

Modeling Online Retailer Customer Preference and Stickiness: A Mediated Structural Equation Model

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Abstract

These past few years have seen a rapid explosion of the number of online retailers as well as online buyers. Comparable growth in sellers and buyers means that Internet retailers have to understand how to make customers choose them over the competitors and make customers stick to their stores. The objective of this study was to build a model that will show what aspects affect customer preference and stickiness in online retail business. Based on prior literature, some of the aspects that contributed to customer stickiness and customer preference were community involvement, convenience, site's appeal, entertainment aspect of online shopping and customer satisfaction. A data-driven structural equation modeling technique employed showed that these five factors contributed to customer preference and customer stickiness in similar fashion: community involvement and site's appeal predicts entertainment which in turns predicts customer stickiness/preference, while site's appeal and convenience predicts customer satisfaction which in turn also predicts customer stickiness/preference. Comparison of the two models revealed that customer stickiness was much better explained than customer preference.

Keywords: e-commerce, online retailer, customer preference, customer experience

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1. Introduction

As is the trend of Internet-fueled industries, these past few years have seen a rapid explosion of the online retail business, which includes an explosion in the sheer number of available products as well as the number of online stores. Internet retail sales are predicted to top \$36 billion in 1999 in the US alone, a 145 percent jump from 1998 (Responsive Database Services, Inc. 1999). However, the numbers of businesses plunging into the e-commerce pool in general and Internet stores in particular are also expected to grow tremendously, as implied by the tremendous increase of percentage new small-business internet service customers who request an e-commerce bundle when they sign up for a Web hosting account, a great leap from 2 percent in the beginning of the year to 25 percent at the fourth quarter of 1999 (Stemannikov, 1999).

The comparable growth in Internet buyers and Internet sellers can only mean that the Internet stores will face stiff competition among themselves (not to mention the competition with the traditional forms of sales) to attract new customers to visit (e.g. through effective advertising efforts), to make customers prefer their sites over the competitors' sites and to maintain customer loyalty. As Federal Express Corp. CIO Chris Hjelm said, "In the Internet and e-commerce driven world, the customer is given the increased power of choice. Global competitors appear every day, and companies that provide the best customer service reach and keep customers at the expense of their competition." (Sweat 1999).

The role of customers was even considered to be more important to determine the success of e-business than the level of technological sophistication on which any given e-business has been built. No matter how intricate the storefront design and how advanced the widgets on the storefront are, as in the traditional forms of sales, only customer-oriented e-businesses will survive. (American Banker Bond-Buyer 1999).

Finding ways to make a customer choose its store over its competitors is definitely one of the business targets of any Internet store. However, in the long run, it is not enough to just make the customers visit its store once or twice. Efforts to make the customers stick to the store and the products it offered also play a role in the success of online stores in the long run. While customer preference could be achieved through sophisticated Web-site design, customer stickiness is more reliant on customer satisfaction. In other words, customers could be attracted with an intricately designed Web site, and Web site's appeal is definitely important in customer contentment (Violino 1999). However, online sales follow the philosophy of its traditional forms of sales: "customer is the king". With various options available in the Internet and the ease of switching from one e-retailer to another, without customer-oriented philosophy, it is difficult for an Internet retailer to make its customers to keep coming back to their shops and purchasing their products.

2. Review of Literature and Development of Hypotheses

What aspects of customer behavior determine why he/she would prefer a particular Internet retailer site to the others and why he/she would stick to this retailer? While most previous studies have viewed the solution from the company's side such as faster server, improved security, more user-friendly interface, etc, some studies and researches observing customer's perception and opinions on this topic have been performed by various companies and institutions.

Several companies use various methods to learn customer preferences and filter information on their behalf, to anticipate their interests and to offer customized service. Some of

the lessons learned from the study are that customers want to do business with retailers they can trust, which was further described as companies that managed to have clear communication with their customers, maintain consistent delivery and treat customers with respect and decency (Responsive Database Services, Inc. 1999).

A complete and positive customer experience is thought to be the key factor to customer retention and loyalty (Pelton 1999). It was also suggested that customer experience shouldn't be viewed solely through the lens of information technology, but also through entertainment and community. The author described community as a sort of affiliation, that if we purchase one particular product, we are proudly a part of this 'elite' community of owners (e.g. Harley Davidson, Saturn, Mazda Miata, etc). The author described facilitating entertainment as making the browsing become a form of entertainment in itself for customers, comparable to window shopping in real life. More strongly, it was suggested that an e-retailer site that fails to carefully compose customer experience will not effectively capture his/her interest, prolong visits or lead to purchases. This creates missed opportunities to increase customer contention and loyalty, and generate revenue (Eisen 1999).

One way to increase customer loyalty is to add features that let buyers personalize the site, automate product selection and comparison, and communicate instantly with a sales or service representative. E-commerce sites are also competing by developing community-building features, such as members-only sites that let people with similar interests communicate with each other (Blundon & Bonde, 1998). A mechanism in traditional marketing used to assess and boost customer retention called "stickiness" in the e-commerce context was discussed by Nemzow (1999). The author suggested that stickiness could be created through various ways ranging from brand awareness, frequent buyer program, to creating financial hurdle that discourages customers from switching to competitors.

To summarize the literature review, several aspects might affect customer preference of a particular online store and the reason why customers would stick to this particular store, such as the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment the site provided. However, there has not been observed any literature that integrated these different factors and model their contributions toward customer preference and customer stickiness. Nor has it been found literature that would answer the question of whether the aspects that contributed to customer preference would also contribute to customer stickiness in similar way.

2.1. Objectives and Summary of Hypotheses

The objective of this study was to build a model that will show the relationships between various aspects that might affect customer preference and stickiness in online retail business. To accomplish this objective three specific questions were addressed:

1. What is the relationship between customer stickiness and these five aspects: the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site?
2. What is the relationship between customer preference and the aforementioned five aspects?
3. Are those five aspects related to customer preference and customer stickiness in similar fashion?

Three hypotheses were formulated based on prior literature:

- H1: The site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site predict customer preference.
- H2: The site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site predict customer stickiness.
- H3: Those five aspects predict customer preference and customer stickiness in a similar fashion.

3. Methodology

3.1. Data Gathering Method

The Graphic, Visualization, and Usability Center (GVU) at the Georgia Institute of Technology hosted in their Web site a series of questionnaires related to different aspects of computer use. One section of the questionnaire, called "Purchasing on the Internet" questionnaire fielded on October 10, 1998 through December 15, 1998 contained questions related to the different aspects that might affect customer attitude toward purchasing on the Internet. Participants were solicited by announcements placed on Internet-related newsgroups, banner ads placed on pages on high exposure sites (e.g. Yahoo, MindSpring, and DoubleClick), announcements made to the WWW-survey list maintained by GVU, and announcements in the media. There are 103 questions assessing customer's experience with Internet retailer they recently purchased from and its customers. A card sorting method was employed to group the questions based on their underlying concepts. The concepts that matched the aspects related to Internet purchasing activities found in the literatures were included in the analysis. These groups are further discussed in the Measures section.

3.2. Subjects

Six hundred randomly selected adult respondents (age 18 years and above) who purchased products or services through the Internet for personal use in the past three months before filling in the questionnaire and stated their annual incomes from 826 complete cases (100% non-missing data) were analyzed. The respondents ranged in age from around 18 to around 73 years (the age groups were re-coded using their medians), with an average age of 38 years (S.D. = 11.5 years). The sample was predominantly male (69.2%). The respondents have quite high education levels with only 10.2% have less than some college. The respondents also have quite high income (the income groups were also re-coded using their medians) with the average annual income of \$63K (S.D. = \$30K).

3.3. Measures

3.3.1. Demographics

This portion of the questionnaire consisted of sociodemographic items. The variables of particular interest were age, household income, gender and level of formal education. These variables were reported to give the background statistics of the respondents participated in the study.

The instrument of the following measures is a 7-point discrete scale. The respondents were given a statement that they respond to by choosing from “Strongly disagree” to “Strongly Agree” about the customer’s experience with the Internet retailer they recently purchased from. The variables **Loading** were factor loadings (the correlation between a variable and its underlying factor) resulted from Confirmatory Factor Analysis explained in later section.

3.3.2. Customer stickiness

Out of the 103 items in survey, 8 items were related to the proposed theoretical construct of customer stickiness. Together these eight items had a strong internal consistency ($\alpha = .863$), indicating that they were a homogeneous set of questions. The items in this category are listed in Table 1a.

Table 1a: The items that make up *customer stickiness*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR68	0.77***	It would require a lot of time and effort on my part, to set up an account with another Internet retailer.
PUR37	0.73***	Considering everything, for me the cost of no longer using this Internet retailer and going to a new one would be high.
PUR47	0.71***	It's just not worth the hassle for me to switch from this Internet retailer to another.
PUR61	0.69***	It would not be easy to maintain service continuity if I switched to a new Internet retailer.
PUR10 1	0.66***	I hesitate to switch from this Internet retailer because it offers privileges I would not receive elsewhere.
PUR10 0	0.63***	I am reluctant to change Internet retailers because I am familiar with "how the systems works" at this site.
PUR34	0.55***	For me, the cost in time, money, effort and grief to switch from this Internet retailer to another is high.
PUR51	0.49***	There are several financial costs/charges I would incur if I were to stop doing business with this Internet retailer.

3.3.3. Site’s appeal

Five items were related to the construct of site’s appeal. Again, high internal consistency for these items was observed ($\alpha = .884$). The items in this category are listed in Table 1b.

Table 1b: The items that make up *site’s appeal*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR58	0.76***	The "look" of this Internet site is appealing.
PUR66	0.76***	I think this Internet retailer's site is very entertaining.
PUR85	0.76***	The graphics and pictures at this site capture my attention.
PUR59	0.75***	This Internet retailer's site is aesthetically appealing.
PUR88	0.63***	The people and products featured on this Internet retailer’s site are attractive.

3.3.4. Customer preference

Twelve items were related to this construct. The internal consistency for these items was also high ($\alpha = .942$). The items in this category are listed in Table 1c.

Table 1c: The items that make up *customer preference*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR64	0.87***	I intend to purchase from this Internet retailer in the future.
PUR54	0.85***	I have a favorable attitude toward continuing to do business with this Internet retailer over the next few years.
PUR62	0.84***	I intend to continue to visit this Internet retailer's site in the future.
PUR44	0.83***	I intend to continue doing business with this Internet retailer over the next few years.
PUR63	0.81***	I will recommend this Internet retailer to my friends.
PUR65	0.80***	In the future, this Internet retailer is one of the first places I intent to look, when I need the type of merchandise or services it provides.
PUR53	0.74***	I say positive things about this Internet retailer to other people.
PUR56	0.74***	I consider this Internet retailer to be my first choice when I need products or services of this type.
PUR43	0.73***	I try to consider this Internet retailer every time I need the type of products and services it offers.
PUR55	0.69***	I consider this Internet retailer to be my primary source of this type of merchandise or service.
PUR94	0.68***	This Internet retailer is the primary place I consider when I need the type of products or services its offers.
PUR35	0.63***	When it comes to making a purchase, this Internet retailer is my first preference.

3.3.5. Convenience

Convenience is a 5-item construct. The internal consistency for these items was comparable to other measures ($\alpha = .870$). The items in this category are listed in Table 1d.

Table 1d: The items that make up *convenience*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR91	0.86***	Making a purchase from this Internet retailer is very convenient.
PUR74	0.80***	When I make a purchase from this Internet site, I save time.
PUR73	0.78***	Making a purchase from this Internet site makes life easier.
PUR92	0.73***	Making a purchase from this Internet retailer allows me to shop on my own schedule.
PUR49	0.66***	Making a purchase from this Internet site is an efficient way to manage my time.

3.3.6. Customer satisfaction

Twelve items make up this construct. The internal consistency for these items was again high ($\alpha = .936$). The items in this category are listed in Table 1e.

Table 1e: The items that make up *customer satisfaction*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR98	0.85***	When I think of this Internet retailer, I think of excellence.
PUR84	0.84***	This Internet retailer strives to attain excellence.
PUR82	0.76***	I received excellent service from this Internet retailer.
PUR83	0.76***	This Internet retailer is a highly skilled expert in the area of services.
PUR99	0.75***	This Internet retailer offers a good economic value.
PUR72	0.72***	The price of the products and/or services I purchased from this Internet retailer are at the right level, given the quality.
PUR89	0.71***	Overall, I am happy with this Internet retailer's prices.
PUR102	0.70***	Purchasing from this site, I can buy the things I need.
PUR97	0.69***	When this Internet retailer promises to do something by a certain time, it does so.
PUR103	0.68***	The wide selection of merchandise and services this Internet retailer offers, meets my needs.
PUR77	0.66***	The products and/or services I purchased from this Internet retailer were a good buy.
PUR93	0.65***	This Internet retailer has a good selection of merchandise and/or services.

3.3.7. Entertainment

This construct consists of ten items. The internal consistency for these items was high ($\alpha = .917$). The items in this category are listed in Table 1f.

Table 1f: The items that make up *entertainment*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR76	0.87***	Making a purchase from this Internet retail site makes me feel like I am in another world.
PUR90	0.86***	Making a purchase from this Internet site truly feels like "an escape".
PUR75	0.81***	Making a purchase from this Internet retail site "gets me away from it all".
PUR46	0.71***	I get so involved when I make a purchase from this Internet retailer that I forget everything else.
PUR80	0.69***	I make a purchase from this Internet retailer, for the pure enjoyment of it.
PUR45	0.67***	Making a purchase from this Internet retailer totally absorbs me
PUR36	0.64***	Making a purchase from this Internet retailer helps me forget about the day's problem.
PUR79	0.64***	I enjoy doing business with this Internet retailer for its own sake, not just for the products or services I may have purchased.
PUR86	0.64***	The images this Internet site portrays, keep running through my mind after I've seen them.
PUR48	0.56***	I daydream about this Internet retailer's products and services while I'm making a purchase on its site.

3.3.8. Community involvement

Community involvement measure is a 7-point discrete scale. The respondents were given a statement that they respond to by choosing from “Extremely uncharacteristic of me” to “Extremely characteristic of me” relating to their attitude about interacting with the Internet retailer they recently purchased from as well as its customers. There are 9 items in this construct. The internal consistency for these items was again high ($\alpha = .872$). The items in this category are listed in Table 1g.

Table 1g: The items that make up *community involvement*, *** = $p < 0.001$

Item ID	Loading	Statement
PUR20	0.82***	I come to the aid of others, especially when I'm logged on to this Internet site.
PUR18	0.77***	I often go out of my way to help other users of this Internet site.
PUR22	0.74***	When on-line users of this Internet site get emotionally upset, I try to help.
PUR16	0.70***	I enjoy giving other users of this Internet site advice or aid.
PUR19	0.68***	I believe it's best to get involved with this Internet retailer's product reviews, surveys or chat rooms.
PUR15	0.67***	I believe this Internet retailer's customers should go out of their way to be helpful to each other.
PUR32	0.58***	I usually provide feedback to this Internet retailer, on the things of value I have received from them
PUR14	0.53***	I am especially sensitive to this Internet retailer's feelings as well as the feelings of its users.
PUR21	0.52***	When I need help, I turn to chat rooms, bulletin boards or other electronic forums provided by this Internet retailer.

4. Results

The purpose of this study was to investigate the relationships between customer stickiness, customer preference, the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer's satisfaction, and the entertainment aspect of the site. Analysis focused on:

- (1) Examining the correlational relationships between the items and their underlying construct and correlational relationships among constructs.
- (2) Using structural equation modeling, investigating the causal relationships between customer stickiness, customer preference, the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site.
- (3) Observing whether the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site explained customer stickiness and customer preference in similar way. In order to achieve this aim, two models are going to be investigated, the first model with customer preference as the dependent variable, and the second with customer stickiness as dependent variable.

4.1. Correlational Relationships

Table values under the column **Loading** in Table 1a-1g showed the correlations between the items with their respective underlying constructs. These values were obtained using Confirmatory Factor Analysis using Lisrel VIII software package (Joreskog & Sorbom 1993). In general, moderate to high factor loadings were observed in all items. The factor loadings ranged from 0.49 to 0.87, with $p < 0.001$.

Table 2 contains the correlations among constructs. The constructs represent 53.8% of the total variance accounted for by the 56 variables that grouped into seven constructs used in the model. The range of the correlation coefficients is quite large, varying from 0.05 to 0.78. All of the correlations are significant at $p = 0.05$ except for the correlations between 'convenience' and 'community involvement'. The correlation among variables was also provided by Lisrel VIII software but was not included in this paper because of their values were not directly relevant to the investigated model.

Table 2: The correlations among constructs (N = 600)

* = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$

	Customer satisfaction	entertainment	community involvement	site's appeal	convenience	customer preference	customer stickiness
customer satisfaction	1						
entertainment	0.14**	1					
community involvement	0.13*	0.34***	1				
site's appeal	0.50***	0.49***	0.28***	1			
convenience	0.78***	0.11*	0.05	0.43***	1		
customer preference	0.84***	0.21***	0.15**	0.5***	0.73***	1	
customer stickiness	0.28***	0.58***	0.23***	0.34***	0.17**	—	1

4.2. Latent Relationships

In order to determine the causal relationship between entertainment, customer satisfaction, community atmosphere, convenience, the site's appeal, customer stickiness and customer preference, structural equation modeling was employed (Jöreskog and Sörbom 1993). Structural equation modeling allows one to create latent constructs comprised of several observed variables intended to assess a particular construct. The advantage here is that the relationship between these latent constructs is disattenuated for measurement error. This technique also allows the predictive relationship between all latent constructs to be examined simultaneously. All structural models were estimated using the LISREL VIII program (Jöreskog & Sörbom 1993). Models with Chi-square (χ^2) estimates less than two times the degrees of freedom (Akaike 1987), residual error less than .05 and overall fit indices above .90 were considered adequate fitting models.

4.2.1. The structural model of customer stickiness

Analysis began with the specification of a measurement model where the constructs are correlated to one another. The specified measurement model included some correlated measurement errors of variables that represent the same constructs. This measurement model had an adequate fit: χ^2 (1463, $N = 600$) = 2875.59, residual error < 0.05, most fit indices > .90.

A series of structural equation models was performed in order to determine the pattern of relationship between the computer-related latent constructs that would most parsimoniously reproduce the pattern of covariation in the measurement model.

The first structural model was to remove all correlational relationship and to treat the five independent variables (entertainment, customer satisfaction, community atmosphere, convenience, site's appeal) to directly predicts customer stickiness. The fit of this model is inadequate: χ^2 (1473, $N = 600$) = 3367.15, and it was significantly different from the initial measurement model: χ^2 (diff(10) $N = 600$) = 491.56. Observing the beta values (Jöreskog and Sörbom 1993), there are three relationships that are insignificant. Site's appeal, community involvement and convenience do not significantly predict customer stickiness. Removing these three relationships, the new model is still inadequate: χ^2 (1476, $N = 600$) = 3367.32, and it was still significantly different from the initial measurement model: χ^2 (diff(12) $N = 600$) = 491.73.

Observing the modification indices, the maximum index is to add a causal relationship between convenience and customer satisfaction. In this new model where convenience predicts customer satisfaction, χ^2 (1475, $N = 600$) = 3110.48, and χ^2 (diff(12) $N = 600$) = 234.89. This model still has inadequate fit and is significantly different than the measurement model. The next steps are iterations of the above steps based on modification indices. The steps are summarized in the table 3.

Table 3: The most parsimonious model search step for *customer stickiness*

* c^2 (diff): χ^2 difference from the measurement model

Modifications	c^2 (d.f.)	c^2 (diff)*
Measurement model	χ^2 (1463) = 2875.59	
The five constructs predict customer stickiness	χ^2 (1473) = 3367.15	χ^2 (10) = 491.56
Removing causal relationship between site's appeal, community involvement, convenience and customer stickiness	χ^2 (1476) = 3367.32	χ^2 (13) = 491.73
Convenience predicts customer satisfaction	χ^2 (1475) = 2968.14	χ^2 (12) = 234.89
Site's appeal predicts customer satisfaction	χ^2 (1474) = 3064.97	χ^2 (11) = 189.38
Site's appeal predicts entertainment	χ^2 (1473) = 2968.14	χ^2 (10) = 92.55
Site's appeal correlates with convenience	χ^2 (1472) = 2915.90	χ^2 (8) = 40.31
Community involvement predicts entertainment	χ^2 (1471) = 2889.57	χ^2 (7) = 13.98
Community involvement correlates with site's appeal (final model)	χ^2 (1470) = 2878.01	χ^2 (6) = 2.42

The last model has adequate fit and is not significantly different from the initial measurement model. Therefore, this model is considered the final model of customer stickiness. The final model is displayed in Figure 1a.

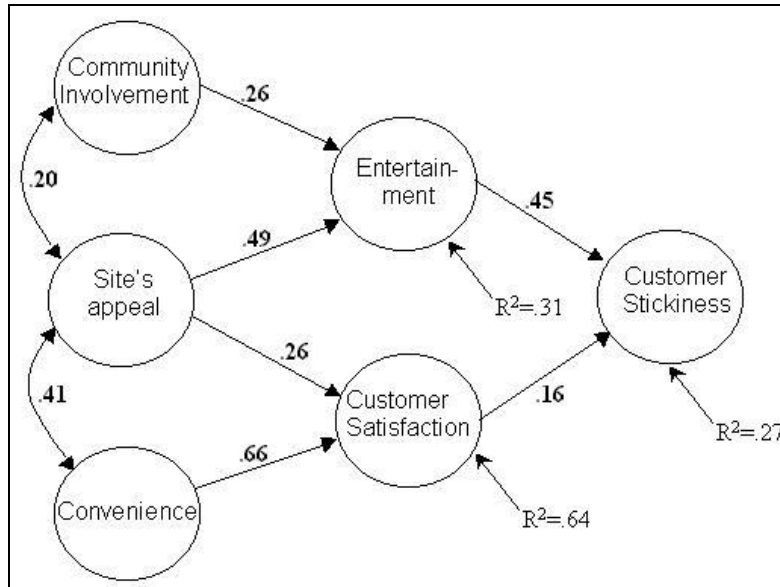


Figure 1a: The final model of customer stickiness

4.2.2. The structural model of customer preference

Similar to the method employed for customer stickiness, analysis began with the specification of a measurement model where the constructs are correlated to one another. The specified measurement model included some correlated measurement errors of variables that represent the same constructs. This measurement model had an adequate fit: $\chi^2 (1681, N = 600) = 3348.09$, residual error < 0.05 , most fit indices $> .90$.

Similar steps of structural equation modeling modifications were also performed with customer preference being the predicted construct. The modification steps are listed in Table 4.

Table 4: The most parsimonious model search step for *customer preference*

Modifications	χ^2 (d.f.)	χ^2 (diff)
Measurement model	$\chi^2 (1681) = 3348.09$	
The five constructs predict customer preference	$\chi^2 (1691) = 3859.34$	$\chi^2 (10) = 511.25$
Removing causal relationship between community involvement and customer preference	$\chi^2 (1692) = 3860.84$	$\chi^2 (11) = 512.75$
Convenience predicts customer satisfaction	$\chi^2 (1691) = 3579.00$	$\chi^2 (10) = 230.91$
Site's appeal predicts customer satisfaction	$\chi^2 (1690) = 3538.78$	$\chi^2 (9) = 190.69$
Site's appeal predicts entertainment	$\chi^2 (1689) = 3445.40$	$\chi^2 (8) = 97.41$
Site's appeal correlates with convenience	$\chi^2 (1688) = 3389.76$	$\chi^2 (7) = 41.67$
Removing causal relationship between entertainment & convenience and customer preference	$\chi^2 (1690) = 3396.16$	$\chi^2 (9) = 48.07$
Community involvement predicts entertainment	$\chi^2 (1689) = 3370.90$	$\chi^2 (8) = 22.81$
Community involvement correlates with site's appeal	$\chi^2 (1688) = 3356.82$	$\chi^2 (7) = 8.73$

The last model has adequate fit and is not significantly different from the initial measurement model. Therefore, this model is considered the final model of customer preference. The final model is depicted in Figure 1b.

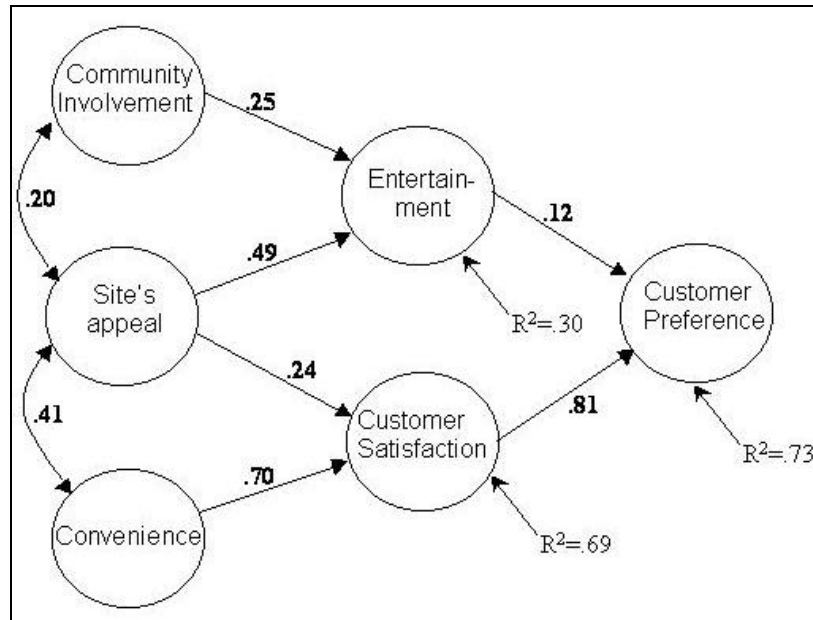


Figure 1b: The final model of customer preference

5. Discussion

The current study attempted to examine factors affecting customer stickiness and customer preference in e-retail business.

The factor loading values listed in Table 1a-1g showed that the variables load on relevant factors with medium to high loadings, indicating that those variables well represent the intended underlying constructs.

The pattern of correlational relationships as shown in Table 2 was congruent with the literatures. That is, the site's appeal, the community atmosphere the site created, the convenience of shopping online, customer satisfaction, and the entertainment aspect of the site correlate positively with either customer stickiness or customer preference. It led to the conclusion that if the e-retail sites facilitated any of these factors, customer stickiness and customer preference would in turn be facilitated.

Turning to the first and second empirical questions of the study, the structural equation models do not fully support the hypotheses. Only customer satisfaction and entertainment predict customer preference and stickiness in direct way while others' effect on customer preference and stickiness were mediated through customer satisfaction and/or entertainment. To be precise, the effect of community involvement and site's appeal on customer preference and stickiness was mediated by entertainment while the effect of site's appeal and convenience was mediated by customer satisfaction (please see Figure 1a and 1b for visual clarification). The implication of the results is interesting. It suggested that recognizing the convenience of shopping through the Internet would lead into customer satisfaction, but it doesn't necessarily mean that the customers would have fun doing it. In other words, although the customers recognized that shopping on the Web is convenient (it saves time and money) which brings satisfaction to them, some customers might not feel it as entertaining as real shopping.

In similar fashion, the feeling of being part of the community affiliation of a certain Internet retail site would make the process of browsing and using the relevant Web site entertaining to the customers, but it doesn't necessarily lead into customer satisfaction. As an

example, being part of Harley Davidson community because of owning one might be fun, but does not necessarily bring about satisfaction.

The fact that the effects of site's appeal and convenience on customer preference and customer stickiness are fully mediated by customer satisfaction simply means that although by looking at the bivariate correlation it seemed that site's appeal and convenience predicted customer preference/stickiness, their effects are actually only indirect effects. The case is similar with site's appeal and community involvement effects on customer preference and customer stickiness.

The other noticeable result was that site's appeal was correlated with both the community affiliation involvement and convenience. The fact suggested that by designing an appealing Web site, the customers would feel that their shopping experience on the Web is a convenient experience. A proper design of Web site would also boost the feelings of being part of the elite community of this particular product's users.

In both models, the variations of customer satisfaction was much better explained by its predictors than those of the entertainment, showed by a much larger squared multiple correlation coefficients (R^2).

The iteration process based on modification indices was intriguing. While the iteration process driven by the highest modification indices differ between the two models, the final model had similar relationship pattern. The implication of this finding was that these five factors explained customer preference and customer stickiness in similar fashion.

Turning to the third empirical question of the study, although the factors were correlated in similar fashion in the two models, the magnitude of correlations between the two mediators (customer satisfaction and entertainment) and the outcome of the models (customer preference and customer stickiness) was different. Customer satisfaction much more strongly predicts customer preference than entertainment, while the case is reversed for customer stickiness. In other words, ensuring customer satisfaction is much more important to make customer prefer a particular e-retailer site, but it is not strongly guaranteed to make the customers stick to this site. Similarly, ensuring that the customer enjoyed the e-retailer site and purchasing process would be more important than ensuring customer satisfaction to make the customer stick to a particular Web site.

Comparing the R^2 of the outcomes of the two models also revealed that the variance of customer preference was better explained by its predictors than the variance of customer stickiness. Most of customer preference's variance (73%) has already been explained by the site's appeal, the community atmosphere the site created, the convenience the online store offered, customer satisfaction, and the entertainment aspect of the site, while only 27% of the variance of customer stickiness has been explained by those five predictors.

6. Conclusion

The main aim of the study is to investigate the underlying constructs of customer's experience and find out the model of correlational relationships among different constructs of customer's experience. The outcomes of the model are customer preference and customer stickiness, as suggested by various literatures to be the outcomes desired by e-retailers.

Three hypotheses were developed based on literature reviews. The study found that these three hypotheses are partially supported. Community involvement and site's appeal predict entertainment, which in turns predicts customer preference and stickiness; and site's appeal and

convenience predict customer satisfaction, which in turns predicts customer preference and stickiness. The five predictors predicted customer stickiness better than customer preference.

7. Limitations and Further Directions

Due to the cross-sectional nature of this study, statements regarding causality among the hypothesized factors can not be made. Instead, the identified pattern of predictive relationships should be considered as a first step in determining the relationship between customer stickiness or customer preference and various possible underlying constructs, as well as the interrelationships that exist among underlying constructs.

The limitations of using a convenience sample should be acknowledged. This data was analyzed with the data from Project 2000 that contain more long-term, sophisticated computer users than the general population (Hoffman and Novak 1996).

With the e-commerce, e-business and e-retail increasing at almost unimaginable speed, exploring the psychology of Web use in the area of e-retail would be the first step towards understanding what work and what doesn't in order to make the customer likes a particular e-retailer and to ensure that the customer would stick to this e-retailer. The growing complexity of e-commerce technologies coupled with rapidly rising customer sophistication, makes focusing on user even more important. The next step would be to create a way to make certain that this knowledge could be realized and applied to the design of the Web site as well as the process of e-retailing. Further studies in the area of Web design usability and retail process evaluation from user's perspective would be fruitful for both the customers and the e-retailers.

References

- Akaike, H. "Factor analysis and AIC," *Psychometrika*, 52, 1987, pp. 317-332.
- American Banker Bond-Buyer. "Building an E-Business Isn't Cheap-or Optional," *Future Banker*, December 6, 1999, pp. 12.
- Blundon, B., and Bonde, A. "Beyond the Transaction," *Information Week*, November 16, 1999. Available online at <http://www.informationweek.com/709/09iuss2.htm>.
- Burke, R and Larson, M. "In-Store Technology Adds to Retail Excitement," *HFN* (73:34), 1999 pp. 10-17.
- Eisen, P. "Architect Your Customer s On-Line Experience to Maximize ROI," *Future Banker*, June 7, 1999, pp. 58.
- Hoffman, D.L., Kalsbeek, W.D. and Novak, T.P. "Internet and Web Use in the United States: Baselines for Commercial Development, Special Section on Internet in the Home," *Communications of the ACM*, 39, 1996, pp. 36-46.
- Jöreskog, K., & Sörbom, D. *LISREL VIII user's reference guide*, Scientific Software, Mooresville, Indiana, 1993.
- Nemzow, M. "Ecommerce "Stickiness" for Customer Retention," *Journal of Internet Banking and Commerce* (4:1), October 1999. Available online at <http://www.arraydev.com/commerce/jibc/9908-03.htm>.
- Pelton, C. "Back to Basics: Customer Focus On The E-Commerce Frontier," *Information Week*, December 21, 1999. Available online at <http://www.informationweek.com/author/eyeonit24.htm>.
- Responsive Database Services, Inc., "Global Retailing in the Connected Economy," *Chain Store Age Executive* (75:12), pp. 69, 1999.
- Smetannikov, M. "Web Hosters Think Small For E-Commerce," *Inter@ctive Week*, December 13, 1999. Available online at <http://www.zdnet.com/intweek/stories/news/0,4164,2410541,00.html>.
- Sweat, J. "Customer Centricity in the Post-Y2K Era," *Information Week*, May 17, 1999. Available online at <http://www.informationweek.com/734/customer.htm>.
- Violino, B. "The Leaders of E-Business - Innovative Users of Internet Tools Take Charge of the New Economy," *InformationWeek*, December 13, 1999. Available online at http://www.informationweek.com/maindocs/index_765.htm.