

Build to Succeed: The Effect of Store Design Factors on Online Trust and Store Usefulness

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Abstract

With the development of e-commerce, web store design has attracted much attention. However, what are the critical success factors (CSFs) for online web stores? With a focus on online retailing, this study identifies perceived usefulness and trustworthiness of the retailer as two CSFs for etailing systems. Four major web store design features are then identified, and the relationship between design features and CSFs are tested on a real web store. The empirical study supports the importance of the identified web design features. This study contributes to the literature a CSF-based perspective on web store design.

Keywords: web store design, critical success factors, trust, etailing

1. Introduction

E-commerce is steadily growing. According to the U.S. department of commerce, total e-commerce sales for 2003 were estimated at \$54.9 billion, an increase of 26.3% from 2002. For a web store to be successful, the design of the storefront – the website – is critical. In many disciplines including information systems research (e.g. Agarwal and Venkatech 2002), marketing research (e.g. Alba et al. 1997), consumer research (e.g. Mandel and Johnson 2002), and retailing (e.g. Wolfenbarger and Gilly 2003), web store design has been identified as an important factor for online success. Prior studies have used customer's purchase intention (e.g., Bhattacharjee 2002), user satisfaction, and attitude towards the website (e.g. Teo et al. 2003) as indicators of the success of an online store. Moreover, many prior studies hypothesized a direct effect of web store design features, such as information quality, on these success indicators. For example, Szymanski and Hise (2002) identified three categories, nine variables for e-satisfaction. McKinney et al. (2002) identified information quality and system quality, each having three sub-constructs, to form an overall satisfaction. Unfortunately, directly relating a large number of web store design features to success measures does not offer a clear understanding of the customer preference. It obscures the importance of critical factors underlying the many design features. But what are these critical factors and how can a web store be designed to enhance these critical factors?

To sort out this mess, the purpose of this study is to 1) choose a small set of critical success factors (CSFs) that customers value, and 2) to relate the major web store design features to the CSFs. With a focus on retailing websites, we identify trustworthiness and perceived usefulness as two CSFs based on extensive literature review. A set of website design features is then identified based on both literature review and inspection of real websites.

2. Conceptual Background

2.1 Perceived Usefulness and Trustworthiness as two CSFs

Our study focuses on online retailing (etailing for short). Why do we need to identify the CSFs for etailing, since information system success has been studied extensively? This is because the traditional IS success model is based on in-house systems. Rai et al. (2002) comment: “Traditional IS systems were targeted at internal organization users [p.66] ... Researchers may devise new constructs and linkages that are specific to the e-Commerce context, and, in this case, the IS field needs to be made aware of the possibility of IS success models that differentiate” [p67].

In e-commerce context, we define an etailing system as the entire system that is used to accomplish online retailing function including product presentation, ordering, payment, delivery, and service. Because the fulfillment of sales involves not only the website, but also the back-end services, an etailing system is no longer an IT-only system, but a combination of IT and other retailing components. Eetailing website refers to the part of an etailing system that is visible to the customer online. Against this backdrop, we propose perceived usefulness (PU) and trust in the retailer as two CSFs for etailing. PU of the etailing system refers to the improved shopping performance when using an etailing system. It can be affected by not only the website *per se*, but also the subsequent services from the retailer, hence an overall perception beyond what is defined in the technology acceptance model (Davis et al. 1989). We define trustworthiness as the perceived ability, benevolence, and integrity of a trustee (Mayer et al. 1995). The term trust refers to the trust intention which manifests the perceived trustworthiness (McKnight et al. 2002).

The importance of trust and PU has been recognized in the ecommerce literature as well. Table 1 summarizes twenty one prior empirical studies for which: 1) the dependent variable is an overall evaluation of an etailing system, such as satisfaction, attitude, loyalty, or purchase intention, and 2) the independent variables are perceptions of the etailing system, but not specific web store design features.

Table 1. Empirical studies on retailing website success, a partial list.

Reference	Antecedents	Dependent Variable
Gefen 2003	Trust(.26), PEoU(.25), PU(.4)	Intended Use (.61)
Jarvenpaa et al. 2000.	trust (.59), risk(-.37)	Attitude (.57)
Bhattacharjee 2002	trust(.36), familiarity(.42)	Willingness to transact (.31)
Pennington et al. 2003-4	trust (.897)	Attitude (.81)
Gefen and Straub 2000	PEoU (ns), PU(.35)	Purchase intention (.35)
Lee et al. 2003	Sociopsychological value(.42), economic value (ns), product value (ns)	Customer satisfaction(0.162)
Teo et al. 2003	Satisfaction (.33), value (.53)	Attitude (.57)
Wolfenbarger and Gilly 2003	Fulfillment/reliability(.30), website design (.45), privacy/security (ns), customer service(ns)	satisfaction (.63)
Pavlou 2003	PU(.33), trust(.35), risk(-.11), PEoU(.12)	Intention to transact (.56)

* Values following antecedents are standardized coefficient. “ns” denotes non-significant. Values following consequences are R-squares.

Table 1 shows that trust, customer values, PU, perceived ease of use (PEoU), and risk are the most recognized constructs in the literature. Perceived ease of use, which is defined as the degree to which a person believes that using a particular system would be free of effort (Davis et al. 1989), is suggested by some prior studies to be insignificant to user's adoption when a user has adequate knowledge to operate a system (such as an online web store). We therefore exclude it as a CSF. Regarding online risk, Pavlou (2003) identifies two forms of uncertainty in on-line transactions: behavioral uncertainty and environmental uncertainty. Environmental risk is derived from the underlying infrastructure such as technological infrastructure, and behavioral risk results from the trading partner. While environmental uncertainty is largely out of the retailer's control, behavioral risk, which is the opportunistic behavior of the retailer (Pavlou 2003; Jarvenpaa et al. 2000), to a large degree is the opposite of trust. Therefore, the behavioral risk is redundant in the presence of the trust construct. Value perception (e.g. Lee et al. 2003) often encompasses some specific components such as product value and price. If a web store offers good product value, it should be regarded as a useful shopping channel. Therefore, such components are incorporated in perceived usefulness. In conclusion, the literature has offered much support for the two factors: trustworthiness and PU, to be the main determinants of e-tailing system success, although trustworthiness was simply regarded as trust in many prior studies.

However, the literature is ambiguous with the definition of PU. While some authors define PU as that of the website *per se* (e.g. Teo et al. 2003), others treat PU as pertaining to the entire e-tailing system (e.g. Gefen 2003). Still others used both items tapping on the website alone and items tapping on the whole system (Devaraj et al. 2002). We define PU as an overall perception of the e-tailing system. While for the website *per se*, another construct, customer decision support (CDS), is used.

Introducing the construct customer decision support to measure the usefulness of a website *per se* is adequate. A marketing channel is to fulfill three basic functions: transaction, delivery, and communication (Peterson et al., 1997). For an online store, the delivery function is typically outsourced. The transaction function is standardized in terms of the use of shopping cart and the payment process. The product display, promotion, and comparison are the major differentiation aspects. As Alba et al. (1997) observe: "To be successful, IHS [interactive home shopping] must allow the consumers to tailor the basis for comparison of alternative in order to make the system compatible with the process by which consumers prefer to make decision" (p45). Therefore, we use customer decision support to capture the major function of a website *per se* and differentiate it from the general usefulness of the store.

2.2 Web Store Design Features

Having identified the CSFs for e-tailing, the next step is to identify relevant design features. Thirty four empirical studies from major IS journals¹ were identified and classified into three categories based on the success measure and the antecedents used (Appendix A gives a partial list). Web store design features were classified into five groups based on the definition of the concepts used in the papers: technical factor (e.g. system and information quality), policies (e.g. privacy and service policies), product factor (e.g. assortment and price), post-purchase attributes (e.g. delivery and customer service), and others (e.g. customer attributes and retailer reputation).

¹ We reviewed papers in 14 IS, retailing, and marketing journals from 2000 to 2004.

Only the first three categories are related to web store design features. We admit that other variables in the “post-purchase” and the “other” column can also affect CSFs. However, we confine ourselves to web store design features only.

The first category of studies has the following characteristics: 1) the success measure of a website is more oriented towards technical performance, such as usability, but not trust or PU; 2) the role of the user as a customer is not emphasized; 3) technical website design factors are the major determinants of the web success and product; service policy, and service factors are not considered; 4) although the study is purported to ecommerce websites, the findings are applicable to non-commerce websites. For example, Agarwal and Venkatesh (2002) studied the usability and its sub-dimensions for websites. Liu and Arnett (2000) tried to find a few key technical factors as sub-dimensions of website success. McKinney et al. (2002) investigated system satisfaction and information satisfaction.

The second category explicitly considers trust or perceived usefulness as dependent variable; a customer role is recognized, but only the technical website design features are considered as antecedents. For example, for trust, Gefen et al. (2003) considered only PEOU. Koufaris and Hampton-Sofa (2004) included PEOU, security control, and customization. McKnight et al (2002) considered only an overall measurement of website design. For PU, since the extant research implicitly adopted a technical definition as in Davis et al. (1989), PEOU is the only antecedent most of the time (Gefen and Straub 2000; Handerson and Divett 2003).

Category three looks at technical factors, product, policies, and other customer experiences. However, only one CSF, or an overall success measure was used. Studies of this group include (Devaraj et al. 2002; Pavlou 2003; Szymanski and Hise 2000; Wolfinbarger and Gilly 2003).

In summary, our review found no study on web store design considering both CSFs as dependent variables and covering technical as well as product and policy antecedents. To cross-validate the antecedents identified in the literature, we then inspected web store design features in a real world setting. A hundred retailing websites were sampled from a large comparative shopping website, Bizrate.com. In order to facilitate comparison, we randomly chose highly rated and lowly rated companies. A highly rated one was arbitrarily defined as one with all ratings being either “outstanding” or “good”. A lowly rated one was defined as one with at least one rating being “poor”². All information in a store website was categorized by the author and a research student independently. The number of categories was not fixed in advance. The results were then merged and the ambiguous cases resolved by discussion. Ten categories emerged and were sufficient enough to cover almost all types of information (see table 2). The inspection shows that the literature review does uncover most of the information used online. However, company information disclosure, service policy, and terms of use were overlooked.

Table 2. Inspection of 100 randomly selected retailing websites.

	Company ³ Info.	Service Policy	Security & Privacy Policy	Terms Of Use	Product Info.	Useful Links	Help Info. (FAQ)	Search Function	Shopping Cart	Site Map
High- Rating	DI: 20/50 S:50/50	50/50	49/50	25/50	50/50	16/50	45/50	50/50	50/50	16/50

² Bizrate.com aggregated all ratings into “outstanding”, “good”, “satisfactory”, and “poor”.

³ Company Information: DI – Detailed self-introduction; S – Simple information or contact Information only.

Low-Rating	DI:7/50 S: 47/50	49/50	46/50	11/50	50/50	4/50	25/50	49/50	50/50	6/50
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3. Model and Hypotheses

Based on both literature review and our inspection of real websites, we identified four web store design features as major antecedents for the CSFs. First, perceived ease of use is chosen because it is one of the most used construct related to the technical aspect of a website. Second, the literature suggested product assortment. Since product information is an indispensable component, we include assortment as another design feature. Third, our inspection reveals that service policy is important in addition to privacy policy. We group all these policies and measure their fairness, hence policy fairness. Finally, company information is another variable uncovered by our inspections. Information quality proposed in prior studies (McKinney et al. 2002) is to a large degree reflected in the above design factors, hence not included. Security technique (e.g., SSL) is not included because it is increasingly a standard practice for almost all web stores in payment process. The four web store design features also cover most of the important antecedent categories we identified in the literature. Pooling together the literature and our inspection of retailing websites, we propose the following model (figure 1).

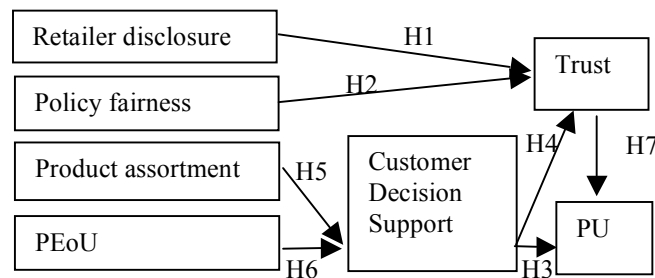


Figure 1. Research model

Based on self-disclosure literature, online retailer's information disclosure refers to the information about the company disclosed to its customers. In a meta-analytic review of psychological literature, Collins and Miller (1994) summarize that a large portion of literature on disclosure was devoted to the relationship between disclosure and liking. Self-disclosure has been viewed as central to the development of close relationship. Disclosure is viewed as a rewarding and positive outcome for the recipient because it communicates the discloser's liking and desire to initiate a more intimate relationship. Ajzen (1977) uses an information-processing model to suggest that self-disclosure leads to positive beliefs about the discloser, and consequently the discloser is viewed as more trusting, friendly and warm. Such disclosure-liking relationship exists not only in an on-going relationship, but also between strangers (Collins and Miller 1994). The degree of disclosure can be evaluated by depth and breadth of the information disclosed (Collins and Miller 1994). Therefore, we hypothesize:

H1. The degree of retailer's information disclosure is positively related to perceived trustworthiness.

Retail policies include privacy policy, product return and exchange policy, customer complaint policy, and delivery policy. Such policies are suggested to have significant effect on customer's trust in the retailer (Wood 2001). Policies of this nature serve as contracts between the seller and the buyer. Contract differs in the degree to which they can be enforced and are binding (Malhotra and Murnighan 2002). Formal contracts enforced by law serve as substitute of trust and may inhibit trust rather than enforcing it (Malhotra and Murnighan 2002). In contrast, informal contract, though not strictly enforceable and binding, when initiated by one party, suggests goodwill and future cooperation (Malhotra and Murnighan 2002). Most retail policies can be regarded as informal contracts, because it is not jointly constructed and legally binding.

The fairness of such informal contracts is what the customer values. Based on the literature on social justice, procedural fairness here is defined as the fairness of the retailer's procedure in dealing with its customer's concern, which to a large degree is reflected in the retailing policies. Procedural fairness was found to affect trust in many different contexts including remote purchase (Wood 2001), ecommerce, marketing channel relationship, and organization settings. Therefore, we hypothesize:

H2. Service policy fairness is positively related to perceived trustworthiness.

Perceived usefulness, as defined in this study and in many prior researches (e.g. Devaraj et al. 2002), encompasses not only the usefulness of the website per se, but also the concomitant delivery process and customer service. The usefulness of the website per se, as we argued, should be treated as a distinct concept. The role of a website lies in its ability to facilitate purchase decision making. Without such decision support, the benefit of vast selection of products online cannot be realized. Therefore, the usefulness of the website per se is its ability to help customers make quality purchase decision. We define the *customer decision support* of a website as the degree that the website facilitates better purchase decision making. Support for quality decision promotes better perception of the retailing system as a whole, hence enhancing the perceived usefulness. Meanwhile, customer decision support suggests the retailer's ability in running online business and care for customers. For example, price comparison of different products is avoided by many web stores because they are afraid of customer seeking for only cheaper items. If a web store uses product comparison tool to offer the products of best value to customers first, such practice reveals the store's care for customer. Therefore, we hypothesize:

H3. The customer decision support is positively related to perceived usefulness.

H4. The customer decision support is positively related perceived trustworthiness.

Assortment is a well-established variable of retail success. The vast selection available online is one key motivation for people to shop online (Alba 1997). Prior studies on ecommerce found product variety (Szymanski and Hise 2000) to be important to customer's evaluation of a web store. Since a purchase decision has long been regarded as a decision making process, product assortment constitutes the direct input in customer decision making process.

Assortment provides the informational input for customer decision making. However, online decision making also requires an ease to use system to facilitate such process (Alba 1997). The product categorization, searching, and comparing functions are some typical tools offered by many websites. We hypothesize:

H5. Product assortment is positively related to the perceived level of customer decision support.

H6. The perceived ease of use is positively related to perceived level of customer decision support.

Since the usefulness of an etailing system bears not only on the web site *per se*, but also on the retailer and its trustworthiness, only when the retailer is perceived trustworthy will the system be regarded as useful. Trust creates value by 1) providing relational benefit when service is needed by the customer and 2) reduces exchange uncertainty. Prior empirical study has observed this relationship (Gefen 2003) online. Therefore:

H7. The customer trust is positively related to PU.

4. Methodology

Survey method was used to test the hypotheses. When available, the items for the questionnaire were drawn from the literature; otherwise, new items were created. We use both formative and reflective items for the survey. Table 3 summarizes the items. To ensure content validity, the newly created items were discussed with one faculty member and four PhD students who had done online trust related researches.

Table 3. The instrument.

Construct	wording	Type & Source
Assortment (AST)	- Many product categories. - Many options in each category. - Larger assortment than other store.	Formative, new items
Policy Fairness (FAI)	- Privacy and security policy. - Returning/exchange policy. - Delivery policy. - Customer complaint policy.	Reflective, new items
Retailer Disclosure (DIS)	- Help me to know the company. - Enough details. - Sufficient amount.	Reflective, new items based on (Collins and Miller 1994)
PEoU (EOU)	- Flexible to navigate. - Easy to operate. - Easy to learn. - Overall, it is easy to use.	Reflective, based on (Davis et al. 1989)
Customer Decision Support (CDS)	- Website helps make better purchase decision. - Website helps find a product that fits me. - Website helps find a satisfactory product. - Website helps effectively decide on a product.	Reflective, new items.
PU (PU)	- Purchasing/greeting process less troublesome. - Purchasing/greeting process more efficient. - Purchasing/greeting process more effective.	Reflective, based on (Devaraj et al. 2002, Davis et al. 1989)
Trust (TRT)	- Is honest. - Keeps promise. - Cares customers. - Capable in its business. - Trustworthy.	Reflective, based on (Jarvenpaa et al. 2000)

4.1 Data Collection

We chose an online flower/gift store as our target company. We chose this industry because it is a major retailing industry yet less investigated comparing to books and CDs. A pilot test was

done to verify the instrument. For pilot test, ninety undergraduate students were invited from a major university in Asia. Students were provided with a comprehensive list of more than a hundred online flower stores. They were asked to browse some flower stores randomly first. Then, they were required to carefully browse two websites. Afterwards, subjects were asked to evaluate both websites. Seventy subjects participated in the pilot study and 128 usable records were collected after dropping those with missing data.

In order to ensure the instrument quality, exploratory factor analysis (EFA) was carried out with pilot survey result. Principal component analysis with varimax rotation was used. Only reflective constructs were included in the analysis because EFA does not apply to formative construct. The result is reported in table 4. All items loaded well on the intended factor. Hence, all were kept for the main study.

Table 4. EFA result for pilot study

TRT1	0.74	0.36	0.25	0.00	0.15	0.13
TRT2	0.82	0.23	0.15	0.14	0.11	0.12
TRT3	0.64	0.38	0.01	0.18	0.33	0.30
TRT4	0.71	0.16	0.15	0.26	0.19	0.29
TRT5	0.68	0.16	0.26	0.26	0.22	0.28
FAI1	0.36	0.67	0.17	-0.02	0.18	0.01
FAI2	0.17	0.85	0.09	0.15	-0.01	0.16
FAI3	0.29	0.80	0.22	0.22	0.05	0.13
FAI4	0.18	0.79	0.14	0.28	0.16	0.23
EOU1	0.20	0.08	0.72	0.32	0.08	0.09
EOU2	0.25	0.14	0.79	0.28	0.09	0.11
EOU3	0.10	0.27	0.82	0.12	0.15	0.19
EOU4	0.09	0.09	0.88	-0.04	0.14	0.20
CDS1	0.11	0.10	0.23	0.74	0.12	0.22
CDS2	0.20	-0.01	0.14	0.76	0.15	0.13
CDS3	0.05	0.33	0.08	0.73	0.17	0.09
CDS4	0.17	0.27	0.11	0.67	0.22	0.21
DIS1	0.20	0.14	0.08	0.19	0.84	0.15
DIS2	0.17	0.08	0.16	0.17	0.89	0.13
DIS3	0.19	0.06	0.16	0.20	0.88	0.13
PU1	0.22	0.15	0.21	0.17	0.20	0.84
PU2	0.30	0.12	0.24	0.23	0.17	0.81
PU3	0.22	0.24	0.17	0.26	0.11	0.80

Table 5. Demographics of main study

Gender		Membership (yrs)	
M	324	Non-member	161
F	140	<0.5 yr	208
Education		0.5-1 yr	57
High School	48	1-2 yrs	26
College	335	>2 yrs	10
Graduate	65	Purchase Times	
Other	16	Never	182
Web use (yrs)	5(1.8)	1	120
Age	25(5)	2	82
Last Use		3	31
Never	190	>3	49
< 2 mths	184		
2 - 4 mths	21		
4 - 6 mths	21		
>6 mths	48		

For the main study, a start-up online flower/gift company agreed to participate in the project. Questionnaire was linked to the front page for three weeks. To encourage participation, subjects were given US\$4 each. 638 questionnaires were collected. Survey time was recorded for each page. The online survey was pre-tested with six students to obtain the minimum time required. It was found that at least three seconds were needed for each item on average. The main study result was filtered by this criterion. 464 usable questionnaires remained. The demographics of the subjects are reported in table 5. Overall, our subjects are young and well-educated.

4.2 Measurement Model

The measurement model was tested before hypotheses testing. Since we have one formative construct (assortment), only reflective constructs were tested in LISREL. The only formative construct, Assortment, is tested in PLS Graph (V3). Convergent validity means all items load on the intended factor. Three criteria were used: significant standardized loading, composite factor reliability greater than 0.7, and average variance extracted (AVE) greater than 0.5. Table 5 summarizes the result. AVE is given in table 6. Against these criteria, the convergent validity is established for the reflective constructs. For Assortment, convergent validity is checked based the significance of item-factor coefficient. All items are significant, hence the convergent validity.

Table 5. Convergent validity

Label	std loading	T	Label	std loading	T	Label	std loading	T
<i>CDS, CR=0.87, AVE=.63</i>			<i>PU, CR=.93, AVE=.81</i>			<i>PEoU, CR=.89, AVE=.68</i>		
CDS1	0.73	17.66	PU1	0.89	24.1	EOU1	0.76	18.92
CDS2	0.79	19.88	PU2	0.93	26	EOU2	0.83	21.55
CDS3	0.86	22.35	PU3	0.88	23.53	EOU3	0.81	20.44
CDS4	0.78	19.22	<i>Disclosure, CR=.93, AVE=.82</i>			EOU4	0.89	24.03
<i>Trust, CR = .95, AVE=.78</i>			DIS1	0.82	21.49	<i>Policy fairness, CF=0.92, AVE=.73</i>		
TRT1	0.87	23.48	DIS2	0.95	27.18	FAI1	0.82	21.31
TRT2	0.88	23.88	DIS3	0.92	25.85	FAI2	0.91	25.07
TRT3	0.88	23.88	Assortment	Weight	T	FAI3	0.83	21.47
TRT4	0.87	23.65	AST1	0.43	5.02	FAI4	0.85	22.3
TRT5	0.91	25.07	AST2	0.37	3.03			
			AST3	0.33	2.51			

Discriminant validity means two constructs are distinctive. Discriminant validity can be established if the AVE of a construct is larger than any squared correlation between this construct and another one. Table 6 gives the correlation table for the reflective constructs produced in LISREL. The diagonal cells are square roots of AVEs. The correlations are generally high; however, the discriminant validity is still established as none of them exceeds the square root of AVE.

Table 6. Construct correlation and discriminant validity.

	CDS	DIS	FAI	PU	TRT	EOU
CDS	0.79					
DIS	0.67	0.91				
FAI	0.65	0.69	0.85			
PU	0.69	0.65	0.61	0.9		
TRT	0.73	0.7	0.71	0.75	0.88	
EOU	0.78	0.6	0.61	0.64	0.69	0.82

4.3 Hypothesis Testing

Since the measurement model is valid, we test the hypothesis in PLS. We use PLS mainly because we have a formative construct, and LISREL is unable to handle it. The Jackknife method was used to obtain the significance of relationships. Figure 2 reports the output of PLS. All hypotheses proposed were supported.

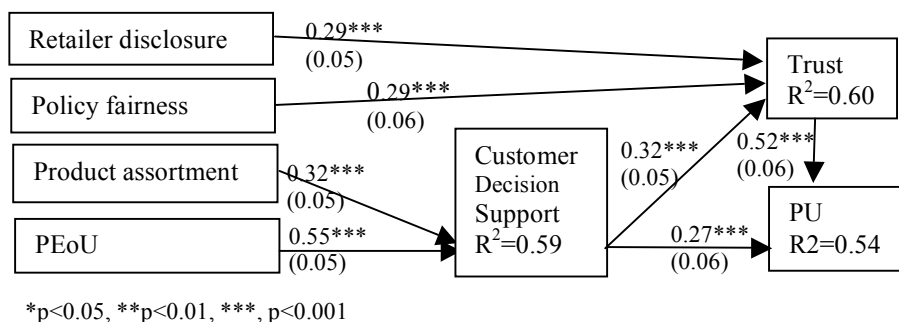


Figure 2. Hypothesis testing.

Since the classification of formative and reflective construct can be difficult and arbitrary in some cases, the current classification reflects the author’s best judgment only. Trust is not treated as formative though it has three sub-dimensions because prior studies found it better to be unidimensional (e.g. Bhattacharjee 2002). For policy fairness, we believe it is the character of the retailer that determines the fairness of different policies, therefore, the fairness of individual policy should be a reflection of fairness rather than a formative component. However, for verification purpose, the current model is varied and retested with product assortment as a reflective construct. No hypothesis significance was changed. Furthermore, we tested the model in LISREL, treating assortment as if it were reflective. Again, no significance has been changed, and the most model fitting indices were above 0.9 except GFI (0.86). Therefore, we conclude that all our hypotheses are supported.

5. Discussion

The purpose of this study is to identify a few CSFs for etailing system from a customer perspective and to identify the major web design features that affect customer’s perception of CSFs. We identify company information disclosure, policy fairness, product assortment, and PEOU as the major web store design features to affect the two CSFs, trust and PU. Among them, the product assortment and PEOU lead to better customer decision support, which in turn affects both trust and PU. Trust is hypothesized to affect PU, which is an overall evaluation of the etailing system.

All our hypotheses are supported, suggesting that these design features are indeed important. The policy fairness and company information disclosure, together with customer decision support, explain 60% of trust variance. It suggests that these three variables are important yet neglected by the extant research. Customer decision support and trust explains 54% of PU, suggesting that

PU indeed is an overall perception incorporating both the evaluation of the website itself and the customer-seller relationship. The LISREL trial suggested no modification index to relate PEOU to PU, hence the customer decision support is very likely a mediator for PEOU. Assortment and perceived ease of use represent the functional and informational aspect of an etailing system. They collectively explain 59% of customer decision support (the LISREL output is 0.74), suggesting that the customer's evaluation of a website *per se* includes not only technical aspect, but also products the web store carries. Overall, the validity of the model is established.

This study has a few limitations. First, we chose only one industry and one company – online flower/gift – which might be less typical because online flower/gift industry is more a service retailer (it sells the greeting service more than the physical products themselves). Generalization to physical products should be further verified. Second, the web store design features identified in this study are based on the author's understanding of the literature and inspection of some websites. It is surely possible to group them into different categories other than the four we identified. Finally, non-web related factors are ignored. Customer service encounter, company reputation, and delivery are a few such variables that could affect trust and PU as well. Future study could include them as well to have a more complete picture of the antecedents of CSFs.

With all these limitations in mind, we now discuss the implications. The theoretical contribution of the study is three-fold. First, we identify trust and PU as two CSFs for etailing. Though such integrated perspective has been proposed (Gefen 2003), systematic test is in lack. Moreover, there was confusion in the literature regarding what PU pertains to. We explicitly define PU as a perception of the entire etailing system including not only the website, but also the retailer. Therefore, the definition of PU departs from Davis et al. (1989) by incorporating the system provider. Second, leaving PU as an overall evaluation of etailing system, we proposed a new construct, customer decision support as customer's evaluation the website *per se*. This is based on the assumption that the differentiating functionality of retailing websites is the support for customer decision making (e.g. Alba 1997). With this variable, many website design features, especially the technical ones, can be related to this construct first before being related to a more remote and overall perception PU. Finally, we suggest that online trust can be fostered not only by technical factors, but more importantly, also the communication factors such as company information disclosure and service policy. This is especially important for new customers or new online companies when no established reputation is available to induce trust.

For practitioners, this study provides four operational web store design features to boost customer's perception of trust and PU. First, companies should investigate the service policies adopted by competitors and offer a fair one within its own constraints. Since violation of such informal contract leads to definite distrust (Malhotra and Murnighan 2002), retailers should consider their own resource to provide the promised service. Second, when reaching to new marketing territories or customer groups, a rich self-disclosure helps to bring customers closer. Our investigation shows that many retailers in fact pay little attention to self-disclosure. Even for those rated highly by customers, much information is not trust-inducing and irrelevant to customer relationship. An attention to this aspect is surely rewarding. Finally, ease to use website and large assortment are valued by customer. Some companies release their website when it is not fully ready and the database has only limited number of products. A premature release is very likely to fall short of customer's expectation on the usefulness of the website and turn them off permanently. Retailers should offer shopping value to the customers when a website is put up.

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Appendix A. Literature review onetailing web design – an abbreviated list

Cat.	reference	Technical	Policies	Product	Post purchase	Other	Dependent
Cat. 1. Pure tech. oriented view of etailing success	Agarwal and Venkatesh 2002	Ease of use, , made-for-the-medium, content				Emotion, promotion	Usability
	Palmer, 2002	Download delay, navigation, interactivity, responsiveness, content					Success
	McKinney et al. 2002	System quality satisfaction information quality satisfaction					Satisfaction
Cat. 2. Technical factor for CSFs	Suh and Han 2003	Authentication (ns), norepudiation, confidentiality, privacy, data integrity					Trust
	Koufaris and Hampton-Sosa 2004	Eou, security control, customization				Reputation, usefulness	Trust
	McKnight et al. 2002	Website quality				Vender reputation, structural assurance	Trust
	Gefen and Straub 2000	Peou					PU
	Handerson and Divett 2003	Peou					PU
Cat.3. Customer oriented view of etailing success	Gefen and Straub 2002				SERVQUAL		Trust
	Szymanski and Hise 2000	Convenience, site design, Financial security		Product offerings, product info			e-Satisfaction
	Belanger et al. 2002	Wecurity, website attributes	Privacy				Trust