



Opening the black box

Assessing the mediating mechanism of relationship quality and the moderating effects of prior experience in ISP service

Relationship
quality and prior
experience

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Abstract

Purpose – To examine empirically the mediating role of relationship quality on the relationships between relational selling behavior, network quality, service recovery, and loyalty, and the moderating role of prior IT experience on the above relationships in ISP service.

Design/methodology/approach – Data were obtained via questionnaires from randomly selected ADSL customers of Chunghwa Telecom. The constructs were measured using existing scales. SEM was used to examine the effects.

Findings – Relational selling behavior, network quality, and service recovery indirectly influence loyalty through the mediation of relationship quality, consisting of satisfaction and trust. The effects of relational selling behavior on satisfaction and trust are stronger for inexperienced than for experienced customers. Those of network quality on satisfaction and trust are similar for both experienced and inexperienced customers. Those of service recovery on satisfaction and trust are stronger for experienced than for inexperienced customers.

Research limitations/implications – There are three limitations. First, customer loyalty may be only partially reflected since it was measured by self-reports. Second, there may exist common method variance. Third, the generalizability of the findings might be limited.

Practical implications – IT service organizations should invest in training programs and advertising campaigns, the ways of transferring information and services to users, to improve relationship quality. Managers should be careful not to try partnering initiatives with customers without knowing their prior IT experience.

Originality/value – This study presents a thorough understanding of how relational selling behavior, network quality, and service recovery indirectly influence loyalty through satisfaction and trust, and how prior IT experience moderates the above relationships in ISP service.

Keywords Selling methods, Behaviour, Servicing, Customer loyalty, Relationship marketing

Paper type Research paper

1. Introduction

A battle for cyberspace market share is brewing in Taiwan, which is a more competitive market than most. At the end of 2002, despite Taiwan having a population of only 22 million, network connection accounts included 4.9 million dial-up accounts (narrow bandwidth network), 1.82 million ADSL accounts (broad bandwidth network), 280,000 cable modem accounts (broad bandwidth network), 10,000 ISDN accounts, 900 satellite network accounts, and another 3.44 million TANet (Taiwan Academic



Network) accounts. These figures represent a total of approximately 8.59 million internet users in Taiwan, after subtracting redundant accounts (Institute for Information Industry, 2002). The broadband market penetration rate of Taiwan ranks second globally, trailing only South Korea (Institute for Information Industry, 2002). Currently, Taiwan has more than 29 ISPs (internet service providers) providing various network system services, including ADSL, cable modem, and so on. Among these ISPs, the network service offered by Chunghwa Telecom has a market share of more than 60 percent country-wide.

ISPs are seeking customers by offering highly competitive packages. Undoubtedly, a focused approach to establishing the strengths and unique competitive edge of a company is essential for survival given the intense competition. Notably, IS continuance at the individual user level is crucial to many business-to-customer electronic commerce firms, such as ISPs, online retailers, online banks, online brokerages, online travel agencies, and so on (Bhattacharjee, 2001). However, such continuance relies on achieving relationship quality and customer loyalty. There is no point in attracting customers only to lose them subsequently, especially given that searching for new customers is five times more expensive than retaining existing customers (Bhattacharjee, 2001). Previous studies (e.g. Crosby *et al.*, 1990; Tam and Wong, 2001) have demonstrated the importance of relationship quality and loyalty and their impact on firm profitability and customer retention, but the first step in effectively managing relationship quality and customer loyalty in IT service contexts is identifying their antecedents.

Various researches have presented the crucial role of relationship quality, but the focused approach to relationship quality and loyalty in the ISP service sector borrows heavily and sometimes inappropriately from marketing theory and science that have been in use for decades in industry in general. To make the modern approach more specifically applicable to the intangible ISP service sector, this work justifies the crucial determinants of relationship quality and loyalty from the perspective of the ISP service industry, and also considers the customer's prior IT experience as a potential moderator. This work consists of two consecutive stages. Stage 1 tests and compares two mediation models. Stage 2 includes prior experience of IT usage as a moderator on several paths of the proposed model developed in stage 1.

This study differs from previous works in several important ways. First, this work is one of the first to study relationship quality in the marketing of intangible IT goods. The applicability of relationship quality in strengthening customer loyalty has been studied extensively for many tangible goods and also for various customer services. In contrast, highly intangible products have received little consideration. ISP service is such an intangible product. Specifically, most previous studies on relationship quality and loyalty have tested substantial products empirically instead of considering the intangible ISP service. This study investigates customers using an ISP service, and through different aspects brings implications for IT service industries. Second, while some empirical studies examine relationship quality as a pure construct, some decompose it into two different constructs. This work provides insight into relationship quality by using both approaches and elucidating their differences. Finally, prior IT experience is examined as a potential moderator in the development of relationship quality. Although IT experience is a critical factor in the context of IT

service (e.g. Susarla *et al.*, 2003; Taylor and Todd, 1995), it has rarely been discussed in the area of relationship quality in service industries.

2. Stage 1: development of the mediation models

This section develops two alternative models of the generation of relationship quality. The first proposed model, mediation model 1 in Figure 1, is intended to be as parsimonious as theoretically justifiable. It posits the effects of relational selling behavior, network quality, and service recovery on loyalty via the mediation of the relationship quality. The model not only includes the relational variables of Crosby *et al.* (1990), such as relational selling behavior, but also integrates other key variables specific to the IT service field, such as network quality (e.g. Kettinger and Lee, 1994) and service recovery (e.g. Bob, 1989), which are rarely tested in IT service contexts.

2.1 Relationship quality

Relationship quality is a general assessment of relationship strength and the extent to which a relationship meets the needs and expectations of the parties involved based on a history of successful or unsuccessful encounters or events (Crosby *et al.*, 1990). Although no consensus exists regarding the constructs that make up relationship quality (Kumar *et al.*, 1995), it is generally conceptualized as involving trust between relators and their satisfaction with a relationship. Restated, relationship quality is viewed as a high-layer construct comprising at least two components:

- (1) Trust in a sales agent and their service (e.g. Swan *et al.*, 1985).
- (2) Satisfaction with a sales agent and their service (e.g. Crosby and Stephens, 1987).

Therefore, this study assumes that improved relationship quality is accompanied by increased satisfaction and trust. Next, this study briefly expands on these two important dimensions of relationship quality.

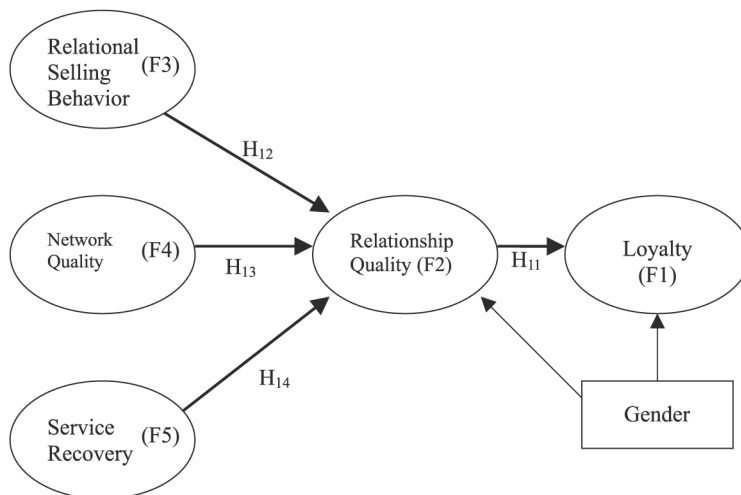


Figure 1.
Mediation model 1

Trust is generally considered essential for successful relationships (Berry, 1995; Moorman *et al.*, 1993). From the existing literature (e.g. Moorman *et al.*, 1993, p. 82), trust can be defined as customer confidence in the reliability and integrity of a seller. Previous studies proposed that an expectation of trustworthiness is created by ability, reliability, and intentionality. Notably, several scholars consider perceived trustworthiness and trusting behavior as two distinct but related aspects of trust. Whereas trustworthiness describes a belief or confidence, trusting behavior is related to willingness to engage in risk-taking, and reflects reliance on a partner (Smith and Barclay, 1997). Both definitions emphasize the importance of confidence and reliability in the conception of trust. Some research has conceived trust as confidence in the honesty and integrity of the other party, for example the sales agent (e.g. Crosby *et al.*, 1990). Instead of focusing only on trust in an organization, this study examines customer trust in both individuals and organizations, reflected in customer confidence in service quality and reliability.

Satisfaction is an emotional state that occurs in response to an assessment of buyer-seller interaction experiences (Westbrook, 1981). Since services are generally intangible, customer satisfaction depends directly on managing and monitoring individual service encounters, namely the periods of direct customer interaction with a service (Shamdasani and Balakrishnan, 2000). For example, customers achieve satisfaction when they obtain a reduction in transaction cost or when uncertainty regarding future benefits is reduced (Schlenker *et al.*, 1973). The study by Garbarino and Johnson (1999) demonstrated that for low relational customers, overall satisfaction is the major mediator among component attitudes, future intentions and future attitudes such as loyalty. Additionally, for high relational customers, trust rather than satisfaction is a mediator between component attitudes and future intentions. Therefore, satisfaction causes long-term perpetuation of relationships and can also indicate trust.

2.2 Loyalty

Although loyalty has traditionally been assessed using various behavioral measures such as repeat purchases, proportion of total purchases made at a given vendor and purchase probability, Dick and Basu (1994) further conceptualized loyalty as the relationship between relative attitude toward an entity (brand/service/store/vendor) and repeat patronage. In this research, loyalty to a service provider is conceptualized in terms of repeat patronage, switching behavior, and word-of-mouth recommendations. Empirical evidence has been found for the relationships between the dimensions of relationship quality and customer loyalty. Notably positive paths from relationship satisfaction to both relationship duration and purchase intentions are indicators of customer loyalty (Wulf *et al.*, 2001). That is, customers who experienced recent service problems and received satisfactory recovery and services had significantly more positive behavioral intentions than those with unresolved problems (Zeithaml *et al.*, 1996), leading to increased loyalty. Also, trust positively affects forbearance from opportunism (Smith and Barclay, 1997). Restated, this study suggests that customers who trust a relationship might be more likely to act owing to their need to maintain their trust. From the above findings, the following hypothesis can be derived:

H1. Relationship quality positively influences loyalty.

2.3 Relational selling behavior

The commercial exchange in many service contexts contains a long-term relational nature and a continual stream of interaction between customers and service providers (Lovelock, 1983), which in part reflect the complexity and inherent risk of the services (Crosby *et al.*, 1990). Since the ongoing services provided by the service provider are often a major component of the exchange in industrial service contexts involving relationship selling (e.g. Crosby *et al.*, 1990; Jackson, 1985), there is a need to expand the focus of buyer-seller interaction by including relational selling behavior. Relationship selling behavior describes a behavioral tendency displayed by some staff to cultivate and maintain the buyer-seller relationship. The influence of such behavior on the buyer-seller relationship depends on customer expectations regarding the role(s) of the staff (Solomon *et al.*, 1985). Sheth (1975), noting the difference between content and style in communication, proposed that the latter recognizes the importance of ritualistic behavior patterns in shaping the outcomes of buyer/seller interactions. Similarly, Thibaut and Kelley (1959) indicated that a major task for the actor in interpersonal relationships is the mutual coordination of appropriate behavior towards the other person. Hence, relational selling behavior takes the form of an exogenous construct in the proposed model, and is hypothesized to positively influence relational quality:

H1₂. Relational selling behavior has a positive influence on relationship quality.

2.4 Network quality

Generally, increased stable quality for a product should create more favorable assessments and future behaviors (Swanson and Kelley, 2001). In other words, the perception of stable network quality should boost customer satisfaction and trust, thus improving relationship quality. Furthermore, previous literature suggests that network providers should focus more on transmission quality and network coverage as the core attributes of their service offerings (Woo and Fock, 1999). Some of the dominant models relating to customer satisfaction describe satisfaction as a function of expectations and confirmation resulting from a comparison between expectation and actual performance perception (Oliver, 1980), and network quality is the strongest influence on actual performance and thus on customer perceptions. This fact is not surprising, since the core service of ISPs is to provide smooth and uninterrupted communications. Consequently, network quality should be the main focus of ISP marketers:

H1₃. Network quality positively influences relationship quality.

2.5 Service recovery

Based on the disconfirmation paradigm (Oliver, 1980), relationship quality is the outcome of an evaluation process whereby customers compare their expectations of how the service should be offered with their actual experience of the service. Either negative or positive confirmation of expectations will change or maintain current levels of customer satisfaction with and trust of the service provider. A service failure is said

to happen when the service encounter falls short of the customer's expectations (i.e. negative disconfirmation) (Bell and Zemke, 1987; Andreassen, 2001). In the IT service field, however, internet quality driven ISPs will inevitably need to deal with customer dissatisfaction following service failures. Efforts by service providers to placate aggrieved customers following IT service failure are known as service recovery (Boshoff and Allen, 2000). Service recovery is defined as specific actions taken to ensure that a customer receives a reasonable level of service following the disruption of normal service (Lewis and Spyropoulos, 2001). For example, by recording service failure in a database and establishing guidelines and standards, Chunghwa Telecom performs efficient service recovery. Also, timely identification of network problems allows Chunghwa Telecom to promptly and accurately respond to customer complaints and improve the company network and troubleshooting engine databases. Good service recovery is crucial to customer satisfaction (Lewis and Spyropoulos, 2001), and can turn angry, frustrated customers into satisfied ones. In fact, good service recovery can create more trust than if things had gone smoothly in the first place (Hart *et al.*, 1990). Additionally, satisfaction with service recovery markedly enhances overall customer satisfaction and willingness to recommend the firm, and consequently increases loyalty. Conversely, inefficient service recovery will negatively impact customer satisfaction and trust. In this study, service recovery will be examined via customers' subjective perception, which is critical for customers' decision-making most of the time. Finally, the following hypothesis is stated:

H1₄. Service recovery positively influences relationship quality.

2.6 An alternative model

While model 1 is the most parsimonious model (e.g. Crosby *et al.*, 1990; Shamdasani and Balakrishnan, 2000), an alternative, model 2 (see Figure 2), is also proposed for comparison. Some studies that involve SEM models avoid decomposing relationship quality into two dimensions by simultaneously including all the items that define measurement scales of satisfaction and trust; they consider together two dimensions as purely a single construct of first order in SEM models. This practice, of course, simplifies the analysis by reducing the number of latent variables. Unfortunately, simplification is achieved at the expense of rigor, leaving the construct of relationship quality as an unknown black box to elucidate. Following model 1, model 2 tries to make the relationship quality transparent to provide insights to support service industry practices. Based on model 1, satisfaction and trust in Figure 2 are considered to be two separate constructs, to replace the single construct of relationship quality. Based on the preceding discussion, the hypotheses for model 2 (see Figure 2) are described as follows:

H2₁. Satisfaction positively influences loyalty.

H2₂. Trust positively influences loyalty.

H2₃. Relational selling behavior positively influences satisfaction.

H2₄. Network quality positively influences satisfaction.

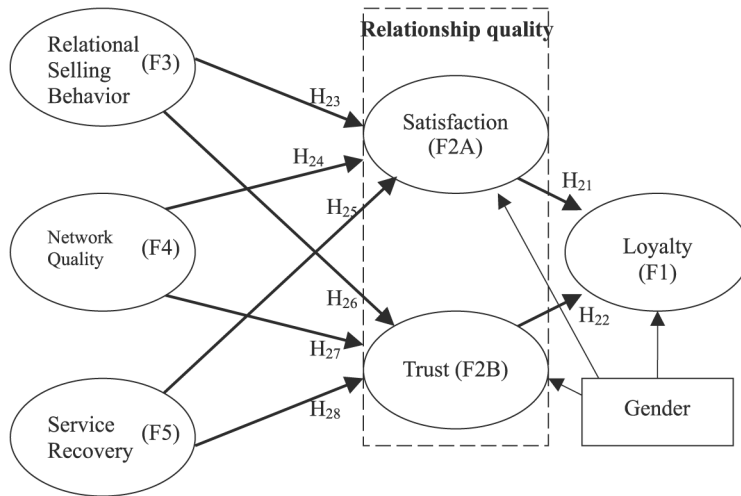


Figure 2.
Mediation model 2

H2₅. Service recovery positively influences satisfaction.

H2₆. Relational selling behavior positively influences trust.

H2₇. Network quality positively influences trust.

H2₈. Service recovery positively influences trust.

3. Research methods

3.1 Subjects

The general approach used for empirically testing the relationships implied by the research model and research hypotheses was a field study using a survey methodology for data collection. Data was obtained from a large cross-sectional sample of ADSL customers of the largest ISP in Taiwan, Chunghwa Telecom. Sampling was conducted in two stages:

- (1) Proportional stratified sampling by area.
- (2) Systematic sampling from Chunghwa Telecom customer phone numbers.

Systematic sampling is appropriate as the phone numbers in the database are neither serial nor acyclic. Eight hundred questionnaires were mailed, and follow-up was performed by telephone. Three hundred and thirty-nine fully completed questionnaires were returned to the researchers (response rate of 42 percent) as displayed in Table I. Table I also lists the characteristics of the sample.

3.2 Measures

The constructs in this study were measured using five-point Likert scales drawn and modified from the existing literature, and three common steps were employed to choose items for measurement. First, the items from the existing literature were translated into Chinese. Second, a university professor and a senior Chunghwa Telecom staff, who were proficient in English and familiar with IT, were asked to provide assistance in

Characteristic	Number (percent)
<i>Age</i>	
20 years or less	40 (12)
21-30 years	86 (25)
31-40 years	68 (20)
41-50 years	114 (34)
51 years or above	31 (9)
<i>Education</i>	
Non-college graduate	78 (23)
College degree	222 (65)
Graduate education or degree	39 (12)
<i>Marital status</i>	
Single	147 (43)
Married	192 (57)
<i>ADSL experience</i>	
Six months or less	61 (18)
7-12 months	73 (22)
13-24 months	112 (33)
25-36 months	69 (20)
37 months or over	24 (7)

Table I.
Characteristics of the
sample ($n = 339$)

examining the appropriateness of the Chinese version of the scale, translated from the original English measurement items. The inappropriate items were eliminated. Third, the re-examination for the measurements was repeated throughout the pre-test process. The above steps ensured that the questionnaire satisfied the content validity. Appendix 1 includes the construct measures. Loyalty was measured using seven items modified from Zeithaml *et al.* (1996). The two facets of relationship quality were as follows:

- (1) Satisfaction, with three items adapted from Tam and Wong (2001).
- (2) Trust, with seven items modified from Crosby *et al.* (1990).

Moreover, network quality with four items was modified from the ideas of Jun and Cai (2001). Finally, service recovery was measured using four items modified from Andreassen (2000) and Boshoff and Leong (1998).

3.3 Measurement model and reliability

Following data collection, structural equation modeling (SEM) was applied to conduct data analysis. SEM is a multivariate statistical technique used to confirm the causal relations among latent variables. This study follows a two-step procedure proposed by Anderson and Gerbing (1988). The first step involves developing an effective measurement model with confirmatory factor analysis, while the second step analyzing the structural model. Both SAS and AMOS are adopted as the tools for analyzing the data for reconfirmation.

The modification index (MI) was the index used to choose indicator variables (Jöreskog and Sorbom, 1986). Through repeated filtering, a total of 15 indicator

variables were removed. The indicators retained in both models have to be identical for the comparison. Every construct in the final measurement model is measured using at least two indicator variables as shown in Tables II and III. The overall goodness-of-fit indices, shown at the bottom of Tables II and III (chi-square/df smaller than 3.0, RMR smaller than 0.05, CFI, NNFI, NFI and GFI all greater than 0.9) indicate that the fits of the models were satisfactory.

Reliability can reflect the internal consistency of the indicators measuring a given factor. As shown in Tables II and III, reliabilities for all constructs exceed 0.7 for the models, satisfying the general requirement of reliability for research instruments.

3.4 Convergent validity and discriminant validity

Convergent validity is achieved if different indicators used to measure the same construct obtain strongly correlated scores. In SEM, convergent validity can be assessed by reviewing the *t*-tests for the factor loadings (Hatcher, 1994). Here, for all three models, all factor loadings for indicators measuring the same construct are statistically significant, showing that all indicators effectively measure their corresponding construct (Anderson and Gerbing, 1988) and supporting convergent validity.

Discriminant validity is achieved if the correlations between different constructs, measured with their respective indicators, are relatively weak. The chi-square difference test can be used to assess the discriminant validity of two constructs by

Construct	Indicators	Standardized loading	<i>t</i> -value	Variance extracted (estimate)	Reliability (Cronbach's α)
Loyalty (F1)	V2	0.81	17.48	0.74	0.89
	V3	0.88	20.23		
	V4	0.89	20.51		
Relationship quality (F2)	V8	0.84	18.94	0.63	0.90
	V10	0.85	19.26		
	V13	0.73	15.36		
	V15	0.79	17.21		
	V17	0.76	16.17		
Relational selling behavior (F3)	V22	0.69	12.83	0.59	0.72
	V24	0.83	15.55		
Network quality (F4)	V25	0.76	15.59	0.67	0.86
	V26	0.85	18.35		
	V27	0.85	18.49		
Service recovery (F5)	V29	0.85	18.95	0.67	0.89
	V30	0.81	17.68		
	V31	0.81	17.51		
	V32	0.80	17.41		

Notes: Goodness-of-fit indices: $\chi^2/df = 2.09$, NFI = 0.95, NNFI = 0.96, CFI = 0.97, GFI = 0.93, RMR = 0.03, RMSEA = 0.06

Table II.
Standardized loadings
and reliabilities for
model 1

Construct	Indicators	Standardized loading	<i>t</i> -value	Variance extracted (estimate)	Reliability (Cronbach's α)
Loyalty (F1)	V2	0.81	17.56	0.74	0.89
	V3	0.88	20.10		
	V4	0.89	20.62		
Satisfaction (F2A)	V8	0.87	19.67	0.77	0.87
	V10	0.88	20.08		
Trust (F2B)	V13	0.74	15.53	0.61	0.82
	V15	0.81	17.53		
	V17	0.78	16.57		
Relational selling behavior (F3)	V22	0.69	12.81	0.59	0.72
	V24	0.83	15.57		
Network quality (F4)	V25	0.76	15.58	0.67	0.86
	V26	0.85	18.33		
	V27	0.85	18.53		
Service recovery (F5)	V29	0.85	18.94	0.67	0.89
	V30	0.81	17.66		
	V31	0.81	17.55		
	V32	0.80	17.42		

Table III.
Standardized loadings
and reliabilities for
model 2

Notes: Goodness-of-fit indices: $\chi^2/df = 1.86$, NFI = 0.95, NNFI = 0.97, CFI = 0.98, GFI = 0.94, RMR = 0.02, RMSEA = 0.05

calculating the difference of the chi-square statistics for the constrained and unconstrained measurement models (Hatcher, 1994). The constrained model is identical to the unconstrained model, in which all constructs are allowed to co-vary, except that the correlation between the two constructs of interest is fixed at 1. Discriminant validity is demonstrated if the chi-square difference (with 1 df) is significant, meaning that the model in which the two constructs were viewed as distinct (but correlated) factors is superior. Since we need to test the discriminant validity for every pair of five constructs, we should control the experimental error rate (the overall significance level). By using the Bonferroni method under the overall 0.10, 0.05 and 0.01 levels, the critical values of the chi-square test are, respectively, $\chi^2(1, 0.10/15) = 7.36$, $\chi^2(1, 0.05/15) = 8.62$ and $\chi^2(1, 0.01/15) = 11.58$. Since the chi-square difference statistics in Table IV for every two constructs all exceed 11.58 in models 1 and 2 (at the 0.01 level), discriminant validity is successfully achieved.

3.5 A control variable

A good case for why women and men respond differently to IT service can be established via the literature on circumstances analogous to those involved in IT perception and use (Gefen and Straub, 1997). For example, previous work (Hofstede, 1980) offers insight into the basis of sex differences in thinking and behavior, suggesting in turn why underlying IT gender differences may exist. Also, extensive

Construct pair	Model 1 (unconstrained) $\chi^2(109) = 228.35$		Construct pair	Model 2 (unconstrained) $\chi^2(104) = 193.47$	
	Constrained $\chi^2(110)$	χ^2 difference		Constrained $\chi^2(105)$	χ^2 difference
(F1, F2)	310.85	82.50***	(F1, F2A)	281.42	87.95***
(F1, F3)	306.15	77.80***	(F1, F2B)	223.72	30.25***
(F1, F4)	525.53	297.18***	(F1, F3)	271.29	77.82***
(F1, F5)	526.28	297.93***	(F1, F4)	490.98	297.51***
(F2, F3)	274.50	46.15***	(F1, F5)	491.47	298.00***
(F2, F4)	436.30	207.95***	(F2A, F2B)	213.48	20.01***
(F2, F5)	317.40	89.05***	(F2A, F3)	241.28	47.81***
(F3, F4)	320.08	91.73***	(F2A, F4)	340.83	147.36***
(F3, F5)	272.62	44.27***	(F2A, F5)	249.24	55.77***
(F4, F5)	429.45	201.10***	(F2B, F3)	241.84	48.37***
			(F2B, F4)	365.12	171.65***
			(F2B, F5)	262.76	69.29***
			(F3, F4)	285.23	91.76***
			(F3, F5)	237.78	44.31***
			(F4, F5)	394.76	201.29***

Note: ***Significant at the 0.01 overall significance level using the Bonferroni method

Table IV.
Chi-square difference tests for examining discriminant validity

research (e.g. Granzin, 1976; Holbrook, 1986; Palmer and Bejou, 1995) has investigated gender differences in buying processes. For example, McGuinness and Pribram's (1979) study of evaluatory processes concluded that females are more sensitive than males to all stimuli (except smell) and indicated that these basic differences may contribute to the critical role in the formation of loyalty. Consequently, to avoid making improper inferences, gender is included as a control variable using the application of a dummy variable in this study to reduce experimental errors.

4. Results

Table V lists the empirical test results. The test results for model 1 indicate that the influences of relational selling behavior, network quality and service recovery on relationship quality and of relationship quality on loyalty are all significant (and $H1_1$, $H1_2$, $H1_3$ and $H1_4$ are supported). The test results for model 2 also indicate that the

Hypothesis	Model 1		Hypothesis	Model 2	
	Standardized coefficient	<i>t</i> value		Standardized coefficient	<i>t</i> value
$H1_1$	0.87***	17.57	$H2_1$	0.19**	2.49
$H1_2$	0.20***	2.72	$H2_2$	0.71***	8.21
$H1_3$	0.16***	2.98	$H2_3$	0.20**	2.48
$H1_4$	0.59***	6.79	$H2_4$	0.15***	2.65
			$H2_5$	0.64***	6.94
			$H2_6$	0.24***	2.72
			$H2_7$	0.10	1.60
			$H2_8$	0.59***	5.70

Notes: **Significant at the 0.05 significance level; ***significant at the 0.01 significance level; the effects of gender (the control variable) are insignificant

Table V.
Path coefficients and *t* value for model 1 and model 2

influences of satisfaction and trust on loyalty are both significant (so $H2_1$ and $H2_2$ are supported). Also, the influences of relational selling behavior, network quality, and service recovery on satisfaction, and of relational selling behavior and service recovery on trust, are all significant (so $H2_3$, $H2_4$, $H2_5$, $H2_6$ and $H2_8$ are supported), while the influence of network quality on trust is insignificant (thus $H2_7$ is not supported).

$H2_7$ may have been rejected because of the virtual nature of internet services. In ISP service industries, customers' trust cannot be raised simply by improving network quality, which is intangible and requires professional expertise to judge. For example, people who use e-mail every day are typically satisfied with the function of the network, but they are sometimes not confident that e-mail has been received by the target. If their e-mail has not been replied to for a long time, they may begin to wonder if it has been sent to the right person. Specifically, e-mail is occasionally lost, however good quality the network might be. Satisfaction with network quality does not necessarily generate trust in the network service. In other words, the specific nature of a network tends to cause network quality to influence satisfaction rather than trust.

Table VI presents another analysis of indirect effects based on the test results of model 2 in Table V. The decomposition in Table VI indicates that the mediated effect of relational selling behavior on loyalty through trust (82 percent) is substantially stronger than that through satisfaction (18 percent). Meanwhile, the mediated effect of network quality on loyalty is purely through satisfaction (100 percent) rather than trust (0 percent), implying that satisfaction is the key consideration with respect to network quality, from the perspective of the customer base as a whole. Finally, the mediated effect of service recovery on loyalty through trust (77 percent) is substantially stronger than that through satisfaction (23 percent).

5. Discussion and managerial implications

Fournier *et al.* (1998) argued that relationship marketing is theoretically powerful but troublesome in practice, since marketers who seek to implement relationship marketing and build partnerships with customers typically cannot see through the black box of relationship quality that contains satisfaction and trust. This study extensively presents a thorough understanding of how exogenous factors indirectly influence loyalty through satisfaction and trust.

Model 1 of this study reveals that relationship quality significantly and positively influences loyalty, while relational selling behavior, network quality and service recovery simultaneously influence relationship quality. The findings imply that investment in the relational selling context, network quality, and service recovery benefit ISPs by increasing relationship quality and customer loyalty. In addition,

Path	Indirect effects through		Total effects
	Satisfaction	Trust	
F3 → F1	0.038 (18)	0.170 (82)	0.208
F4 → F1	0.029 (100)	82. (0)	0.029
F5 → F1	0.122 (23)	0.419 (77)	0.541

Table VI.
Analysis of indirect effects in model 2

Notes: F1 = loyalty, F3 = relational selling behavior, F4 = network quality, F5 = service recovery; figures in parentheses are percentages

model 1 offers a basis for comparison with model 2 to demonstrate the importance of model decomposition in generating more insights.

In model 2, the significance of the influences of both satisfaction and trust on loyalty indicates that customers are likely to switch brands immediately in response to declining satisfaction and trust. This finding provides additional support for the contention of Bhattacharjee (2001) that user satisfaction with an IS determines the intention to make repeated purchases. Accordingly, agents must strongly emphasize market surveys of the satisfaction and trust of customers, as subjective perceptions of sales agents do not suffice to clarify the views of customers in this area.

Besides, satisfaction and trust are significantly and simultaneously affected by relational selling behavior and service recovery ($H2_3$, $H2_5$, $H2_6$ and $H2_8$). In this respect, firms that seek to gain high levels of satisfaction and trust from customers may have to emphasize interpersonal relationships, and to provide efficient recovery in case of service failures. This finding lends further support to the study of Crosby *et al.* (1990) that parties in a relational context cannot be expected to trust, and be satisfied with, each other at critical moments if the interpersonal relationships have not been well established. Consequently, when hiring frontline personnel, management should focus on candidates' social skills that facilitate social interactions with target customers. Regular visits would provide opportunities for frontline staff and customers to exchange views on any information concerning updated services and packages, promoting high levels of satisfaction and trust. If customers are dissatisfied and distrust the service, the firm should assign highly competent and senior staff to solve the problem. By facing customers in person, competent and senior staff are not only likely to be able to fix the problem promptly, but will also have more authority to offer some type of compensation for any inconvenience or other loss experienced by customers. Consequently, relational selling behavior can be effectively established.

In addition to relational selling behavior, service recovery is also important in increasing loyalty. Since service recovery aims to solve problems with service before customers complain or before they complete their consumption of the service dissatisfied (Michel, 2001), ISPs should organize enough support for service recovery. Successful service recovery requires user problems to be rapidly and comprehensively identified. Consequently, employing efficient databases combined with help desks and call centers to go through a complaint handling process assists service providers to achieve good service recovery. Since different customers interpret the same words differently, staff communication techniques are also important. Frontline staff should keep in mind the importance of displaying empathy and concern for users during service failure, and must avoid pocurante attitudes and a lack of understanding (Durvasula *et al.*, 2000). Finally, more up-to-date and professional training for frontline staff is always required as customers normally do not possess the specific knowledge required to provide objective details on the service failure they have experienced. Frontline staff must attempt to recreate the reported failure themselves.

Finally, the influence of network quality on satisfaction is significant, while that of network quality on trust is insignificant. This finding implies that satisfaction rather than trust can be raised by upgrading infrastructure and implementing network management devices to maintain smooth network traffic flow. The findings of model 2 lead to important implications, which cannot be seen from model 1, in which relationship quality seems to be a black box. That is, although both satisfaction and

trust represent relationship quality and are highly correlated, they are not influenced by exactly the same circumstances and factors. Specifically, an ISP may conduct a market survey that reveals different levels of satisfaction and trust, such as, for example, significantly high satisfaction and significantly low trust, and such a difference may be caused by the critical factor of network quality. For example, suppose that an ISP is good and has a competitive network quality, but frequently ignores service recovery and relational selling behavior. In this regard, customers may respond with high satisfaction due to the superior network quality offered by the ISP, but simultaneously, the low trust might reveal the critical message of a future crisis, due to the poor quality of relational selling behavior or low service recovery. Such a finding may be one of the most important indicators by which ISPs can monitor customers' perceptions and design a strategy for continuous improvement – few traditional theories allow for divergent levels of satisfaction and trust. Managers might misunderstand such a message and ignore the upcoming crisis.

6. Stage 2: the moderating effects of prior IT experience

Based on the decomposed mediation model (model 2), the moderating effects of users' prior experience of IT usage on several paths are investigated in this stage. IT usage is viewed as strictly encompassing not only hardware and software usage, but also services that are associated with the technology and the people and procedures that support their consumption (Taylor and Todd, 1995). Prior experience of IT usage has been found to be an important determinant of behavior (Taylor and Todd, 1995). Prior experience of internet usage causes customers to determine norms, which serve as frames of reference for evaluating satisfaction (Susarla *et al.*, 2003) and trust. More specifically, customers with much prior IT experience have been posited to have higher normative standards of service context (e.g. Anderson and Sullivan, 1993) such as service recovery, so prior IT experience may moderate the effects of service recovery on satisfaction and trust during ISP service.

Additionally, prior experience has been suggested to help shape responses toward services (determining, for example, satisfaction and trust), partially because prior experience makes knowledge more accessible in memory (Regan and Fazio, 1977; Taylor and Todd, 1995), and also because prior experience may make low probability events more salient (Ajzen and Fishbein, 1980; Taylor and Todd, 1995), ensuring that they are accounted for in the formation of satisfaction and trust. Niederman *et al.* (1996) found that highly experienced IS users tended to be more positively impressed with the IS (e.g. network) while users with little experience commented more frequently about interpersonal issues given their potential anxiety about technology. For example, when inexperienced customers encounter difficulties they are not capable of solving, they may frequently contact frontline staff for detailed guidance, suggesting that the relational selling behavior is more influential to both satisfaction and trust of inexperienced customers. On the other hand, the relational selling behavior might be not that important for the experienced customers to stimulate their trust and satisfaction since they rarely consult frontline staff and consequently seldom care about relational selling behavior. Therefore, prior IT experience strongly affects the formation of relationship quality. In other words, this phenomenon implies that prior experience of IT usage may moderate the relationships between relationship quality and its antecedents. Given this, determining the differences between experienced and inexperienced users of ISP services is important. More importantly, such differences

may suggest alternative ways to manage effectively the development and maintenance of customer loyalty. Thus, the following hypotheses are given:

- H_a*. The influence of relational selling behavior on satisfaction is moderated by prior IT experience, and the influence is stronger for the inexperienced group than for the experienced group.
- H_b*. The influence of network quality on satisfaction is moderated by prior IT experience, and the influence is stronger for the experienced group than for the inexperienced group.
- H_c*. The influence of service recovery on satisfaction is moderated by prior IT experience, and the influence is stronger for the experienced group than for the inexperienced group.
- H_d*. The influence of relational selling behavior on trust is moderated by prior IT experience, and the influence is stronger for the inexperienced group than for the experienced group.
- H_e*. The influence of network quality on trust is moderated by prior IT experience, and the influence is stronger for the experienced group than for the inexperienced group.
- H_f*. The influence of service recovery on trust is moderated by prior IT experience, and the influence is stronger for the experienced group than for the inexperienced group.

7. Results

7.1 *Subjects and model testing*

The data obtained in response to 339 fully completed questionnaires in stage 1 were analyzed again. According to the sample median on the ADSL experience, the data were divided into two groups – one of experienced customers with more than one year of ADSL experience and the other of inexperienced customers with less than one year's experience of ADSL. Table VII lists the characteristics of the sample. The indicators retained in both inexperienced group and the experienced group are identical, to enable a comparison. The overall goodness-of-fit indices shown in the bottom of Table VIII (chi-square/df smaller than 3.0, RMR smaller than 0.05, CFI, NNFI, NFI and GFI all greater than 0.9, except one – GFI – which is slightly lower than 0.9) indicate that the fits were satisfactory. Furthermore, reliabilities in Table VIII for all constructs exceed 0.7 for the models, satisfying the general requirement of reliability for research instruments. Also, for both groups, all factor loadings for indicators measuring the same construct are statistically significant, showing that all indicators effectively measure their corresponding construct (Anderson and Gerbing, 1988), and supporting convergent validity.

By following the same test as previously, discriminant validity is also successfully achieved for both groups in this stage.

7.2 *Testing for moderating effects*

This study uses the analytical strategy of Singh (1995) to examine the existence of the moderating effect on the structural model. First, an “unconstrained” structural model is

Characteristic	Inexperienced customers ($n = 134$)		Experienced customers ($n = 205$)	
	n	Percent	n	Percent
<i>Gender</i>				
Male	85	63.43	124	60.49
Female	49	36.57	81	39.51
<i>Age</i>				
20 years or less	18	13.43	22	10.73
21-30 years	33	24.63	53	25.85
31-40 years	30	22.39	38	18.54
41-50 years	45	33.58	69	33.66
51 years or above	8	5.97	23	11.22
<i>Education</i>				
Non-college graduate	33	24.63	45	21.95
College degree	88	65.67	134	65.37
Graduate education or degree	13	9.70	26	12.68
<i>Marital status</i>				
Single	58	43.28	89	43.41
Married	76	56.72	116	56.59

Table VII.
Characteristics of the sample based on prior IT experience

estimated, in which path coefficients are allowed to vary across the cross-group datasets. Next, a “fully constrained” structural model is estimated by requiring that all path coefficients are constrained to be equal for cross-group datasets. The “fully constrained” structural model is thus based on the notion of cross-group variance in model relationships. Comparing the goodness-of-fit statistics for the “unconstrained” and “fully constrained” structural models using a χ^2 difference test yields evidence for examining our hypotheses. The χ^2 statistics for the unconstrained and constrained structural models are 421.12 ($df = 238$) and 439.53 ($df = 246$), respectively. The difference is 18.41, with eight degrees of freedom. The significant difference (at the 5 percent level) indicates that moderating effects do exist.

Finally, the χ^2 difference test is used again to test for the moderating effects of individual paths (see Tables IX and X). However, the χ^2 statistics for the unconstrained and the “partially constrained” models are compared here. “Partially constrained” means that only the target path coefficients are set to be equal for cross-group datasets.

The test results in Tables IX and X indicate that the influences of relational selling behavior on satisfaction and trust are stronger for inexperienced customers than for experienced customers (so H_a and H_d are supported), while the influences of network quality on satisfaction and trust are similar for both experienced customers and inexperienced customers (so H_b and H_e are not supported). The influences of service recovery on satisfaction and trust are stronger for experienced customers than inexperienced customers (so H_c and H_f are supported). H_b and H_e may have been rejected because network quality, reflected mostly from individual subjective impression, is not prior experience-specific, and so is equally important for both groups.

Construct	Indicators	Inexperienced customers		Experienced customers	
		Standardized loading	Reliability (Cronbach's α)	Standardized loading	Reliability (Cronbach's α)
F1	V2	0.82 ($t = 11.23$)	0.90	0.80 ($t = 13.52$)	0.89
	V3	0.88 ($t = 12.67$)		0.88 ($t = 15.68$)	
	V4	0.89 ($t = 12.95$)		0.89 ($t = 16.06$)	
F2A	V8	0.85 ($t = 11.84$)	0.86	0.89 ($t = 15.76$)	0.87
	V10	0.90 ($t = 12.95$)		0.87 ($t = 15.35$)	
F2B	V13	0.80 ($t = 10.86$)	0.85	0.71 ($t = 11.23$)	0.80
	V15	0.81 ($t = 11.07$)		0.81 ($t = 13.52$)	
	V17	0.80 ($t = 10.88$)		0.76 ($t = 12.51$)	
F3	V22	0.70 ($t = 8.46$)	0.73	0.65 ($t = 9.24$)	0.72
	V24	0.83 ($t = 10.38$)		0.85 ($t = 11.99$)	
F4	V25	0.84 ($t = 11.48$)	0.88	0.70 ($t = 10.82$)	0.84
	V26	0.85 ($t = 11.75$)		0.86 ($t = 14.39$)	
	V27	0.84 ($t = 11.55$)		0.87 ($t = 14.63$)	
F5	V29	0.82 ($t = 11.41$)	0.90	0.87 ($t = 15.31$)	0.88
	V30	0.84 ($t = 11.79$)		0.79 ($t = 13.09$)	
	V31	0.83 ($t = 11.55$)		0.79 ($t = 13.10$)	
	V32	0.82 ($t = 11.37$)		0.79 ($t = 13.06$)	
Goodness-of-fit indices	$\chi^2/df = 1.51$, NFI=0.92, NNFI = 0.96, CFI = 0.97, GFI = 0.88, RMR = 0.03, RMSEA = 0.06		$\chi^2/df = 1.81$, NFI=0.93, NNFI = 0.95, CFI = 0.96, GFI = 0.91, RMR = 0.04, RMSEA = 0.06		

Notes: F1 = loyalty, F2A = satisfaction, F2B = trust, F3 = relational selling behavior, F4 = network quality, F5 = service recovery

Table VIII.
Standardized loadings and reliabilities for two different groups based on model 2

Hypothesis	Unconstrained (df = 238)	χ^2 Constrained (df = 239)	Difference	Conclusion
H_a	421.12	428.24	7.12***	Supported
H_b	421.12	422.47	1.35	Not supported
H_c	421.12	428.44	7.32***	Supported
H_d	421.12	432.79	11.67***	Supported
H_e	421.12	423.80	2.68	Not supported
H_f	421.12	428.47	7.35***	Supported

Table IX.
Results to detect moderating effects based on model 2

8. Discussion and managerial implications

Whereas Crosby *et al.* (1990) combined satisfaction and trust into a single latent construct of relationship quality, this study shows not only that relationship quality can be separated into satisfaction and trust, but also that these interact differently for different types of customers, according to their prior IT experience. This study has important implications for research and practice. IT service organizations today invest

greatly in training programs and advertising campaigns, which together represent critical methods of successfully transferring information and service to users. However, managers should be careful not to try partnering initiatives with all customers without regard to their customers' prior IT experience. Rather, they may wish to emphasize more technical issues such as service recovery for experienced users, while offering inexperienced customers a more general application from the perspective of ease of use through the establishment of good quality of buyer-seller relationship.

First, the influences of relational selling behavior on satisfaction and trust are stronger for inexperienced customers than for experienced customers (H_a and H_i). This finding is reasonable, as the lower internet aptitude and higher levels of internet anxiety among inexperienced customers may necessitate increased use of consultative services, making the influence of relational selling behavior on relationship quality (satisfaction and trust) more salient for inexperienced customers. This difference has important implications for ISPs, who should attempt to increase their appeal to new and inexperienced customers in their efforts to stimulate relationship quality. For example, considerate training and instruction programs for internet beginners arranged every season offer a good chance for staff to establish a good relationship with new customers, and consequently build up the positive satisfaction and trust of customers. A focus on developing stable, rather than merely temporary, relationships with inexperienced customers is necessary to enable ISPs to capture a larger portion of inexperienced customers' business. Conceivably, ISPs that are complacent about general short-term selling practices rather than long-term relational selling contexts may in fact lose ground to other competitors. This suggestion supports the use of marketing tactics to enhance the perceptions of inexperienced customers regarding their relationships with firms, particularly by personifying the firm through developing closer customer-agent relationships (for example, Iacobucci and Ostrom, 1996). Since more time is required to guide less experienced customers, relational selling behaviors of frontline staff should be rewarded to incentivize these staff to serve inexperienced customers even when they stand to gain in no other way.

The fact that the influences of relational selling behavior on satisfaction and trust are weaker for experienced customers than for inexperienced customers may be related to the fact that as direct experience with the internet increases over time, more experienced customers can more accurately assess the advantages and costs associated with using an ISP service (Venkatesh and Morris, 2000), instead of counting

Hypothesis	Inexperienced customers		Experienced customers		I versus E
	Standardized coefficient	<i>t</i> value	Standardized coefficient	<i>t</i> value	
H_a	0.99***	2.82	0.11	1.23	I > E
H_b	0.35**	2.11	0.15**	2.23	I = E
H_c	-0.33	-0.78	0.73***	7.13	I < E
H_d	1.93*	1.87	0.05	0.51	I > E
H_e	0.37	1.15	0.15*	1.87	I = E
H_f	-1.24	-1.07	0.70***	5.78	I < E

Notes: *Significant at the 0.10 significance level; **significant at the 0.05 significance level; ***significant at the 0.01 significance level

Table X.
Comparison for path coefficients and *t* value based on model 2

on ISPs' staff, as inexperienced customers often do. Specifically, as customers' experience increases, their judgments reflect the application of specific criteria to the interaction with the target object, such as service recovery, and less from interpersonal influences. This finding also reveals that familiarity with a product reduces the overall trust in a sales agent, implying that the relationship between relational selling behavior and relationship quality is weaker for more experienced customers.

Second, the influences of service recovery on satisfaction and trust are stronger for experienced customers than for inexperienced customers (H_c and H_f), indicating that experienced customers view technical issues as more central to the ISP service. Furthermore, the "recovery paradox" states that satisfaction, trust and repurchase rates of recovered customers actually exceed those of customers who have not encountered any problems (McCullough and Bharadwaj, 1992): the recovery paradox is thus increasingly important for more experienced customers. In other words, an ISP can powerfully turn experienced customers from being disgruntled customers into satisfied ones who are likely to maintain their business relationship with the ISP through effective service recovery programs. This phenomenon also indicates that service recovery is fundamentally important to experienced customers, and loyalty may increase in customers satisfied with, and trusting of, the recovery service. Online guidance specifically for experienced customers, delivered via automated response e-mail, message boards, and DIY troubleshooting tools embedded in the ISP's homepage, is not only inexpensive but also can help reduce the need for direct and personal contact with service units, thereby accelerating service recovery for experienced customers. Finally, experienced customers, who typically have a long history of internet use, may rely on usage of the internet more heavily than inexperienced customers. The fact that the internet is available 24 hours a day means that ISPs should make experienced customers their first priority for service, even when service failures happen during non-office hours. Specifically, service recovery must be continuously available, and frontline staff should always be on duty to perform such recovery, considering experienced customers as the first priority in the issue of service recovery.

Third, the influences of network quality on satisfaction and trust are equally important for both experienced customers and inexperienced customers (H_b and H_e), implying that network quality is a common success factor, regardless of customers' prior experience. In other words, the reputation for network quality, positive or negative, will be broadcast by all customers, regardless of prior experience. Such a reputation, spread by word of mouth, can often overwhelm all other marketing efforts, such as free gifts, discounts and others. Clearly, ISPs should be aware that they are in a potentially vulnerable situation if they rely exclusively on either frontline staff's relational selling behaviors or service recovery, while being unwilling to invest in the fundamental infrastructure of a good quality network. Consequently, any lack of investment in advancing network will cause a disaster for ISPs. Furthermore, since network quality is like an intangible image, concerning which customers' judgments are normally subjective and ambiguous, ISPs should use appropriate advertising and commercial slogans to demonstrate their superior network quality and thus influence the image of network quality in the minds of its customers.

9. Limitations and future research directions

This study suffers from some limitations relating to data collection and result interpretation. The first limitation relates to the measurement of customer loyalty. True customer loyalty may be only partially reflected, given that it was measured based on self-reports. Database information relating to actual purchasing history can be used as an input for measuring customer loyalty. The second limitation is the possibility of common method bias in this study. This study used a single questionnaire to measure all constructs, which may inflate the strength of the relationships among these constructs. The third limitation is that this study has been conducted in one particular service industry (ISP service) in a single-country setting (Taiwan). As a result, the generalizability of the findings might be limited. Consequently, additional researches across different industries and countries will be required in order to generalize the findings. Future researchers can take note of these shortcomings in planning future research work.

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(The appendices follow overleaf.)

Construct	Indicators	Source
Loyalty (F1)	<ol style="list-style-type: none"> 1. I will continue using the service offered by [name of company] 2. I will purchase other services offered by [name of company] in the future 3. I will encourage friends and relatives to use the service offered by [name of company] 4. I say positive things about [name of company] to others 5. I recommend [name of company] to others 6. I would switch to other company if the service cost was lower 7. I consider [name of company] my first choice for ISP service 	Zeithaml <i>et al.</i> (1996)
Relationship quality (F2)	<ol style="list-style-type: none"> 8. I am pleased with the service provided by [name of company] 9. I am satisfied with the service provided by [name of company] 10. I have a favorable attitude towards the service that [name of company] offers 11. My agent is trustworthy 12. I find it necessary to be cautious in dealing with my agent^a 13. My agent can be relied upon to keep his/her promises 14. I suspect that my agent has sometimes withheld certain pieces of critical information that might have affected my purchasing decisions^a 15. [Name of company] puts interests of the customer before its own interests 16. The services offered by [name of company] are consistently good 17. [Name of company] is a reliable company 	Tam and Wong (2001); Crosby <i>et al.</i> (1990)
Relational selling behavior (F3)	<ol style="list-style-type: none"> 18. My agent offers appropriate information according to my situation 19. My agent takes the time to prepare formal proposals for me to evaluate 20. My agent does not ignore my request 21. I have confided in the agent with a lot of personal information 22. My agent openly discusses personal matters with me 	Crosby <i>et al.</i> (1990)

Table A1.
Measures of constructs

(continued)

Construct	Indicators	Source	Relationship quality and prior experience
	23. My agent has expressed a willingness to help me regarding IT service even if there's nothing in it for him/her 24. My agent has expressed a desire to develop a long-term relationship		
Network quality (F4)	25. ADSL is constantly available 26. ADSL connection quality is reliable 27. ADSL transmission quality is stable 28. ADSL bandwidth meets my expectations	Jun and Cai (2001)	79
Service recovery (F5)	29. My agent has tried to solve my problems promptly 30. The agent arranges appointments according to my schedule 31. The agent efficiently develops solutions 32. The agent keeps me informed while solving my problems	Andreassen (2000); Boshoff and Leong (1998)	

Note: ^aDenotes items requiring reverse scoring

Table AI.

