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Improving Supplier-Buyer Relationships: An Empirical Study in Manufacturing

Cid Gonçalves Filho
Fumec University
Address: Alameda das Amendoeiras 610 / Ouro Velho / Nova Lima MG / Brasil / 34.000-000
cid@consumer.com.br
Phone: 55 31 99815195

Gustavo Quiroga Souki
Fumec University
Address: Alameda das Amendoeiras 610 / Ouro Velho / Nova Lima MG / Brasil / 34.000-000
souki@consumer.com.br
Phone: 55 31 99815195

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Abstract

The relations between buyers and suppliers in the industrial context could probably affect the performance of supply chains, as they have could impact stock levels, prices, operations flexibility, opportunistic behavior, commitment and trust among the players. But researches that explore and measure these constructs in this scenario, are scarce and rare, because this type of data is difficult to collect. In this study, the relationship among buyers and suppliers is analyzed. Using a survey approach, suppliers evaluate their relationship with the buyer and expose their behavioral intentions. Using Structural Equation Modeling, it was verified the impacts of Relationship Quality, Commitment, Trust and Satisfaction with the buyer in the behavioral intentions of the suppliers, mouth to mouth communication and price sensitiveness. This work contributes to understating buyer-supplier relationship and proposes an important analytical model to improve this important link embedded in the field of the supply chain management research.

1. Introduction

Nowadays, society faces deep changes with impacts in the political, social and economic spheres. It is observed the competition of several tendencies, namely: more intransigent competition, more demanding consumers, quality allied to low costs, and widely available information on competitors and intense technological change. Before the above-mentioned challenges, the visionary companies try to gather tools capable of increasing their capacity to generate value to their customers-public, collaborators and

to society. In that context, it becomes clear the need of a managerial process aligned with the state of the art concepts in the theory of the organizations.

Organisations need to have a marketing strategy that comprises a set of methods to maintain a stable and lasting commercial relationship with its customers, i.e., the marketing relationship (MCKENNA, 1993). According to Morgan e Hunt (1994) relationship marketing is a significant refinement of marketing theory and practice (1994). Gordon (2000) endorses this idea when he says that, although it was developed on the foundations of traditional marketing theory, it is, in fact, a very different concept. The business to business market concentrates a huge amount of transactions, but studies that describe the consequences of the evaluation of perceived quality of buyers and the behavioral intentions of suppliers, in a Business to Business context, are scarce. The reasons for this fact are that is very difficult to collect data from organizations, and when it is possible, organizations keep this knowledge for their private use.

These findings led to a fundamental question:

· How perceived quality and satisfaction impact on behavioral intentions of suppliers, and how they interact in a structured nomological chain?

The present research seeks to endow the above-mentioned question with an empiric and scientific base of study, as well as to provide knowledge on this important field, where researchers and organizations study new perspectives of competitiveness and development.

2. Literature Review

The wider meaning of marketing refers to activities developed in order to generate and facilitate exchanges which can satisfy human necessities and desires (SEMENIK and BAMOSSY, 1995 ETZEL, WALKER and STANTON, 2001; GRÖNROOS, 2004). In the literature, this form of marketing has conventionally been called transaction marketing. However, nowadays, the transaction and mass approach to marketing is less effective and less profitable. According to Grönroos (2004), many markets are more mature, with a surplus of supply and customers are becoming increasingly difficult to find. As a result, therefore, it has become more important to retain customers.

Hennig-Thurau, Gwinner and Gremler (2002) suggest using the integrative model of key determinants of the results of Relational Marketing in the context of social and service exchanges. The model combines relational benefits and the quality of relationship approach and specifies how they can influence two key results of a relationship – word of mouth communication and loyalty.

Morgan e Hunt's (1994) key variables model (KMV) was incorporated in order to evaluate the strength of commitment as a mediating variable on the key determinants of relationship marketing. Lastly, transactional benefits, that is, the advantages obtained by the customer from the service provider, was included in order to identify their impact on satisfaction and commitment in the sphere of relationship marketing.

In this relational context, some important concepts emerged in the literature. There follows a conceptual definition of the components of the proposed hypothetical model in order to provide clearer understanding of the constructs involved in this research:

Satisfaction: Obtaining satisfaction means receiving a satisfactory response from the consumer in a purchasing or service relationship. It is the judgement made of a feature of a product or a service which has given or gives agreeable or pleasurable levels of consumption (OLIVER, 1980). In other words, the experience coming from the act of consumption generates satisfaction if what is received is better than was anticipated.

Commitment: is an exchange where a partner believes that continuing to maintain a relationship with the other is of such importance that he or she would do their utmost to maintain it, that is, the committed party believes that it is worth the effort to ensure that the relationship continues indefinitely (MORGAN and HUNT, 1994). The commitment may also mean that a company or a person, as part of a relationship, feels, to a certain extent, motivated to do business with the other partner (GRONROOS, 2004).

Perceived Quality: Since it is a topic that has been widely taken up by many scholars, the concept of quality has many different definitions. According to Gronroos (2004), quality may be conceptualised as "the level of excellence that a company chooses to attain in order to satisfy its target customers and, at the same time, the extent to which it manages to reach this level". On the other hand, Slack et al. (1997, p. 552) hold quality to be "consistent compliance with customer expectations". This concept adopts a user-centred definition of quality, that is, the user's perception. However, Zeithaml, Parassuraman and Berry (1996) define perceived quality as "the consumer's

judgement about the general excellence or superiority of the product or service". Perceived quality is divided conceptually into two elements: product quality, which consists of the quality of the physical product's attributes and the quality of the services, this latter aspect representing the interactive association between the customer and the elements of the service, such as, for example, the behaviour of the company's employees (ZEITHAML ,1988).

Word of Mouth Communication: According to Hennig-Thurau, Gwinner and Gremler (2002) this is all the informal communications between customers and other people relating to the evaluation of goods or services, including reports of pleasant experiences or new experiences, recommendations to others and the person's own particular recommendations.

Trust: Morgan and Hunt (1994) conceptualize trust as existing when one part has confidence in an exchange partner´s reliability and integrity. Moorman, Deshpandé and Zaltman (1993) define trust as "willingness to rely on an exchange partner in whom one has confidence. The literature suggests that confidence on one part of the trusting party results from the firm belief the trustworthy party is reliable and has high integrity , which are associated with such qualities as consistent, honest, responsible and benevolent.

Behavioural Intentions: According to Zeithaml, Berry and Parasuraman (1996) proposes that service quality has a direct impact on behavioural intentions of customers, that could be favourable or unfavourable. The research suggested that say positive things, recommend, remain loyal, spend more, pay premium prices, switch to another company, say negative things, to complain and o less business with the company are possible behavioural intentions that could be caused by the level of service quality provided by the organization.

Opportunistic Behaviour: According to Semeijn, Cao, and Ghijsen (2006), oopportunism is defined as self-interest seeking with guile and it includes overt behaviours such as lying, cheating and stealing, as well as subtle behaviour such as dishonouring an implicit contract, shirking, failing to fulfil promises and obligations (Jap 2001). Opportunistic behaviour can be explained using agency theory, which is concerned with the relationship between a superior (a principal, e.g. a buyer) and a subordinate (an agent, e.g. a supplier). Because there is an imbalance of power in the relationship, there is likely to be a divergence of interests between the principal and the agent and the possibility of opportunism exists. In the agency literature, it is assumed that the buyer (principal) has more power than the supplier (agent). This power is increased if the supplier (agent) has to purchase specific assets. Morgan and Hunt (1994) found that perceived opportunistic behaviour by a partner will lead to decreased trust.

3. Hypothetical Model

The research hypotheses were defined on the basis of the constructs outlined above and on previous research, along with the prevailing theory of relationship marketing (HENNIG-THURAU, GWINNER e GREMLER, 2002; ARNETT, GERMAN e HUNT, 2003; MORGAN AND HUNT, 1994, FORNELL et al. 1996, CHURCHILL e PETER, 2000). An illustration of this model can be seen in Figure 1 immediately below:
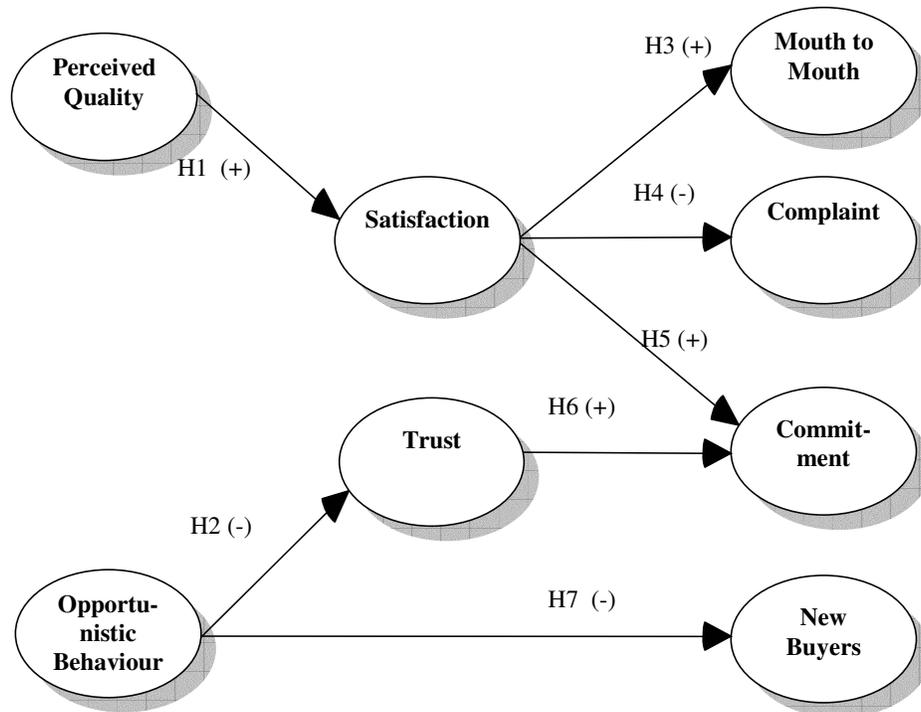
Figure 1: Research model
Source: the authors

This way, the following hypotheses were proposed:

H1: There is a positive impact of perceived quality on supplier's satisfaction

H2: There is a negative impact of opportunistic behavior on supplier's trust

H3: There is a positive impact of perceived quality on supplier's mouth to mouth

communication

H4: There is a negative impact of satisfaction on supplier's complaint intentions

H5: There is a positive impact of satisfaction on supplier's commitment

H6: There is a positive impact of trust on supplier's commitment

H7: There is a negative impact of opportunistic behavior on supplier's intentions to look

for new buyers

4. Exploratory Phase – Development of Measures

Initially a literature revision was accomplished, being looked for the classic authors of marketing, quality, relationship marketing and satisfaction, as well previous empiric researches. The measurements of the constructs were accomplished in a series of steps. Firstly, with base in the defined constructs, the items of measurement of the constructs were obtained of previous researches. The scales were altered for 11 points, seeking the treatment as variables as continuous. In a second stage, the list of the constructs and measurement items were submitted to a panel of specialists of Marketing. Soon after a pre-test with 50 respondents was led and analyzed.

The indicators of the constructs can be seen in the table 1:

TABLE 1
Operationalization of Constructs used in the Model

CONSTRUCTS	Source
Perceived Quality of Buyer	Fornell at al. (1996) , Zeithaml, Berry and Parasuraman (1996) and specialists panel. Is composed by 6 factors: ordering, product development, cost analysis, engineering, cost reduction, operations and parts
Satisfaction	Oliver (1997)
Opportunistic Behavior	Morgan and Hunt (1994
Trust	Morgan and Hunt (1994
Commitment	Morgan and Hunt (1994)
Behavioral Intentions	Fornell at al. (1996) , Zeithaml, Berry and Parasuraman (1996) and specialists panel

5. Operational phase

It was obtained an answer of 135 questionnaires of suppliers of an automotive industry located in South America. About 24% of the suppliers have more tan 1.000 employees, and 52% has more than 20 years of relationship with the buyer. As ARMSTRONG and

OVERTON (1977) propose, it can be considered that the profile of the respondents of the last 25% received questionnaires resembles the profile of the non respondents for researches through mail. This way, it is compared the 75% initial respondents with the final 25%, and it was considered as comparison element to the averages of the constructs (ARMSTRONG and OVERTON,1977, LI and CALANTONE, 1998). Such a test was accomplished to verify non-response bias, and difference significant statically was not observed at the level of 5% among the averages of the constructs. Then, it was verified that the non-response bias is not present in this research.

6. Exploratory Analysis of the Data

The exploratory analysis of the data followed methodologically a series of stages to explore the data and verify some requisites of multivariate analysis;   treatment of missing values; treatment of reverse items; analysis of outliers (uni and multivariate); analysis of normality; analysis of linearity.

7. Validity of the Measurements

Construct Unidimensionality

Firstly a factorial analysis of the items was executed by construct, in way to verify the unidimensionality, as suggested by GERMAIN, DROGE and DAUGHERTY (1994).

The behavioral intentions construct consisted of a list off all possible intentions presented by the literature and suggested by specialists in marketing, buyers and personal interviews with suppliers. An exploratory factor analysis was accomplished,

and it was verified that for the suppliers, behavioral intentions are explained by a three factor structure:

- ☐ Complain : reefers to personal and professional complaints done of suppliers, to organizations (other suppliers), friends, employees, family and to justice, using their contractual rights;

- ☐ Mouth to Mouth Communication: positive recommendations provided by suppliers to family, friends and other suppliers.

- ☐ New Buyers: when the suppliers intend to look for new customers, which could provide more attractive business conditions to dell their products, with better margins.

Due to characteristics of the construct, and its complexity (6 dimensions / 59 items), perceived quality construct was evaluated using a confirmatory factor analysis. The items presented adequate convergent validity, with significant weights at 5% level.
All others constructs assisted to the requirement of unidimensionality.

Analysis of Reliability – Cronbach´s Alpha
Excepting the construct New Buyers (alpha =0.45 all the others constructs reached a value of cronbach´s alpha above 0.75 :

Discriminant Validity
Discriminant validity was accomplished using the procedure recommended by BAGOZZI, YI and PHILLIPS (1991).

Convergent validity

To verify the convergent validity of the constructs, each construct it was submitted to a confirmatory factor analysis, observing the significance of each item load in the respective constructs. Such procedure is indicated by BAGOZZI, YI and PHILLIPS (1984), as well as by IM, GROVER and SHARMA (1998). The results can be observed at the explanatory phase of this work.

8. Explanatory Phase

Structural equations - Methodology and Technical Application

According to HAIR, ANDERSON, TATHAN and BLACK (1998), structural equations have been used in almost all the study fields including marketing, administration, behavior organizational and even genetics. The reasons for this fact are: (1) it provides a method to work simultaneously with multiple relationships, while it provides statistical efficiency; (2) has ability in to evaluate the relationships including way and to provide a transition of the exploratory analysis for the confirmatory analysis.

This study opted for direct estimate, using the covariance matrix, as advised by HAIR et al. (1998). The chosen estimate method for this research was ML, which according to HAIR et al. (1998) it is an appropriate estimate method when the data is moderately not normal, being taken into account the possible size of the sample. The normality premise is particularly important when for choice of the estimate method. The method Maximum Likelihood - M.L, has been more commonly the approach used in structural equation modeling. Also other distinguished authors, like Byrne (1995), argue in favor of the use of the maximum likelihood, due to its robustness with relationship to small

deviations of the multivariate normality. The structural relationships for validation of hypotheses and models were accomplished using AMOS 4.0 of SPSS. The model is presented in Figure 2

Figure 2 – Hypothetical Model
Source: research data
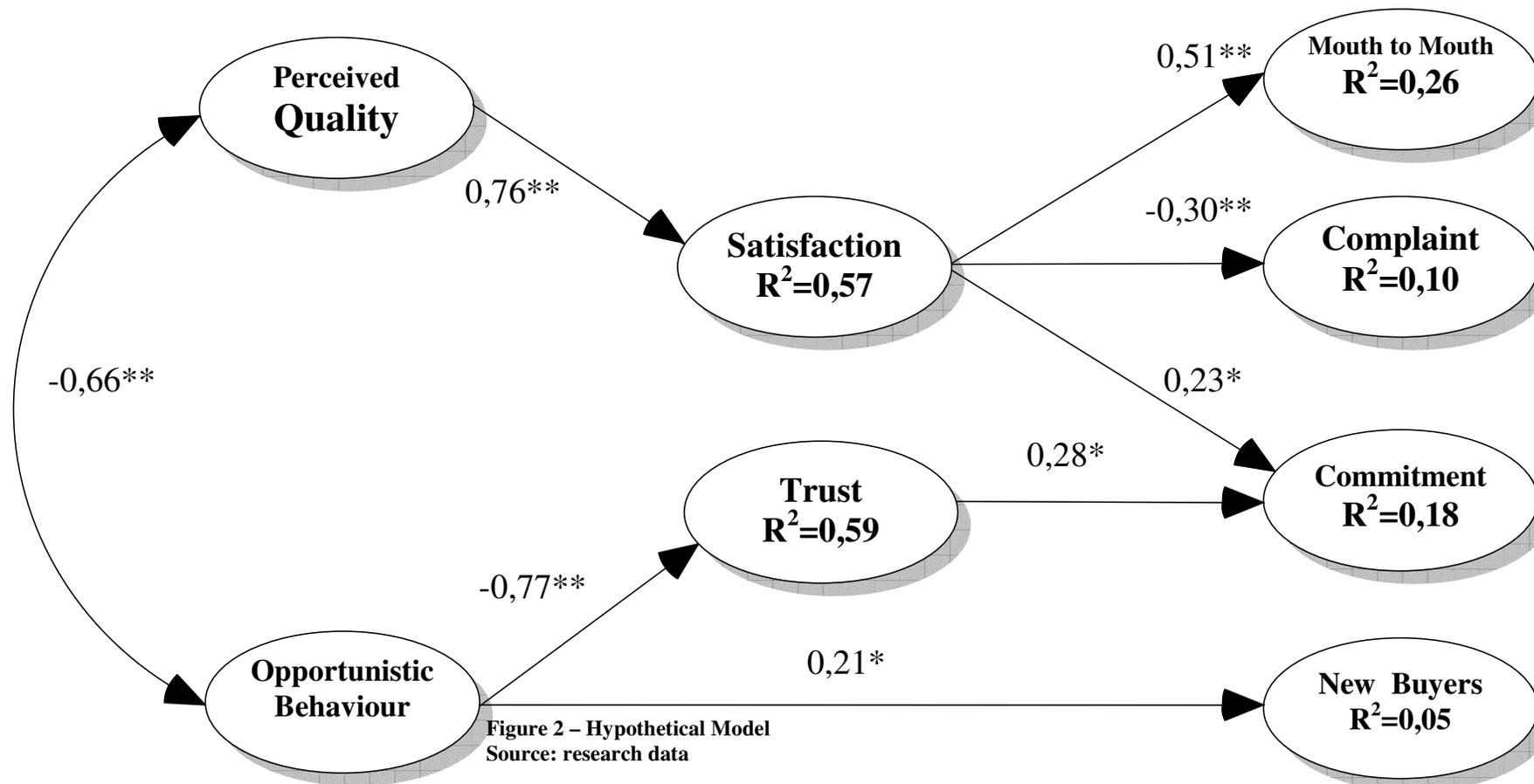
The adjust of the model χ^2/g.l=2,18 |GFI=0,87 |AGFI=0,77 |HOELTER=62) has relative stability. The absolute adjustment didn't exist because p-value is less than zero. The value of RMSEA is smaller than 0.08 indicating an acceptable adjustment of the model. The incremental fit measures are greater than 0.9 (NFI=0.909. TLI=0.933), what is advisable according to HAIR, ANDERSON, TATHAN and BLACK (1998). Others indexes of incremental adjustment (GFI, AGFI, NNFI, CFI) are adequate and near the critical value of 0.90. Other result that contributes for the acceptance of the model is the normalized chi-square (X^2/gl), whose value should be inferior to 3.0, as proposed by Latif (2000. p. 60). In this study the result was 2.18 It means that the model is acceptable.

Hypothesis Test

The accomplished model allowed the verification of the hypotheses:

Table 2 Evaluation of the hypothetical relationships. Source: research.

Hypotheses	Hypothetical relationship	Result
H1: There is a positive impact of perceived quality on supplier's satisfaction	Positive	Confirmed [1]
H2: There is a negative impact of opportunistic behavior on supplier's trust	Negative	Confirmed [1]
H3: There is a positive impact of perceived quality on supplier's mouth to mouth communication	Positive	Confirmed [1]
H4: There is a negative impact of satisfaction on	Negative	Confirmed [1]

supplier's complaint intentions		
H5: There is a positive impact of satisfaction on supplier's commitment	Positive	Confirmed [1]
H6: There is a positive impact of trust on supplier's commitment	Positive	Confirmed [1]
H7: There is a negative impact of opportunistic behavior on supplier's intentions to look for new buyers	Negative	Confirmed [1]

Souce: reerach data Note:

[1] Estimate is positive and significant

[2] Estimate is negative and significant

[3] Estimate is not significant

9. Discussion of the Results

An initial analysis of the model, through the optics of the antecedents of the satisfaction, suggests that perceived relationship quality (B=+0.76) has a strong impact on satisfaction.

Is was also verified that opportunistic behavior has a strong impact on trust (B=-0,77). Opportunistic behavior is a common practice in automotive industry, due do the concentration of power of the buyers in this competitive context, that involves huge amount of money and a relatively small number of players. Trust has a significant impact on commitment (B=+0,28). Commitment can be considered an important indicator of relationship quality and long term intentions to invest in the relationship.   The significant

impact of opportunistic behavior on New Buyer (suppliers searching for new buyers, that could offer more attractive conditions), indicates that opportunistic behavior must be a important managerial and strategic dimension that must be measured and adopted with restrictions, because it could probably causes impacts over suppliers behavior in the long term.

It was also observed that satisfaction has a significant impact on commitment (B=+0,23). To obtain commitment, buyers must create trust (that can be maximized through a reduction of opportunistic behavior) and satisfaction to suppliers. As satisfaction is a transitory feeling, the creation and maximization of commitment looks like a good strategy to develop strong relationships with suppliers.

The impact of the satisfaction on mouth to mouth communication with a Beta of +0.51, demonstrates the importance of the satisfaction for obtaining behavioral intentions that can contribute to the image of the organization among suppliers. This finding agrees with researches of VEIGA (2002), and demonstrates that the satisfaction is a great weapon for obtaining positive behavioral intentions. On the other hand, it was observed that satisfaction presents a negative impact on complaint (B=-0.30).   This finding also contributes to reinforce that perceived quality and satisfaction are important elements id Business to Business Relationship Environment.

10. Final Conclusions

Managerial Implications

According to the research findings, managers must measure and manage the supplier's satisfaction and perceived quality as fundamentals elements to obtain positive behavioral intentions: positive mouth to mouth, reduced complaints and new buyer seeking. On the other hand, opportunistic behavior has a seminal impact on trust and commitment (indirect effect), and also a covariance (-0,66) with perceived quality. These findings suggest that opportunistic behavior is an important construct in BtoB (buyer-supplier relationship context) and must be managed / measured with care and in a long term point of view.

Academic Implications

The data of this research is very rare and difficult to obtain, due to the actors involved (big organizations and significant transactions), that is not generally available to academicians. The main contributions of this paper are in the theoretical domain, as it provides some hypothetical relations that can evaluated in different contexts and industries. The model proposed also differs is some aspects from some classical proposals (as HENNIG-THURAU, GWINNER e GREMLER, 2002; ARNETT, GERMAN e HUNT, 2003; MORGAN AND HUNT, 1994). Alternative models were exhaustively tested, and the model presented is the one with an improved nomological validity. So, the authors suggest subsequent studies to explore the relations analyzed is this work

11. REFERENCES

ARMSTRONG, J. Scott, OVERTON, Terry S. **Estimating Nonresponse Bias in Mail Surveys**. Journal of Marketing Research. v. xiv, august 1977. pg. 396-402.

ARNETT, Dennis B.; GERMAN, Steve D.; HUNT, Shelby D. 2003. The Identity Salience Model of Relationship Marketing Sucess: The case of Nonprofit Marketing. *Journal of Marketing*, v. 67, n. 2, p. 89 -106, Apr. .

BAGOZZI, Richard P., YI, Youjae, LYNN W. Philips. **Assessing Construct Validity in Organizational Research**. Administrative Science Quaterly. vol. 36. Pages 421-458. 1991.

BEARDEN, W.O. NETEMEYER, R.G**. Handbook of Marketing Scales: Multi-Item Measures for Marketing and Consumer Behavior Research.** London: Sage, 1999.

BYRNE Barbara M. One application of structural equation modeling from two perspectives: exploring the EQS and Lisrel strategies. In: HOYLE, Rick H (Ed.). **Structural equation modeling: concepts, issues and applications.** London: Sage Publications Inc., 1995. cap. 8. p. 138-157.

BOLLEN, Kenneth A. **Structural Equations with Latent Variables**. New York: John Wiley e Sons, 1989.

CHURCHILL, Gilbert, A. PETER, Paul J. 2000. *Marketing:* criando valor para os clientes. São Paulo: Saraiva.

ETZEL, Michael J. WALKER, Bruce J., STANTON, Willian J. 2001. *Marketing*. São Paulo: Makron Books.

FORNELL, C., JOHSON, M.D., ANDERSON, E.W., CHA, J., BRYANT, B.E. Tje American Customer Satisfaction Index: Nature, Purpose and Findings. **Journal of Marketing**. New Yoork: AMA, Oct. 1996. vol.60. p7-18.

GERMAIN, Richard, CORNELIA Droge e DAUGHERTY, Patricia J. The Efffect of Just-in-time selling on organizational structure: an empirical investigation. **Journal of Marketing Research**. vol. xxxi, pages 471-483. november 1994.

GORDON, Ian. 2000.*Relationship Marketing*: estratégias, técnicas e tecnologias para conquistar clientes e mantê-los para sempre. São Paulo: Futura.

HAIR Joseph F. ANDERSON, Rolph E. TATHAN, Ronald L. BLACK, William C**. Multivariate Data Analysis.** New Jersey: Prentice Hall, 1998.

HENNIG-THURAU, Thorsten; GWINNER, Kevin P.; GREMLER, Dwayne D. 2002. Understanding Relationship Marketing Outcomes: an integration of relational benefits and relationship quality. *Journal of Service Research*, v. 4, n. 3, p. 230-247.

IM, Shin Kun, GROVER, Varun, SHARMA, Subhash. **The use of structural equation Modeling in research**. Columbia: University of South Carolina, 1998. (report)

GRONROOS, C. 2004. **Services Marketing and Marketing Management**. New York: Wiley.

LATIF, Sumaia A. **Modelagem de equações estruturais**. 2000. 179p. Dissertação. (Mestrado em Estatística) – Instituto de Matemática e Estatística, Universidade de São Paulo, São Paulo.

LI, T. CALANTONE, R.J. 1998. The Impact of Market Knowledge Competence on New Product Advantage: Conceptualization and Empirical Examination. **Journal of Marketing.** Vol. 62. pages 13-29. October.

McKENNA, Regis. 1993. *Marketing de Relacionamento*: estratégias bem sucedidas para a era do cliente. Rio de Janeiro: Campus.

MOORMAN, C., DESHPANDÉ R., ZALTMAN, G. 1993. Factors Affecting Trust in Market Research Relationships. **Journal of Marketing.** 51 January. 81-101.

MORGAN, Robert M. HUNT, Shelby D. 1994. The commitment-trust theory of relationship marketing. *Journal of Marketing*, v. 58, p. 20-38, Jul.

OLIVER, R. L. **Satisfaction: a behavioral perspective on the consumer**. New York: The McGraw-Hill Companies, Inc, 1997.

OLIVER, R.L. 1980. A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research*, v.19, p.460-469.

SEMEIJN J., CAO, L., GHIJSEN. P.T., 2006 **Trust and its antecedents in supply chains: Evidence from a German buyers – Chinese suppliers perspective** . Open University of Netherlands available at internet www.ou.nl/Docs/Faculteiten/MW

SEMENIK, Richard J. BAMOSSY, Gary J. 1995.   **Princípios de Marketing**: uma perspectiva global. São Paulo: Makron Books.

SLACK, N. 1997. **Operations Management.** New York: Prentice Hall.

VEIGA, Ricardo T. **Um exame empírico do modelo de conseqüências comportamentais da qualidade de serviços.** 2000. 420p. Tese (Doutorado em Administração de Empresas) – Faculdade de Ciências Econômicas, Universidade Federal de Minas Gerais, Belo Horizonte.

ZEITHAML, V.A., BERRY, L.L. PARASURAMAN, A.The Behavioral Consequences of Service Quality**. Journal of Marketing**, v. 60 Abril, 31-46. 1996.