

# Antecedents of Customer Satisfaction in E-Service Transactions

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This paper addresses how online service quality is linked to customer satisfaction using four alternative operationalisations of the service dimensions. The study found that: expectation-perception variables were not highly reliable, simple overall measures of service quality outperformed independent service dimensions for all models, the only significant individual predictors were sense of internet community and site customisation. Internet buyers are not greatly sensitive to individual service dimensions, as buyers are more sensitive to the transaction outcome than process. A halo effect across service dimensions was also found. Satisfaction was linked to cognitive, affective, and conative loyalty but not behavioural loyalty.

**Key words:** *Customer satisfaction, e-commerce, loyalty, internet community.*

## Introduction

Satisfaction on the part of customers has long been of interest to marketers (Anderson & Srinivasan, 2011). The main reason is that satisfaction leads to consumer retention (Biery, Andreas, Baxti, Eygeniou, Efi, Nertilda & Ravonikou, 2009). A major development in marketing has been the emergence of focus on services and the growth of the internet market because the advent of the internet has altered the service context. Marketing constructs have to be adapted to the internet situation and familiar service concepts such as the ones researched here adapted to e-commerce Chung and Shin (2010). Since the 1970s the economy has shifted from a predominantly goods-producing economy to a more services-producing economy. Due to this shift to the service sector and the information technology revolution in the 1980s, 1990s, and 2000s, even goods-producing firms use services as a differentiation tool. Companies have added new activities in order to cash in on the service-led growth strategies (Sawhney et al., 2004). Because of the importance of the impact of satisfaction on retention this research primarily addresses the question as to what are the most relevant determinants of satisfaction in the internet services market. It introduces three new dimensions of service namely; the consumers' sense of community with the service provider,

consumers' perceived price fairness, and the perceived customer orientation of the service provider:

- *Sense of Community* - Community commitment refers to the psychological attachment of the community members to their online community and the value of the relationship Morgan & Hunt (1994) and Peterson et al. (2008). A perceived sense of community affects satisfaction and the loyalty of the customers. Customers find a bond with other customers who are part of the virtual community. They share site evaluations and identify with their community's goals and values (Shankar, Smith, & Rangaswamy, 2003). Thus a sense of community in the use of the site would be relevant to the study of E-Service loyalty.
- *Price Fairness* - Biery et al. (2009) discuss the fact that customers have an acceptable range of prices which they would consider as fair. Cronin, Brady and Hult (2000) found a significant link between service value, defined as service quality/price, and satisfaction and behavioural intentions. Oliver and Swan (1989) state that perceived fairness mediates the effect of buyer and seller inputs on satisfaction. Athanassopoulos (2000) suggests that customer satisfaction is associated with value and value with price.
- *Customer Orientation* - Poddar et al. (2009) suggests that important determinants of satisfaction are site features that help the customers solve their product needs. This would include the right choice of products or services and their presentation in a manner that facilitates consumer use of the site. This can be thought of as customer orientation and is an obvious extension of the marketing concept.

The study also researched the other most common determinants found in the service literature, ease of use, e-design and customisation assurance (Ribbink, van Riel & Litjander, 2004). This is so that comparisons can be made with the new determinants introduced.

### Determinants of Satisfaction

Researchers have often viewed satisfaction as an independent construct that results from service quality; meaning service quality leads to satisfaction. A brief summary of the determinants of satisfaction investigated by a number of researchers with their results is given below in Table I.

**Table 1:** Determinants of Service Satisfaction

Author	Determinants of Satisfaction	Service Context	Results
Al-maghrabi (2011)	Site-quality, trust, gender, age, education, amount of internet	e-shopping, goods and services	Perceived usefulness, enjoyment, and subjective norms are

	spending	unspecified	determinants of online shopping continuance.
Athanassopoulos (2000)	Service speed, convenient location, staff competence bank friendliness	Services, bricks mortar	Customer satisfaction associated with value and value with price. Service speed, convenient location.
Yao and Shuling (2011)	Reliability, attentiveness, ease of use, access, security, credibility	e-goods and services shopping	Internet shopping is inherently more risky for shoppers,
Tung (2010)	Perceived quality, perceived value, image, ease of use	Mobile phone services	Expectations of SQ, perceived quality, perceived value, image, ease of use lead to satisfaction
Chung and Shin (2010)	Convenience, site design, financial security, informational fit to task, interactivity, trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, online completeness, convenience, design, Informativeness, security, communication	Online goods	Convenience, site design, financial security, informational fit to task, interactivity trust, response time, ease of understanding, intuitive operations, visual appeal, innovativeness, emotional appeal, consistent image, online completeness are important aspects.
Carlson et al. (2010)	Web site factors influencing attitude entertainment, informativeness and organisation	Online service	Web site factors influencing attitudes are entertainment, informativeness and organisation
Myers (2012)	Perceived risk, convenience	Online apparel	Retail online satisfaction is influenced by the Theory of Planned Behaviour

			because people perform a specific task based on attitude toward a behaviour and subjective norms of person's associates. Attitude is seen as the most influential variable. Desire for convenience is a factor.
Ha et al. (2010)	Customised information and perceived interactivity	Online products	Consumers rely more on peer recommendations than experience with vendor in making purchases
Oliver and Swan (1989b)	Equity	Bricks and mortar products	Perceived fairness mediates the effect of buyer and seller inputs on satisfaction
Cristobal et al. (2007)	Service quality	Online service	Dimensions of web design, customer service assurance, order management are found.
Ribbink (2004)	Ease of use, web site design, customisation, responsiveness, assurance	Online service	Impact functionality, accessibility of information, ease of ordering and navigation impact satisfaction

## Study Method

### *Description of Research Population and Data Collection*

The research population and main sample frame consists of customers at least eighteen years old or over who make an online purchase at least once every year. The sample frame of this study consists of online customers from all parts of the United States. Their experiences with only online retailers are of interest for this study given that online experience is what this study is testing.

The research questionnaire was distributed via Survey Monkey to respondents who described themselves as being eighteen or older and had made at least one online purchase in the past

year. Because of the length of the questionnaire it was thought necessary to recruit a sample of at least 500 and 518 were obtained. When questionnaires with missing responses were removed, the sample was 423. The questionnaire was posted on Survey Monkey and a link to the questionnaire was sent to respondents. Email and social media were used to provide the link to the questionnaire. This was deemed the best way to secure the large sample necessary. The respondents consisted of 49% male and 51% female. The majority of the respondents, 79% were between 18 and 35 years old. The 35 to 44 year-olds and 44 to 64 year-olds comprised of 14% and 7% respectively. The majority of the respondents, (86%) had an education level of college or above.

### ***Data Analysis and Tests of Hypotheses***

The model had eight independent variables; the five dimensions of perceived service quality used by Ribbink (2004), plus perceived price fairness, perceived sense of community, and perceived customer orientation of the firm. The disconfirmation variable for each service dimension was computed both by subtracting the respondent's score on the perceived service from the service expectation and by using the Kanning and Bergman (2009) P-(E-P) formula variable to estimate service disconfirmation variables. Customer satisfaction is a dependent variable but also serves as an independent variable for customer loyalty. Due to the complex nature of the measurement, and the fact that customer satisfaction is treated as a dependent variable for the eight independent variables and at the same time treated as the independent variable for customer loyalty a structural model approach is used to test the research hypotheses (SPSS with AMOS).

The ECT and Direct measure models were compared in terms of:

1. Variance explained ( $R^2$ ) in the dependent variables satisfaction and loyalty stages.
2. Fit of the models in terms of Chi sq/df, probability levels, GFI, AGFI, NFI and RMSEA.
3. The standardized co-efficients of individual model linkages (ex. independent variables to satisfaction).

The satisfaction construct is a mediating variable between the independent variables impacting satisfaction and the loyalty variables. This relationship is tested by examining the critical ratio and probability for the linkages to and from the satisfaction variable.

To test the individual hypotheses the tests in Table II were used:

**Table 2:** Statistical Tests of Hypotheses

<b>Hypothesis</b>	<b>Statistical Test of Hypothesis</b>
<b>Hypothesis 1:</b> A single overall evaluation of service quality variable explains customer satisfaction as well as the E-P disconfirmation model (Biery et al., 2009)	Comparison of adjusted R square explained in satisfaction and loyalty, structural equation fit indices
<b>Hypothesis 2:</b> The P variable used alone explains customer satisfaction as well as the E-P disconfirmation model (Biery et al., 2009).	Comparison of adjusted R square explained in satisfaction and loyalty, structural equation fit indices
<b>Hypothesis 3:</b> The P-(E-P) formulation of the E-P gap will be a better predictor of consumer satisfaction. This is because the absolute value of P confounds the E-P formulation	Comparison of adjusted R square explained in satisfaction and loyalty, structural equation fit indices
<b>Hypothesis 4:</b> The E-P variables for one dimension of service are correlated with the E and P variables of other dimensions of service (halo effect).	Critical ratios and probabilities of linkages between service dimensions in structural equation model.
<b>Hypothesis 5:</b> The use of direct difference measures explains consumer satisfaction better than the E – P model	Comparison of adjusted R square explained in satisfaction structural equation fit indices
<b>Hypothesis 6:</b> Higher internet site ease of use leads to higher customer satisfaction	Critical ratio and probability of linkage between internet site ease and satisfaction in structural equation model.
<b>Hypothesis 7:</b> A higher web site design evaluation leads to higher customer satisfaction	Critical ratio and probability of linkage between web site design evaluation and satisfaction in structural equation model.
<b>Hypothesis 8:</b> Higher web site customisation leads to higher customer satisfaction	Critical ratio and probability of linkage between web site customisation evaluation and satisfaction in structural equation model.
<b>Hypothesis 9:</b> Higher web site responsiveness leads to higher customer satisfaction	Critical ratio and probability of linkage between web site responsiveness evaluation and satisfaction in structural equation model.
<b>Hypothesis 10:</b> Higher web site assurance leads to higher customer satisfaction	Critical ratio and probability of linkage between web site assurance evaluation and satisfaction in structural equation model.

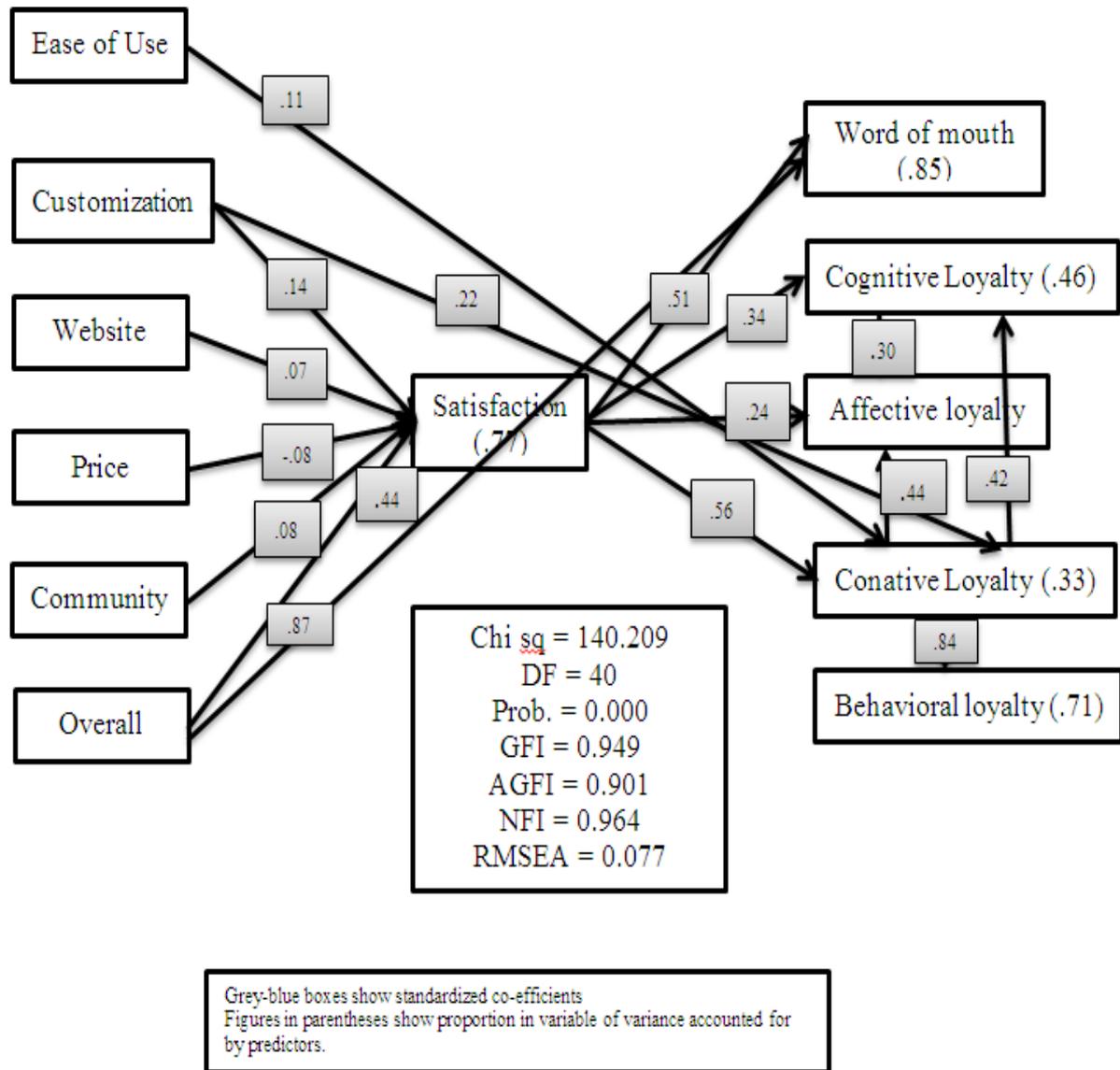
<p><b>Hypothesis 11:</b> A higher sense of internet community leads to higher customer satisfaction.</p>	<p>Critical ratio and probability of linkage between sense of internet community evaluation and satisfaction in structural equation model.</p>
<p><b>Hypothesis 12:</b> Higher service price fairness leads to higher customer satisfaction</p>	<p>Critical ratio and probability of linkage between price fairness evaluation and satisfaction in structural equation model.</p>
<p><b>Hypothesis 13:</b> Higher website customer orientation leads to higher customer satisfaction.</p>	<p>Critical ratio and probability of linkage between website customer orientation evaluation and satisfaction in structural equation model.</p>
<p><b>Hypothesis 14:</b> Higher customer website satisfaction leads to higher consumer loyalty (cognitive, affective, conative, behavioural and word of mouth)</p>	<p>Critical ratio and probability of linkage between website satisfaction in structural equation model and consumer loyalty (cognitive, affective, conative, behavioural and word of mouth)</p>

### Test of Hypotheses

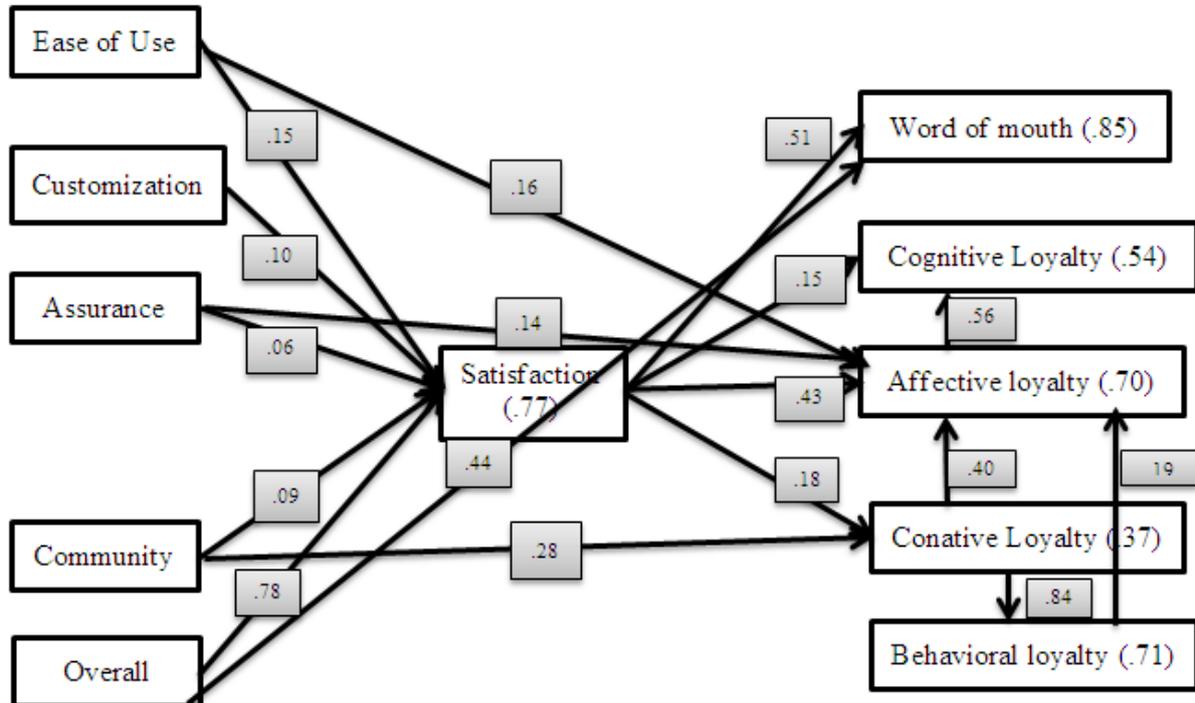
Three classes of independent variables were used in the test of the research model: difference variables calculated as E - P, direct measure variables, and perceptual variables alone.

**Hypothesis 1**, a single overall evaluation of service quality variable explains customer satisfaction as well as the E-P disconfirmation model, was tested by fitting a structural equation model using the E - P variables and then the direct measure variables. Both models fit poorly as evidenced by the Chi sq/df ratio, high RMSEA and differences between the GFI and AGFI indices (See figures I and II). The low probability levels could also be explained by the high sample size of 518 because this would produce a lower standard error estimate and a higher test statistic (Hair et al., 1998).

**Figure 1.** Structural Model using the difference E - P variables. Only significant linkages shown



**Figure 2.** Structural Model using the direct measure variables. Only significant linkages shown



Chi sq = 159.977  
DF = 40  
Prob. = 0.000  
GFI = 0.946  
AGFI = 0.893  
NFI = 0.967  
RMSEA = 0.083

Grey-blue boxes show standardized co-efficients  
Figures in parentheses show proportion in variable of variance accounted for

**Hypothesis 2:** The P variable used alone explains customer satisfaction as well as the E - P disconfirmation model. When this was done the model fit was not as good as the difference and direct measure models Chi Sq/df = 4.9, p = 0.000, GFI = 0.936, AGFI = 0.864, NFI = 0.964, and RMSEA = 0.096. The overall variable dominated with a standardised co-efficient of 0.79. Hypothesis 2 was confirmed in that the satisfaction variable was as well explained in the perceptual variable model (76%) as in the E - P model (77%), but it has to be remembered that the overall variable dominates in both cases. The variance explained in the dependent variables for the difference and direct measure models (difference and direct measure

respectively) was SAT 0.77-0.77, WOM 0.85-0.85, Cognitive 0.46-0.54, Affective 0.71-0.70, Conative 0.33-0.37, and Behavioural 0.71-0.71.

**Hypothesis 3:** the P-(E-P) formulation of the E-P gap will be a better predictor of consumer satisfaction than the E-P formulation. The model fit poorly with a Chi sq/df ratio of 4.33, the AGFI was well below the GFI indicating over fitting and the RMSEA was at the upper bounds of acceptability at 0.089. Seventy-six percent of the variance in the satisfaction variable as accounted for which is virtually the same as the E - P, direct difference, and direct measure model. Thus Hypothesis 3 was not supported.

**Hypothesis 4:** the E - P variables for one dimension of service are correlated with the E and P variables of other dimensions of service (halo effect). This was tested by correlating the E - P difference variables for all dimensions. A correlation matrix revealed high and significant correlations (0.4 and upwards) between all E - P variables confirming the halo effect.

**Hypothesis 5:** the use of direct difference measures explains consumer satisfaction better than the E-P model (Peter et al., 1993). The results obtained for the direct measure model were virtually identical to those for the E-P variable model. Both explained 77% of the variance in satisfaction and were dominated by the influence of the overall assessment variable. Thus, Hypothesis 5 is not supported which is understandable given the limited cognitive resources that most consumers would be willing to apply to the service purchase task.

**Hypotheses 6:** to deal with the impact of individual service dimensions on internet consumer service satisfaction and were tested by estimating structural equation service models using different operationalisations of the variables; the E - P, direct measure, P variable, and P-(E-P) formulations. Table X presents the standardised structural model coefficients for all the model formulations for linkages significant at the 0.05 or lower level of significance.

Overall, most of the linkages are either not significant or quite weak with the exception of the overall variable. The large sample size of 518 tended to make some links significant even at very low standardised values. In each model the overall variable dominated but it should also be noted that when this overall variable was omitted, the performance of the models did not improve significantly. Also, the structural equation modelling analysis used does not diminish a variable's contribution to explained variance because of multicollinearities with other explanatory variables. Any multi co-linearities are modelled. Thus, the results presented below represent a valid depiction of their influence on satisfaction.

**Hypothesis 13:** higher website customer orientation leads to higher customer satisfaction. In none of the models tested was the customer orientation variable significantly linked to satisfaction despite the high sample size and thus this hypothesis is not supported.

This finding is contrary to the rationale of marketing which assumes that companies exist to create value for their customers (Donovan, 2004). Arguments could be made to explain the negative results. One is that customer orientation would be part of the online buying “process” and thus be difficult for the consumer to recall post hoc. A second argument is that the question may not make sense to customers who simply assume that this is the role played by online sites. Most consumers have been well conditioned to feel this way due to promotional efforts by vendors.

**Hypothesis 14:** higher customer website satisfaction leads to higher consumer loyalty (cognitive, affective, conative, behavioural, and word of mouth). This hypothesis was tested using structural equation models for each of the four operationalisations of the service quality constructs. In testing the dependent variables of loyalty a problem was that the stages of loyalty as proposed by Oliver (1997) occur sequentially over time, yet this research only gathered cross sectional data. Also, the task for the respondents must be regarded as difficult at best -four stages of one construct assessed on a post-hoc basis. Table X presents the standardised structural model coefficients for all the model formulations for linkages significant from satisfaction to the behavioural variables at the 0.05 or lower level of significance. Non-significant linkages are shown as “Ns”.

**Table 3:** Standardised Linkages between Satisfaction and Loyalty E-P, direct measure, P, and P-(E-P) Models

	<b>E – P Model</b>	<b>Direct measure Model</b>	<b>P Model</b>	<b>P(E - P) Model</b>
<b>Satisfaction link to cognitive loyalty</b>	.340	0.146	0.198	0.260
<b>Satisfaction link to affective loyalty</b>	0.244	0.182	0.240	0.240
<b>Satisfaction link to conative loyalty</b>	0.561	0.430	0.552	0.520
<b>Satisfaction link to behavioural loyalty</b>	Ns	Ns	Ns	Ns
<b>Satisfaction link to word of mouth</b>	0.510	0.512	0.515	0.512

## Conclusion

According to Oliver (1997), consumers' loyalty formation process goes through four stages: first as a cognitive loyalty, second attitudinal, third conative, and fourth behavioural. Cumulative pleasurable experiences lead to affective loyalty. Conative loyalty is an intention that may or may not be carried out. Action readiness is composed of readiness to act and overcome obstacles. Satisfaction itself is not enough to achieve because satisfaction does not necessarily lead to loyalty but it is a necessary step. The results generally support the satisfaction to loyalty links if we exclude behavioural loyalty. What is interesting in these results is that the strongest links are to conative loyalty, which is a behavioural precursor, but not to behavioural loyalty which is the outcome most sought after by marketers. Examining the wording of the loyalty instruments reveals that satisfied buyers conclude that they got what they wanted, develop a positive attitude to the site, and intend to be loyal, but this does not grow into an actual commitment. It is consistent with the findings of Oliver (1997) with a conceptualisation of the process. The loyalty achieved through satisfaction, as evidenced by the strength of the satisfaction-loyalty coefficients, is intentional first but not so much affective or cognitive and not at all committal. In the Oliver (1997) process of loyalty there appears to be a large jump from the first three stages to actually espousing a future commitment in terms of the effect of satisfaction. A possible interpretation of this finding is that in the internet environment where information has little cost and the buyer has no physical contact with the vendor as would be the case in a bricks and mortar relationship there is little incentive to make a commitment. The internet buyers appear to be in continual "search and evaluate" mode; ready if satisfied to draw conclusions from their experience (cognitive), form attitudes (affective), and even form intentions for future purchases (conative), but not to abandon their search for future options by making a commitment (behavioural) on the basis of this satisfaction. Oliver (1997) refers to ultimate loyalty (behavioural) as occurring in the context of "consumer fortitude". Buyers may only view a site to be as good as the last transaction. If this conclusion is supported in future research, it would be a constraint internet marketers may have to tolerate. Oliver (1997) acknowledges this in stating that intention may not lead to actual repurchase.

Table III below presents the correlation matrix of relationships between the loyalty stages. The four stages appear to be cohesive in that the correlations between the loyalty measures are significant and high (0.538 – 0.843).

**Table 4:** Correlation matrix of relationship between loyalty stages

		<b>Correlations</b>			
		<b>CGL</b>	<b>AL</b>	<b>CNL</b>	<b>BL</b>
<b>CGL</b>	Pearson Correlation	1	.710**	.619**	.538**
	Sig. (2-tailed)		.000	.000	.000
	N	423	423	423	423
<b>AL</b>	Pearson Correlation	.710**	1	.757**	.677**
	Sig. (2-tailed)	.000		.000	.000
	N	423	423	423	423
<b>CNL</b>	Pearson Correlation	.619**	.757**	1	.843**
	Sig. (2-tailed)	.000	.000		.000
	N	423	423	423	423
<b>BL</b>	Pearson Correlation	.538**	.677**	.843**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	423	423	423	423

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Also, when the four stages of loyalty are treated as individual indicators of an overall latent construct and factor analysed, they yield one factor accounting for 77% of the variance in the four measures. This suggests that even though loyalty can be measured in stages, the individual stages are really manifestations of one central latent concept. However, as discussed above, consumers view the behavioural loyalty stage as too much of a commitment to make on the basis of satisfaction.

In general, the issue as to which model of operationalising the E and P variables is the best did not prove to be an important factor in the results obtained. Each of the operationalisations of the individual service dimensions performed poorly in terms of explanatory power and all models were dominated by the overall service measure in terms of variance in the satisfaction explained. The predominance of the overall variable suggests that consumers may not use a discrete calculus for each service dimension in assessing service. Indeed the results showed that the individual service dimensions act as indicators for a latent overall service variable. Even when the overall variable was removed from the analysis the individual service dimensions proved ineffective in explaining satisfaction.

The strongest predictor of the service dimension variables was customisation. It was the one variable for which it could be argued that the lasting outcome of the internet transaction could be dependent on it. A customised site would be expected to better meet the individual product needs of the consumer. On the other hand, the other service dimension variables could be



considered to be transitory aspects of the transaction, which would quickly fade in the consumer's post hoc recall of their experience.

Satisfaction was found to be linked to the first three stages of loyalty as conceived by Oliver (1997), but importantly, not to behaviour loyalty. The interpretation taken here was that online consumers may be in a continual "search and evaluate" mode given the minimal cost of searching for purchase options and not willing to commit to an internet site. These consumers may not exhibit the "consumer fortitude" required in the final behavioural loyalty stage.

Another finding was that word of mouth (WOM) variance, a proxy loyalty espoused by Chung and Shin (2010), was much better explained by the model than the loyalty measures. This variable is also theoretically attractive because it is linked to the communications in website communities. The four- stage sequence of loyalty development should really be tested using a time series approach which was not attempted in this study. It was found that satisfaction is linked to only the first three stages of the process, namely: cognitive, affective, and conative loyalty, but most importantly not to behaviorbehavioural loyalty which makes the construct less useful. On the other, hand the WOM variable seemed to be a satisfactory surrogate for the loyalty variables.

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