, 3 or 4, 22% and 5 or more, 11%. Inshore (domestic) travels for pleasure per year: 0 or 1, 61%, 2 or 3, 30% and 4 or more, 9%. Offshore (international) travels for pleasure per year: 85% of the respondents did not report offshore travels, 1 per year, 11%, 2 or more, 4%. A correlation matrix between variables is presented in Appendix 1.

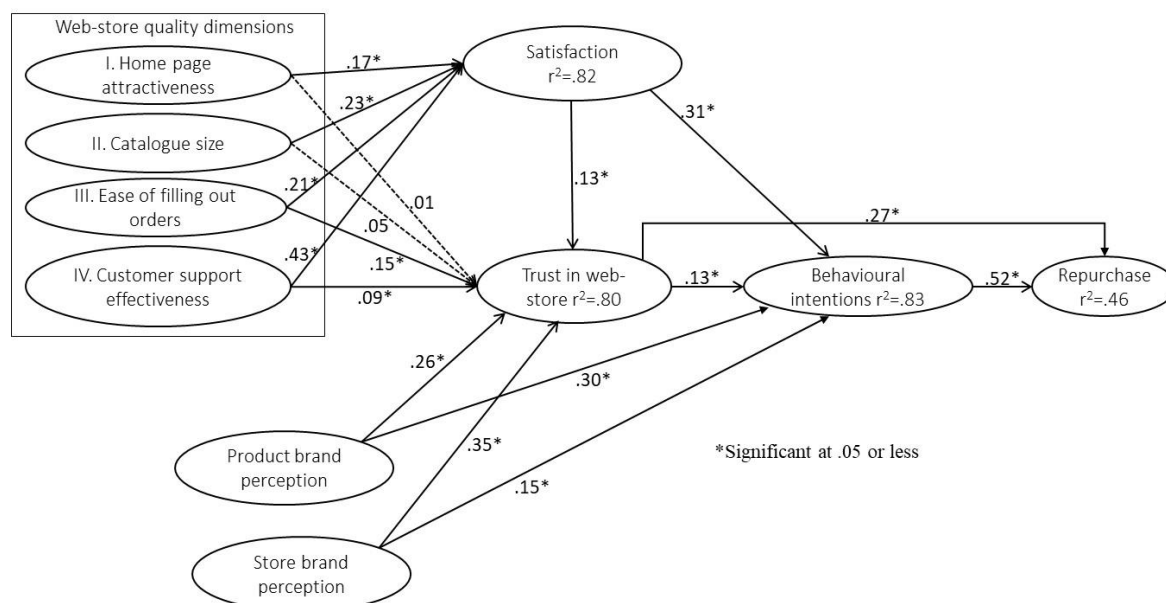


Figure 2: Statistical model and coefficients

Table 3: Standardized measurement weights

Observed variable	Latent variable	Estimate	p-value
Homep3	← HomeP	.923	
Homep2	← HomeP	.888	***
Homep1	← HomeP	.880	***
Homep4	← HomeP	.885	***
ProdC3	← ProdC	.934	***
ProdC2	← ProdC	.958	***
ProdC1	← ProdC	.950	***
ProdC4	← ProdC	.920	***
OrdF4	← OrderForm	.950	***
OrdF3	← OrderForm	.990	***
OrdF2	← OrderForm	.928	***
CustS4	← CustSupport	.886	***
CustS3	← CustSupport	.949	***
CustS2	← CustSupport	.923	***
Satisf1	← Satisf	.929	***
Satisf3	← Satisf	.974	***
Satisf4	← Satisf	.964	***
PBP4	← ProdBrandPerc	.933	***
PBP3	← ProdBrandPerc	.956	***
PBP2	← ProdBrandPerc	.958	***



Table 3: continuation				
BSP2	←	BrandStorePerc	.936	***
BSP1	←	BrandStorePerc	.960	***
BSP3	←	BrandStorePerc	.976	***
Blnt1	←	Behavint	.937	***
Blnt4	←	Behavint	.894	***
Blnt5	←	Behavint	.943	***
Blnt2	←	Behavioural Int.	.960	***
Trust2	←	Trust	.951	***
Trust1	←	Trust	.976	***
Trust4	←	Trust	.924	***
Repu3	←	Repurchase	1.050	*
Repu2	←	Repurchase	.129	*
Repu1	←	Repurchase	-.096	*
Repu4	←	Repurchase	.125	*
***p. ≤.001 **p. ≤.01 *p ≤.05				

As mentioned before, a statistical structural equations model was constructed to test the hypotheses and thus the conceptual model. In Figure 2, a schematization of the resulting model is presented. With this structural equation model, acceptable values of absolute fit indexes were obtained with a CMIN/DF (chi-square minimum discrepancy divided by its degrees of freedom) value of 3.93 and a RMSEA (root mean square error of approximation) value of .08. According to [133] CMIN/DF must be lower than 5.0 for there to be a proper fit of the data with the model. According to [86] a value of about 0.9 or less for the RMSEA would indicate an acceptable error of approximation of the model with the data. As for relative (or baseline comparison) fit indexes, the model displayed acceptable values of NFI(normed fit index)=.92, RFI(relative fit index)=.91, IFI(incremental fit index)=.94, TLI(non-normed fit index)=.93 and CFI(comparative fit index)=.94. According to [56], relative fit index values must be greater than .90 to establish an appropriate fit between the obtained model and a perfect baseline model.

Regarding measurement indicators for the latent variables in this structural model, almost all the measurement weights between observed variables and their corresponding latent variables were high (close to 1) and statistically significant, showing an acceptable assessment of the latent variables representing the constructs in the current conceptual model. Even for repurchase, measurement weights were low but statistically significant, as previously stated. Standardized measurement weights and regression weights are shown in Table 3.

Table 4: Regression weights between latent variables

Hypothesis	Independent V.	Dependent V.	Regression weight	Decision
H1	Home page	→ Satisfaction	.17***	Accept
H2	Catalogue	→ Satisfaction	.23***	Accept
H3	Order form	→ Satisfaction	.21***	Accept
H4	Customer support	→ Satisfaction	.43***	Accept
H5	Home page	→ Trust	.01	Reject
H6	Catalogue	→ Trust	.04	Reject
H7	Order form	→ Trust	.15***	Accept
H8	Customer support	→ Trust	.09*	Accept
H9a	Product brand	→ Trust	.26***	Accept
H9b	Product brand	→ Intentions	.30***	Accept
H10a	Brand store	→ Trust	.35***	Accept
H10b	Brand store	→ Intentions	.15**	Accept
H11	Satisfaction	→ Trust	.13**	Accept
H12	Satisfaction	→ Intentions	.31***	Accept
H13a	Trust	→ Intentions	.13**	Accept
H13b	Trust	→ Repurchase	.27***	Accept
H14	Intentions	→ Repurchase	.52***	Accept
***p. ≤.001 **p. ≤.01 *p ≤.05				

As hypothesized in the conceptual model, the standardized regression weights between latent variables are statistically significant (except between home page attractiveness and trust, and between product catalogue size and trust), as shown in Table 4. Although these coefficients are not very high, the combined explanatory effect of the independent variables and the mediating variables allow for a considerable level of determination of the dependent variables in this structural equation model. Therefore, as presented in Table 5, squared multiple correlations for dependent variables are above .80 for satisfaction, trust and behavioural intentions, showing a determination level of more than 80% of the

structural model for these variables. Even for the repurchase dependent latent variable, there is an interesting level of statistical determination (46%), given that according to [97] behavioural loyalty is the most difficult dimension of loyalty to predict. To confirm the results, the statistical model was tested without the non-significant regression weights (home page attractiveness and trust; product catalogue size and trust). The results and coefficients for all the indicators were the same as those stated above: fit indexes, measurement weights, regression weights and squared multiple correlations.

Table 5: Squared multiple correlation of dependent latent variables

Latent variable	R squared
Satisfaction	.82
Trust	.80
Behavioural intentions	.83
Repurchase	.46

## 6 Conclusions and Discussion

Consistently with the findings of [68], [130], the results suggest that home page attractiveness has a direct effect on satisfaction, contradicting [69], who claimed that web appearance has little impact on customer satisfaction. While [14], [80] assert a relationship between home page attractiveness and trust in the web-store, the present study was unable to support this relationship. Nevertheless, it may receive support indirectly through satisfaction, although the obtained indirect effects are very low, near zero. The present study supports the direct effect of product catalogue size on satisfaction, in line with [83], [120], who assume that satisfaction is higher when online stores offer superior product selection. However, a direct relationship between product catalogue size and trust in the web-store was not supported. While this relationship may receive some support indirectly through satisfaction, the obtained indirect effect tends to zero.

Ease of filling out the order form was shown to have a direct influence on satisfaction, as noted in [55], [69]. Also, a direct relationship between ease of filling out the order form and trust in the web-store was supported, as proposed by [52], which makes sense given that this attribute enables transaction capability, secure and convenient payment and the safe completion of all online shopping operations. Customer support effectiveness showed a direct relationship with satisfaction, as shown in [96], [135]. Accordingly, a direct relationship between customer support effectiveness and trust in the web-store was supported, as anticipated by [25], [101]. Thus, prompt delivery and prompt response to customer concerns appear to be a relevant group of variables in virtual shopping, as do privacy and security.

Product brand perception is how a customer tends to assess the quality of the product catalogue of a web-store. The literature review for this study shows that very little has been published on web-store product brand perception. In light of the current findings, it may be suggested that web-store product brand perception is likely to have a direct effect on trust, consistently with what had been previously found for physical stores. On the one hand there are the product brands; on the other hand, there is the web-store's name. The attractiveness of a store name, as a brand, has been found to be closely associated with three factors: the store's relationship with its customers, the pleasure of shopping in the store and how well the store understands its customers as evidenced by the selection it offers [90]. Therefore, the present study supports the claim that store brand perceptions can have a direct effect on trust and on behavioural intentions towards the web-store, as per [9], [141]. As for trust in the web-store, this was found to have a direct relationship with behavioural intentions towards a web-store, as previously noted by [16], [85].

A novel contribution of this study has been to adduce evidence that trust and intentions can have an effect on repurchase in the context of web-stores. The relevancy of this is that previous models only have purchase intentions as the final dependent variable. Purchase intentions constitute an attitudinal measurement but not a measurement of an actual observable behaviour as repurchase does. In a previous study [95], elements of a web-store have been related positively to an actual behaviour, such as client expenditure, but not to actual repurchase patterns. As stated above, this can be confirmed in a recent meta-analysis [70]. Linking the entire model to measurements of action loyalty as a final dependent variable has a high theoretical and practical relevancy. Establishing the relationship of action loyalty with previous phases of loyalty (such as intentions and attitude) encompasses the full range of loyalty phases proposed by [97], yielding a more holistic assessment of this construct. Moreover, client repurchase patterns can be considered a relevant indicator of the success of a web-store, as there is evidence linking measurements of action loyalty with business profitability [51]. As another novel contribution, it has been found that linking brand perceptions to trust and repurchase in a web-store context has a relevant managerial implication. Risk averse customers tend to show a higher and longer-lasting propensity to brand loyalty [91]. A set of strong brand perceptions associated with the name of the web-store can help to increase customer trust. Therefore, building these can facilitate the attraction of risk-averse customers, who offer a better chance of building a long-term relationship with long-term repurchase patterns.

## 7 Limitations and Future Research

Although it was required for interviewees to have purchased products for themselves, it is important to mention that there were no specific product categories required for participation in the study. It is therefore suggested that further research focus on specific product categories to deepen knowledge of how involvement with specific product categories affects web-store perception. Additionally, testing this kind of model with a specific product category may help to reduce statistical variability, thereby helping to increase the statistical associations between variables.

As multi-item scales can have higher validity than single-item measurements [30], a challenging part of the present research was to propose and design a valid multi-item measurement of repurchase. Even though the measurement weights of the observed variables for the repurchase latent variable are all significant, these measurement weights are low (and the alpha coefficients are unacceptable). Thus, there is still work to do to find appropriate measurements to ensure proper reliability and validity for this variable. Current authors believe this to be worthwhile as almost all published empirical purchase decision models go only as far as behavioural intentions, and very few as far as single-item repurchase measurement. In light of the lessons to be learned from this study, it may be helpful to avoid relying too much on declared repurchase rates; when the current data is analysed, it becomes apparent that consumers tend not to remember clearly how frequently they have made purchases at a specific web-store in a specific period.

As mentioned above, as this is the first time store brand perception has been included in a model to explain loyalty or repurchase in a web-store, we decided to include it as an exogenous variable in the model. We did not want to address the question of how web-store brand perception is constructed because this can be very complex, and would take the focus away from the original objectives of the model and the study. However, web-store quality and product brand perception, among other factors, can indeed affect perception of the web-store brand. Hence, we believe that this is a very interesting path for future research.

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## Appendix 1: Pearson Correlation Matrix. Observed Variables with Higher Measurement Weights

	1	2	3	4	5	6	7	8	9	10
1 Home page	1	.62**	.60**	.46**	.59**	.61**	.62**	.62**	.59**	.48**
2 Catalog	.62**	1	.69**	.58**	.62**	.65**	.69**	.68**	.65**	.52**
3 Order form	.60**	.69**	1	.60**	.62**	.64**	.75**	.68**	.70**	.58**
4 Support	.46**	.58**	.60**	1	.53**	.53**	.69**	.56**	.60**	.50**
5 Product brand	.59**	.62**	.62**	.53**	1	.84**	.69**	.77**	.75**	.47**
6 Store brand	.61**	.65**	.64**	.53**	.84**	1	.72**	.80**	.76**	.51**
7 Satisfaction	.62**	.69**	.75**	.69**	.69**	.72**	1	.75**	.75**	.56**
8 Trust	.62**	.68**	.68**	.56**	.77**	.80**	.75**	1	.73**	.58**
9 Intentions	.59**	.65**	.70**	.60**	.75**	.80**	.75**	.73**	1	.63**
10 Repurchase	.48**	.52**	.58**	.50**	.47**	.51**	.56**	.58**	.63**	1

\*\* . Correlation is significant at the 0.01 level (1-tailed). N=500  
Editorial note: one observed variable per construct/dimension was selected. The entire correlation matrix with all the observed variables is too large to fit on the page.