The Effect of Third Party Seals on Consumers' Repurchase Process in Online Shopping: A Multi-Group Analysis

Insu Park
University at Buffalo

Amit Bhatnagar
University of Wisconsin-Milwaukee

Raghav Rao

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Insu Park
(insupark@buffalo.edu)
State University of New York at Buffalo

Amit Bhatnagar
(amit@uwm.edu)
University of Wisconsin-Milwaukee

H.R.Rao
(mgmtrao@buffalo.edu)
State University of New York at Buffalo

Abstract

This research explores the mechanism underlying the relationship between online vendor's service efforts and consumers' intention to repurchase with third party assurance seals. The current study examines the influence of the third party assurance seals on repurchase process from online vendor attributes. Drawing on the disconfirmation paradigm, we argue that a repurchase process is affected by the existence of assurance seals. Concerning the effect of online vendor's attributes (service quality and satisfaction) on repurchase intention, we investigated assurance seals in affecting individual evaluation of repurchase process in the online marketplace. The conceptual model that incorporated factors representing elements of a repurchase mechanism was tested with data gathered from 544 vendors evaluated by consumers. A multi-group analysis was conducted to test the conceptual model using Partial Least Square (PLS). The study uncovers that the process of repurchase intention from vendors' service performances was affected by assurance seals. Consumers' intention to repurchase was appeared in a different pattern depending on the presence of assurance seals by vendors. Implications for the theory and practice for assurance seals and future research directions are discussed.

Introduction

Since consumers easily gain access to the information about products from online, their concerns on transactions are not likely to be placed on the products themselves but the e-retailers that sell the products. In contrast to product attributes like brand, price, and quality, e-retailers can offer a variety of unique information to consumers, such as privacy policies. On-line consumers use such information in reducing the risk of uncertainty in their decision-making. Furthermore, on-line consumers may need the mechanisms to ensure privacy. As privacy signal, third party assurance seals have distinct features in that they are the visual modes for leading consumers to trust e-retailers' policies provided not by e-retailers themselves but by third parties, which therefore reduces the gap of uncertainty between sellers and consumers. Namely, assurance seals provided by third parties are determinant cues for consumers to evaluate e-retailers' information security or privacy policy because assurance seals are one source of e-retailers' past behaviors, intentions, and capabilities (Kimery et al. 2002). Accordingly, it is natural that several studies have shown the impact of third party assurance seals on consumer behavior on Internet shopping. For example, several studies have shown that assurance seals are antecedents of trust (Kovar et al. 2000; McKnight et al. 2004), online transaction expectations and intention to purchase (Kovar et al. 2000; Noteberg et al. 1999; Noteberg et al. 2003), and consumer perception on the online policy of websites (Miyazaki et al. 2002).

The purpose of this study is to explore the effect of privacy assurance seals on decision making process. Although there are several types of third party assurance seals across their functions in online marketplaces (e.g., payment security, security assurance, etc), all assurance seals are planned to inform the shopper and to promote the seals displaying a vendor's trustworthy and to communicate to consumers that the vendor conforms with the assuror's specific standards. As a result, the vendor can be trusted by the consumer (Kimery et al. 2002; Kovar et al. 2000). As a framework for exploring the effect of assurance seals on consumer's decision-making, we use the expectation-confirmation theory that has been widely accepted by researchers in various academic fields. A major research question of the study is whether assurance seals affect consumer repurchase process (i.e., process from service attributes to repurchase intention) in an online context. By comparing the two groups (i.e., vendors with seals vs. vendors without seals) through a multi-group analysis, we propose that assurance seals affect consumers' decision, overall value, satisfaction, and utility that consumer may achieve from purchasing products from e-retailers. A consumer's decision depends on perceived value, which is the consumer's overall assessment of utility based on perceptions of what is received and what is given (Zeithaml 1988).

Theoretical Background

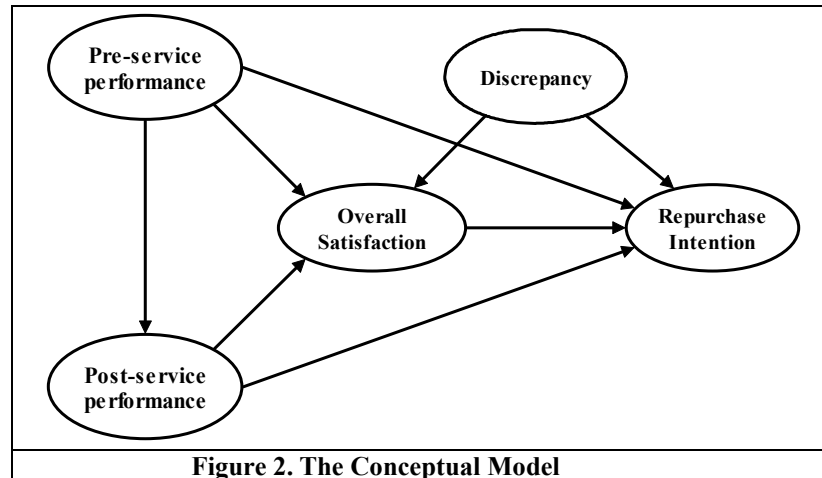## *Expectation-Confirmation Paradigm on Consumer Satisfaction*

Expectation-confirmation theory has been widely applied to assess consumer satisfaction by previous research (Abendroth 2001; Oliver et al. 1985). The theory describes two processes for satisfaction formation: the creation of *expectations* and *the disconfirmation* between the expectations and perceived performance through the comparison process (Oliver et al. 1994). According to expectation-confirmation theory, each individual consumer has a certain level of expectation about how the chosen service and/or product perform. As the consumer uses a given service/product, he or she compares the expectation with his or her actual perceptions on the service/product performance. Through this comparison process, the consumer has either *positive* (expectation < perceived performance) or *negative disconfirmation* (expectation > perceived performance). If the provided service/product performance is lower than consumer's level of expectation, negative disconfirmation occurs. In contrast, if the given service/product performance is higher than consumer's level of expectation, positive disconfirmation arises. Thus, consumers' overall satisfaction is a function of the positivity of disconfirmation (Oliver et al. 1988). Figure 1 shows the aforementioned expectation-confirmation process in an online shopping context.

Figure1. Expectation-Confirmation Paradigm
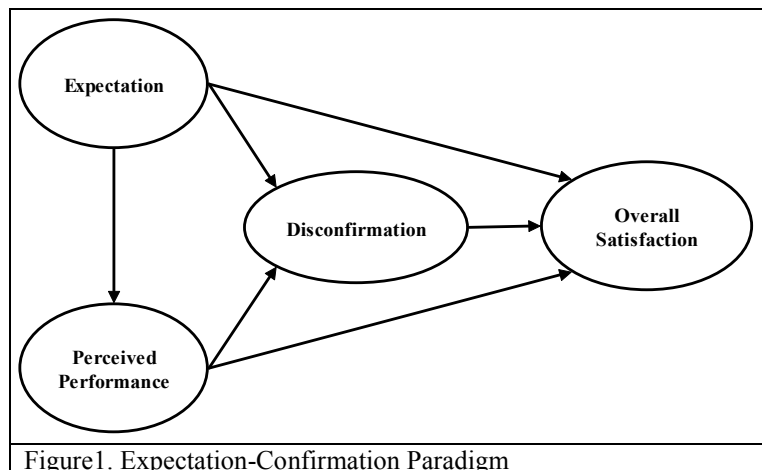
Conceptual Model and Hypothesis

Expectation-Confirmation Paradigm in Online shopping context

The conceptual model of the study is shown in Figure 2. We use pre-service and post-service evaluation as proxies of expectation and perceived performance in the paradigm. The service of the Internet retailer can be divided into two stages according to consumers' performance: pre-and post-service (Cao et al. 2004; Zeithaml 2002) .

Figure 2. The Conceptual Model

Based on the expectation-confirmation paradigm, the consumers' repurchase process includes two crucial features as follows;

First, previous research has found that expectation as standard of comparison is a function of perceptions of service performance (Olson et al. 1979; Yi 1993). This is because perceptions are assimilated into expectations based on the fact that beliefs can systematically distort a consumer's perceptions (Sherif et al. 1961). In this study, the levels of pre- and post-service performances (SP) are applied to satisfaction formation process to assess *SP discrepancy*. As stated earlier, pre-service performance is given as a result of evaluation for the real performance of pre-service performance and it acts as anticipation and a comparative referent for evaluating the post-service performance of a vendor. Cognitive discrepancy resulting from a disconfirmation process renders consumers satisfied or dissatisfied with the service. In this context, positive *SP discrepancy* occurs when post-service performance is higher than pre-service performance and the results will be feelings of high satisfaction. In contrast, when post-service performance is lower than the pre-service performance, negative *SP discrepancy* occurs and the result will be feelings of dissatisfaction.

Second, we extend the expectation-confirmation paradigm by adding the repurchase intention for exploring the effect of assurance seals on repurchase process. We focus on the critical factors that motivate consumers to repurchase. This study addresses important factors from satisfaction, service quality, product price, value, and brand name. Thus, it is vital to deal with the question of how these key factors interact to determine the repurchase intention in both marketing practitioners and academia. Consumer satisfaction has been linked to consumer retention, loyalty, and superior financial performance (Fornell et al. 1996; Zeithaml et al. 1996). Specifically, a direct positive relationship between consumer satisfaction and the repurchase intention has been supported by a wide variety of studies on product and service (Anderson et al. 1993; Bolton 1998). The anticipated outcome of satisfaction includes intentions toward, and behaviors of repeat purchase and loyalty (Reynolds et al. 1999). Previous research further suggested that satisfaction can be instrumental in moving relationships toward mutual dependence and solidification of the relationship (Garver et al. 1995).

The Role of Assurance Seals in Repurchase Process

A recurring issue in most E-commerce research, as one of the main barriers to growth of online shopping is the role of consumer concerns and perceived risks in relation to the likelihood of purchase (Jarvenpaa et al. 2000). In the context of online shopping, companies can strive to reduce consumers' perceived risk in several ways (Hoffman et al. 1999) and one of the useful methods is *the use of assurance seals* from third parties which are trusted by public (Palmer et al. 2000).

Consumers given the presence of the seals can be assured that a certain standard of privacy will be met. Assurance seals could

potentially increase consumers' confidence in e-retailers and, therefore, they decide to choose the e-retailers who provide assurance seals. Without assurance seals, consumers may hesitate to engage in online shopping (Kovar et al. 2000). For this reason, all assurance seals are designed to inform shoppers of e-retailers' engagement of assurance seals to promote their trustworthiness and willingness to comply with a third party's specific standards or requirements. Consequently, such efforts for offering assurance seals allow e-retailers to gain consumers' trust (Kimery et al. 2002; Kovar et al. 2000). In addition, the existence of assurance seals enables consumers to forecast e-retailers' behaviors with greater accuracy, to determine e-retailers' ability in satisfying their obligations to the consumer, and to interpret e-retailers' values and motives in the exchange (Kovar et al. 2000). Likewise, the display of seals will have a positive impact on consumers' trust about e-retailers policies and reducing the gap of uncertainty between e-retailers and consumers (Kimery et al. 2002).

In this study, we argue that a consumer's repurchase process appears differently depending on the existence of assurance seals. When a vendor does not provide assurance seals, consumers would relatively be more concerned about their privacy or security than when the seals are given. This encourages the consumer to evaluate services performance, perceived price, or satisfaction on repurchase intention of two types of vendors in a distinct way. In the case of a vendor with assurance seals, it enhances consumers' confidence toward the vendor by informing the consumer of the vendor's assurance of privacy policy and ultimately, the consumer would be relatively less dependent on the vendor's service performance, perceived price, and satisfaction in re-choosing the vendor than in the case of a vendor without seals. This leads to the hypothesis of the study:

> *Hypothesis 1: Consumers' repurchase intention for online vendors will be differently affected by service performance, SP discrepancy, and satisfaction across the presence or absence of assurance seals.*

Methods

Our main objective was to identify whether repurchase process resulted from overall satisfaction and services can be affected by third party assurance. The approach we selected is consistent with recent research in IS field. For example, Kiel et al. (2000) used this approach to test for the influence of national culture on risk taking and the willingness to continue a project.

To test the effect of assurance seal related to comparing two, we closely patterned our analysis after Ahuja et al. (2005) as well as Keil et al (2000). We estimated two separate models in PLS: the seals sub-sample, and the no seals sub-sample. We then tested for differences across two models using the test for differences suggested by Chin (2004) and implemented by Keil et al (2000) and Ahuja et al.(2005) by calculating t-statistics to evaluate the differences in path coefficients across models[1].

Data

The data, 544 vendors, were collected directly from Bizrate.com, one of the well-known web sties in providing price comparison services. The ratings on service attributes of vendors provided by Bizrate.com have been widely used in online markets. For example, Shopper.com, Shopping.com, and Price.com have referred to the ratings of Bizrate.com. In addition, numerous vendors, who are certified sellers by Bizrate.com, have presented the fact that they are certified sellers on their own websites (e.g., CircuitCity.com, Motorola.com, CD Universe.com, and Euclid Computers.com etc.). This indicates that the ratings on vendors from Bizrate.com are accepted as a credible evaluation (see, Cao et al. 2004; Pan et al. 2004; Ratchford et al. 2003; Reibstein 2002; Wu et al. 2004).

544 vendors were classified into four categories: book and magazines, clothing and accessories, DVDs and videos, and gifts, flowers and food. The data included the assessment for the vendors based on individuals' evaluations from August 24 to September 15, 2005.

Measures

Service Performance

We divided service performance into two stages: pre- and post-service performance. Based on that, we performed a confirmatory factor analysis for 10 evaluation items (with a 10-point scale) offered by Bizrate.com to measure pre- and post- service performance[2].

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[1] $Spooled = \sqrt{[(N_1 \text{-}1)/(N_1 + N_2 + 2)] \times SE_1^2 + [(N_2 \text{-}1)/(N_1 + N_2 + 2)] \times SE_2^2}$, $t = (PC_1 - PC_2)/[Spooled \times \sqrt{(1/N_1 + 1/N_2)}]$, where, spooled indicates pooled estimator for the variance, N_i is sample size of dataset of group i, SE_i is standard error of path in structural model for group i, and PC_i is path coefficient in structural model of group i

[2] http://www.bizrate.com/ratings_guide/merchant_detail__mid--764.html

The sample items for pre-service performance include charge statement, clarity of product information, ease of finding, look and design, and selection of products and the sample items for post-service performance include availability of product, product meet expectations, on-time delivery, order tracking, and consumer support.

SP discrepancy

We estimated *SP discrepancy* as the difference between pre- and post-service performance. When the level of pre-service performance and post-service performance is not the same, consumers have cognitive *SP discrepancy*. For instance, if the level of pre-service performance is higher than post-service performance, consumers have negative *SP discrepancy*. On the other hand, if the level of pre-SES is lower than post service performance, consumers have positive *SP discrepancy*. In past research, disconfirmation has been measured by the difference between the consumer's expectation about an ideal level of service performance and their perception about actual performance they experience (Jiang et al. 2000). In measuring consumer satisfaction using disconfirmation, previous research has typically assessed three constructs: consumers' expectations, perceived performance, and their direct disconfirmation score (Spreng et al. 2003). In this study, we obtained the *SP discrepancy* score as a difference between pre-and post service performance, which allows us to have an efficient and parsimonious way.

Consumer Satisfaction and Repurchase Intention

Overall rating on vendors' services was used in evaluating consumer satisfaction and *Repurchase intention* was measured by a scale using a phrase "would shop here again" on a 10-point scale. These two variables were estimated using a single-item with a 10-point scale, respectively. In estimating consumer satisfaction, numerous studies have used a single-item (e.g., Kekre et al. 1995; LaBarbera et al. 1983). In fact, Yi (1990) compared the reliabilities between using multiple-items and a single-item scales in measuring satisfaction and conclude that the reliability of using a single-item scale is acceptable.

Results

Analysis Strategy

The hypothesis of the conceptual model was tested to identify specific causality among variables using the partial least squares structural equation modeling technique (PLS). The PLS approach allows researchers to assess measurement model parameters and structural path coefficients simultaneously (Barclay et al. 1995; Chin 1998). PLS focuses on a prediction-oriented and data analytic method and seeks to maximize the variance explained in constructs (Barclay et al. 1995). The primary reasons for using PLS in this study are based on the notion that PLS is an appropriate statistical analysis tool for the prediction-oriented nature and early stages of theory testing situations characterizing this study.

Manipulation Check

To compare the effect of presence and absence seals in decision making for choosing vendors, we split the full sample into two sub-samples, vendors with seals (*N*=160) and vendor without seals (*N*=384). Table 1 shows descriptive statistics for the two sub-samples and their effect of assurance seals. Since assurance seals were used an indicator to divide sample into two groups, if the seals play as a moderator, the statistical significant in difference between two groups should be shown. Levene's test results show that there is no violation of the assumption that two sub-samples have approximately equal variance on the dependent variable. In addition, we checked the multicollinearity among independent variables with SPSS. Variance inflation factor (VIF) value (i.e., indicating how much the variance of the coefficient estimate is being inflated by multicollinearity) in Table 1 show that there is no evidence for multicollinearity among independent variables on repurchase intention, because there is no variable over 10 value indicating serious problem (Neter 1985).

Table 1. comparisons between different respondents						
Constructs	Vendors with seals (N=160)		Vendors without seals (N=384)		Differences	Levene's Test for Equality of Variances F-value	VIF.
	Mean	S.D.	Mean	S.D.	T (p-value)		
Repurchase intention	8.528	0.541	8.359	0.639	2.94 (0.003)	-	-
Satisfaction	8.447	0.538	8.312	0.614	2.43 (0.015)	1.503[n.s.]	6.98
Pre-service performance	8.455	0.281	8.408	0.250	1.90 (0.058)	0.453[n.s.]	2.91
Post-service performance	8.564	0.512	8.427	0.577	2.62 (0.009)	2.173[n.s.]	3.54
SP-discrepancy	-.0397	0.440	-.1658	0.494	-1.75 (0.005)	.59[n.s]	4.71
**p<0.01;*p<0.05							

Measurement Model Estimation

The measurement model in PLS was assessed by examining internal consistency, and convergent and discriminant validity (Barclay et al. 1995; Chin 1998). Internal consistency reliability of 0.7 or higher are considered adequate (Agarwal et al. 2000; Barclay et al. 1995). Convergent and discriminant validity was assessed with the average variance extracted (AVE) by a construct from its indicators and item loadings. AVE should be greater than .50 to justify using a construct.

Table 1 shows the scale means, standard deviations, Pearson's correlations, composite reliability (C.R.), and Average Variance Extracted (AVE) among the measures. The composite scale reliability for each construct, which is similar to Cronbach's alpha, were high above .80 (the recommended cut-off of .70), indicating that the measures used in this study were adequately reliable. Confirmatory factor analysis showed that each construct explains equal variance. The aforementioned results suggest that our constructs exhibit good psychometric properties. Table 2 presents that the factor loadings of indicators associated with each construct were high, exceeding .60, indicating adequate reliability.

Table 2. Inter-Construct Correlations by group						
Subgroup and construct	C. R.	Correlation of constructs[a]				
No seals group		1	2	3	4	5
Repurchase intention (1)	1.000	1				
Satisfaction (2)	1.000	0.932	1			
SP-discrepancy (3)	1.000	0.832	0.902	1		
Pre-service performance (4)	0.876	0.540	0.501	0.194	**0.875**	
Post-service performance (5)	0.948	0.713	0.662	0.630	0.539	**0.941**
Seals group		1	2	3	4	5
Repurchase intention (1)	1.000	1				
Satisfaction (2)	1.000	0.940	1			
SP-discrepancy (3)	1.000	0.819	0.809	1		
Pre-service performance (4)	0.879	0.488	0.551	0.047	**0.878**	
Post-service performance (5)	0.938	0.727	0.657	0.672	0.526	**0.931**
[a]Diagonal elements in the "correlation of constructs" matrix are the square root of the average variance extracted (AVE). For adequate discriminant validity, diagonal elements should be greater than corresponding off-diagonal elements.						

To check individual measurement items which might not exhibit adequate discriminant validity, a matrix of loadings and cross-loadings was constructed for the model. Table 3 provides the factor structure matrix of loadings and cross-loadings. The factor matrix shows that all items exhibited at least loadings of 0.69 on their respective constructs. Overall, the measured scales show excellent psychometric properties with high reliability and appropriate convergent and discriminant validity.

Table 3. PLS Component-Based Analysis: Cross-Loadings				
	Seals Group		No Seals Group	
Items	Factor loading	AVE	Factor loading	AVE
Pre-service (1)		0.771		0.766
Charge statement	**0.838**		**0.821**	
Information Clarity	**0.866**		**0.845**	
Ease of finding	**0.697**		**0.774**	
Look and design	**0.764**		**0.786**	
Selection of products	**0.733**		**0.756**	
Post-service (2)		0.867		0.886
Availability of product	**0.856**		**0.864**	
Product expectations	**0.902**		**0.913**	
On-time delivery	**0.922**		**0.933**	
Order tracking	**0.742**		**0.794**	
Consumer support	**0.903**		**0.893**	
Overall satisfaction (3)	**1.000**	1	**1.000**	1
SP discrepancy (4)	**1.000**	1	**1.000**	1
Repurchase intention (5)	**1.000**	1	**1.000**	1

Note: Boldface numbers are loadings (correlations) of indicators to their own construct; other numbers are cross loadings. To calculate cross loadings, a factor score for each construct was calculated based on the weighted sum, provided by PLS graph, of that factor's standardized and normalized indicators. Factor scores were correlated with individual items to calculate cross loadings. Boldface item loadings should be greater than cross-loadings.

Testing the Structural Model

Overall Model

Before testing the hypothesis, overall PLS structural model was assessed by examining path coefficients and their significance levels. As recommended by Chin (1998), bootstrapping was performed to test the statistical significance of each path coefficient using t-tests. Figure 2 summarizes the results of structural model. The model explained variance in all the post-service (R^2=27.4%), overall satisfaction (R^2=91.2%), and repurchase intention (R^2=87.6%) which is noticeably high. Pre-service performance had negative relationship with post-service performance (β=0.524, p<0.001). In addition, *SP discrepancy* had positive relationship with overall satisfaction (β=1.043, p<0.001) and overall satisfaction had positive relationship with repurchase intention (β=0.631, p<0.001). Along with that, results show that pre-service performance had greater effect on overall satisfaction than post-service performance (pre-service performance path =0.530, p<0.001; post-service performance path =-0.271, p>0.1), whereas post-service performance had greater effect on repurchase intention than pre-service performance (post-service performance path = 0.284, p < 0.001); pre-service performance path = 0.046, p<0.05), when SP discrepancy exists.
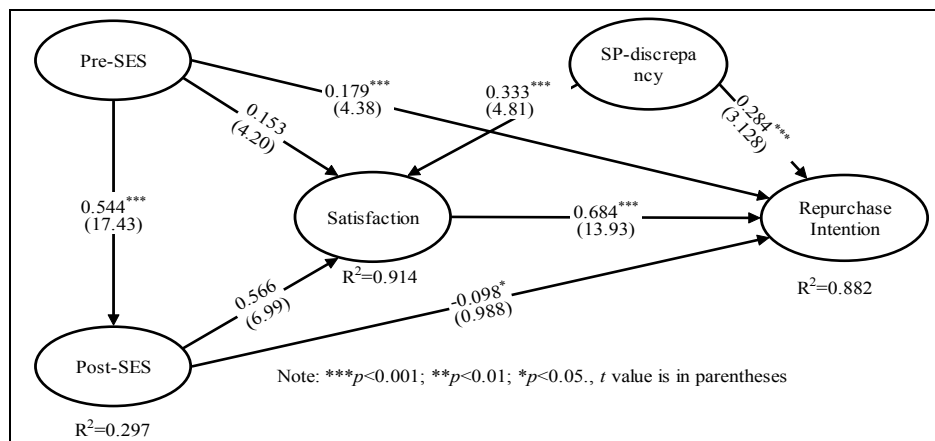
<div style="border:1px solid">**Figure 2. Results of Data Analysis: total model**</div>

Structural Model

The results are summarized in Figure 3. Figure 3 presents the path coefficients for each of the sub-samples so that the reader may clearly see the magnitude of any differences-and thus the practical significance-between seals and no seals groups across each of the constructs. In Figure 3, both subgroups are positive and significant in path from pre-SES to post-SES ($path_s$ = 0.515; $path_{ns}$ = 0.536), path from pre-SES and overall satisfaction ($path_s$ = 0.769, $path_{ns}$ = 0.401), path from SP-discrepancy to overall satisfaction ($path_s$ = 0.892; $path_{ns}$ = 0.685), and path from overall satisfaction to repurchase intention ($path_s$ = 0.557; $path_{ns}$ = 0.698).

Figure 3. Results of Data Analysis: Seals versus no seals group
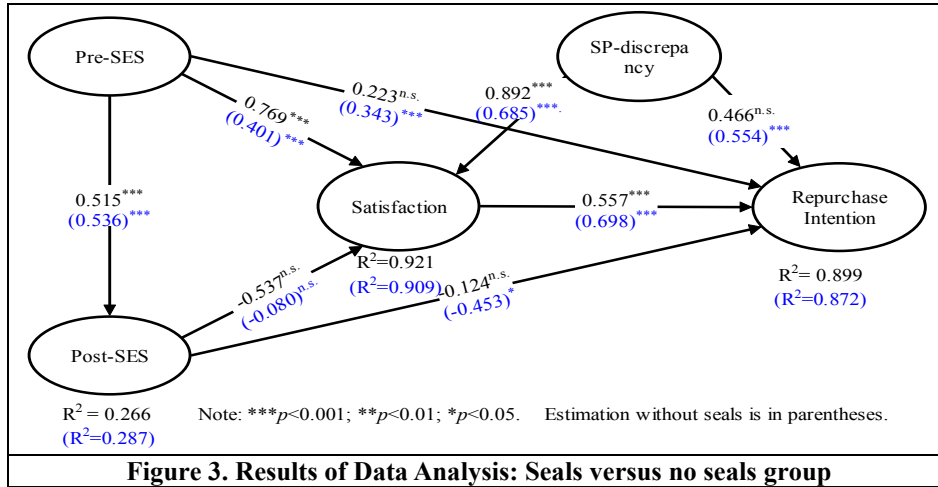
Following the model tested, we conducted a test of the differences in path coefficients between the two sub-samples. The results shown in Table 4 indicated that the all path coefficients from pre-SES through repurchase intention for seals and no seals groups are significantly different from the corresponding coefficient in the structural model. Specifically, path coefficients to overall satisfaction were significantly stronger in seals group than the corresponding path coefficients in the structure model for no-seals group. On the other hand, path coefficients to repurchase intention were significantly stronger in no seals group than the corresponding path coefficients in the structure model for seals group (see Table 4).

Such results provide strong support for effects of assurance seals on overall satisfaction and repurchase intention. The discussion section will address the implications of the results.

	Table 4. Statistical Comparison of Paths										
Path	**Total**			**No-Seals**			**Seals**			**N vs. S**	
	R^2	S.D	T	R^2	S.D	T	R^2	S.D	T	P. Diff.	T-value
Sat->RI		0.065	10.881		0.069	9.981		0.117	4.728	-0.141	17.107***
PS->RI	0.876	0.188	2.116	0.872	0.208	2.173	0.899	0.344	0.360	-0.329	13.426***
PR->RI		0.091	3.874		0.095	3.591		0.185	1.200	-0.120	9.738 ***
SP-RI		0.181	3.401		0.194	2.845		0.347	1.341	-0.088	3.683 **
PS->SAT		0.157	1.767		0.172	0.462		0.377	1.421	0.457	18.957 ***
PR->SAT	0.912	0.075	7.137	0.909	0.077	5.189	0.921	0.197	3.889	0.368	50.257 ***
SP->SAT		0.135	7.971		0.148	5.990		0.311	3.996	0.351	17.408 ***
PR->PS	0.274	0.032	16.593	0.287	0.040	13.409	0.266	0.041	12.505	-0.021	5.478 ***

Discussion and Conclusion

In this study, we investigated the difference between two groups (i.e., vendor with seal and without seals) in evaluating repurchase process by adapting third party assurance seals. The study focused on the issue of how online consumers differ in their repurchase

processes regarding choice of online vendors across assurance seals. By finding the impacts of the seals on the relationship between the repurchase intention and the antecedents: satisfaction, service performances, and SP-discrepancy, we found the evidences to support our hypothesis, indicating that consumers can differently perceive vendors across third party assurance seals. The results suggest that vendors could be differently considered in repurchase process according to the information that vendors provide. Specifically, for the vendor providing assurance seals, online consumers' overall satisfaction, which was additionally analyzed, is more affected by pre-, post- service performance and SP-discrepancy than for the vendor without assurance seals. On the other hand, repurchase intention is more affected by pre- post-service performance, and SP-discrepancy for the vendor without seals than for the vendor with seals in the structural model. When online vendors do not provide assurance seals, consumers are more rely on overall satisfaction, service performance, and SP-discrepancy than when online vendors do provide assurance seals. The effects of pre- and post-service performance, and SP discrepancy on satisfaction and repurchase intention are in the opposite direction. One possible explanation of this result may be that consumers are differently motivated by the assurance seals between overall satisfaction and repurchase intention. For instance, given being equal level of satisfaction, consumers may tend to depend more on the vendors' service attributes when they deal with vendor with seals than when they transact vendors without seals, because assurance seals play a role of enhancing their satisfaction. Given being equal level of repurchase intention, however, consumers are relatively more dependent on their service attributes for choosing the vendor without seals than the vendor with seals, because of absence of the seals.

This study has implications for research and practice. Our research sheds light on the effect of assurance seals on consumers' repurchase intentions with online vendors by using multi-group analysis. We showed how overall satisfaction, service performance, SP-discrepancy differently affect the overall satisfaction and repurchase intention across the assurance seals in an online context. Specifically, this study showed that assurance seals could reduce consumers' dependency on overall satisfaction, service performance, SP-discrepancy for the repurchase intention. This study allows us to reveal the clear impact of assurance seals in online shopping.

We also have recommendations for online vendors involved in third party assurance seals based on the findings of the study. The findings suggest that external cues of online vendors' attributes can replace intrinsic information regarding vendor trust so that online vendors can focus more on other areas for enhancing capabilities such as service performance, and relative low price. By presenting assurance seals, the vendor can, to some extent, overcome low service performance and ask for a price premium by keeping the service performance high and up to a threshold that does not exceed trade-offs between the repurchase intention and the price that they perceive as relevant or rational.

Future research could strengthen and extend the results of this study by removing several limitations. First, the results and implications of this research may be constrained by the research context of online shopping. Second, we assumed that all users know what assurance seals do in the online context. However, there could be a difference between users with information on assurance seals and users without. In the online context, users consider Internet shopping as risky because their private information might be released without permission. Finally, even though the multicollinearity among independent variables is tolerable, the values from the results might have decreased the reliability of estimates. Future research can uncover whether the role of assurance seals may be seen as the role of increasing satisfaction or the role of decreasing privacy concerns. Further, this study can have improvement on this issue by conducting interview or survey methods that use seals to find out how assurance seals affected the relationship between online vendors efforts and customer' behavior.

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