

Service Quality and Customer Perceived value in Software Companies of Iran

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DOI Link: <http://dx.doi.org/10.6007/IJARBSS/v3-i12/468>

Published Date: 18 December 2013

Abstract

Service quality and customer perceived value are significant for companies since they are highly correlated with loyalty, retention, and repurchase in a way that they all contribute to increasing profitability. This study aims at presenting a conceptual model for Service Quality (SQ) and Customer perceived value (CPV) in six large software companies in Iran.

To do so, after reviewing the related literature, the effective factors in the SQ and CPV were identified. Then, questionnaires were distributed among the customers of the company and 354 completed questionnaires were collected. Next, Factor Analysis and Structural Equation Modelling were used to find the relation between SQ and CPV; as a result, the proposed model was extracted. Our findings indicated that there is a significant and positive relationship between SQ and CPV in six large software companies in Iran.

Keywords: Service Quality (SQ), Customer perceived value (CPV), Structural Equation Modelling (SEM), Software Companies.

1. Introduction

It is very important for the service industry to improve service quality. The core value provided by the service industry to customers includes not only the uniqueness of products, but also the variety of factors involved in service processes (Lin, 2007). Superior service quality enables a firm to differentiate itself from its competitors, to gain a sustainable competitive advantage, and to enhance efficiency. The benefits of service quality include increased customer satisfaction, improved customer retention, positive word of mouth, reduced staff turnover, decreased operating costs, enlarged market share, increased profitability, and improved financial performance (Ladhari, 2009).

The evaluation of quality for services is more complex than that for products because they are heterogeneous, perishable and intangible. In addition, production and consumption are

inseparable (Frochot and Hughes, 2000). This subject becomes more complex when factors such as type of service setting, situation, time, need, etc. come on the scene since the service quality outcome and measurement are dependent on them. Moreover, even the customer's expectations towards a particular services are also changing with respect to factors like time, increase in the number of encounters with a particular service, competitive environment, etc. These demands for a continuous effort to learn, validate and modify the existing concepts of service quality (Seth et al, 2004).

Also, recognition of customer perceived value has been pointed out as one of the most important measures in gaining a competitive edge (Parasuraman, 1997) and a key factor in strategic management (Burns and Woodruff, 1992).

Although a plethora of research has been done on service quality in the context of customer services, business-to-business services have rarely been addressed (Woo and Ennew, 2005). Paulssen and Birk (2007), further state that vast majority of service quality and customer perceived value research has been done in the business-to-consumer context. As a result, this area of research seems to be in dire need of empirical research in the context of business-to-business.

Taking these lines of research into account, this study set out to investigate the interactions between indicators of Service Quality (SQ) and Customer perceived value (CPV) in six large software companies in Iran. To this end, after reviewing the literature and identifying the indicators, a questionnaire among customers was distributed and 354 questionnaires were completed. Eventually, Structural Equation Modeling (SEM) was utilized. Findings attempted to shed some light on the relationship between Service Quality (SQ) and Customer perceived value (CPV) in software industry.

2. Literature review

2.1. Service Quality (SQ)

Quality, as a driver of competitive strategy, is largely a performance assessment and it relies on evaluation of performance excellence criteria (Oliver, 1994). Many quality frameworks have been introduced for strategic purposes (Ma et al, 2005). For instance, Garvin developed an eight-dimension quality framework (Garvin, 1987).

Quality frameworks have been designed primarily for physical goods; when applied to service settings, difficulties arose because of the special characteristics of services:

Intangibility: service cannot be counted, measured, inventoried, tested, and verified in advance of sale;

Heterogeneity: it is difficult to assure consistency of behavior from service personnel;

Inseparability: one cannot separate consumption from production; (Ma et al, 2005).

Service quality is an important issue in service management (Clottey et al, 2008); besides, with the development of the service sector, the notion of service quality has become increasingly significant (Ma et al, 2005).

In the related literature, Plausible definitions for service quality have been suggested, Parasuraman et al (1988), define Customer perceived service quality as a global judgment or attitude related to the superiority of a service relative to competing offerings. According to Bitner and Hubbert (1994), it is the customer's overall impression of the relative inferiority/superiority of the organization and its services. Zeithaml and Bitner (1996) see service quality as the delivery of excellent or superior service relative to customer expectations. Gronroos (1984), depicts the concept as "the outcome of an evaluation process, where the consumer compares his expectations with the service he perceives he has received" (p. 37).

Among others, two main theoretical constructs seem outstanding. The European school of thought led by the work of Gronroos (1984), undoubtedly serves as the pivot on which studies on the conceptualisation of service quality turn. This school of thought put forward that customers perceive service quality from two viewpoints: the technical quality and the functional quality of the service. Technical quality has to do with the question if the service meets customers' expectations. The functional quality measures how customers perceive the production and delivery of the service. While this dichotomy is technically viable, both are required to influence customers' service quality evaluations and loyalty behaviours (Richard and Allaway, 1993). The European school has been criticized on the grounds that it excludes the service physical environment. The other conceptualisation of service quality- the American school of thought hinges upon the work of Parasuraman et al., (1985, 1988 and 1994) and Parasuraman et al. (1991). This view has been adopted by a number of scholars researching service quality.

Parasuraman et al., (1985 & 1988) conceptualised service quality as the overall assessment of the difference between perception and expectation of service delivery. In this model, which has been regarded as the most prominent, through a series of focus group sessions, 10 dimensions of service quality that are generic and relevant to services in general were uncovered. These dimensions are tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer and access. In later studies, the dimensions have been condensed into five ones by using factor analysis: tangibles, reliability, responsibility, assurance and empathy. (Parasuraman et al., 1988)

The following are the definitions of the final dimensions:

Tangibles: Physical facilities, equipment, and appearance of personnel.

Reliability: Ability to perform the promised service dependably and accurately.

Responsiveness: Willingness to help customers and provide prompt service.

Assurance: Knowledge and courtesy of employees and their ability to inspire trust and confidence.

Empathy: Caring, individualized attention the firm provides its customers. (Zeithaml et al., 1990).

To confirm the validity of SERVQUAL model in the evaluation of service quality, Zeithaml et al (2006), states that "service quality is a focused evaluation that reflects the customers perception of reliability, assurance, responsiveness, empathy, and tangibles" (p. 106-107).

2.2. Customer perceived value (CPV)

Customer Perceived value is a notion that has lately been receiving attention from industrial marketing researchers (Boksberger & Melsen,2011; Eggert and Ulaga,2006; Fiol and Alcaniz,2009;Sanchez et al,2006; Teas & Agarwal, 2000). As a rule of thumb, offering high value to customer is a key factor for creating and maintaining long-term customer-supplier relationships. (Fiol and Alcaniz,2009). Moreover, business organizations need to become suppliers of value while each must do it in a different way from the others; taking this into account, this skill will allow them to distinguish themselves, improve their results and increase their future survival prospects (Roig et al,2009)

Overall, customer perceived value is a comparison of weighted "get" attributes to "give" attributes (Heskett et al.,1994). Roig et al,(2009)define it as a construct formed by two parts, one of benefits received (economic, social and relational) and the other of sacrifices made (price, time, effort, risk and convenience) by the customer. It's worth noting that the general definition of value is a consumer's perception of the subjective worth of some activity or object considering all net benefits and costs of consumption (Babin et al., 1994).

Customer perceived value is also what customers want from the product or service. In many cases, quality of the product or service and the benefits it offers often become customer perceived value drivers (Bolton and Drew, 1991; Zeithaml, 1988). Many studies support this association. (e.g . Andreassen and Lindestad, 1998 ; Chang and Wang,2011; Edward & Sahadev,2011; Erdem and Swait,1998; Hellier et al.,2003; lai et al, 2009)

3. Hypotheses and Proposed model

This proposed model consists of the variables of Service Quality (SQ) and the impact on Customer perceived value (CPV). The conceptual model incorporating the research hypotheses is shown in the figure 1.

According to the Figure 1 the research hypothesis is:

H1: SQ is defined as a higher-order construct which represents (a) Tangible, (b) Reliability, (c) Responsiveness, (d) Assurance, (e) Empathy.

H2: Service Quality will positively influence Customer perceived value meaningfully.

4. Research Methodology

4.1. Research Method and sample size

The research method used for this article is descriptive-correlation. This study used second source (library and other recorded observations) data and case study. First, the literature of SQ, CPV and SEM was reviewed. After extracting criteria, 354 completed questionnaires from the customers of six large software companies in Iran were gathered. Finally, using structural equation modeling (SEM) by Lisrel 8.5 software, analysis of output was conducted. The rationale behind utilizing structural equation modeling is that it investigates the multivariate dependence relationships simultaneously (Molinari et al, 2008).

The formal survey was conducted based on the preliminary survey. This took approximately six months, from July to December 2011. Statistical population in this research included.

4.2. Information gathering tools

Two questionnaires were adapted; one from Kettinger and Lee (1997) and Kettinger et al, (2009) for measuring service quality, and one from Eggert and Ulaga (2002) for measuring customer perceived value. In this research factor analysis was used for considering the structure of research. Exploring factor analysis was utilized to investigate the construction of the questionnaire. Factor analysis depicted that all the mentioned dimensions are measured in all parts of the questionnaire.

4.3. Reliability and Validity

4.3.1. Reliability

The summary statistics of formal survey are shown in Table 1. For reliability evaluation Cronbach's alpha was utilized. The Cronbach's alpha reliability of all the latent variables are more than 0.6 ($\alpha > 0.6$), that indicates all scales demonstrate good reliability.

4.3.2. Validity

For evaluating validity of questionnaires, we used content validity and construct validity.

4.3.2.1. Content validity

Content validity assured us that all aspects and parameters that have an impact on main content were evaluated. For testing content validity after devising a framework for the questionnaire, we asked 18 experts to modify it if needed. These experts evaluated all implemented criteria in the questionnaire and modified it.

4.3.2.2. Construct validity

In this research we used factor analysis to investigate the structure of research. Exploring factor analysis and criteria factor were used to investigate the construction of the

questionnaire. Factor analysis depicted that all the mentioned criteria are measured in both parts of the questionnaire.

5. Data Analysis

Data analysis accomplished by inferential statistics techniques particularly exploratory and confirmatory factor analysis. In this stage, 17 variables related to SQ and 3 variables related to CPV are factored through factor analysis method. Results are shown in Tables 2 and 3.

The relationships among variables are identified using exploratory factor analysis and then the factoring is implemented. The result is fed into structural equation modeling (SEM) used in confirmatory factor analysis. The variables are properly factored during the exploratory factor analysis. Through confirmatory factor analysis in structural equation modeling (SEM) factoring is either accepted or rejected.

The software SPSS 18.0 is used for the first analysis and Lisrel 8.53 is used for the second. In the following sections the results of exploratory factor analysis and after that the results of SEM are presented. Our proposed model has been tested in two steps:

1. SQ: its latents and indicators;
2. The effect of SQ on CPV.

5.1. The results of exploring factor analysis

5.1.1. Exploring factor analysis result of SQ's questionnaire

Based on 354 questionnaires, 17 questions were considered by factor analysis. Since KMO was 0.829 also considering the fact that sig. in Bartlett test was lower than 0.05, the sample size seemed enough. The Total Variance Explained for the 5 factors in the questionnaire was found to be 75.38%, which explains the variance of the concept of SQ, in fact indicating a high level of reliability for the questionnaire. The result of Exploratory Factor Analysis for the SQ model has been shown in Table 3.

5.1.2. Exploring factor analysis output of CPV's questionnaire

Based on 354 questionnaires, 4 questions were considered by factor analysis; since KMO was 0.844 and sig. in Bartlett test was lower than 0.05, the sample size was enough. The Total Variance Explained for the four factors in the questionnaire was found to be 88.4%, which explains the variance of the concept of CPV, in fact indicating a high level of reliability for the questionnaire. The result of Exploratory Factor Analysis for the CPV model has been shown in Table 3.

5.2. The results of confirmatory factor analysis

5.2.1. Measurement Model of SQ

In the initial step confirmatory factor analysis was applied in Lisrel 8.5 and eventually path diagram of model was conducted as in Figure 2. We have tested relationship between SQ latent and its indicators. Fitness's indices in Table 4 show good fitness of our model, proving that selected indicators are good representatives for each dimension of SQ. Also SQ is defined as a higher-order construct which represents (a) Tangible, (b) Reliability, (c) Responsiveness, (d) Assurance, (e) Empathy.

.So our First hypothesis (H1) is supported.

Figure 2 shows the extent to which each variable describes SQ. The ranking of the variables is as follows:

1. Empathy, 2. Assurance, 3. Reliability, 4. Tangible, 5. Responsiveness.

Also, the followings are the results of figure 2:

1. The significant factor in Empathy is EMP2 with the correlation coefficient of 83%, which is "employees give customers personal attention". Also, EMP1 with the correlation coefficient of 82% is of great importance, which is "give customer's individual attention".

2. The significant factor in Assurance is AS1 with correlation coefficient of 86%, which is “the behavior of employees will instill confidence in customers”.
3. The significant factor in Reliability is REL3 with correlation coefficient of 84%, which is “provide services at the time they promise to do so”.
4. The significant factor in Tangible is TAN1 with correlation coefficient of 92%, which is “Up-to-date technology”.
5. The significant factor in Responsiveness is RES3 with correlation coefficient of 89%, which is “employees will always be willing to help customers”.

5.2.3. Structural model; the effect of SQ on CPV

For entering data gathered from questionnaires in SEM for investigating our main hypothesis, we define a new variable for every latent variable and use the mean of scored answers. So we define 6 variables (5 for SQ and 1 for CPV). In other words, we performed our structural model applying 5 dimensions of SQ and 1 component of CPV.

As shown in Figure 3, SQ can determine 58 percent of CPV variances playing a significant role. Fitness's indices in Table 6 show a good fitness of the structural model. So our main hypothesis (H1) is supported. Also 'Empathy', 'Assurance' and 'Reliability' are the most important dimensions of SQ.

6. Conclusion

This study intended to investigate the interactions between indicators of Service Quality (SQ) and Customer perceived value (CPV) in six large software companies in Iran. To this end, first we studied the related literature and extracted impressive criteria on SQ and CPV. Then we developed a questionnaire and distributed it among the customers. At the end, we analyzed output from questionnaires utilizing SEM. We tested our proposed model in two steps: SQ's latents as well as indicators and the effect of SQ on CPV.

Caution must be exercised when treating the findings of this study due to some limitations. First, we measured SQ as an independent variable which may differ in different industries and make it fairly difficult to generalize. Second, we studied SQ and CPV rather than the actual ones. Third, we measured all constructs in our conceptual model with one survey conducted at the same time. Fourth, there might be other variables and moderators (e.g., customer satisfaction) that might influence service quality and its implications on customer perceived value.

In spite of the aforementioned limitations, there seem to be important managerial implications obtained from the findings. According to the findings, SQ is defined as a higher-order construct which represents (a) Empathy, (b) Assurance, (c) Reliability, (d) Tangible, (e) Responsiveness in the context of Iran's software industry. Furthermore, we found that SQ will positively influence CPV meaningfully. Also 'Empathy', 'Assurance' and 'Reliability' are the most important dimensions of SQ.

The obtained results in this research are in line with other research findings. For example, our results confirmed the relationship between service quality and customer perceived value highlighted in the previous research (Andreassen and Lindestad, 1998 ; Chang and Wang,2011; Erdem and Swait,1998; Hellier et al.,2003; lai et al, 2009; Edward & Sahadev,2011). Findings are also consistent with the five constituent dimensions of service quality (Parasuraman et al., 1988; Zeithaml et al., 2006). In addition to that, the focus of this study was mainly on software industry. This area has rarely been addressed.

More empirical studies in different companies are suggested for future research. Also it would be insightful to include other factors such as brand since they may also exert an influence on customer perceived value.

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Table 1. The summary statistics of formal survey

Instrument	N	A
Service Quality	17	0.895
CPV	3	0.744

Table 2. Rotated Component Matrix for the SQ model

Questions	Component				
	Responsiveness	Empathy	Tangible	Reliability	Assurance
REL1				.767	
REL2				.735	
REL3				.823	
RES1	.868				
RES2	.828				
RES3	.883				
RES4	.858				
AS1					.771
AS2					.788
AS3					.774
EMP1		.774			
EMP2		.813			
EMP3		.790			
EMP4		.781			
TAN1			.820		
TAN2			.810		
TAN3			.829		

Table 3.Rotated Component Matrix for the CPV model

Questioners	Component
	CPV
CPV1	.904
CPV2	.935
CPV3	.945

Table 4.SQ model fitness indices

Fitness indices	Measure of Index
Chi-Square/df	2.4305
P-value	0.000
Root Mean Square Error of Approximation (RMSEA)	0.079
Goodness of Fit Index (GFI)	0.96
Adjusted Goodness of Fit Index (AGFI)	0.93

Table 6.The Structural model fitness indices

Fitness indices	Measure of Index
Chi-Square/df	1.94
P-value	0.000
Root Mean Square Error of Approximation (RMSEA)	0.066
Goodness of Fit Index (GFI)	0.95
Adjusted Goodness of Fit Index (AGFI)	0.91

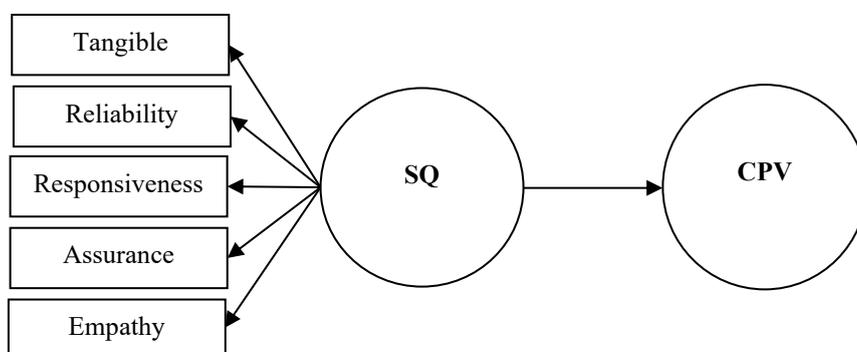
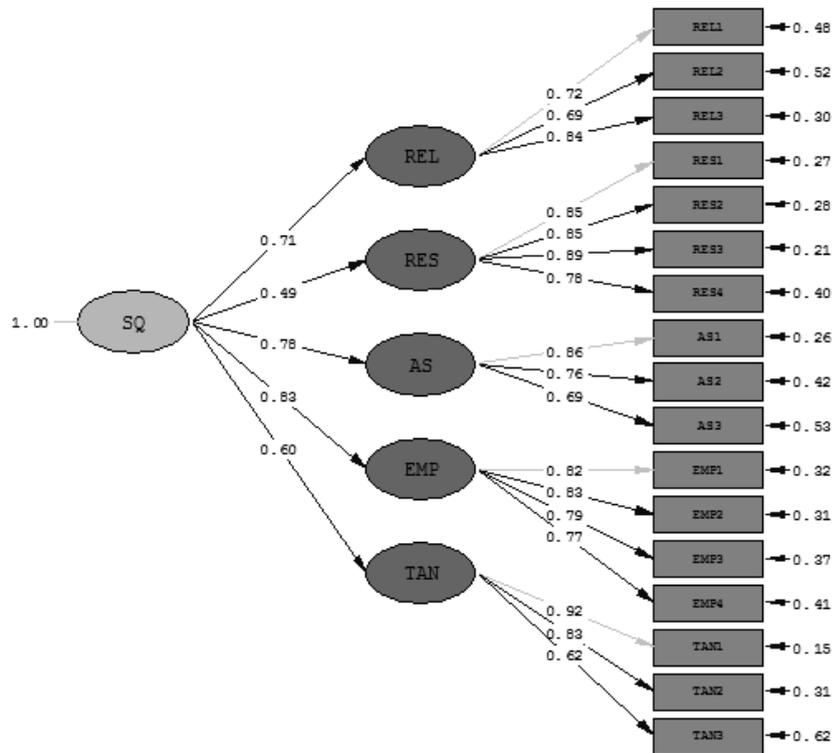
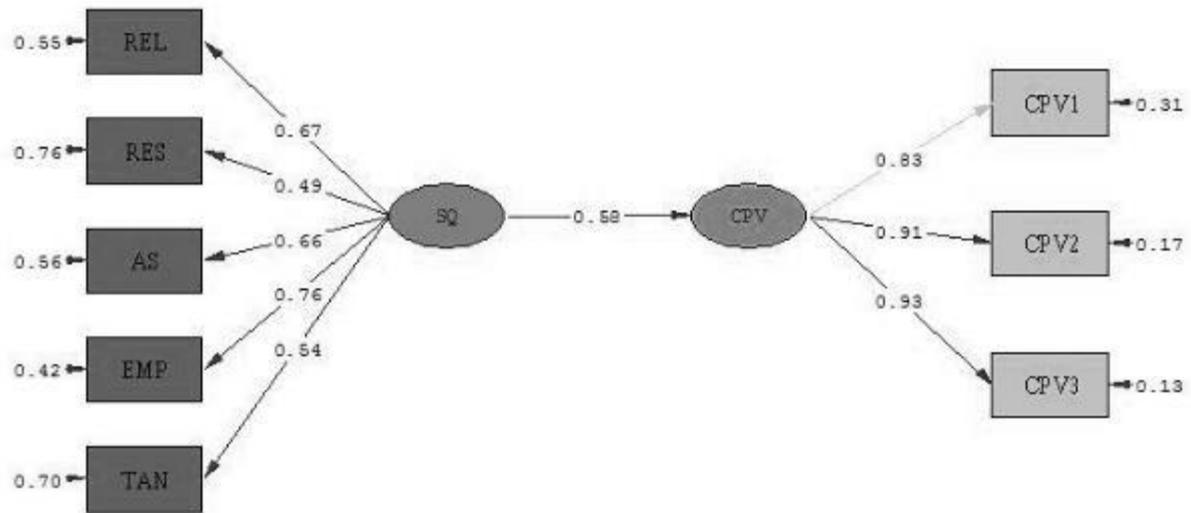


Figure1. Research proposed model



Chi-Square=277.08, df=114, P-value=0.00000, RMSEA=0.079

Figure 2. Standardized Solutions Model for SQ



Chi-Square=36.97, df=19, P-value=0.00800, RMSEA=0.066

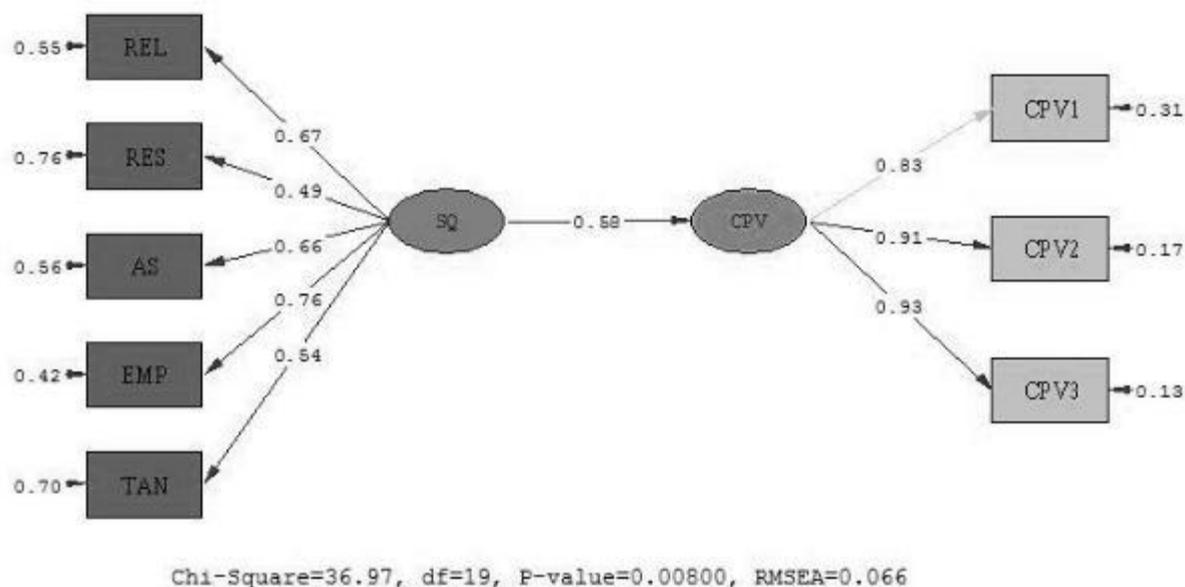


Figure 3.Structural model: the effect of SQ on CPV

Appendix A.

Respondents are asked to rate the extent or degree of current practice of the following items on a five-point Likert scale with 1='strongly disagree' to 5='strongly agree'.

Service Quality: (Kettinger and Lee, 1997; Kettinger et al, 2009)

Reliability

- REL1— when the company promises to do something by a certain time, they will do so.
- REL2—the company will perform the service right the first time.
- REL3—the company will provide their services at the time they promise to do so.

Responsiveness

- RES1—keeping customers informed about when services will be performed.
- RES2—employees will give prompt service to customers.
- RES3—employees will always be willing to help customers.
- RES4—employees will never be too busy to respond to customer's requests.

Assurance

- AS1—the behavior of employees will instill confidence in customers.
- AS2—employees will be consistently courteous with customers.
- AS3—employees will have the knowledge customer's questions.

Empathy

- EMP1—the company will give customer's individual attention.
- EMP2—the company will have employees who give customers personal attention.
- EMP3—the company will have the customer's best interest at heart.
- EMP4—the employee of the company will understand the specific needs of their customer's.

Tangible

- TAN1—up-to-date technology.
- TAN2—employees who appear professional.
- TAN3—useful support materials (such as documentation, guides, training video, etc.).

Customer perceived value :(Lam et al, 2004)

- CPV1— compare to the price we pay , we get reasonable quality
- CPV2— compare to the quality we get , we pay a reasonable price
- CPV3— the purchasing relationship delivers us superior net value