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By

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AN EXAMINATION INTO THE NATURE OF SATISFACTION FORMATION IN A CONTINUALLY DELIVERED BUSINESS SERVICE CONTEXT

A DISSERTATION APPROVED FOR THE
MICHEAL F. PRICE COLLEGE OF BUSINESS

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“Trust in the LORD with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths.” Proverbs 3: 5-6

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ABSTRACT

This research examines the process of customer satisfaction formation in a business-to-business services context where delivery occurs on an ongoing or continual basis. The setting is referred to as a continually delivered services (CDBS) context. It is expected that more and more exchanges in marketing will resemble those currently occurring in CDBS contexts in upcoming years (Rust 2004).

The dissertation follows a three paper format. The first paper is a conceptual piece that offers a framework for global satisfaction formation in CDBS contexts. Customer satisfaction is one of the fundamental concepts in the marketing discipline, but existing theoretical frameworks have been constructed based primarily on research in discrete contexts involving consumers. Theoretical insights are drawn from expectancy disconfirmation and social exchange theory.

The next two papers are empirical pieces that test different portions of the conceptual framework. Data for both papers were collected from the customers of third-party logistics (3PL) service providers via an online survey instrument. The first empirical piece re-examines the relationship between global satisfaction and loyalty in light of the conceptual framework using structural equation modeling (SEM). The findings suggest that the positive relationship commonly observed between satisfaction and loyalty is more complex in CDBS contexts than has

previously been acknowledged. The second empirical piece tests for the importance of velocity performance – i.e. the rate at which performance is changing (Hsee and Abelson 1991) – to satisfaction formation using regression analyses. The findings confirm the importance of velocity performance and illustrate how environmental conditions moderate its influence.

A CONCEPTUAL MODEL OF SATISFACTION FORMATION IN A CONTINUALLY DELIVERED BUSINESS SERVICE CONTEXT

"Marketing is entering a new era, and mainstream marketing in the new era will closely resemble the business-to-business/service/relationship marketing of today (Rust 2004)"

INTRODUCTION

Two of the most dramatic changes in marketing thought over the past twenty-five years have been the shift from a discrete, transactional perspective of exchange to a relational perspective of exchange (Dwyer et al. 1987) and the rise of services marketing as a key field of study (Berry and Parasuraman 1993; Fisk et al. 1993). These new ways of thinking are now shaping the business landscape (Jaworski and Kohli 1993). Marketing relationships and service enhancements have had a significant impact on the competitive strategy of organizations (Berry 1995). Inter-firm alliances are now being considered as a source of competitive advantage (Dyer and Singh 1998). Meanwhile, service differentiation has become an increasingly important means of creating supply chain value (Hosangar et al. 2005).

Thus, it stands to reason that studies involving core marketing concepts taking place in relational, service contexts will take on heightened importance. The purpose of this paper is to conceptualize how customer satisfaction, one of these core marketing concepts, is formulated in settings where service is delivered on an *ongoing or continual basis*. The paper specifically focuses on the business services context which is characterized by ongoing business relationships (Coviello et al. 2002).

We develop a conceptual model of satisfaction formation in continually delivered business service (CDBS) contexts. Phenomenological evidence suggests that the process of satisfaction formation is context-dependent (Fournier and Mick 1999), yet conceptualizations of satisfaction deriving from the consumer literature are usually applied in B2B contexts. The lack of context specific conceptualizations of satisfaction is argued to have created a gap in the literature regarding understanding of modern business relationships. Three key distinguishing characteristics of the CDBS context that contribute to this gap are discussed next. Then a conceptual framework outlining satisfaction in CDBS contexts is offered. Finally, the paper concludes by discussing managerial and research implications.

BACKGROUND LITERATURE

CDBS contexts differ from traditional exchange contexts in three important ways: 1) the core product in the exchange is a service rather than a good, 2) the customer is an organization rather than an end-consumer, and 3) transactions occur on an ongoing basis rather than being more discrete in nature. To gain a better understanding of how satisfaction is being conceptualized in CDBS settings, a review of the empirical research in this context was conducted. Twenty studies from the past ten years involving satisfaction were identified (see Table 1). Studies were only included that assessed satisfaction with a service separately from satisfaction with any goods included in the exchange.

← Insert Table 1 about Here →

These empirical studies of satisfaction in CDBS contexts have generally conceptualized satisfaction based on research performed in settings that are goods-based, consumer-oriented, or discrete in nature. This section analyzes how the CDBS context alters commonly accepted ideas governing satisfaction formation (see Figure 1). Based on these differences, a conceptualization of satisfaction unique to the context of interest is offered.

← Insert Figure 1 about here →

Researchers have described the differences between goods and services from the perspective of managers (Berry 1980; Zeithaml et al. 1985) and from the perspective of customers (Murray 1991; Weinberger and Brown 1977). *Intangibility* has commonly been described as the key differentiator between goods and services (Shostack 1977). In services contexts, the primary exchange does not involve a transfer in ownership of a tangible commodity (Judd 1964; Lovelock and Gummesson 2004). Intangible services are commonly higher in credence properties, which a customer may find difficult to evaluate even after consuming a service (Darby and Karni 1973; Zeithaml 1981). In response, customers often make use of cues external to a service as information signals (Berry 1980; Nelson 1970). Thus, the satisfaction formation process in services contexts can entail a greater number of informational cues than in goods contexts. The information provided by these cues is especially vital in CDBS contexts, considering the relatively high value derived from exchange relationships. The cues are ideally managed by the service provider, but may also derive from customers' heuristics.

Another characteristic proposed to distinguish services contexts is the *inseparability* of production and consumption (Zeithaml et al. 1985). Customers often participate in the production of the service. Such would be especially true in CDBS contexts, where the customized nature of the services requires the service provider and customer to interact deeply with one another. This participation may lead a customer to attribute its dissatisfaction with the performance of a service to itself (e.g. "we provided poor information") rather than to the service provider. Research suggests that attributions moderate the influence of disconfirmation on satisfaction in consumer service contexts (Tsiros et al. 2004; Zeithaml 1981), but attributions should be even more crucial to understanding satisfaction formation in CDBS contexts.

Services may be categorized as either consumer services (delivered to individuals or groups of individuals), or business services (delivered to organizations) (Homburg and Garbe 1999). Business customers are widely regarded as being more rational than consumers in their evaluations (Rossomme 2003). Also, business customers more often seek to maximize the economic value received from exchange relationships, while satisfaction for end consumers is influenced significantly by affect (Mano and Oliver 1993; Oliver 1993). Due to greater rationality and concern with maximizing economic value, post-purchase evaluations for businesses tend to be more formal and detailed in nature than consumer post-purchase evaluations.

Business services may be categorized by the nature of service delivery – continuous service delivery or discrete transactions. When services are delivered on a continual basis, several instances of service delivery occur over a period of time (Lovelock 1983). While the satisfaction evaluation is formulated based on a specific service performance in discrete contexts, satisfaction is based on a series of service performances over time in CDBS contexts. Expectations vary from $t_1 \rightarrow t_2 \rightarrow t_n$ (Hoch and Deighthon 1989), and present experiences with a service provider influence expectations and performance perceptions in future time periods. Time alters the key variables influential in the satisfaction formation process.

CONCEPTUAL FRAMEWORK

One of the most popular conceptualizations of satisfaction is presented by Oliver (1997). Building upon this conceptualization, we offer the following definition of satisfaction in CDBS contexts:

> CDBS satisfaction is a customer's overall evaluation of the degree to which the producer of a service is providing an appropriate level of fulfillment for the needs of the customer.

The perspective of Fornell (1992) is taken by characterizing satisfaction as an *evaluation*, which more clearly includes rational processing of business customers in addition to affective responses. Also, the focus of the customer's satisfaction evaluation is specified as the *producer* of a product or service, rather than the product or service itself. This global perspective of satisfaction is often used to capture satisfaction in CDBS contexts (see Table 1), and is appropriate because CDBS

satisfaction is based on facets of an organization beyond just the actual service being provided (Bendall-Lyon and Powers 2004).

← Insert Figure 2 about Here →

A Model of Satisfaction Formation in CDBS Contexts

Given this definition of CDBS satisfaction, a conceptual model of satisfaction formation in CDBS contexts is offered (Figure 2). The model integrates two theories commonly used to explain satisfaction: the expectancy-disconfirmation paradigm (Ilgen 1971; Oliver 1980) and social exchange theory (Blau 1964; Chadwick-Jones 1976). The theories are complementary and more effectively explain the satisfaction formation process in a CDBS context than either can individually. The process underlying satisfaction formation differs across these two theories, and each provides unique insights into satisfaction formation in CDBS contexts when juxtaposed.

Originating in the psychology literature, the expectancy-disconfirmation (or disconfirmation) paradigm suggests that satisfaction is formed by considering the actual performance of a product or service and the expected performance of a product or service (Anderson 1973; Hovland et al. 1957). Conversely social exchange theory (SET), which originated in the sociology literature, suggests that satisfaction is influenced primarily by social and economic outcomes, and the comparison of these outcomes to *alternatives* (Homas 1958; Thibaut and Kelley 1959). A key advantage of the expectancy-disconfirmation framework is that it considers how satisfaction is formed based on *internal* processing. Research in this area has carefully scrutinized how individuals compare expectations to performance, and under what conditions

this comparison process results in increased or decreased levels of satisfaction. A key advantage of SET is that it considers the *interpersonal* variables influencing satisfaction. Research in this area has identified a number of antecedents that influence the satisfaction of an exchange partner, especially in relational business-to-business contexts. Employing these theories together enables us to better understand rational processing and identify the relational influences shaping CDBS satisfaction.

Lower-level Satisfaction Assessments and Global Satisfaction

The focus of customer satisfaction in many of the recent CDBS studies has been on the provider of the services (Lam et al. 2004; Pujari 2004; Vickery et al. 2004). Global satisfaction with a service provider is conceptualized as a function of satisfaction with multiple aspects of the exchange relationship (Bendall-Lyon and Powers 2004; Crosby and Stevens 1987). The satisfaction formation process depicted in Figure 2 takes into account that various lower-level satisfaction assessments influence the formation of a global satisfaction evaluation. By unifying the disconfirmation framework and SET, three distinct types of lower-level satisfaction assessments may now be identified: *performance satisfaction*, *social satisfaction*, and *economic satisfaction*.

Research employing the disconfirmation framework focuses primarily on performance satisfaction. The following definition is offered for performance satisfaction in the CDBS context:

> *Performance satisfaction* refers to the customers' satisfaction with services delivered by the provider.

While this assessment is based on perceptions of the actual service, it does not explicitly include satisfaction with the *outcomes* of the service performance. This narrow perspective is similar to how service performance is conceptualized in the literature on the SERVQUAL approach to measuring service quality (Parasuraman et al. 1988), as well as in much of the mainstream satisfaction literature (Patterson 2000; Patterson et al. 1997; Price et al. 1995; Voss et al. 1998).

A positive relationship between a performance satisfaction assessment and global satisfaction has not been widely considered in CDBS contexts, but there is limited evidence its existence. Daugherty et al. (1998) found, for example, that satisfaction with distribution service performance was positively related to global satisfaction with the vendor in a CDBS context. Research also suggests that perceptions of a service are transferred to the service provider in relational contexts (Crosby and Stevens 1987).

While studies using the disconfirmation paradigm tend to focus on aspects of the service being provided, SET focuses on the *outcomes* of an exchange relationship. These outcomes are both social and economic (Emerson 1962; Lambe et al. 2001). Research suggests that customers form satisfaction evaluations of these social and economic outcomes (Geyskens and Steenkamp 2000). The following definitions of social satisfaction and economic satisfaction are based on the work of Geyskens and Steenkamp (2000) in the channels literature and modified slightly for the CDBS context:

> *Social satisfaction* is a business customer's assessment of the psychosocial aspects of its relationship with its service provider, in that interactions are fulfilling, gratifying, and facile.
>
> *Economic satisfaction* is a business customer's assessment of the economic outcomes that flow from a relationship with its service provider.

Though social and economic aspects have both been considered to be key components of relationship satisfaction (Gassenheimer et al. 1995; Gassenheimer and Ramsey 1994), research has demonstrated that social and economic satisfaction are distinct constructs (Geyskens and Steenkamp 2000; Geyskens et al. 1999). Research has also demonstrated that perceptions of a service and outcome-based satisfaction offer unique influences on business outcomes (Stan et al. 2004). Given the theoretical support for the existence and distinctiveness of these constructs, it is suggested that each will have a unique effect on global satisfaction with a service provider.

Proposition 1: Customers' lower-level satisfaction assessments (i.e. performance satisfaction, economic satisfaction, and social satisfaction) positively influence CDBS satisfaction.

Understanding Performance Satisfaction Formation and Consequences

In this part of the paper, we consider the formation of performance satisfaction in CDBS contexts, and its influence on global satisfaction with a service provider (Figure 3). Our conceptual model illustrates that performance satisfaction formation is based to a large extent on disconfirmation processes, but in CDBS contexts additional variables are also important. The influence of the service being continually delivered over time is captured by the *velocity performance* and *future*

expectations constructs. The model also indicates that co-production of business services affects the performance satisfaction → global satisfaction relationship via *customer participation*. In the following sections, we describe the relationships put forth in this conceptual model.

← Insert Figure 3 about Here →

Assimilation and Contrast Effects

The disconfirmation paradigm had its roots in psychological research on assimilation and contrast effects (Hovland et al. 1957). The assimilation effect suggests that individuals are reluctant to shift from previously held positions when faced with a discrepancy. Hence, when new information is received, their judgment will be assimilated towards their initial feelings (Oliver 1997; Oliver and DeSarbo 1988). Based on assimilation, expectations themselves are presumed to have a direct effect on customer satisfaction. Higher customer expectations alone lead to higher customer satisfaction levels, while lower customer expectations lead to lower levels of customer satisfaction.

The contrast effect refers to an individual's tendency to exaggerate the discrepancy between an initially held attitude and new information (Dawes et al. 1972). Based upon contrast theory, the difference between expectations and performance is thought to be a significant determinant of customer satisfaction. This difference is referred to as *disconfirmation.* Disconfirmation is negative when performance falls below expectations and positive when performance exceeds expectations (Oliver 1980; Oliver 1997). Negative disconfirmation leads to lower

levels of customer satisfaction and positive disconfirmation leads to higher levels of customer satisfaction.

In the portion of our model representing the disconfirmation paradigm, expectations are specified as *prior expectations*, because they are formed before performance is experienced. Performance is referred to as *positional performance,* because it is the actual level of performance (i.e. position) being observed at a point in time (Hsee and Abelson 1991). Disconfirmation is referred to as *subjective disconfirmation*, because it is the disconfirmation perceived by customers, which may or may not be the true discrepancy between expectations and performance (Yi 1990). All of these descriptions are consistent with how disconfirmation models have traditionally been depicted (Oliver 1997).

While studies in the consumer literature have found both assimilation and contrast effects (Oliver and DeSarbo 1988; Szymanski and Henard 2001), the few studies employing the disconfirmation paradigm in the business-to-business literature have examined contrast effects only (Patterson 2000; Patterson et al. 1997). Oliver (1997) suggests that assimilation effects should dominate contrast effects when: 1) the customer is unable to measure performance, 2) the customer finds it impractical to measure performance, and/or 3) the customer is unwilling to measure performance. These conditions are unlikely in CDBS contexts, implying that contrast effects will be stronger. Though the intangibility of services typically makes them more difficult to evaluate than goods, business customers often develop performance metrics that allow them to measure the performance of service providers. Also, considering the

investment involved in sustaining exchange relationships, business customers will generally be motivated to measure the service performance. It is therefore proposed that the effect of prior expectations (i.e. assimilation) is weak in CDBS contexts compared to the effect of disconfirmation (i.e. contrast).

Proposition 2: In CDBS contexts, subjective disconfirmation will have a stronger direct influence on performance satisfaction than will prior expectations.

Positional Performance and Velocity Performance

In the satisfaction literature, research has overwhelmingly supported a direct effect of performance on satisfaction in consumer contexts (Churchill and Surprenant 1982; Szymanski and Henard 2001), as well as in business contexts (Patterson 2000; Patterson et al. 1997). Interestingly, the research on the performance→satisfaction relationship has been mixed in CDBS contexts. For instance, Stank et al. (1999) find evidence for a performance-satisfaction relationship in an early study but then find that the link is insignificant in a later study (Stank et al. 2003). Since performance occurs over time in CDBS contexts, an alternative approach to conceptualizing the performance→satisfaction relationship is needed.

Research in psychology extends thinking on how satisfaction is formed in CDBS contexts by expanding the traditional conceptualization of performance to two dimensions instead of just one: *positional performance* and *velocity performance* (Hsee and Abelson 1991; Hsee et al. 1991; Hsee et al. 1994). Positional performance represents the manner in which we ordinarily think about performance. A performance level is observed at a certain point in time such that the higher the observed level of performance, the higher the satisfaction with that performance.

Velocity performance describes how fast performance is changing when observed at multiple points in time. Changes in performance levels are jointly considered with elapsed time to determine satisfaction with performance. The faster performance is changing in a positive direction, the higher the satisfaction. Formally it can be proposed that:

$$\text{Satisfaction} = w_0F_0(P) + w_1F_1(V)$$

Where:
F = a monotonically increasing function
P = the positional performance
V = the velocity performance
w = The relative weighting of the type of performance in determining satisfaction

For CDBS contexts, this equation implies that both the current level of service performance (positional) *and* the rate at which the service performance is improving in a positive direction (velocity) will have distinct influences on satisfaction, though the importance of position and velocity will vary across contexts. Hsee and Abelson (1991) demonstrate in two experiments that velocity performance is positively related to individuals' satisfaction in non-purchasing situations. In CDBS contexts, velocity performance can entail the speed with which a service provider is able to reach required performance levels, make needed adjustments for changing customer preferences, and implement service enhancements.

Given the argument for two distinct performance dimensions - positional performance and velocity performance, and the conceptualization of performance satisfaction as a lower-level satisfaction assessment, it is proposed:

Proposition 3a: In CDBS contexts, positional performance has a positive influence on a customer's performance satisfaction.

Proposition 3b: In CDBS contexts, velocity performance has a positive influence on a customer's performance satisfaction.

Prior Expectations and Future Expectations

Expectations in the CDBS context are more complex than in discrete transactional settings. With discrete transactions, the only expectations of interest are those formed before a service is experienced. However in CDBS contexts, there are two types of expectations: *prior expectations* and *future expectations*. Prior expectations were formed in a previous time period about service performance currently being received, while future expectations are formed in the current time period about service performance yet to be received.

Oliver (1997) suggests that a relationship exists between performance and expectations, but that the relationship is "idiosyncratic to the product or service being investigated" (pg. 121). Previous studies evaluating the expectations-performance relationship have generally modeled expectations as influencing performance perceptions (Churchill and Surprenant 1982; Spreng and Chiou 2002; Spreng et al. 1996). These studies were conducted in transactional contexts where no future instances of service delivery were to occur. Therefore, only prior expectations would exist in these settings. Further, since these expectations are formed before performance, it would be impossible to observe a performance → expectations relationship. In CDBS contexts performance is perceived on multiple occasions though experience with a service, and expectations will be updated at multiple points in time (Hoch and Deighthon 1989). Therefore, the potential exists for performance

to influence expectations of performance to be received in an upcoming time period (i.e. future expectations).

Velocity performance and positional performance both provide a customer with information concerning future expectations. Consider that a business customer tracking the delivery of merchandise must know both: 1) the position the merchandise is currently in, and 2) how fast the merchandise is moving, to form an accurate expectation of the time of arrival. Likewise, the positional performance and velocity performance of a service both influence the predictions that customers form concerning the level of service that they will receive in future exchanges. Thus, it is proposed:

Proposition 4a: In CDBS contexts, positional performance has a positive influence on a customer's future expectations.

Proposition 4b: In CDBS contexts, velocity performance has a positive influence on a customer's future expectations.

Subsequently, future expectations should influence performance satisfaction. Whereas subjective disconfirmation and positional performance are based on current perceptions of a service (e.g. present), and velocity performance is based on customers prior experiences with a service (e.g. past), the influence of future expectations is based on the premise that satisfaction will partly depend upon how well the service will perform in upcoming time periods. In relational business contexts, recent research has begun to examine the influence of future expectations in the formation of satisfaction (Celuch 2006). Other research has confirmed that customers in relational exchanges form expectations about service attributes and not

just financial gains (Ghosh et al. 2004). Thus, it is proposed that customers in CDBS contexts will form expectations of future performance, and that these expectations will influence their performance satisfaction:

Proposition 5: In CDBS contexts, future expectations have a positive influence on a customer's performance satisfaction.

Co-Production

After having considered the process of performance satisfaction formation in CDBS contexts, the link between performance satisfaction and global satisfaction with a service provider is now examined. Services in CDBS contexts often have some degree of co-production, given that service offerings tend to be customized especially for the firm being served. Theoretical and empirical evidence in consumer contexts suggests that customer participation in the production of a service moderates the relationship between performance satisfaction and the customer's global satisfaction with a service provider. Ziethaml (1981) suggests that customers in service contexts will attribute some of their dissatisfaction with service performances to their own inabilities. Similarly, Bendapudi and Leone (2003) find that customers participating in the production of a service report lower levels of satisfaction with a firm when outcomes are better than expected, illustrating that customers also attribute their satisfaction with service performance to their own efforts. In either case, the effect of performance satisfaction on overall satisfaction would be diminished. This effect should also be observed in CDBS contexts as research has found attributions to be important in B2B exchange contexts (Hibbard et al. 2001). Thus, it is proposed:

Proposition 6: In CDBS contexts, customer participation in service production weakens the influence of performance satisfaction on global satisfaction.

Understanding Social and Economic Satisfaction and Consequences

In this section, economic satisfaction and social satisfaction and their influences on global satisfaction in CDBS contexts are discussed (see Figure 5). These types of satisfaction are distinct from performance satisfaction because they are formed based on a customer's evaluations of the social and economic benefits of an exchange relationship rather than an evaluation of the actual service being provided to them.

← Insert Figures 5 about Here →

Principles of social exchange theory have been utilized extensively to examine facets of relational exchange in B2B markets (Anderson and Narus 1990; Anderson and Narus 1984; Gassenheimer et al. 1998; Griffith et al. 2006). Blau (1964) defines the concept of *social exchange* as "…voluntary actions of individuals that are motivated by the returns they are expected to bring from others" (pg. 91). The returns can be social and/or economic (Emerson 1976), and occur at some cost to each party in the exchange (Homas 1958). Over time, these returns produce some level of dependency on the exchange relationship (Kelley and Thibaut 1978). The more satisfactory the returns, the more inclined the party is to remain in the exchange relationship (Lambe et al. 2001).

A recent meta-analysis identified satisfaction as one of the three primary outcome variables in studies of relational exchange along with performance and

commitment (Zolfagharian and Rajamma 2005). Satisfaction, when assessed in studies invoking a SET framework, generally focuses on satisfaction with an exchange relationship (Gassenheimer and Ramsey 1994; Ping 2003). These studies have generally used a single satisfaction measure to assess satisfaction with both economic and social aspects of the exchange relationship. Importantly, Geyskens and Steenkamp (1999) observe that economic satisfaction is likely to have differing antecedents and consequences than noneconomic satisfaction.

In the CDBS context, both economic and social considerations are important. Business customers seek economic returns from their relationships with other organizations and desire to have social returns from their relationships with long-term exchange partners (Bolton et al. 2003). This suggests that the SET framework can be applied to exchanges in the CDBS context. Thus, social and economic satisfaction are conceptualized as being distinct constructs with distinct antecedents in the form of social and economic outcomes

Proposition 7: In CDBS contexts, economic outcomes have a positive influence on a customer's economic satisfaction.

Proposition 8: In CDBS contexts, social outcomes have a positive influence on a customer's social satisfaction.

The economic outcomes that a CDBS customer may derive from its exchange with a service provider include benefits such as sales growth, enhanced strategic positioning, reduced operating costs, improved product offerings, etc. Social outcomes include camaraderie, respect, affirmation, communication, etc. Satisfaction with these outcomes is based on customer evaluative processes in

addition to absolute levels. Though performance satisfaction has been examined primarily as a result of disconfirmation processes, satisfaction in relational contexts has been the consequence of a variety of evaluation methods. Three methods by which customers evaluate outcomes in exchange relationships in the extant literature are: 1) outcomes given comparison level, 2) value, and 3) distributive justice.

Outcomes Given Comparison Level

In SET, one of the primary ways of evaluating outcomes is by considering the comparison level (CL). The CL reflects the "quality of outcomes that a participant feels he or she deserves" (Kelley and Thibaut 1978, pg. 9). What a customer feels he or she deserves is based upon the quality of outcomes the customer has come to expect and the customer's knowledge of similar service relationships (Anderson and Narus 1984). Evaluating outcomes based on a comparison level is similar to the disconfirmation process described earlier. However, while expectations of service delivery are often codified into agreements between the service provider and customer, social and economic outcomes not defined as clearly. The customers' standards are determined by its observations and prior experiences.

According to SET, both social and economic outcomes are evaluated in this manner. Two studies in the channels context demonstrated that outcomes given CL positively influenced an exchange partner's satisfaction with a relationship (Anderson and Narus 1990; Anderson and Narus 1984). In a later study, Ping (2003) added more support by finding a *negative* relationship between the attractiveness of other alternatives and satisfaction. Theoretically, alternative

attractiveness should reduce the favorability of outcomes given CL, so a negative relationship between alternative attractiveness and satisfaction is consistent with prior theory.

Extending this research, it is proposed that the outcomes given CL standard is applied in CDBS contexts by customers to their assessments of both economic and social satisfaction.

Proposition 9a: In CDBS contexts, customer perceptions of economic outcomes given CL have a positive influence on economic satisfaction.

Proposition 9b: In CDBS contexts, customer perceptions of social outcomes given CL have a positive influence on social satisfaction.

Value: Outcomes compared to Inputs

One of the most common means of evaluating outcomes in exchange is by assessing value. Value is conceptualized as the outcomes received by a customer in relation to the costs (Heskett et al. 1994). This referent is distinct from the referent used in "outcomes given CL", as value is based on perceptions derived from within the exchange relationship while the comparison level is based perceptions derived from outside the exchange relationship. While comparison levels have been applied in general exchange settings, value is especially relevant when considering customer-provider relationships. Value has been conceptualized at the outcome level (Woodruff 1997), and as both *economic value* or *social value* in relational contexts (Gassenheimer et al. 1998).

Several studies of satisfaction in CDBS contexts have found value to be a significant antecedent of satisfaction (Lam et al. 2004; Lapierre et al. 1999; Liu et al.

2005; Taylor and Hunter 2003). These studies have conceptualized customer costs primarily in terms of the price paid or time spent, but benefits are thought of in terms of the quality of services received. Value has thus been conceptualized at the service level rather than the outcome level. Also, these studies have not separated economic value and satisfaction from social value and satisfaction. Extending this research, it is proposed here:

Proposition 10a: In CDBS contexts, customer perceptions of economic value have a positive influence on economic satisfaction.

Proposition 10b: In CDBS contexts, customer perceptions of social value have a positive influence on social satisfaction.

Equity (Fairness): Comparing Outcome/Input Ratios

Equity has been conceptualized as a comparison of the outcome to input ratios for participants in an exchange (Adams 1965). It may be based on comparisons among those parties directly involved in an exchange or to other comparable reference groups (Cook and Messick 1983). Perceived inequalities that are unfavorable lower the respective party's satisfaction. In the CDBS context, equity may be considered narrowly in terms of the customer-service provider dyad. In this case, equity would be determined by considering two outcome (O) / input (I) ratios. O_c/I_c is compared against O_s/I_s for customer *c* and service provider *s*. The customer may make broader comparisons by considering the outcome to input ratios for other customers receiving service from the same provider or for other customers receiving similar services. In this case, several outcome / input ratios would be compared to O_c/I_c.

Equity evaluations have characteristics in common with both "outcomes given CL" and value. Similar to "outcomes given CL" the customer makes comparisons based on aspects from outside the exchange relationship with the service provider. Similar to value, the customer incorporates a consideration of its costs when making an equity judgment. Thus, equity evaluations are more comprehensive than "outcomes given CL" or value evaluations. However, equity evaluation are more complex and can yield problematic results in situations involving negative outcomes (Harris 1983).

Satisfaction researchers find equity to be one of the stronger drivers of satisfaction in both consumer (Oliver and DeSarbo 1988; Oliver and Swan 1989; Szymanski and Henard 2001) and business-to-business contexts (Brown et al. 2006; Patterson et al. 1997). Patterson et al. (1997) find equity to be a significant antecedent to satisfaction formation in a services context, while Brown et al. (2006) find that equity influences economic satisfaction in a channels context. Equity effects on satisfaction have not been examined in CDBS contexts. Given the relational nature of the context, it is proposed:

Proposition 11a: In CDBS contexts, customer perceptions of the equity of economic outcomes have a positive influence on economic satisfaction.

Proposition 11b: In CDBS contexts, customer perceptions of the equity of social outcomes have a positive influence on social satisfaction.

Embeddedness

Embeddedness has had a long history in organizational research (Dacin et al. 1999; Granovetter 1985). The general premise is that economic activities are

embedded into social structures. While the concept has taken many forms, *interorganizational embeddedness* is considered in the framework presented in this paper. Interorganizational embeddedness refers to the networks created by a firm's partnerships with other companies (Hagedoorn 2006). A high level of embeddedness implies that a firm has a vast number of partnerships and lines of communication to other organizations, while a low level of embeddedness implies that firm has few partnerships and lines of communication to other organizations. In CDBS contexts, firms that are highly embedded will have the frame of reference necessary to make comparisons of the outcomes they are receiving to the outcomes received by others in their network. Thus, evaluative processes that rely on external comparisons such as outcomes given CL will be used heavily. It is proposed:

Proposition 12a: In CDBS contexts, the higher customers' embeddedness, the more important outcomes given CL perceptions are to economic satisfaction formation.

Proposition 12b: In CDBS contexts, the higher customers' embeddedness the more important outcomes given CL perceptions are to social satisfaction formation.

Conversely, when customer firms do not have a high level of embeddedness, their ability to make external comparisons is severely limited. Evaluative processes that are based more heavily on the customer-provider relationship, such as value, take on heightened importance. It is proposed:

Proposition 13a: In CDBS contexts, the lower customers' embeddedness, the more important value perceptions are to economic satisfaction formation.

Proposition 13b: In CDBS contexts, the lower customers' embeddedness the more important value perceptions are to social satisfaction formation

As discussed previously, equity judgments may either be based on aspects of the customer-service provider relationships, or on external comparisons. Therefore, it is not yet clear how embeddedness impacts a customer's tendency to evaluate outcomes in this manner.

Relative Influence of Economic Satisfaction and Social Satisfaction

The definition of satisfaction in CDBS contexts suggests that while satisfaction has been traditionally considered primarily an affective evaluation, it will be influenced by rational influence to a greater degree than satisfaction in traditional contexts. This implies that economic satisfaction may have a greater influence on global satisfaction in CDBS contexts compared to social satisfaction. As discussed previously, customer value, which is proposed to influence economic satisfaction instead of social satisfaction has been the most popular antecedent of satisfaction in CDBS contexts. In a recent CDBS satisfaction study, Taylor and Hunter (2003) found that value was a significant predictor of satisfaction while affect was not. However, other evidence from the CDBS context demonstrates that relationships do matter to customer satisfaction (Stank et al. 2003; Vickery et al. 2004). While the influence of relationships is expected to be important in CDBS contexts, it is suggested that economic satisfaction will be comparatively more important to global satisfaction with a service provider than social satisfaction:

Proposition 14: In CDBS contexts, economic satisfaction has a stronger influence on global satisfaction with a service provider than social satisfaction.

DISCUSSION

The conceptual model presented here examines customer satisfaction in continually delivered business service (CDBS) contexts. Two theoretical perspectives are employed to generate a more comprehensive set of antecedents to satisfaction and to gain a better understanding of the satisfaction formation process. The model highlights concerns about how customer satisfaction is managed in CDBS contexts, and raises several questions to be considered in future research studies.

Managerial Implications

Service providers in CDBS contexts should consider that fully satisfying their customers depends on success on three fronts: 1) delivering a top-notch service to enhance performance satisfaction, 2) managing customer relationships to enhance social satisfaction, and 3) designing services to enhance economic satisfaction. Service quality research has provided insights for managers on how to better deliver service to their customers (Parasuraman et al. 1985). Likewise, research on business-to-business relationships has informed managers on their customer management practices (Dwyer et al. 1987). Research is emerging that provides managers direction into how they can redesign services with customer benefits in mind (Berry and Lampo 2000). These skills must be meshed together to effectively satisfy customers in CDBS contexts.

To maximize performance satisfaction, business practices derived from an understanding of transactional contexts must be expanded to incorporate the influence of time. Velocity performance should become an important consideration

in addition to positional performance. Research in the psychology literature indicates that motives moderate the relative weighting individuals assign to the two types of performance in satisfaction evaluations (Hsee et al. 1991). Those customers weighting velocity performance heavily will not be satisfied by simply receiving adequate levels of service performance, but will desire for service levels to *improve* at an acceptable rate over the duration of the exchange relationship. Customers in CDBS contexts utilizing service providers to help them gain a competitive advantage in their marketplace would especially need for their service providers to continually introduce enhancements.

Providers in CDBS contexts should carefully consider whether their performance metrics accurately capture information on velocity performance. Measuring only absolute performance levels can be misleading. For example, when implementing supply chain solutions for customers, it may take a logistics service provider a year or more before the service performs at a high level. Would customers be dissatisfied during the entire year and then satisfied when the service reached the required performance levels? Managers must understand how customers are judging velocity performance in order to really determine whether customers perceive the service to be satisfactory.

The conceptual model also suggests that customer participation in CDBS contexts can have a down side, as customers with high levels of participation may attribute their satisfaction with service performance to their own efforts rather than the efforts of the service provider. This is not to say that providers should not

involve customers in the production of services, but rather that providers should take care to communicate the role of their organization in delivering services. Research in consumer and relational contexts suggests that when the relationship between the service provider and the customer is closer, customers will be less likely to attribute benefits to their own efforts (Bendapudi and Leone 2003; Sedikides et al. 1998). Therefore, customer participation increases the burden on the service provider to have a good social relationship with the customer.

Managers in CDBS contexts should consider that customers evaluate social and economic outcomes in a variety of ways based partly on their ability to make comparisons. This places increased onus on the service provider to be knowledgeable about its customer's partnership network. While knowing about customers' operating characteristics will assist a service provider in delivering a satisfactory service, additional information is required to provide a company with satisfactory outcomes. When a firm has an extensive network of partners, it can compare its outcomes to those of its competition and use this information in its satisfaction evaluations. Service providers that understand these external perceptions and find ways to manage them will have customers that are more satisfied with their overall outcomes. When a firm has few outside contacts, service providers can focus internally on enhancing value and equity perceptions.

Finally, CDBS providers should monitor social and economic satisfaction separately. Distinct outcomes drive each type of satisfaction. To truly maximize social satisfaction, resources including boundary spanning personnel must be

allocated, which may be an additional cost for a service provider. When faced with such trade-offs, however, managers should not sacrifice economic satisfaction for the sake of social satisfaction.

Limitations and Future Research Directions

The model presented here provides a framework with several testable propositions to be considered in future research studies. Given the breadth of the model, it will be difficult to address in a single empirical study. Therefore, it is suggested that segments of the model be examined separately in order to more effectively test the relationships contained therein.

For instance, one study should test the proposition that performance satisfaction, economic satisfaction, and social satisfaction can be modeled as antecedents to global satisfaction. Variations of performance satisfaction measurement scales have been implemented recently in CDBS contexts (Mentzer et al. 2001; Wiertz et al. 2004). Scales have also been implemented recently to assess social and economic satisfaction (Geyskens and Steenkamp 2000; Lee et al. 2004), though none have been implemented in a CDBS context. While several measures of global satisfaction exist, a general measure would need to be adopted. Many of the existing measures of global satisfaction include items relating to performance, economic, and/or social satisfaction (Lam et al. 2004; Leuthesser and Kohli 1995), and would thus have a high degree of conceptual overlap with lower-level

satisfaction assessments. Additionally, to demonstrate nonomological validity, a known outcome of satisfaction such as loyalty would need to be evaluated also.

Scales exist for the majority of the other variables in our conceptual model, but some guidance may be needed to assess velocity performance. Care should be taken to ensure that the correct wording is used when measuring this concept. Velocity performance is a "rate" of change in performance (i.e. $V = \Delta P/\Delta T$), which is conceptually distinct from the "magnitude" of a change in performance (i.e. ΔP). Consider the following two questionnaire items:

A. The rate at which the service provider XYZ is currently improving the performance of its service(s) is: *(poor…excellent)*

B. The performance of service provider XYZ compared to when my company began working with the company is now: *(much worse…much better)*

Item "A" assesses velocity while item "B" assesses magnitude. Once, velocity effects are verified, future research may also consider "acceleration" as research suggests it may also be an important performance dimension (Hsee et al. 1994). Acceleration can be considered to be the magnitude of the change in velocity (i.e. ΔV).

Finally, an aspect of satisfaction in CDBS contexts that was not addressed in our model is how the organizational satisfaction assessment is altered when: 1) multiple departments in an organization are affected by a service, and 2) these departments form differing satisfaction evaluations. Work in social influence network theory has attempted to describe the manner in which a network of interpersonal influences affects opinion formation. Differences in influence among

group members can produce choice shifts, where, "after a group's interaction on an issue, the mean final opinion of group members differs from the members' mean initial opinion (Friedkin 1999)." Currently, capturing the multiple opinions needed to assess this issue is problematic in B2B research.

CONCLUSION

As exchanges in mainstream marketing are becoming more characteristic of the exchanges in continually delivered business service contexts (CDBS), we suggest that key constructs in the field be re-examined within this context. In this paper, we developed a conceptual model of the satisfaction formation process in continually delivered business service (CDBS) contexts which integrated two key theoretical frameworks: the expectancy-disconfirmation paradigm (prevalent in consumer research) and social exchange theory (prevalent in channels research). The conceptual model contributes to current marketing thought by: 1) offering a conceptualization of satisfaction within the CDBS context, and 2) organizing relevant antecedents of satisfaction formation in CDBS contexts from the extant literature. These ideas and considerations offer marketing managers a framework as they strive to maintain and improve customer satisfaction levels in an ever evolving marketplace and they provide satisfaction researchers with challenging new directions.

FIGURE 1:
GRAPHICAL DEPICTION OF THE CONTINUALLY DELIVERED BUSINESS SERVICE CONTEXT

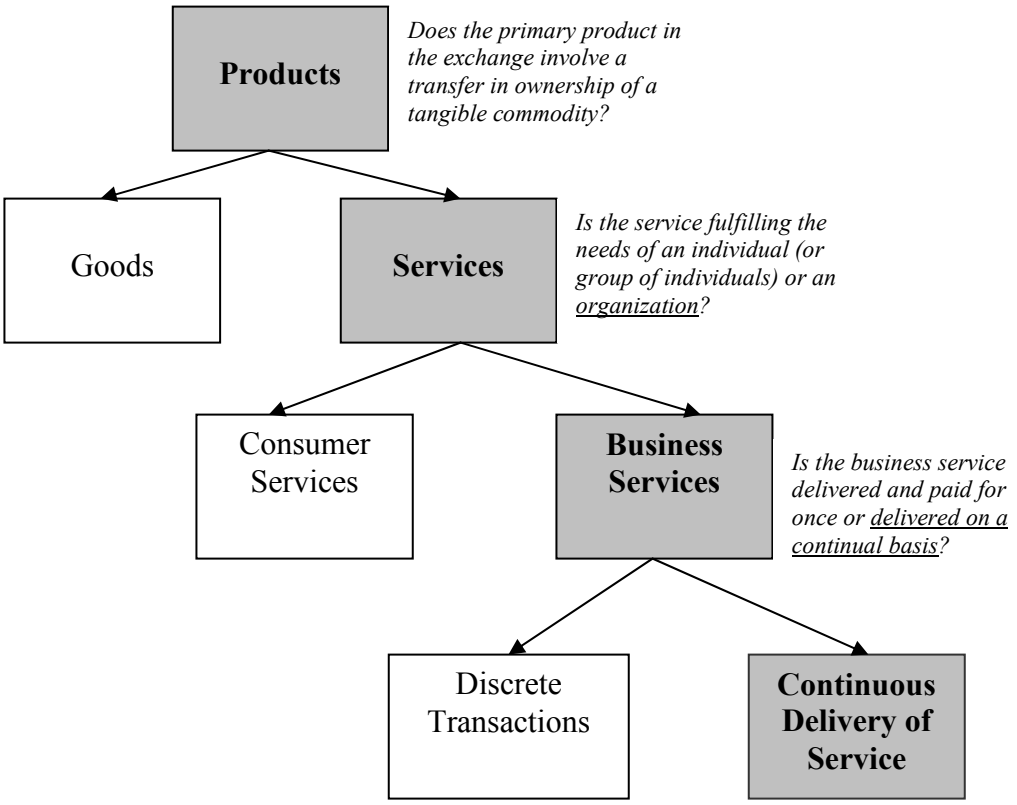


Table 1: Empirical Studies of CDBS Satisfaction studies published since 1996.

Citation	Satisfaction Focus and Service Context
Liu et al (2005)	Global satisfaction with supplier of financial staffing service provider
Vickery et al. (2004)	Global satisfaction with third-party logistics service provider
Wiertz et al. (2004)	Satisfaction with the performance of a customer interaction center
Lam et al (2004)	Global satisfaction with provider of courier services
Pujari, Devashish (2004)	Satisfaction with a self service technology
Keiningham and Perkins-Munn (2003)	Overall satisfaction with banking services
Stank et al. (2003)	Global satisfaction with third-party logistics service provider
Bolton et al (2003)	Interpersonal satisfaction and inter-organizational satisfaction in telephone services
Taylor and Hunter (2003)	Global satisfaction with customer relationship management system integrator
Wangenheim (2003)	Satisfaction with the relationship with an energy provider
Abdul-Muhmin (2002)	Satisfaction with logistics service
Durvasula (2002)	Overall satisfaction with ocean freight shipping services
Mentzer et al. (2001)	Satisfaction with logistics services
Athanassopoulos (2000)	Satisfaction with banking services
Backhaus and Bauer (2000)	Satisfaction with transportation services; overall satisfaction with the relationship
Stank et al. (1999)	Satisfaction with service of industrial distributors (fast food)
Lapierre et al. (1999)	Satisfaction with consulting engineering services
Ennew and Binks (1999)	Satisfaction with banking services
Daugherty et al (1998)	Global satisfaction with a vendor (distribution services)
Smith (1998)	Satisfaction with telephone and delivery services
Nowak et al. (1997)	Overall satisfaction with marketing research services

FIGURE 2:
A CONCEPTUAL MODEL OF SATISFACTION FORMATION IN CONTINUALLY DELIVERED BUNSINESS SERVICE CONTEXTS

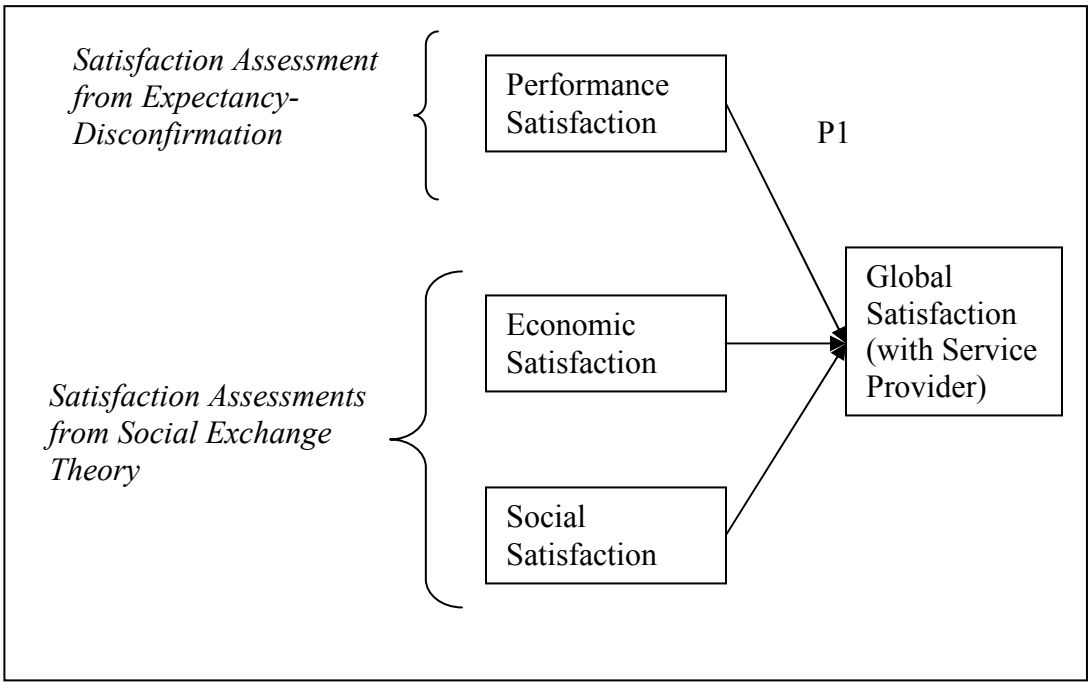


FIGURE 3:
A CONCEPTUAL MODEL OF PERFORMANCE SATISFACTION FORMATION AND ITS INFLUENCE ON GLOBAL SATISFACTION IN CDBS CONTEXTS

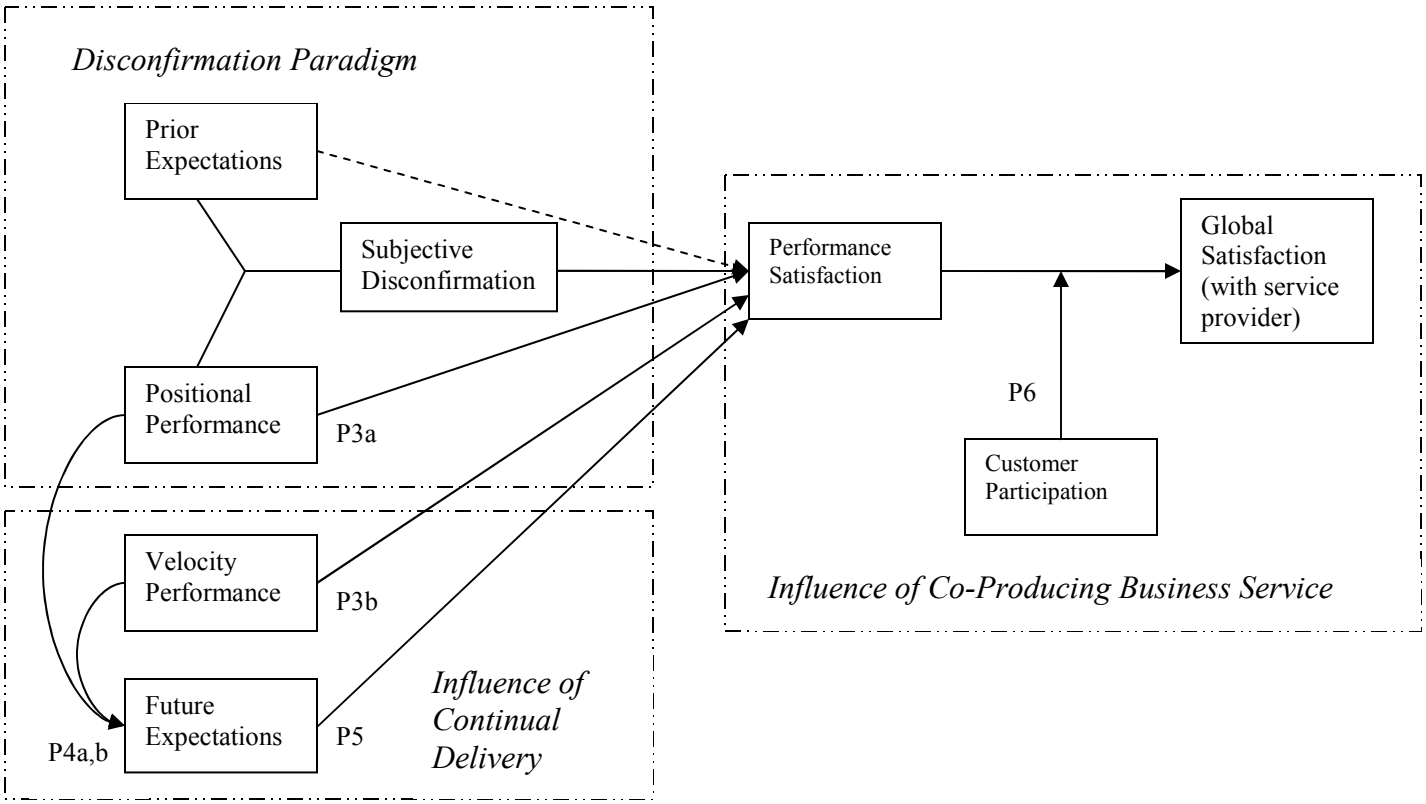
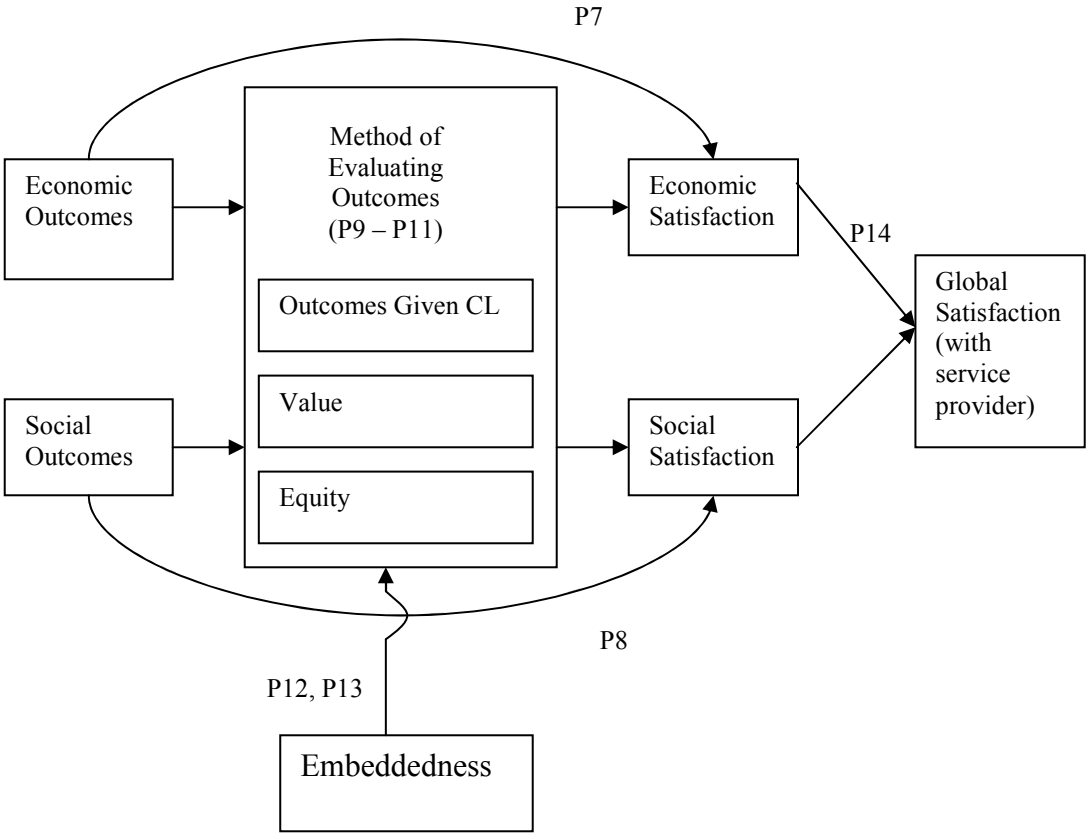


FIGURE 4:
A CONCEPTUAL MODEL OF ECONOMIC AND SOCIAL SATISFACTION FORMATION AND ITS INFLUENCE ON GLOBAL SATISFACTION IN CDBS CONTEXTS



CUSTOMER SATISFACTION IN CONTINUALLY DELIVERD BUSINESS SERVICE CONTEXTS: A TEST OF A CONCEPTUAL MODEL INVOLVING LOYALTY

1. Introduction

Customer satisfaction has been associated with repeat purchase intentions (Anderson and Sullivan 1993), positive word-of-mouth behavior (Anderson 1998), and increased share-of-wallet (Anderson 1998; Keiningham et al. 2003). All of these behaviors reflect or relate to customer loyalty, which has been subsequently linked to long term firm consequences such as market share and profitability (Daugherty et al. 1998; Knemeyer and Murphy 2004; Rust and Zahorik 1993; Rust et al. 1995; Stank et al. 2003). Because of the potential gains, customer satisfaction has become a strategic priority for many organizations.

Even though the positive outcomes of customer satisfaction are widely acknowledged, the concept itself can be nebulous. What does it really mean to have a satisfied customer? A review of the literature (Giese and Cote 2000) found definitions of satisfaction tend to vary as to whether the response is cognitive or emotional, and as to what the satisfaction focus should be (i.e. satisfaction with a product, satisfaction with specific product attributes, satisfaction with a salesperson, etc). Because of the variety of ways that satisfaction has been conceptualized, expectations for particular outcomes derived from satisfaction should be tempered.

Fournier and Mick (1999) suggest that the process of satisfaction formation is dependent on the context. However, conceptualizations of satisfaction developed in consumer contexts are commonly applied to studies of satisfaction in business-to-

business (B2B) exchange relationships. In this study, we consider global satisfaction formation and its effects on loyalty in a B2B context where service is delivered on a *continual or ongoing* basis to the customer. This context is referred to as the continually delivered business service (CDBS) environment. Mainstream marketing exchanges are becoming increasingly similar to those currently occurring the CDBS context (Rust 2004).

In the following sections, a conceptual framework of CDBS satisfaction and its influence on loyalty is introduced based on characteristics of the context, the existing satisfaction research in CDBS contexts, and theoretical insights from the expectancy-disconfirmation paradigm (Ilgen 1971; Oliver 1980) and social exchange theory (Blau 1964; Chadwick-Jones 1976). The framework suggests that global satisfaction evaluations in CDBS contexts mediate (partially and fully) the influence of more specific, lower-level satisfaction assessments on loyalty. Further, the framework suggests these lower-level assessments differ in their importance to global satisfaction and loyalty.

2. Conceptual Framework and Hypotheses

In recent studies involving customer satisfaction in CDBS contexts, the focus of satisfaction has been the service provider (Liu et al. 2005; Vickery et al. 2004), rather than the service itself. Several aspects of the CDBS environment imply that the service provider is the proper focus. First, services are often more difficult to evaluate than goods (Zeithaml 1981). Second, business customers are more likely than end consumers to evaluate providers using formal rating systems. These rating

systems capture considerations not directly related to service performance such as provider attitude and reputation (Wieters and Ostrom 1979). Third, when services are delivered on an ongoing rather than discrete basis, the service provider and customer are more likely to enter into a formal relationship (Berry 1983). Hence, the service provider is more prominent in the exchange. All these characteristics suggest that a satisfaction evaluation is formed that focuses on the service provider.

Satisfaction with a service provider in CDBS contexts is a *global* evaluation because it is formed over multiple transactions during the course of an exchange relationship and is based on facets of an organization beyond the actual service being provided (Bendall-Lyon and Powers 2004). Derived partly from an existing definition of satisfaction in consumer contexts (Oliver 1997), satisfaction in CDBS contexts is defined as:

> A customer's global evaluation of the degree to which the producer of a service is providing an appropriate level of fulfillment for the needs of the customer.

Prior studies of global satisfaction have focused on particular product categories and identified very specific product attributes influencing global satisfaction with products (Mittal et al. 1999; Mittal et al. 1998; Spreng et al. 1996). This study focuses specifically on the CDBS context and seeks to identify general attributes influencing global satisfaction with service providers. Based on expectancy-disconfirmation and social exchange theory, it is suggested that performance satisfaction, social satisfaction, and economic satisfaction are each important attributes influencing customer's global satisfaction in CDBS contexts.

1.1 Expectancy Disconfirmation: The Influence of Performance Satisfaction

The expectancy-disconfirmation paradigm has been utilized to explain satisfaction formation in both consumer service contexts (Anderson and Sullivan 1993; Swan and Trawick 1981), and business service contexts (Patterson 2000; Patterson et al. 1997). This framework suggests that customer satisfaction is formed by considering the perceived performance of a product or service and the expected performance of a product or service (Anderson 1973; Hovland et al. 1957). Therefore, expectancy-disconfirmation supports the notion that CDBS customers assess *performance satisfaction,* which is defined as follows:

> Performance satisfaction is a customer's satisfaction with the actual services delivered by a provider.

Performance satisfaction is considered to be a lower-level satisfaction assessment that positively influences global satisfaction with a service provider. While prior studies involving satisfaction in CDBS contexts have considered performance satisfaction (Keiningham et al. 2003; Mentzer et al. 2001), the relationship between performance satisfaction and global satisfaction has not been widely considered (Daugherty et al. 1998). With the theoretical and empirical evidence for performance satisfaction assessments in CDBS contexts, we suggest:

Hypothesis 1: In CDBS contexts, performance satisfaction has a positive effect on global satisfaction.

1.2 Social Exchange Theory: The Influence of Social and Economic Satisfaction

Social exchange theory (SET) provides another theoretical base to explain satisfaction (Anderson and Narus 1990; Ping Jr. 2003). Whereas expectancy-

disconfirmation was developed in discrete exchange contexts, SET was developed in relational exchange contexts. Studies using the expectancy-disconfirmation paradigm focus on the product or service being provided; SET studies focus on the important *outcomes* of exchange relationships. These outcomes are both social and economic (Emerson 1962; Homas 1958). Research suggests that parties to an exchange form satisfaction assessments of social and economic outcomes and that these assessments are distinct (Geyskens and Steenkamp 2000). Thus, two additional satisfaction assessments relevant to the CDBS context are derived from SET: *economic satisfaction* and *social satisfaction*. Based on Geyskens and Steenkamp (2000), these are defined as follows:

> Economic satisfaction is a business customer's assessment of the economic outcomes that flow from a relationship with its service provider.
>
> Social satisfaction is a business customer's assessment of the psychosocial aspects of its relationship with its service provider, in that interactions are fulfilling, gratifying, and facile.

As with performance satisfaction, social satisfaction and economic satisfaction are conceptualized as lower-level satisfaction assessments that positively influence global satisfaction with a service provider.

Hypothesis 2a: In CDBS contexts, economic satisfaction has a positive effect on global satisfaction.

Hypothesis 2b: In CDBS contexts, social satisfaction has a positive effect on global satisfaction.

1.3 The Relative Influence of Economic and Social Satisfaction

One of the main benefits of considering lower level satisfaction assessments is that they offer increased insight into the global satisfaction evaluation in CDBS contexts. Just as product attributes vary in importance to performance satisfaction, so are there likely to be differences in the relative importance of the three lower-level forms of satisfaction to global satisfaction. In this section, we consider the relative influence of social and economic satisfaction, both of which are derived from SET.

The limited empirical evidence from the CDBS contexts on the topic is mixed. For instance, Taylor and Hunter (2003) find that value, but not affect, is a significant predictor of satisfaction with a CRM systems integrator. Value is more closely related to economic satisfaction, while affect is more closely related to social satisfaction. Conversely, Stank et al. (2003) find that relational performance, but not cost performance is a significant predictor of satisfaction with a logistics service provider. Relational performance is more closely related to social satisfaction, while cost performance is more related to economic satisfaction.

In CDBS contexts, individuals consider satisfaction on behalf of their organization. As Webster and Wind (1972) indicate relating to buyer behavior, "Organizational factors cause individual decision makers to act differently than they would if functioning alone…"(pg. 14). While satisfaction in consumer contexts has been demonstrated to be heavily influenced by affect (Mano and Oliver 1993; Oliver 1993), satisfaction evaluations in business contexts tends to be heavily influenced by the rational objectives of the organization (Rossomme 2003). Organizational members are strongly influenced by profitability concerns (Rust et al. 1995).

Economic satisfaction relates clearly to these profitability concerns, but social satisfaction does not. Thus, it is suggested that economic satisfaction has a stronger influence on global satisfaction in CDBS contexts than social satisfaction.

Hypothesis 3: In CDBS contexts, the effect of economic satisfaction on global satisfaction is greater than the effect of social satisfaction on global satisfaction.

1.4 Satisfaction Influences on Loyalty

Loyalty can be considered to be "a buyer's overall attachment or deep commitment to a product, service, brand, or organization" (Lam et al. 2004; Oliver 1999). It has at times been conceptualized as heavily attitudinal (Bennett et al. 2005), heavily behavioral (Oliver 1999), or both attitudinal and behavioral (Bennett et al. 2005; Vickery et al. 2004). Lam (2004) examined two separate ways that customer loyalty can be manifested: 1) through patronage, and 2) through recommendations. In this study, loyalty is considered as it is manifested through a buyer's patronage behavior.

The influence of global satisfaction on loyalty has been well established in CDBS satisfaction studies (Lam et al. 2004; Stank et al. 2003; Vickery et al. 2004; Wangenheim 2003). We attempt to verify the relationship in this study:

Hypothesis 4: In CDBS contexts, global satisfaction has a positive effect on customer loyalty.

The direct effects of a global satisfaction evaluation and lower-level satisfaction assessments on loyalty have not been considered simultaneously. SET provides a strong theoretical rationale for examining the direct influence of economic and social satisfaction. SET suggests that positive economic and social outcomes

over time increase dependency on an exchange relationship (Kelley and Thibaut 1978). The more satisfactory these economic and social returns, the more inclined the party is to remain in the relationship (Lambe et al. 2001). In a CDBS context, this is exhibited through the repurchase intentions of the customer. Thus, it is expected that social and economic satisfaction will influence loyalty directly, outside of their influence on loyalty through global satisfaction. This is not expected of performance satisfaction for two reasons. First, the performance satisfaction assessment is not based on outcomes as are social and economic satisfaction. Second, the disconfirmation-paradigm does specifically address customer behavioral intentions as does SET. Therefore, it is hypothesized:

Hypothesis 5a: In CDBS contexts, economic satisfaction has a positive direct effect on customer loyalty.

Hypothesis 5b: In CDBS contexts, social satisfaction has a positive direct effect on customer loyalty.

Earlier it was hypothesized that economic satisfaction would be more important to global satisfaction than social satisfaction in CDBS contexts considering the importance of profitability goals to CDBS customers. Similarly, it is expected that due to the importance of these goals, economic satisfaction will also have a stronger influence on loyalty than social satisfaction.

Hypothesis 6: In CDBS contexts, the direct effect of economic satisfaction on global satisfaction is greater than the direct effect of social satisfaction on customer loyalty.

3. Method

3.1. Sample

The Third-Party Logistics (3PL) industry was chosen as the study context. The importance of the 3PL industry to the American economy has increased in recent years, and it is predicted that the industry will be even larger in the future. A 2004 survey found that the percentage of firms using 3PL services in North America increased from 71% in 2001 to an all time high of 79% in 2004, and that the portion of total logistics expenditures directed towards these services will increase from about 44% in 2004 to about 49% in the years 2007-2009 (Langley et al. 2004).

An online survey instrument was used to collect data from the customers of 3PL service providers. The sampling frame consisted of individuals included in the membership directory of the Council of Supply Chain Management Professionals (CSCMP). Individuals were targeted holding positions at the "director" level in a logistics related area. Phone messages were left with individuals before sending an email message containing a cover letter and hyperlink to the survey. After e-mails were sent, follow-up phone calls were made to determine whether the respondent received the message properly and to confirm willingness to participate. All respondents were given the opportunity to enter a raffle upon completion of the survey with cash prizes of $500, $250, and $100. 521 individuals were identified as potential prospects. Of these 521 individuals, 51 were not able to receive surveys due to incorrect or outdated contact information and 50 firms did not utilize 3PL service providers, leaving an effective sample of no more than 420 (521 – 51 – 50) firms. A total of 110 surveys with complete information were received for an effective response rate of 26.19%.

Nonresponse bias was tested by checking to see if statistically significant differences existed between early and late waves of returned questionnaires (Armstrong and Overton 1977). The rationale behind this method is that late responders are assumed to be similar to nonrespondents. The first 20% of respondents were compared to the last 20% using Levene's statistic for homogeneity of variance and ANOVA. There were no statistically significant differences at the .05 level for any of the items.

3.2. Measures

Existing scales were used to measure all constructs of interest with modifications for the 3PL context as necessary. The survey instrument was reviewed by a panel of experts on 3PL services from both academia and industry, and changes were made to the survey instrument based upon their input. The scale for performance satisfaction was formulated by using a subset of items including adjectives used in prior satisfaction scales (Liu et al. 2005; Oliver and Swan 1989; Westbrook and Oliver 1981). The scales for social satisfaction and economic satisfaction are both adapted from Geyskens and Steenkamp (2000).

The scale for global satisfaction was based upon the buyer satisfaction scale developed by (Leuthesser and Kohli 1995), and later modified to fit the 3PL service context (Daugherty et al. 1998). To avoid a potential confounding between global satisfaction and other types of satisfaction being measured in this study, only two of the items were used in the present scale. An additional item based on Patterson et al.

(1997) was included, and one final item was developed from the conceptual definition of CDBS satisfaction.

Finally, the scale of customer loyalty developed by Zeithaml et al. (1996) was adopted. Lam et al. (2004) demonstrated in a recent study that this scale contains two distinct dimensions: recommend and patronage. The original five item scale has three items related to recommendation and two items related to patronage intentions. The two items related to patronage intentions were used along with an additional item employed by Bolton et al. (2003).

Each respondent was asked to answer the survey by thinking of their "primary" 3PL service provider. The primary 3PL service provider was defined as being that 3PL service provider to whom the company had dedicated the largest proportion of their logistics budget. Since the online survey required respondents to answer every question before continuing, and prompted respondents when they skipped a question, there were no missing data. All scales were 7-point Likert scales anchored by "Strongly Disagree" and "Strongly Agree" with the midpoint of the scale indicating a "Neutral" response.

4. Analysis and Results

4.1. Measurement Model

Structural Equation Modeling was employed to test the proposed models using AMOS 5.0.1 with maximum likelihood estimation. The two-step approach recommended by Anderson and Gerbing (1988) was followed, whereby confirmatory factor analysis (CFA) is used to first assess and refine the measurement model before

examining the structural and measurement model simultaneously. The measurement model consists of four forms of satisfaction and customer loyalty (patronage). Overall, fit indices indicate that the original measurement model can be improved (χ^2 = 399.85; χ^2/df = 2.50, GFI = .726; CFI = .887; RMSEA = .117; SRMR = .073).

First, two of the reverse worded items were removed because of large standardized residual values items (i.e. > 2.58). Respondents answering questionnaires of substantial length may sometimes misread items that are reverse worded (Carman 1990). Then, AMOS modification indices over 4 were examined. One modification index suggested a cross loading, so the cross loaded item was removed. Finally, a large modification index suggested the error covariance between two of the economic satisfaction items be estimated. In retrospect, the use of the two items is problematic because they can be components customer value calculation (i.e. profit – costs). Due to empirical and theoretical concerns, these two items were also removed.

The CFA was subsequently repeated to assess the fit of the model with the fit indices suggesting a good fit overall (χ^2 = 123.48; χ^2/df = 1.54, GFI = .869; CFI = .973; RMSEA = .071; SRMR = .040). All items had standardized loadings at or above .6 as suggested by (Nunnaly 1978). The inter-item reliability for all scales was acceptable as all constructs had Cronbach alphas above .7 (Nunnaly 1978). The average variance extracted by each construct was above .5. Table 1 presents an analysis of the constructs and measurement items used in the study.

← Insert Table 1 about Here →

Given the relatedness among the constructs in our model, the convergent and discriminant validity of the model was examined by estimating three comparison models (Bienstock et al. 1997; Widaman 1985). Model 0 proposes a structure where each of the 15 measurement items loads on its own unique factor. Model 1 proposes a structure where each of the 15 measurement items loads on one common factor. Model 2 proposes a structure where 5 factors are proposed – i.e., performance satisfaction, social satisfaction, economic satisfaction, global satisfaction, and loyalty. To demonstrate convergent validity, model 0 (χ^2 (105) = 1736.509) is compared to model 1 (χ^2 (90) = 287.786). The improvement in the chi-square of model 1 is significant (χ^2 (15) = 1448.723, $p < .001$), providing evidence of convergent validity. To demonstrate discriminant validity, model 1 (χ^2 (90) = 287.786) is compared to model 2 (χ^2 (85) = 150.809). The improvement in the chi-square statistic is again significant (χ^2 (5) = 136.977, $p < .001$), providing evidence of discriminant validity.

4.2. Hypothesis Testing

To test Hypotheses 1, 2, 4, and 5 a structural analysis was conducted to examine the hypothesized "partially mediated model" involving the effects of satisfaction on loyalty in CDBS contexts (Figure 1). The three lower-level forms of satisfaction are allowed to correlate with one another. Table 2 shows the standardized estimates and critical ratios for the paths in the "partially mediated model", as well as the model fit indices. The fit indices demonstrate that the model was a good fit to the data.

← Insert Figure 1about Here →

The results of the testing support Hypotheses 1. Performance satisfaction has a positive influence on global satisfaction ($p < .01$). Hypothesis 2a is supported, but Hypothesis 2b is not supported. Economic satisfaction has a positive influence on global satisfaction ($p < .01$), but social satisfaction does not have a significant positive influence on loyalty ($p = .15$). Hypothesis 4 is also not supported. In the partially mediated model, global satisfaction does not have a positive influence on loyalty. Hypothesis 5a is supported, but Hypothesis 5b is not supported. Economic satisfaction has a positive influence on loyalty ($p < .05$), but while the parameter estimate for the influence of social satisfaction on loyalty is positive, it does not quite reach the .05 level of significance ($p = .07$).

Given the surprising result that the well established relationship between global satisfaction and loyalty is not supported, a post-hoc analysis is conducted that compares the fit of the hypothesized "partially mediated model" to the fit of a "fully mediated model." The difference between the two models being that the "fully mediated model" does not include the direct effects of economic and social satisfaction on loyalty. Table 2 shows the fit statistics for the "fully mediated model." While the "fully mediated model" suggests that the relationship between global satisfaction and loyalty is significant ($p < .01$), the model does not fit the data as well as the "partially mediated model."

← Insert Table 2 about Here →

Chi-square difference tests were conducted to test Hypotheses 4 and 6. To test Hypothesis 4, the "partially mediated model" was estimated again, this time

constraining the path coefficients from economic satisfaction and social satisfaction to global satisfaction to be equal. The difference in chi-square was significant ($\chi^2(1) = 5.28$, $p < .05$). Thus, the influence of economic satisfaction on global satisfaction is greater than the influence of social satisfaction, supporting Hypothesis 4. To test Hypothesis 6, the "partially mediated model" was estimated once more, this time constraining the path coefficients from economic satisfaction and social satisfaction to loyalty to be equal. The difference in chi-square was again significant ($\chi^2(1) = 4.68$, $p < .05$). Thus, the influence of economic satisfaction on loyalty was greater than the influence of social satisfaction, supporting Hypothesis 6.

5. Discussion

The findings provide insight into the nature of satisfaction and its relationship with loyalty in CDBS contexts. By considering multiple types of lower level satisfaction, a better understanding of the differing influences of these assessments on global satisfaction and customer loyalty is gained. Prior research has only considered one type of satisfaction evaluation in examining the relationship between satisfaction and loyalty. The study results suggest that considering only a global satisfaction evaluation may result in misleading conclusions regarding the relationship between these two concepts.

The CFA results demonstrate that there are multiple types of satisfaction evaluations. Three lower level satisfaction evaluations include performance satisfaction, social satisfaction, and economic satisfaction. While these evaluations are correlated with one another, they have differing influences on customers' global

satisfaction with a service provider and customer loyalty in the form of patronage behavior, supporting the validity of considering these evaluations separately. These findings imply that customers in CDBS contexts may very well form "mixed" feelings towards a service provider (Mittal et al. 1998). Customers could perhaps be satisfied with the services being delivered to them, but be dissatisfied with the economic returns from the relationship. Thus, considering these lower-level satisfaction evaluations can direct the efforts of managers in improving the offerings of their service firms (Rust and Zahorik 1993). In addition, the lower-level satisfaction assessments identified here can be applied to other service providers operating in a CDBS contexts, whereas previous attribute-based satisfaction frameworks have been industry specific.

Economic satisfaction exhibited stronger influences on global satisfaction and loyalty than social satisfaction in this study. It appears that customers in CDBS contexts, when forming their global satisfaction evaluations with service providers and considering whether to continue the exchange relationship, rely more on their assessment of economic outcomes than on social outcomes. As the prevalence of relationship marketing practices grows, the importance of social relationships may need to be reconsidered. Even in consumer contexts, evidence indicates that social benefits are not all that important a driver of satisfaction (Hennig-Thurau et al. 2002). Managers in service industries should not assume that high global satisfaction ratings are reflective of positive customer relationships.

Finally, the post-hoc analysis suggests that in a CDBS context, the demonstrated relationship between satisfaction and loyalty may need to be re-evaluated. Only when the direct effects of economic satisfaction and social satisfaction on loyalty were removed from the hypothesized model did the effect of global satisfaction on loyalty become significant. This implies that considering only a customer's global satisfaction evaluation when examining the satisfaction → loyalty relationship can be misleading. The customer may be satisfied overall, but disenchantment with certain aspects of the exchange relationship, especially the lack of economic benefits, may diminish loyalty to the organization. The findings by Reichheld (1993) that 65% -85% of customers that defect are satisfied can now be interpreted in a new light. Having a satisfied customer is important, but knowing exactly what the customer is satisfied with is essential.

6. Limitations and Future Research

In interpreting the study results, it is important to consider the limitations of the study and the future research opportunities that these limitations offer. First, the research takes place within a particular CDBS industry - 3PL services. Therefore, one should be careful when making generalizations. It would be helpful for future research studies to apply the satisfaction model presented here in other CDBS contexts. The conceptualizations offered here are expected to also be appropriate for consumer service contexts that are relational in nature. Considering the model in consumer contexts provides a means of comparing post-purchase behavior across

customer types. Additionally, the model provides a means of segmenting customers based on how satisfaction is formed.

Nonlinear effects are not examined in the study, though some satisfaction research suggests that attributes can have asymmetric impacts on satisfaction (Mittal et al. 1998; Oliva et al. 1992). While the conceptual framework contributes to the literature by considering attributes to global satisfaction at a higher level of abstraction than has been considered in previous studies, future research should consider whether influences at this level are in fact linear, or whether asymmetries exist in the relationships.

Finally, the study focuses on loyalty specifically as it pertains to patronage behavior. While customer patronage intentions are especially important to service providers, loyalty in the form of word-of-mouth behavior can also be beneficial. Lam et al. (2004) found that customer satisfaction had a significant influence on customer loyalty in the form of patronage *and* recommendations. Future research should consider the present conceptualization of satisfaction as it pertains to this important form of loyalty.

Table 1: Construct and Measurement Item Analysis

Latent Variable	Item description	Loading	Mean	S.D.
Performance Satisfaction	My company is content with the 3PL's service performance.	.901	4.98	1.48
AVE = .755 *α = N/A*	My company is very happy with the 3PL's service performance.	.974	4.62	1.58
Social Satisfaction	Interactions between my firm and this service provider are characterized by mutual respect.	.924	5.54	1.26
AVE = .647 *α = .809*	This service provider expresses concerns tactfully.	.854	5.42	1.11
	The working relationship of my firm with this service provider is characterized by feelings of hostility. (R)	.599	5.95	1.44
Economic Satisfaction	The relationship with this service provider has helped improve my company's overall position in our market.	.706	4.71	1.34
AVE = .614 *α = .804*	Our relationship with this service provider is very attractive considering the prices we pay.	.708	4.53	1.42
	We are pleased with our decision to utilize this 3PL since they help us improve our end-customer satisfaction.	.918	5.05	1.37
Global Satisfaction	Overall, this service provider meets my company's needs.	.935	5.18	1.26
AVE = .879 *α = .917*	I wish more of my firm's service providers were like this one.	.931	4.89	1.68
	There is always some problem or another with this service provider. (R)	.673	5.06	1.60
	All things considered, my company is very satisfied with this service provider.	.947	5.08	1.40
Customer Loyalty (Patronage)	My company considers our primary 3PL as its first choice for logistics outsourcing.	.816	4.63	1.71
AVE = .880 *α = .896*	My company will do more business with our primary 3PL in the next few years.	.902	4.80	1.70
	My company intends to renew our contract with our primary 3PL.	.886	5.03	1.69

AVE = Average Variance Extracted
α = Cronbach's alpha
(R) Indicates a reverse-scored item
S.D. = Standard Deviation

Table 2: Model Estimates and Fit Indices

	Partially Mediated Model (Hypothesized Model)		Fully Mediated Model (Alternative Model)	
Dependent Variable		**Critical**		**Critical**
Independent Variable	**Estimate**	**Ratio**	**Estimate**	**Ratio**
Global Satisfaction	(.959) [a]		(.977) [a]	
Performance Satisfaction	.442***	5.133	.401***	5.047
Economic Satisfaction	.531***	3.312	.599***	3.832
Social Satisfaction	.100	1.446	.105	1.598
Customer Loyalty	(.822)[a]		(.724)[a]	
Economic Satisfaction	1.327 ***	2.408	N/A	N/A
Social Satisfaction	.257*	1.798	N/A	N/A
Global Satisfaction	-.222	-.565	1.00***	9.552
CORRELATIONS				
PS <--> ES	.868***	5.482	.859***	5.371
ES <--> SS	.784***	5.192	.781***	5.160
SS <--> PS	.687***	5.391	.684***	5.375
FIT INDICES				
Normed Chi-Square (χ^2/df)	1.544 (81)[b]	125.0[c]	1.719 (83)[b]	142.6[c]
Goodness-of-fit Index (GFI)	.87		.86	
Comparative Fit Index (CFI)	.97		.96	
Standardized Root Mean Square Residual (RMR)	.041		.052	
Root Mean Square Error of Approximation (RMSEA)	.071		.081	

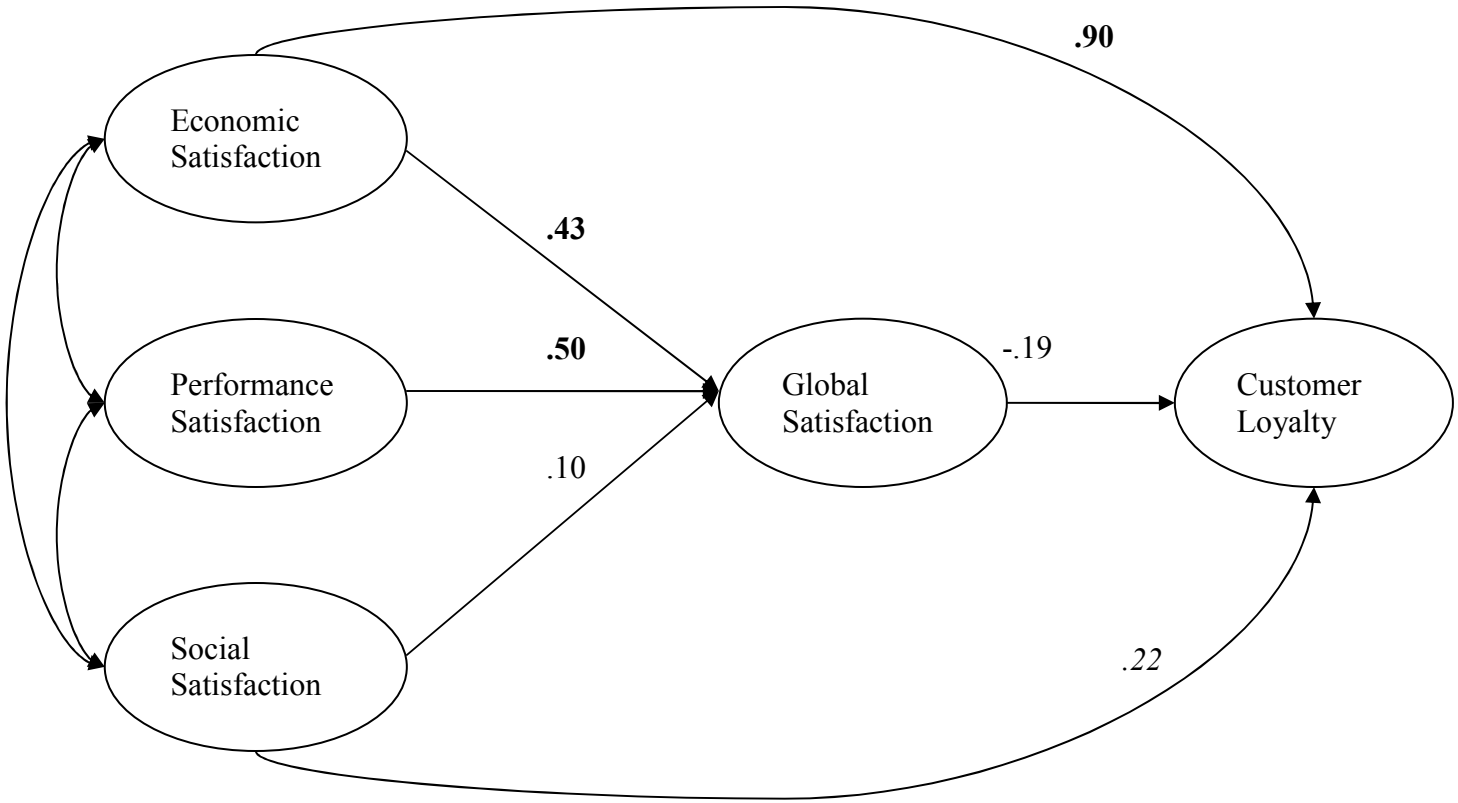
NOTE: Regression weights provided are unstandardized

*** p<.01 [a]Squared Multiple Correlation

** p<.05 [b]Model degrees of freedom

* p<.10 [c]Model chi-square

Figure 1: Hypothesized Model (With Standardized Estimates)



NOTE: Results significant at the .05 level are in bold.
Results significant only at the .10 level are italicized.

VELOCITY PERFORMANCE: CAPTURING THE INFLUENCE OF TIME ON SATISFACTION FORMATION IN A BUSINES SERVICE CONTEXT

"Time is God's way of keeping everything from happening at once" Anon

INTRODUCTION

Most advances in the understanding of customer satisfaction have taken place in consumer contexts that are discrete in nature. These conceptualizations of satisfaction are often applied in business-to-business, relational settings. Since the process of satisfaction formation is dependent on the context of evaluation (Fournier and Mick 1999), the lack of conceptual work on customer satisfaction in other contexts has created a gap in the literature that hinders our overall understanding of the construct. Rust (2004) indicates that future marketing exchanges will resemble those currently occurring in the "business-to-business/service/relationship marketing of today" (pg. 24). This study explores satisfaction formation in a business service context where delivery is made on an ongoing or continual basis.

When customers receive multiple service deliveries over time, they can evaluate performance in both absolute terms, and relative to prior instances of service delivery. These two dimensions of performance have been examined in psychology, and are referred to as *positional performance* and *velocity performance* (Hsee and Abelson 1991; Hsee et al. 1991; Hsee et al. 1994). Positional performance represents the current level of service performance while velocity performance represents how fast performance is changing over time. In this study we examine the applicability of these ideas to satisfaction formation in an ongoing business service context. Theoretical perspectives from the expectancy-disconfirmation paradigm (Ilgen 1971;

Oliver 1980) are used to develop the conceptual framework. Further, the relative importance of the two performance dimensions to satisfaction is examined under varying environmental conditions.

The third-party logistics (3PL) industry is utilized as the context of investigation. The importance of this industry to the American economy has increased in recent years. A 2004 survey found that the percentage of firms using 3PL services in North America increased from 71% in 2001 to an all time high of 79% in 2004 (Langley Jr. et al. 2004). It is expected that the industry will be even larger in the future, as the portion of total logistics expenditures directed towards these services is predicted to increase from about 44% in 2004 to about 49% in the years 2007-2009 (Langley Jr. et al. 2004). This industry has also historically demonstrated a high rate of change, so it provides a good background for an examination of velocity influences on satisfaction.

The rest of the paper proceeds in the following manner. The next section reviews the background literature on expectancy-disconfirmation and the role of performance in the disconfirmation model. Then, the conceptual framework is presented. Next, the empirical analysis and results are described. Finally, the paper concludes with a discussion of managerial and research implications.

BACKGROUND

Early work in expectancy-disconfirmation conceptualized performance as influencing customer satisfaction primarily through *disconfirmation* (Oliver 1980).

Disconfirmation can be described as the difference between expectations and performance. When the performance of a product or service falls below expectations, *negative disconfirmation* exists, and customer satisfaction is lowered. On the other hand, when performance exceeds expectations, *positive disconfirmation* exists, and customer satisfaction is raised. An article by Churchill and Surprenant (1982) expanded the commonly accepted expectancy disconfirmation paradigm by finding that performance had a significant direct effect on satisfaction, beyond its effect through disconfirmation. Since then, numerous studies have confirmed the existence of this effect (Szymanski and Henard 2001).

As research continued employing the disconfirmation paradigm, more theoretical advancement focused on the disconfirmation component of the model than the performance component. Researchers questioned the use of expectations alone as the comparison standard from which disconfirmation estimates were formed (Woodruff et al. 1983). Studies followed that examined other variables as components of a disconfirmation model. These studies examined disconfirmation as a product of performance along with such comparators as product norms (Cadotte et al. 1987; Park and Choi 1998), equitable performance (Park and Choi 1998; Tse and Wilton 1988), and desires or ideals (Park and Choi 1998; Spreng et al. 1996; Spreng and Olshavsky 1993; Tse and Wilton 1988). These findings introduced new ways of conceptualizing disconfirmation that could be applied in alternative contexts and for different purchase situations.

Conversely, the theoretical approaches in marketing conceptualizing product or service performance have not advanced as much since Churchill and Suprenant's (1982) article. Churchill and Suprenant (1982) examined a combination of *attribute* and *global* performance in their study. Subsequently, a significant stream of research has carefully examined the relationship between attribute performance and satisfaction (Mittal et al. 2001; Mittal et al. 1999; Mittal et al. 1998). Conceptualizing performance in this way is managerially beneficial in that it allows for a consideration of the importance of individual service attributes to the process of customer satisfaction formation. However, the attributes in these studies tend to be specific to the product or service being investigated, so global measures of performance may be more generalizable. Patterson (1993) examined attribute performance and global performance in the same study, finding that both significantly influenced satisfaction.

A limited amount of attention has also been paid to the distinction between perceived and objective performance. Perceived performance is primarily studied in the satisfaction literature; only a limited number of studies have considered objective performance (Burton et al. 2003; Oliver and DeSarbo 1988). Perceived performance differs from one customer to another, while objective performance is "the actual level of product performance which is assumed to be constant across customers" (Yi 1990). In a service context, Burton et al. (2003) find objective and perceived performance to be related, though perceived performance has a more powerful influence on customer satisfaction.

Though these conceptualizations have enhanced our understanding of performance, they do not effectively distinguish the performance received in discrete service contexts from that received in ongoing service contexts. By integrating the role of velocity performance into the expectancy disconfirmation paradigm, this study contributes to the current understanding of the role of performance in satisfaction formation when multiple service deliveries are received over time. Figure 1 illustrates the conceptual framework.

← Insert Figure 1 about Here →

CONCEPTUAL FRAMEWORK

Velocity Performance and Satisfaction Formation

In psychology, Hsee and Abelson (1991) extended thinking on how satisfaction is formed by expanding the traditional conceptualization of performance to two dimensions instead of just one: *positional performance* and *velocity performance.* Positional performance represents the traditional manner of conceptualizing product and service performance - a performance level is observed at a certain point in time and the more favorable the performance perception, the higher the satisfaction with that performance. Velocity performance describes how fast performance is changing when observed at multiple points in time. Changes in performance levels are jointly considered with elapsed time to determine satisfaction. The faster performance is changing in a positive direction, the higher the satisfaction. Formally Hsee and Abelson (1991) proposed:

$$\text{Satisfaction} = w_0 F_0(P) + w_1 F_1(V)$$

Where:
F = a monotonically increasing function
P = the positional performance
V = the velocity performance
w = The relative weighting of the type of performance in determining satisfaction

This equation implies that both the current level of performance (positional) *and* the rate at which performance is improving (velocity) will have distinct influences on satisfaction. Hsee and Abelson (1991) verify this proposition in two experimental studies. The studies involved hypothetical situations concerning individuals' responses to improvements in academic standing or monetary rewards. Velocity performance should be important to satisfaction in the 3PL service context because delivery occurs on multiple occasions, allowing for the customers to observe performance enhancements over time. The importance of logistics services to business practices also suggests that velocity performance will be important in this context. Customers create customized metrics to evaluate the performance of these services, allowing them to track changes in performance levels over time.

Hypothesis 1a: Velocity performance has a positive influence on 3PL service satisfaction.

Hsee and Abelson's (1991) research does not discount the influence of positional performance but indicates that both positional and velocity performance will be important to satisfaction formation. Their research confirmed this proposition, and extant research from the 3PL services context also supports the positive influence of positional performance on satisfaction (Mentzer et al. 2001; Stank et al. 1999). We also attempt to verify this relationship, and thereby suggest:

Hypothesis 1b: Positional performance has a positive influence on 3PL service satisfaction.

Disconfirmation

Several research studies have found disconfirmation to be a significant determinant of satisfaction (Szymanski and Henard 2001). As disconfirmation is a comparison of expected performance to perceived performance, it is negatively influenced by expectations and positively influenced by performance (Churchill and Surprenant 1982; Patterson et al. 1997; Spreng et al. 1996). Performance therefore affects satisfaction directly and indirectly through disconfirmation such that disconfirmation partially mediates the effect of performance on satisfaction (Patterson et al. 1997; Spreng and Chiou 2002). Two limitations of the research involving disconfirmation are that: 1) research concerning disconfirmation effects on satisfaction has been conducted primarily in discrete contexts rather than ongoing exchange settings, and 2) no studies have considered the potential effects of velocity performance in disconfirmation models.

Evaluating the effects of positional performance on disconfirmation in an ongoing exchange is different from evaluating disconfirmation in a discrete context because the performance perception is based on multiple instances of service delivery. For example, in a recent satisfaction study taking place in the 3PL service industry (Stank et al. 2003), the authors assess performance by asking the customer if a service provider: "meets promised deadlines," "delivers undamaged orders," and "delivers accurate orders." The customer would need to consider the performance of

a service over a recent stream of delivery instances in order to respond. Disconfirmation processes have not been examined in such situations.

It is suggested that disconfirmation models can be applied in these contexts. Disconfirmation is conceptualized here as being cumulative in nature, where several instances of service delivery are considered. Over these delivery instances, the customer may assess whether the service provider has generally met or fallen short of expectations. For business customers, who many times codify positional performance expectations in the form of contracts or other agreements, this is an easier evaluation than in consumer markets. Thus, it is suggested that disconfirmation processes operate in the chosen context and partially mediate the influence of positional performance on satisfaction

Hypothesis 2a: Disconfirmation partially mediates the influence of positional performance on 3PL service satisfaction.

In order for velocity performance to function in a disconfirmation model of satisfaction, customers would have to form expectations concerning velocity performance and compare these expectations with perceived velocity performance. Only in cases where velocity performance is important to customers will these expectations be formed. In the 3PL services context, we suggest that velocity expectations will be formed by customers partly due to the pressure to constantly improve their logistics system. Over the past decade, logistics expenditures in the United States have diminished from 10.4% of GDP to 8.6% (Supply Chain Digest News 2005) while maintaining or improving the overall quality of the logistics function. With the advancements occurring in this industry, customers have likely

formed expectations concerning the rate at which service providers will introduce performance enhancements. It is therefore suggested that disconfirmation processes will also apply for velocity performance, with disconfirmation partially mediating the influence of velocity performance on satisfaction.

Hypothesis 2b: Disconfirmation partially mediates the influence of velocity performance on 3PL service satisfaction.

Relative Importance of Velocity Performance and Positional Performance in Satisfaction Formation – The Influence of Environmental Moderators

A great deal of research in the market orientation and strategy literature has considered the moderating influence of environmental factors on the relationship between firm characteristics and business performance (Grewal and Tansuhaj 2001; Hult et al. 2004; Jaworski and Kohli 1993; Kumar et al. 1998; Menon et al. 1997; Subramanian and Gopalakrishna 2001). The rationale is that different strategies are a better fit for certain markets and competitive situations than others. Given that businesses partly rely on their service providers to successfully implement their business strategies, the environmental context should influence the way that businesses evaluate the performance of their service providers. Hsee et al. (1991) find that the relative weighting of positional and velocity performance to satisfaction formation is influenced by moderating variables. In this section, we consider how the environmental context influences the importance of velocity and positional performance and relates to the satisfaction of 3PL customers.

Prior research has found the satisfaction formation process to be moderated by such consumer characteristics as involvement (Churchill and Surprenant 1982)

and attributions (Tsiros et al. 2004), and such business customer characteristics as stakeholding and experience (Patterson 2000). Patterson (2000) also found that satisfaction with a business service was moderated by the complexity of the service being exchanged. This finding is significant because it demonstrates that characteristics of the purchase situation and not just individual customer characteristics moderate the satisfaction formation process. We extend this research by considering that satisfaction formation is moderated at an even broader level by environmental factors.

Market Turbulence

Market turbulence is described as the rate of change in the composition of customers and their preferences (Jaworski and Kohli 1993). 3PL customers operating in turbulent markets will need to modify their business practices and product offerings in order to keep up with the changing demands and preferences of their own customers. Part of the pressure placed on a 3PL customer to modify its product offering will be passed along to the 3PL, as changes in customer preferences may imply different product handling challenges and delivery schedules. When service modification is needed, velocity performance becomes critical. In the 3PL context, the service is often customized for the customer. When modifications to the service are made, in most cases there will be a noticeable period of time where the service being received by the customer is less than optimal. Under these circumstances, positional performance will not mean as much to the customer's satisfaction as velocity performance. With turbulent markets and less than adequate

service, the 3PL customer will need for the service performance to improve quickly so that it can adequately serve its own customers.

In markets with low turbulence, the 3PL customer will not need to modify its product offering frequently because the demands and preferences of its own customers will not change very often. Thus, velocity performance is less important since the 3PL customer will not need for frequent changes to be made to the service that it receives. It will be more important for these customers that the service performs at a consistently high level. Therefore:

Hypothesis 3a: The relative importance of velocity performance to 3PL service satisfaction (compared to positional performance) will be greater in environments characterized by high market turbulence.

Hypothesis 3b: The relative importance of positional performance to 3PL service satisfaction (compared to velocity performance) will be greater in environments characterized by low market turbulence.

Competitive Intensity

Competitive intensity is described as the degree of competition a firm faces (Grewal and Tansuhaj 2001). In highly competitive markets, 3PL customers actively seek ways to gain an advantage over other firms in its industry. One of the ways firms gain a competitive advantage is through outsourcing services. Especially in ongoing exchanges, the benefits sought are often strategic, rather than narrowly focusing on cost cutting (Quinn 1999). Thus, they will need for their service providers to continually improve their offerings to gain an advantage over competitors. As it is assumed that competitors can mimic the current level of services (Day and Nedungadi 1994), positional performance is not as important.

Rather, to stay ahead of competitors, 3PL customers need their service providers to have a high rate of velocity performance. Similarly, when a competitor's service provider introduces performance enhancements, 3PL customers will desire their service provider to improve to the standard of performance being received by their competition. Again, velocity performance becomes important, since the service provider will need to quickly improve service performance to levels comparable to its customer's competitors. Positional performance is less important because widely accepted levels of performance quickly become obsolete. Even if a positional performance level was previously acceptable, the customer cannot afford for the competitors' advantage to persist, so velocity performance becomes paramount.

In markets with low competitive intensity, the 3PL customer does not have as much pressure to gain an advantage on its competitors or to copy competitor moves. Therefore it will be more interested in having the service provider maintain a high level of positional performance in order to meet its needs. Thus:

Hypothesis 4a: The relative importance of velocity performance to 3PL service satisfaction (compared to positional performance) will be greater in environments characterized by high competitive intensity.

Hypothesis 4b: The relative importance of positional performance to 3PL service satisfaction (compared to velocity performance) will be greater in environments characterized by low competitive intensity.

METHOD

Sample

An online survey instrument was used to collect data from the customers of 3PL service providers. The sampling frame consisted of individuals included in the

membership directory of the Council of Supply Chain Management Professionals (CSCMP). Individuals were targeted holding positions at the "director" level in a logistics related area. Phone messages were left with individuals before sending an email message containing a cover letter and hyperlink to the survey. Follow-up phone calls were made to determine whether the respondent received the message properly and to confirm willingness to participate. All respondents were given the opportunity to enter a raffle upon completion of the survey with cash prizes of $500, $250, and $100. 521 individuals were identified as potential prospects. Of these 521 individuals, 51 did not receive surveys due to incorrect or outdated contact information and 50 firms did not utilize 3PL service providers, leaving an effective sample of no more than 420 (521 – 51 – 50) firms. A total of 109 surveys with complete information were received for an effective response rate of 25.95%. Table 1 illustrates the industries represented in the study as indicated by the respondents, while Tables 2 and 3 provide information on the customer firm demographics.

← Insert Tables 1, 2, and 3 about Here →

Measures

Each respondent was asked to answer the survey by thinking of their "primary" 3PL service provider. The primary 3PL service provider was defined as being that 3PL service provider to whom the company had dedicated the largest proportion of their logistics budget. All of the primary constructs were measured with 7-point scales, but anchored differently depending on the construct (Table 4). Measures were created for positional and velocity performance perceptions based on

the theoretical meaning of the concepts provided by (Hsee and Abelson 1991). The scale for service satisfaction was formulated by using three items based upon the adjectives "happy", "content", and "satisfied" (Liu et al. 2005; Oliver and Swan 1989; Westbrook and Oliver 1981). The scales for market turbulence and competitive intensity were based on research by Kohli and Jawarski (1993). Finally, we measure customers overall perception of disconfirmation with an item similar to those employed in prior satisfaction research (Oliver 1980; Swan and Trawick 1981).

← Insert Table 4 about Here →

Cronbach alpha coefficients were estimated for all of the multi-item scales to assess reliability. A reverse worded item from both the market turbulence and competitive intensity scales was eliminated because of poor inter-item correlation with other measures the respective constuct (-.107 and .146 respectively). Respondents answering questionnaires of substantial length may sometimes misread items that are reverse worded (Carman 1990). The remaining measures all had reliability coefficients above .7 as recommended by Nunnaly (1978). The scores for service satisfaction, market turbulence, and competitive intensity included in the analysis were computed by adding each of the item scores together.

ANALYSIS AND RESULTS

Two control variables were included in all of the analyses presented here. Annual sales revenue as reported by the respondent (Sales) is used as a proxy of the firms' size. Firm size is a widely used control variable in studies concerning strategy.

Next, the number of years the company has been working with its primary 3PL (Years) was captured. In relational settings relationship duration has been found to be an important moderating variable (Gounaris and Venetis 2002; Grayson and Ambler 1999).

To test hypotheses 1a and 1b, we estimated an ordinary least squares (OLS) regression equation with service satisfaction as the dependent variable and velocity performance and positional performance (along with the control variables) as the independent variables. The results shown in the first two columns of Table 5 support these hypotheses. Specifically, both positional performance (β= 1.98, $p < .01$) and velocity performance (β= 1.06, $p < .01$) significantly influence service satisfaction.

To test hypotheses 2a and 2b, two additional OLS regression equations in accordance with the procedures outlined by Baron and Kenney (1986) for testing mediation are estimated. The test for hypothesis 1 satisfies the first condition for mediation. To test the second condition, a regression equation with disconfirmation as the dependent variable and velocity performance and positional performance as the independent variables is estimated. Both positional performance (β= .54, $p < .01$) and velocity performance (β= .23, $p < .05$) significantly influence disconfirmation (Table 5). Then, a regression equation is estimated with service satisfaction as the dependent variable and positional performance, velocity performance, and disconfirmation as independent variables. Disconfirmation (β=1.60, $p<.01$), positional performance (β=1.03, $p < .05$), and velocity performance (β=.69, $p < .05$)

were all significant predictors of service satisfaction. The results demonstrate that disconfirmation partially mediates the effect of both velocity performance and positional performance on satisfaction. When disconfirmation is added to the regression equation, the effects of positional and velocity performance on service satisfaction remain significant, but are lessened. The portion of explained variance in service satisfaction attributed to positional performance diminishes from 70% to 22% and the portion of explained variance in service satisfaction attributable to velocity performance diminishes from 27% to 13% (Table 5). Thus hypotheses 2a and 2b are supported.

← Insert Table 5 about Here →

Two split group analyses were conducted to examine Hypotheses 3a - 4b. To test the moderating influence of market turbulence, the overall sample was split at the median of the market turbulence measure to form a "low turbulence" sub-sample and a "high turbulence" sub-sample. Then, a regression was run for each group with service satisfaction as the dependent variable and disconfirmation, positional performance, velocity performance as independent variables. This procedure was repeated to test the moderating influence of competitive intensity.

The results of this analysis provide support for Hypotheses 3a and 3b (Table 6). When market turbulence is low, positional performance is a significant predictor of service satisfaction ($\beta = 1.74$, $p < .05$), but velocity performance is not ($\beta = .08$, $p = .85$). When market turbulence is high, velocity performance is a significant predictor of service satisfaction ($\beta = 1.507$, $p < .01$), but positional performance is not

(β=.586, p=.28). It appears that positional performance is relatively more important to customer satisfaction when market turbulence is low while velocity performance is relatively more important to customer satisfaction when market turbulence is high.

Support is also found for Hypotheses 4a and 4b (Table 6). When competitive intensity is low, positional performance is a significant predictor of service satisfaction (β= 1.19, p<.05) but velocity performance is not (β= .26, p =.55). When market turbulence is high, velocity performance is a significant predictor of service satisfaction (β= 1.25, p<.01), but positional performance is not (β=.792, p=.26). It appears that positional performance is relatively more important to customer satisfaction when competitive intensity is low while velocity performance is relatively more important to customer satisfaction when competitive intensity is high.

← Insert Table 6 about Here →

DISCUSSION

The findings of this study provide support for the importance of velocity performance perceptions to customer satisfaction formation in the 3PL industry. For logistics service providers, the importance of velocity performance implies that their services must *improve* at an acceptable rate over the duration of the exchange relationship in order maximize customer satisfaction. Meeting or exceeding agreed upon absolute performance levels is not enough. Thus, 3PL service providers should make sure their performance metrics accurately capture information on velocity performance. The results of this study are expected to hold in other situations where service is delivered on a frequent basis. When service delivery occurs on a

frequently, the customer has a greater opportunity to observe improving or diminishing trends in service performance than when service delivery occurs infrequently. Additionally, in business service contexts, the customer has information available that allows them to make assessments of velocity performance.

The mediating role of disconfirmation on velocity performance implies that customers form expectations about velocity. When these expectations are not met, customer satisfaction is diminished. Thus, service providers in consultations with their business customers should discuss acceptable rates of performance improvement. In technological firms such as Intel, performance enhancements are often planned and predictable. Providers of ongoing business services should similarly plan to improve the design of their services in a systematic fashion. Proactive planning along these lines allows service providers to set customer expectations instead of trying the catch up to them.

The moderating influence of external conditions demonstrates that 3PL service providers must be knowledgeable about the environmental challenges faced by their customers in addition to the operational challenges. When customers operate in markets characterized by high turbulence and competitive intensity, our results indicate that velocity performance is even more important to customers' satisfaction formation than positional performance.

Logistics service providers often gain a thorough understanding their customers' supply chains. The significance of market turbulence implies that they must also understand the needs of its *customers'* customer. When these needs

change, service modifications may need to be implemented. By monitoring the needs of its customers' customer, proactive service providers can more quickly implement service enhancements. The significance of competitive intensity implies that service providers should understand the dynamics of the industry in which its customer operates. The proactive service provider will monitor the logistics service enhancements implemented by its customers' competitors and quickly follow to erode a potential competitive advantage.

LIMITATION AND FUTURE RESEARCH CONSIDERATIONS

There are some limitations to consider when evaluating the results of this study. First, while focusing specifically on the 3PL service context allows for a deeper understanding of the drivers of satisfaction in this important industry, the generalizability of the model to other ongoing business service context could not be evaluated. Existing satisfaction models are based in consumer, discrete contexts; future research should attempt to validate and extend the present model of satisfaction in other business, relational settings. While environmental conditions influenced the relative importance of positional and velocity performance for 3PL customers, other industries may find alternative moderating conditions to be important. For example, Hsee et al. (1991) find that individual level variables including motives and attributions also moderate the relative importance of positional and velocity performance. Next, the sample size of the study is somewhat small, though comparable with prior studies in the logistic service contexts (Daugherty et al.

1998; Vickery et al. 2004). Third, velocity performance was measured using a single-item scale, making reliability assessment impossible. Future studies should consider developing a multi-item scale or using an attribute-based scale to assess velocity performance. Finally, the design of the study was cross sectional. Given this, we were only able to capture the instantaneous velocity as perceived by customers. Future research should consider objective measures and/or longitudinal designs.

Figure 1: Conceptual Framework

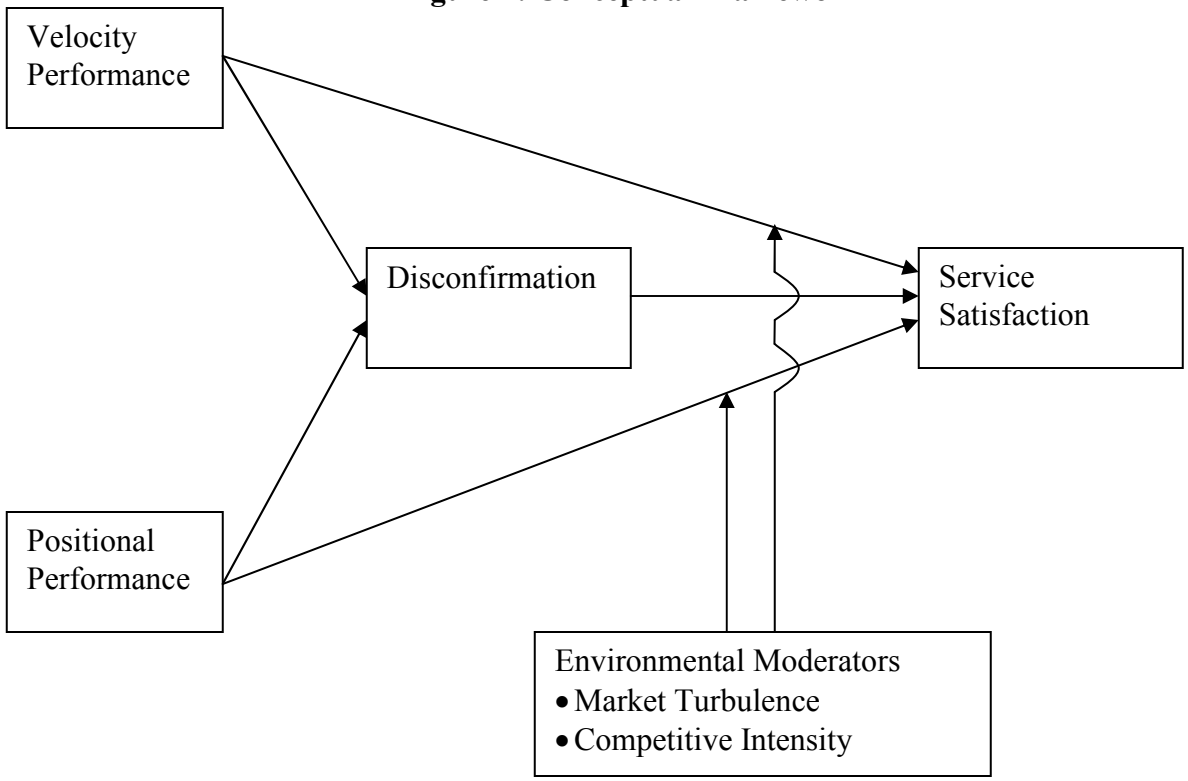


Table 1: Industry Representation of Sample Customer Firms

Industry	Count	Industry	Count	Industry	Count
Aerospace and Defense	1	Forest Products	1	Pharmaceutical	4
Athletic Footware & Apparel	1	Food & Consumer Products	38	Publishing	3
Automotive	5	General Manufacturing	4	Retail	4
Building Materials	3	Industrial Machinery	1	Telecommunications	4
Cable and Wire	1	Media	1	Textiles	1
Computers & Peripherals	5	Medical Equipment	7	Tobacco	1
Chemical	10	Metals	1	Water Products	1
Electronic Equipment	7	Movie Studio	1	Wholesale	1
Fragrances and Flavors	1	Packaging	2	No response	1

Table 2: Customer Firm Demographics

	Mean	Standard Error	Minimum	Maximum
Years With Primary 3PL	7.7	.7	0	40
Annual Sales Volume ($billions)	$7.413	$1.246	$0.0017	$65.000

Table 3: Customer Firm Demographic Frequencies

Years With Primary 3PL	Count	Percentage
0 – 2.5 years	15	14.6%
3 – 4.5 years	22	21.4%
5– 9.5 years	37	35.9%
10 – 19.5 years	19	18.4%
20+ years	10	9.7%
Total	*103*	*100%*
Annual Sales Volume	**Count**	**Percentage**
$0 – $0.5 BIL	19	19.8%
$0.51 – $2 BIL	18	18.8%
$2.1 – $5 BIL	27	28.1%
$5.1 – $15 BIL	21	21.9%
$15.1 BIL +	11	11.5%
Total	*96*	*100%*

Table 4: Measures

Concept	Item(s)	Mean	S.D.
Positional Performance	Overall, the current performance of the 3PL's service(s) is {Poor…Excellent}	5.27	1.015
Velocity Performance	Overall, the rate which the 3PL is currently improving the performance of its service(s) is {Poor…Excellent}	4.70	1.175
Service Satisfaction[(L)] *(α = .862)*	My company is content with the 3PL's service performance.	4.99	1.488
	My company is very happy with the 3PL's service performance.	4.62	1.586
	Overall, my company is dissatisfied with the 3PL's service performance. (R)	5.31	1.544
Disconfirmation	Overall, the performance of this 3PL's service(s) has been {Much Worse than Expected...Much Better than Expected}	4.57	1.109
Competitive Intensity[(L)] *(α = .776)*	Competition in our industry is cutthroat.	5.47	1.244
	Promotion wars are common in our industry.	4.71	1.786
	Anything that a competitor can offer, others can match easily.	4.50	1.602
	Price competition is common in our industry.	5.60	1.306
	One hears of a new competitive move almost every day.	4.22	1.674
	Our competitors are relatively weak.* (R)	5.55	1.384
Market Turbulence[(L)] *(α = .846)*	In our kind of business, customers' product and service preferences change constantly.	4.56	1.707
	Our customers tend to look for new products and services all the time.	4.61	1.644
	We are witnessing demand for our products and services from new customers.	4.84	1.510
	New customers tend to have product-related and service-related needs that are different from those of our existing customers.	4.15	1.502
	We sell to many of the same customers that we used to in the past.* (R)	2.36	1.183

[(L)]Likert scales anchored "Strongly Agree" to "Strongly Disagree" were used for the items in this scale

* indicate item was removed due to poor inter-item correlation

(R) indicates a reverse worded item

Table 5: Direct and Mediated Effects of Positional Performance and Velocity Performance

	Service Satisfaction		Disconfirmation		Service Satisfaction	
Predictor	*Standardized Coefficient (Unstandardized)*	*Portion of Explained Variance*	*Standardized Coefficient (Unstandardized)*	*Portion of Explained Variance*	*Standardized Coefficient (Unstandardized)*	*Portion of Explained Variance*
Positional Performance	.492*** (1.981)	70.2%	.543*** (.593)	80.0%	.256** (1.033)	22.2%
Velocity Performance	.305*** (1.062)	27.0%	.246** (.232)	16.4%	.198** (.691)	13.3%
Disconfirmation					.433*** (1.598)	63.6%
Sales	-.096 (.000)	2.7%	-.114* (.000)	3.5%	-.047 (.000)	.7%
Years	-.026 (-.016)	0.2%	-.020 (-.003)	0.1%	-.018 (-.011)	.1%
F-Statistic	36.408***		36.661***		40.223***	
R-Square	.583		.585		.661	
Adj. R-Square	.567		.569		.645	

*p≤.10, **p≤.05, ***p≤.01

NOTE: The portion of explained variance assigned to each predictor is computed as the square of the standardized coefficient, standardized to sum to 1(Bolton et al. 2003).

Table 6: Positional and Velocity Performance Effects on Satisfaction in Varying Environmental Conditions

Predictor	Service Satisfaction (Low Market Turbulence) *Standardized Coefficient (Unstandardized)*	Service Satisfaction (High Market Turbulence) *Standardized Coefficient (Unstandardized)*	Service Satisfaction (Low Competitive Intensity) *Standardized Coefficient (Unstandardized)*	Service Satisfaction (High Competitive Intensity) *Standardized Coefficient (Unstandardized)*
Positional Performance	.435** (1.742)	.136 (.586)	.295** (1.194)	.197 (.792)
Velocity Performance	.024 (.079)	.394*** (1.507)	.074 (.266)	.375*** (1.245)
Disconfirmation	.374** (1.348)	.406*** (1.532)	.526*** (1.970)	.322*** (1.162)
Sales	-.103 (.000)	-.002 (.000)	-.077 (.000)	-.009 (.000)
Years	-.002 (-.001)	-.011 (-.009)	-.151** (-.128)	.100 (.045)
F-Statistic	17.919***	23.285***	25.607***	17.301***
R-Square	.646	.708	.711	.658
Adj. R-Square	.610	.678	.683	.620

*p≤.10, **p≤.05, ***p≤.01

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APPENDIX A:

SURVEY COVER LETTER

Dear (xxx):

Researchers in the Division of Marketing and Supply Chain Management at The University of Oklahoma invite you to participate in a research study focusing on Third Party Logistics (3PL) Services. The purpose is to gain a better understanding of how 3PL service providers can best maximize their ability to provide customer satisfaction in business-to-business relationships.

Your participation will involve filling out a survey that will take you about 15-20 minutes to complete. You have been selected because of your role as a director or manager over an area related to logistics in your organization. Simply click on the electronic link to the survey below to begin.

http://www.zoomerang.com/survey.zgi?p=WEB224S7AQKEYA

A raffle will be held within one month of the completion of this study. The first person selected will receive a cash prize of $500, the second person a cash prize of $250, and the third person a cash prize of $100. Instructions on entering the raffle are contained in the survey.

If you have any questions about this research, please feel free to call me (405 – 325 – 4675). I am presently a doctoral candidate, and your participation in this study will assist me in completing the final requirement for my doctoral degree. Questions about your rights as a research participant or concerns about the project should be directed towards the University of Oklahoma Norman Campus Institutional Review Board (ph: 405 – 325 – 8110 or email: irb@ou.edu).

Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time. The results of the research may be published, but your name and your company will not be used. The published results will be presented in summary form only. All information you provide will remain strictly confidential.

By answering this questionnaire, you will be agreeing to participate in the project described above.

If you'd rather complete a paper version of the survey, e-mail me at the address below with your address and one will be sent to you. Thanks for your help!

Sincerely,

Elten D. Briggs
ebriggs@ou.edu

APPENDIX B:

THIRD-PARTY LOGISTICS SERVICE SURVEY

PURPOSE OF THIS STUDY

To gain a better understanding of how third-party logistics (3PL) service providers can best maximize their ability to provide customer satisfaction in business-to-business relationships.

WHO SHOULD RESPOND?

Individuals involved in the management of their company's relationships with third party logistics service providers. If you feel that you cannot answer the questions, please forward the survey to the appropriate person in your company.

CASH PRIZES

A raffle will be held within one month of the completion of this study. The first person selected will receive a cash prize of $500, the second person a cash prize of $250, and the third person a cash prize of $100. If you want to enter the raffle, provide your contact information by e-mail (or by separate mailing). We will be able to contact winners while ensuring all respondents' answers remain anonymous.

IMPORTANT!

Third-Party Logistics involves outsourcing logistics activities that have traditionally been performed within the organization. The activities performed by the service provider can encompass the entire logistics/distribution process, or more commonly, selected logistics/distribution activities.

In responding to this survey, please think of the 3PL service provider to whom you've dedicated the largest proportion of your logistics budget. We will refer to this 3PL as your *primary* service provider. This may not necessarily be your "best" service provider.

ALL INFORMATION WILL BE KEPT STRICTLY CONFIDENTIAL

ONLY AGGREGATE LEVEL ANALYSES WILL BE USED IN RESEARCH FINDINGS

PART I
3PL SERVICE PERFORMANCE

When responding to the following statements, think about the **services** provided by your primary 3PL service provider. Although the questions may appear redundant at first glance, each of the following sections deals with a different aspect of 3PL service performance.

Basic services are common logistics services such as transportation and warehousing. *Value-added services* refer to activities customized or tailored specifically to individual firms such as supply chain planning, supplier management, strategic consulting, etc.

Please circle the number that best reflects your response to the following statements.

Current Performance

	Poor						Excellent	
a) Please evaluate the current level of the 3PL's *basic* service performance in terms of:								
1. Reliability	1	2	3	4	5	6	7	N/A
2. Speed	1	2	3	4	5	6	7	N/A
3. Service Availability	1	2	3	4	5	6	7	N/A
4. Information Accessibility	1	2	3	4	5	6	7	N/A
b) Please evaluate the current level of the 3PL's *value-added* service performance in terms of:								
1. Speed	1	2	3	4	5	6	7	N/A
2. Service Availability	1	2	3	4	5	6	7	N/A
3. Information Accessibility	1	2	3	4	5	6	7	N/A
4. Reliability	1	2	3	4	5	6	7	N/A

Pace of Performance Improvements

	Poor						Excellent	
a) Please evaluate the rate at which the 3PL is currently improving its *basic* service performance in terms of:								
a. Service Availability	1	2	3	4	5	6	7	N/A
b. Information Accessibility	1	2	3	4	5	6	7	N/A
c. Reliability	1	2	3	4	5	6	7	N/A
d. Speed	1	2	3	4	5	6	7	N/A
b) Please evaluate the rate at which the 3PL is currently improving its *value-added* service performance in terms of:								
a. Information Accessibility	1	2	3	4	5	6	7	N/A
b. Reliability	1	2	3	4	5	6	7	N/A
c. Speed	1	2	3	4	5	6	7	N/A
d. Service Availability	1	2	3	4	5	6	7	N/A

Performance Improvements over Time	**Much Worse**			**Exactly the Same**			**Much Better**	
a) Please evaluate the 3PL's *basic* service performance <u>now</u> <u>compared to when your company began working with the 3PL</u> in terms of:								
1. Reliability	1	2	3	4	5	6	7	N/A
2. Speed	1	2	3	4	5	6	7	N/A
3. Service Availability	1	2	3	4	5	6	7	N/A
4. Information Accessibility	1	2	3	4	5	6	7	N/A
b) Please evaluate the 3PL's *value-added* service performance <u>now compared to when your company began working with the 3PL</u> in terms of:								
1. Speed	1	2	3	4	5	6	7	N/A
2. Service Availability	1	2	3	4	5	6	7	N/A
3. Information Accessibility	1	2	3	4	5	6	7	N/A
4. Reliability	1	2	3	4	5	6	7	N/A

Overall Performance	**Poor**						**Excellent**	
a) The current performance of the 3PL's *basic* service(s) is…	1	2	3	4	5	6	7	N/A
b) The current performance of the 3PL's *value-added* service(s) is…	1	2	3	4	5	6	7	N/A
c) Overall, the current performance of the 3PL's service(s) is…	1	2	3	4	5	6	7	N/A
d) The rate at which the 3PL is currently improving the performance of its *basic* service(s) is…	1	2	3	4	5	6	7	N/A
e) The rate at which the 3PL is currently improving the performance of its *value-added* service(s) is…	1	2	3	4	5	6	7	N/A
f) Overall, the rate which the 3PL is currently improving the performance of its service(s) is…	1	2	3	4	5	6	7	N/A

	Much Worse			**Exactly the Same**			**Much Better**	
a) The performance of the 3PL's *basic* service(s) compared to when my company began working with the 3PL is now…	1	2	3	4	5	6	7	N/A
b) The performance of the 3PL's *value-added* service(s) compared to when my company began working with the 3PL is now…	1	2	3	4	5	6	7	N/A
c) Overall, the performance of this 3PL's service(s) compared to when my company began working with the 3PL is now…	1	2	3	4	5	6	7	N/A

Performance Compared to Expectations	Much Worse Than Expected			As Expected			Much Better Than Expected	
a) The performance of the 3PL's *basic* service(s) has been…	1	2	3	4	5	6	7	N/A
b) The performance of the 3PL's *value-added* service(s) has been…	1	2	3	4	5	6	7	N/A
c) Overall, the performance of this 3PL's service(s) has been…	1	2	3	4	5	6	7	N/A

PART II
EVALUATION OF 3PL SERVICE PROVIDER CHARACTERISTICS

This section deals with evaluations concerning your primary 3PL service provider. Please circle the number that best reflects your reactions to the following statements.

Satisfaction with Service Performance	Strongly Disagree			Neutral			Strongly Agree
a) My company is content with the 3PL's service performance.	1	2	3	4	5	6	7
b) My company is very happy with the 3PL's service performance.	1	2	3	4	5	6	7
c) Overall, my company is dissatisfied with the 3PL's service performance.	1	2	3	4	5	6	7

Satisfaction with Relationship	Strongly Disagree			Neutral			Strongly Agree
a) This service provider clearly explains the reasons for its policies.	1	2	3	4	5	6	7
b) Interactions between my firm and this service provider are characterized by mutual respect.	1	2	3	4	5	6	7
c) This service provider expresses concerns tactfully.	1	2	3	4	5	6	7
d) This service provider leaves us in the dark about things we ought to know.	1	2	3	4	5	6	7
e) The working relationship of my firm with this service provider is characterized by feelings of hostility.	1	2	3	4	5	6	7

Satisfactions with Economic Benefits	**Strongly Disagree**			**Neutral**			**Strongly Agree**
a) Being in a relationship with this service provider has helped my company to achieve higher profits.	1	2	3	4	5	6	7
b) The relationship with this service provider has helped improve my company's overall position in our market.	1	2	3	4	5	6	7
c) Being in a relationship with this service provider has helped my company to attain a lower total cost logistics solution.	1	2	3	4	5	6	7
d) Our relationship with this service provider is very attractive considering the prices we pay.	1	2	3	4	5	6	7
e) We are pleased with our decision to utilize this 3PL since they help us improve our end-customer satisfaction.	1	2	3	4	5	6	7

Overall Satisfaction	**Strongly Disagree**			**Neutral**			**Strongly Agree**
a) Overall, this service provider meets my company's needs.	1	2	3	4	5	6	7
b) I wish more of my firm's service providers were like this one.	1	2	3	4	5	6	7
c) There is always some problem or another with this service provider.	1	2	3	4	5	6	7
d) All things considered, my company is very satisfied with this service provider.	1	2	3	4	5	6	7

PART III
COMPANY RELATIONSHIP APPROACH

Please circle the number that best reflects your response to the following statements.

		Strongly Disagree			Neutral			Strongly Agree
a)	I have said positive things about our primary 3PL to other professional colleagues.	1	2	3	4	5	6	7
b)	I have recommended our primary 3PL to professional colleagues who seek my advice.	1	2	3	4	5	6	7
c)	I have encouraged other companies to do business with our primary 3PL.	1	2	3	4	5	6	7
d)	My company considers our primary 3PL as its first choice for logistics outsourcing	1	2	3	4	5	6	7
e)	My company will do more business with our primary 3PL in the next few years.	1	2	3	4	5	6	7
f)	My company intends to renew our contract with our primary 3PL.	1	2	3	4	5	6	7
g)	My company normally retains the same service providers for more than two years.	1	2	3	4	5	6	7
h)	My company normally uses current service providers when new needs arise.	1	2	3	4	5	6	7
i)	My company normally extends current contracts with service providers.	1	2	3	4	5	6	7

		Strongly Disagree			Neutral			Strongly Agree
a)	Our primary 3PL is capable of providing quality services to us.	1	2	3	4	5	6	7
b)	Generally speaking, our primary 3PL is trustworthy.	1	2	3	4	5	6	7
c)	When making important decisions, our primary 3PL considers our best interests as well as its own.	1	2	3	4	5	6	7
d)	Sometimes our primary 3PL does not follow through on commitments to us.	1	2	3	4	5	6	7
e)	It would cost my company a lot of money to switch our business from our primary 3PL to another 3PL.	1	2	3	4	5	6	7
f)	It would take my company a lot of effort to switch our business from our primary 3PL to another 3PL.	1	2	3	4	5	6	7
g)	If my company stopped using our primary 3PL, and started using another 3PL for the same services, some additional technological problems would arise.	1	2	3	4	5	6	7
h)	My company would be at risk if we had to choose another 3PL to perform the services currently performed by our primary 3PL.	1	2	3	4	5	6	7

PART IV
INDUSTRY CHARACTERISTICS

This section deals with characteristics of the industry in which your company operates. Please circle the number that best reflects your response to the following statements.

Market Turbulence		**Strongly Disagree**			**Neutral**			**Strongly Agree**
a)	In our kind of business, customers' product and service preferences change constantly.	1	2	3	4	5	6	7
b)	Our customers tend to look for new products and services all the time.	1	2	3	4	5	6	7
c)	We are witnessing demand for our products and services from new customers.	1	2	3	4	5	6	7
d)	New customers tend to have product-related and service-related needs that are different from those of our existing customers.	1	2	3	4	5	6	7
e)	We sell to many of the same customers that we used to in the past.	1	2	3	4	5	6	7

Competitive Intensity		Strongly Disagree			Neutral			Strongly Agree
a)	Competition in our industry is cutthroat.	1	2	3	4	5	6	7
b)	Promotion wars are common in our industry.	1	2	3	4	5	6	7
c)	Anything that a competitor can offer, others can match easily.	1	2	3	4	5	6	7
d)	Price competition is common in our industry.	1	2	3	4	5	6	7
e)	One hears of a new competitive move almost every day.	1	2	3	4	5	6	7
f)	Our competitors are relatively weak.	1	2	3	4	5	6	7

PART V
COMPANY CHARACTERISTICS

Please respond to a few questions concerning your company and your primary 3PL service provider. If exact information is not available, provide your best estimate.

Information about your company:

1. Your primary industry:

[ ] Automotive
[ ] Chemical
[ ] Computers and Peripherals
[ ] Food and Consumer Products
[ ] Electronic Equipment
[ ] Industrial machinery
[ ] Medical Equipment
[ ] Telecommunications

[ ] Other (please specify) _____

	Company:	Business Unit:
2. Approximate annual sales:	$_____	$_____
Approximate number of employees:	_____	_____

3. Number of years your company has used 3PL services: _____years

   Number of 3PL service providers your company currently works with:
   _____

Information about your primary 3PL service provider:

4. Of the *basic services* received by your firm from 3PL service providers, approximately what percentage of these services is provided by your primary 3PL service provider?

   _____%

5. Of the *value-added services* received by your firm from 3PL service providers, approximately what percentage of these services is provided by your primary 3PL service provider?

   _____%

6. How many years has your company has worked with the primary 3PL?

   _____years

Thank you for your time and effort!
Your assistance is greatly appreciated!

CONTEST REGISTRATION

In order to enter the drawing, please send an email to ebriggs@ou.edu, with the words "cash drawing" in the subject line. You will need to include your name and the address where you'd like to send the prize in the e-mail message.

APPENDIX C:

TABLE OF CDBS SATISFACTION STUDIES SINCE 1996

Citation	Satisfaction Focus	Measures	Significant Antecedents	Significant Consequences	Key Findings
Liu et al (2005)	Global satisfaction with supplier of financial staffing service provider	• My company is very satisfied… • My company is not pleased with…account manager • My company is very happy with the performance of this (supplier's) service providers.	Customer Value	Share-of-business Intention	While customer value predicted satisfaction in the authors' study in all samples, the link between customer satisfaction and share of business intention was only significant when customers had relationships of 3 years or more.
Vickery et al. (2004)	Global satisfaction with third-party logistics service provider	• Overall satisfaction quality of service • …delighted with my overall relationship with service provider • …wish more service providers were like this one • Always some problem with this provider	Relational Performance	Customer Loyalty	Found that the media richness→relational performance→satisfaction→loyalty link was significant as well as a direct link between media richness and loyalty.
Wiertz et al. (2004)	Satisfaction with the performance of a customer interaction center	• The CIC is one of the best in the business. • Overall, I am satisfied with the performance of the CIC. • (3 other items from Mano & Oliver 1993 not reported)	Service Quality Image Quality	Trust	Find that Impact quality in addition to service quality may predict satisfaction in service settings

Lam et al. (2004)	Global satisfaction with provider of courier services	• In general, my company is very satisfied with services… • Overall, my company is satisfied with its relationship with… • Overall, …a good company to do business with • Overall,…treats me very fairly • Overall,…service come up to my expectations	Customer Value	Customer Loyalty (recommend) Customer Loyalty (patronage)	Customer satisfaction totally mediated the relationship between customer value and customer loyalty (recommend) Customer satisfaction partially mediated the relationship between customer value and customer loyalty (patronage).
Pujari, Devashish (2004)	Satisfaction with a self service technology	Qualitative study; Quantitative measures not reported.	Improved Speed; Improved Process Efficiency; Time and Cost Savings; Reliability	N/A	Key sources of satisfaction for business customers are different than those for end consumers. Significant relationship between satisfaction and the perception of the service provider's technical excellence and between satisfaction and the business relationship.
Keiningham and Perkins-Munn (2003)	Overall satisfaction with banking services	Not reported.	N/A	Share-of-Wallet	Positive and nonlinear relationship exists between satisfaction and share-of-wallet

Stank et al. (2003)	Global satisfaction with a third-party logistics service provider	• I am delighted with my firm's overall relationship… • I wish more of my firm's service providers were like this one • There is always some problem or another…	Relational Performance	Customer Loyalty	Relational performance was a significant predictor of satisfaction, while operational performance and cost performance were not
Bolton et al. (2003)	Interpersonal (IPSAT) and Interorganizational (IOSAT) in telephone services	IPSAT • How do would you feel about the company's representative? IOSAT • How would you feel about the company?	Social and Economic Resources	Behavioral Intentions to: renew contract, recommend, and increase patronage	Social resources have a greater effect than economic resources on interpersonal satisfaction while economic resources have a greater effect than social resources on interorganizational satisfaction.
Taylor and Hunter (2003)	Global satisfaction with customer relationship management system integrator	• …Exceeds expectations. • …among the best I could have bought. • …exactly what I need • I am satisfied with my decision… • Using current (provider) is the right thing to do	Value and Trust	Brand Attitude	Affect did not a significant influence on satisfaction and satisfaction did not have a significant influence on loyalty in an e-services context.

Wangenheim (2003)	Satisfaction with the relationship with an energy provider	• Relationship fully matches expectations • Pleased with the relationship • I am Satisfied… • There is nothing negative we can say… • I am not convinced or our current provider • …does not fulfill our expectations	N/A	Loyalty	Satisfaction influences both active and passive loyalty, and the effect of satisfaction on loyalty is stronger for old customers than for new customers. Other potential moderators of the satisfaction-loyalty link (product importance, purchase uncertainty, and switching costs) received mixed support.
Abdul-Muhmin (2002	Satisfaction with logistics service	• Time it takes for supplier to deliver orders • Dependability of supplier	N/A	None	Satisfaction with logistics service was not significantly related to relationship satisfaction or relationship commitment (sample collected in Saudi Arabia)
Durvasula (2002)	Overall satisfaction with ocean freight shipping services	• *Overall satisfaction w/service* (extremely poor) to (excellent)	Service evaluations of interfacing departments	N/A	Ratings of marketing/sales reps had the strongest impact on overall satisfaction among the departments. Other departments with a significant impact were documentation, booking services, and operations. Telephone services, booking services, and personal visits did not have a significant impact on overall satisfaction.
Mentzer et al. (2001)	Satisfaction with logistics services	• What are your general impressions of the serviced provided… • Which word best describes your feelings toward DLA • How satisfied are you with DLA service	Personnel contact quality; Order Discrepancy Handling; Ordering Procedures	N/A	Find that different aspects of logistics service quality affected satisfaction depending on the customer segment in question. Only ordering procedures significantly influenced satisfaction in all segments.

Athanassopoulos (2000)	Satisfaction with banking services	N/A	N/A	N/A	Confirmatory factor analysis indicated that different customer segments tended to yield differing satisfaction scores.
Backhaus and Bauer (2000)	Satisfaction with transportation services & overall satisfaction with the relationship	• How satisfied are you with…(List of 20 attributes in 4 categories) • Overall satisfaction measure not included	Negative Critical Incidents Positive Critical Incidents	N/A	Negative incidents had a greater effect on satisfaction than positive incidents. Positive incidents seemed to neutralize the impact of "low attribute satisfaction" while negative incidents strengthened the effect of low attribute satisfaction on overall satisfaction.
Stank et al. (1999)	Satisfaction with service of industrial distributors (fast food)	• …am delighted with my firm's overall relationship • …wish more of my firm's distributor were like this one • It is a pleasure dealing with this distributor • …always some problem or another with this distributor	Operational Performance Relational Performance	Loyalty	Found that the operational performance→ satisfaction link was much stronger than the relational performance → satisfaction link. Post hoc analysis found evidence of a direct influence of relational performance on operational performance but not vice versa.
Lapierre et al. (1999)	Satisfaction with consulting engineering services	*Overall satisfaction* (Entirely dissatisfied) to (Entirely satisfied)	Perceived Value	Behavioral Intentions	No significant relationship was found between perceived quality and customer satisfaction. Customer satisfaction mediated the relationship between perceived value and behavioral intentions.

Ennew and Binks (1999)	Satisfaction with banking services	(Delighted) to (Very Disappointed)	Institutional Atmosphere of Relationship; Supplier Participative Behavior; Service Quality	Propensity to Switch Banks	The positive behavior of the bank manager had the strongest influence on customer satisfaction.
Daugherty et al (1998)	Global satisfaction with vendor (distribution service)	• We are delighted with our overall distribution service relationship… • We wish more were like this one… • It is a pleasure doing business... • There is always some problem…	Satisfaction with distribution service elements	Loyalty	Satisfaction partially mediates the relationship between distribution service capabilities and loyalty.
Smith (1998)	Satisfaction with telephone and delivery services	• I am satisfied with the services I received from the help line rep… • I am satisfied with the services I received during my last call to… • I am satisfied with the service that I last received from a …delivery person	N/A	Future Purchase Intentions	Found evidence that satisfaction with telephones and delivery services was a stronger predictor of repurchase intentions than satisfaction with the product
Nowak et al. (1997)	Overall satisfaction with marketing research services	2-item scale (Not provided)	N/A	N/A	Find that partnering relationships have a positive impact on clients' evaluation of the research firm's performance, but not on satisfaction itself.