
A conceptual model and empirical examination of the effect of service guarantees on post-purchase consumption evaluations

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Service quality assurance, Consumer research, Consumer protection

Abstract

Empirically evaluates a model of service guarantees by addressing the impact of a service guarantee on consumers' satisfaction evaluations. Proposes a model suggesting that the differentiating and signaling properties of a guarantee can influence service provider satisfaction and that a service guarantee may capitalize on the coproduction nature of services to increase consumer self-satisfaction and overall satisfaction. Finds empirical support that a guarantee can influence post-consumption evaluations, even in the absence of service failure and the guarantee being invoked, and therefore suggests that a service guarantee may influence consumer satisfaction even if the service is already highly reliable.

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Service guarantees are formal promises made to customers about the service they will receive (Zeithaml and Bitner, 1996). While the literature on service guarantees has traditionally tended to be highly normative and prescriptive, scholars have recently begun to empirically evaluate some of the principle arguments advanced for warranting services (Hill *et al.*, 2000; Ostrom and Iacobucci, 1998; Marmorstein *et al.*, 2001; Wirtz and Kum, 2001; Wirtz *et al.*, 2000). Most of this research, however, focuses on the impact of offering a service guarantee on pre-consumption evaluations and consumer choice. Much rarer is research that investigates the impact a guarantee can have on post-consumption consumer evaluations. Kashyap (2001, p. 9) contends this failure to recognize post-consumption guarantee effects has "diminished their worth in the services research agenda". We are aware of only two empirical studies investigating service guarantees that investigate post-consumption evaluation. Hays and Hill (2001) found that a service guarantee had a positive effect on service quality primarily through its effect on employee motivation and vision. Sum *et al.* (2002) found that service guarantees interact with employee variables to affect perceived service quality non-linearly. However, in general there is limited research investigating the impact of service guarantees on post-consumption evaluations.

Literature review and model development

Service guarantees have been shown to have an impact on pre-consumption evaluations and consumer choice (e.g. Ostrom and Iacobucci, 1998; Wirtz *et al.*, 2000). Research on post-consumption evaluations has focused, not surprisingly, on those cases in which there is a service failure and the guarantee is invoked. However, we believe a service guarantee can also have an impact on post-consumption consumer evaluations even if it is not invoked. In most situations, firms offer a service guarantee as a way to improve delivered service quality. By offering a service guarantee the firm is forced to focus on improving the service quality of its offering as excessive warranty



claims would likely prove ruinous. Therefore, a service guarantee is offered in the expectation that it will not be invoked. From a research perspective this raises the question of what, if any, impact a service guarantee has in the majority of the cases in which it is not invoked. Specifically, is it possible a service guarantee may have a positive effect on perceived service quality even if there is no service failure and the warranty is not invoked? Such a finding would enhance the potential usefulness of service guarantees significantly. Therefore, this research empirically evaluates the impact of a service guarantee on post-consumption evaluations in the absence of a service failure and the guarantee being invoked.

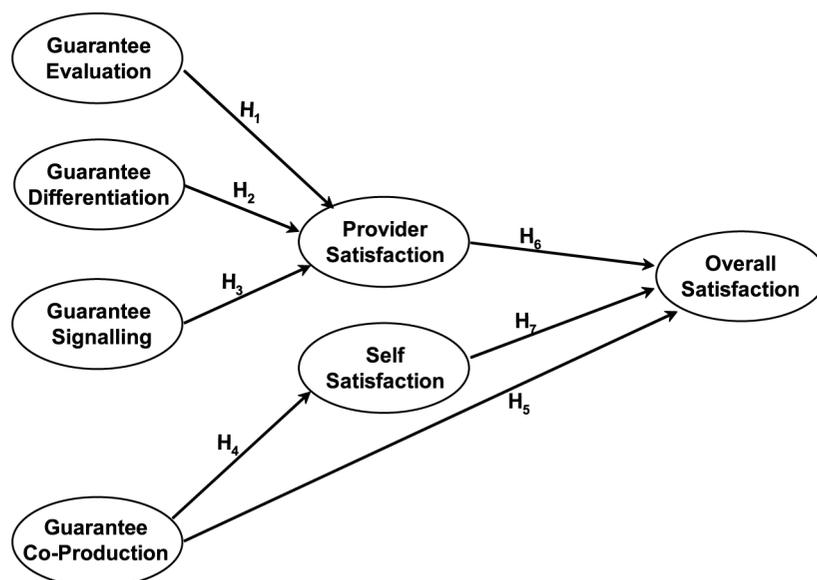
How might a service guarantee enhance post-consumption perceived service quality evaluations even if not invoked? Our review of the service guarantee literature leads us to suggest three issues are particularly salient to understanding a guarantee's impact on consumers' post-purchase evaluations. We use these characteristics as a starting point for our model (see Figure 1) by specifying that guarantee evaluation, the ability of a guarantee to differentiate the service provider, and the signaling properties of warranting services each influence the consumer's service provider satisfaction which, in turn, drives overall satisfaction. In addition, the consumer

coproduction aspects of a service guarantee are expected to influence consumer self-satisfaction and overall satisfaction. Therefore, the independent variables in our model are guarantee evaluation, differentiation, signaling, and coproduction, and the dependent variables are provider satisfaction, self-satisfaction, and overall satisfaction. We define self-satisfaction as the consumer's satisfaction with his/her own performance and efforts, provider satisfaction as the consumer's satisfaction with the efforts and performance of the service provider (customer-contact) employee, and overall satisfaction as the customer's satisfaction in total with the service experience. A detailed discussion of each of the independent variable constructs and the research hypotheses follows.

Guarantee evaluation

Hart (1988, 1993) argues that effective guarantees must be evaluated favorably by the customer. For example, the guarantee must warranty an important aspect of the service (i.e. 100 per cent billing accuracy of a bank), must not have excessive terms, conditions, or fine print, and customers must believe that in the case of service failure they could successfully invoke the guarantee. In short, guarantee evaluation can be summed up as: "The guarantee is a good idea".

Figure 1 Service guarantee model



Traditionally, the literature holds that the evaluation of the guarantee would influence consumer choice (Hart, 1988, 1993; Ostrom and Hart, 2000). For instance, all other things being equal, a consumer who evaluates a service guarantee positively will be more likely to choose the service organization, especially if the competition does not offer a guarantee. However, we argue that not only should guarantee evaluation influence pre-purchase choice, it will also influence post-purchase provider satisfaction evaluations if the guarantee primarily relates to the efforts of the service provider (as is the case here). For instance, the customer satisfaction associated with a service guarantee that warrants the individual service employee's actions would be expected to be related more directly to the service provider than with the overall service organization, because it is the efforts of the individual or employee that is being warranted. Therefore, the proposed model specifies that provider satisfaction is a function of guarantee evaluation:

- H1.* A customer's evaluation of a guarantee is positively related to provider (employee) satisfaction.

Guarantee differentiation

Guarantee differentiation refers to the ability of the guarantee to differentiate the service provider from competitors who do not offer a guarantee (or, offer a weaker one). Such differentiation should influence consumer choice and bestow marketing muscle (Hart, 1988, 1993). Indeed, a guarantee would lose much of its impact if all competitors offered a nearly identical guarantee. Therefore, from a competitive point of view, differentiation is one of the primary reasons for offering a guarantee.

Not only does differentiation via a service guarantee influence consumer choice by reducing risk (Ostrom and Iacobucci, 1998), it has the potential to directly influence satisfaction by providing a valued service attribute (the guarantee). For example, Bannigan's has a "15 minutes or lunch is free" guarantee. This reduces the consumer's risk of being delayed in returning to work by slow service, thereby influencing choice. However, the guarantee offer has the potential to directly

impact satisfaction regardless of whether or not the guarantee is invoked. For instance, the free lunch offer provides a valued service attribute, which could influence satisfaction with the service firm whether or not the guarantee is invoked. In the vernacular, individuals often say, "thank you, the offer is much appreciated", even if the offer is not accepted or acted upon. This favorable evaluation of the offer influences consumer evaluations of the individual or organization that makes the offer. Indeed, as guarantees are offered in the expectation that they will not be invoked, it follows that the major impact of a guarantee on satisfaction may actually occur in the absence of service failure (Kashyap, 2001). Therefore, the offer of the service guarantee (such as the free lunch) should be perceived as a valued service attribute which, if not offered by competitors, should influence provider satisfaction. Therefore:

- H2.* Guarantee differentiation is positively related to provider (employee) satisfaction.

Guarantee signaling

One principal reason a firm chooses to offer a guarantee is to signal quality. Signaling theory has been one of the primary theories advanced for understanding product guarantees (Boulding and Kirmani, 1993; Grossman, 1981; Kashyap, 2001; Kelley, 1988; Ostrom and Hart, 2000; Priest, 1981; Shimp and Bearden, 1982; Wiener, 1985). Derived from the study of information economics, signaling theory considers situations in which asymmetrical information characterizes the exchange. In these situations, sellers are assumed to possess perfect knowledge of product quality while buyers are assumed to have imperfect information. For example, the quality of many products cannot be determined in advance with any degree of accuracy by the consumer and can only be evaluated after consumption. Consequently, sellers of high-quality products have a motive to send a pre-purchase signal of product quality. One such signal is a guarantee, which should be perceived by consumers as very credible, because the marketers of lower quality products could not afford to match the warranty of the quality leader because of potentially ruinous

claims. Therefore, the guarantee could bestow a competitive advantage to the high-quality marketer (Priest, 1981). Consumers perceive greater pre-purchase risk with services than goods (Murray and Schlacter, 1990) because intangibles are characterized by greater experience or credence properties (Lovelock, 1996). As a result, consumers place greater emphasis on pre-purchase cues of service performance. In part, this is one reason service firms are often advised to “tangibilize intangible service quality”. Service guarantees are one way to signal or “tangibilize” service quality and reduce pre-purchase risk.

Kashyap (2001) proposes that service guarantees first, signal higher service quality when the costs of meeting a guarantee is significantly high for low quality firms and, second, lower customer search costs when evaluating service products. Similarly, Marmorstein *et al.* (2001) rely on signaling theory in showing that a serviced guarantee can influence consumer choice. Other researchers have found empirical support for service guarantees as pre-purchase signalers of service quality (Ostrom and Iacobucci, 1998; Wirtz *et al.*, 2000). We should note that the differentiating impact of a guarantee is distinct from its signaling properties. For instance, if all competitors offered a nearly identical guarantee, all would be signaling product quality, but little or no differentiation would be achieved.

For services high in credence properties a service guarantee might actually increase post-consumption service quality perceptions and satisfaction directly, above and beyond either the “objective” quality of the service offering or the evaluation the consumer would render in the absence of a guarantee for the service performance (McCollough, 1999). In essence, because the qualities of credence services are difficult to evaluate, even after consumption, consumers will seek tangible cues both before and after consumption to evaluate service quality (Zeithaml and Bitner, 1996). Consistent with this argument, it is proposed here that a service guarantee can influence not just pre-purchase choice, but post-purchase consumer evaluations of service performance and, ultimately, satisfaction. Therefore, this research goes beyond the finding that

guarantees may influence pre-consumption service quality evaluations and expectations to propose that a guarantee may directly influence post-consumption evaluations:

- H3. The signaling properties of service guarantees are positively related to provider (employee) satisfaction.

Guarantee coproduction

Guarantee coproduction refers to the effect a guarantee has on a consumer’s own service delivery efforts. It deserves special attention here because many services are high in consumer coproduction.

One way service guarantees can increase consumer satisfaction is by fostering greater service employee efforts (Hays and Hill, 2001), thereby enhancing both service reliability and recovery effectiveness. We use this finding to argue that a guarantee can also foster greater consumer coproduction efforts, thereby enhancing post-consumption evaluations. In essence, we argue that if warranting a service can inspire and motivate service employees, a service guarantee can also challenge service customers to maximize their coproduction efforts.

In addition, consumer coproduction is closely related to the problem of moral hazard. Moral hazard occurs because a guarantee allows, and may even encourage, consumers to shirk their responsibility to properly maintain and care for the product or, in the case of services, coproduce the outcome. Consumer abuse or misuse of a product can affect the longevity of a good, resulting in excessive guarantee claims and rendering a warranty impractical. At the extreme, moral hazard may involve outright consumer fraud. Moral hazard is cited as the primary theoretical problem with the signaling theory of guarantees (Lutz, 1989; Padmanabhan and Rao, 1993; Priest, 1981).

To illustrate moral hazard and its effect on signaling theory, we will consider a standard automobile warranty. Automobile owners must change their oil on a regular basis or risk premature engine wear-out. However, it is difficult for the automobile manufacturer to monitor the owner’s actions to see if this is indeed happening, as the owner’s actions are unobservable. As proper care for the vehicle

requires time, effort, and money, the consumer may not perform basic maintenance, as the warrantor will pay any damage resulting from this neglect. At the extreme, the consumer may actually abuse the vehicle by driving the car hard (excessive acceleration, standing on the brakes, etc.).

In response to the problem of moral hazard, researchers focusing on tangible goods (primarily from the legal and economics disciplines) have largely abandoned signaling theory in favor of investment theory – which treats guarantees as a form of insurance contract (Priest, 1981). In the context of the previous example, investment theory could best be understood by considering automobile extended service contracts (ESC) or warranties. Consumers who take out an ESC have less incentive to maintain their vehicle, as damages resulting from neglect are covered. However, they pay an additional premium for the ESC. Alternatively, consumers who do not take out ESC have a greater incentive to properly maintain their vehicle. If they do not, they will personally pay any claims associated with their neglect. Consequently, the additional premium for the ESC, in essence a form of insurance contract, addresses to some degree the problem of moral hazard.

Due to high consumer coproduction, service guarantees would seem to be more vulnerable to the problem of moral hazard than goods. Indeed, fear of consumer abuse of a service guarantee is a primary reason service providers give for not warranting their offering (Hart, 1988). However, the literature suggests that moral hazard is not a serious problem for service guarantees (Bolton and Drew, 1995; Ettorre, 1994; Hart, 1988, 1993; Lewis, 1993; Raffio, 1992; Wirtz and Kum, 2000).

Why has moral hazard not developed into a problem for service guarantees given high coproduction? One explanation is for moral hazard to exist, consumer coproduction efforts must be unobservable. However, for many services high in simultaneous production and consumption consumer efforts may be very observable. Indeed, if consumer coproduction is observable service guarantees may lead to greater, not lower, consumer coproduction efforts because the service provider can monitor the customer's actions. In turn, greater

consumer coproduction efforts may act to increase actual service performance and consumer satisfaction judgments. For example, in offering their pest elimination guarantee “Bugs” Burger Bug Killers (BBBK) imposed significant coproduction responsibilities on the client such as maintaining sanitary practices and, in some cases, even making physical changes to the premises (Hart, 1988). The result of the customer's coproduction efforts, when combined with BBBK's efforts, should be a higher quality service product and greater consumer satisfaction.

Club Fitness of the UK, is another example of a service provider who guarantees consumers will succeed with its fitness program. However, as a condition of the guarantee, the firm requires the consumer to follow the personal program prescribed by the Club Fitness instructor for a minimum of three visits per week during the complete 30-day period, and that all diet or nutrition advice given should be followed as prescribed. TruGreen ChemLawn, the largest lawn and landscape care company in the world, has a guarantee on its Web site which states:

If you are not totally satisfied with our recommended service, we will continue working with you until you are satisfied or [we will] refund the amount of the last application.

Notice that TruGreen emphasizes they will work with the consumer to achieve satisfaction with the recommended service, implying a degree of coproduction. Further, TruGreen states:

You have no guarantee of success or satisfaction. You are also responsible for following product labels and guidelines when mixing, applying, storing, and disposing of all products and containers.

In summary, Maher (1991) notes that the best way to enhance service quality is by training customers and advocates service guarantees as a way to achieve this objective. Simply put, no service that requires significant consumer coproduction for success can guarantee such success without part of the guarantee requiring consumers to complete their coproduction efforts. By requiring consumers to fulfill their portion of the production process, greater consumer satisfaction with their own efforts and with the overall service would be enhanced.

Our model specifies that consumer coproduction efforts fostered by a service guarantee are positively associated with consumer self-satisfaction and overall consumer satisfaction. Self-satisfaction is an important element of service encounters (Rodie and Kleine, 2000). For example, consumers who take an active role in their physical therapy will both recover faster (leading to greater overall service quality performance and, ultimately, overall consumer satisfaction) and receive satisfaction from their own efforts in producing such a desirable outcome. Likewise, consumers who participate in weight loss programs may feel added satisfaction with the service if they attribute achieving their goals, at least in part, to their own efforts. Kashyap (2001) notes the importance of firm attributions of success (or failure) fostered by a guarantee on consumer post-consumption evaluations. In essence, we extend Kashyap's arguments to propose that self attributions for the success of the service outcome will enhance consumer satisfaction.

Finally, self-satisfaction could become an important outcome that would encourage greater future coproduction participation by consumers, closing the service quality loop. Therefore:

- H4.* Enhanced consumer guarantee coproduction resulting from a service guarantee is positively related to the consumer's self-satisfaction.
- H5.* Enhanced consumer guarantee coproduction resulting from a service guarantee is positively related to the consumer's overall satisfaction.

Provider, consumer self-satisfaction, and overall satisfaction

Our proposed model specifies that provider satisfaction is a function of guarantee evaluation (*H1*), guarantee differentiation (*H2*), and guarantee signaling (*H3*). Further, guarantee coproduction is expected to be positively related to self-satisfaction (*H4*) and overall satisfaction (*H5*). A consumer's overall satisfaction is a function of all service attributes. For example, among the elements of overall satisfaction are satisfaction with the service facility tangibles, billing statements, the service provider employees, and the ultimate service

outcome. Therefore, to complete the model we propose that overall satisfaction is a function of the consumer's satisfaction with the service provider employee. Indeed, service provider (employee) satisfaction and overall satisfaction are so closely linked that the services literature often notes the service provider is the service from the consumer's point-of-view:

- H6.* Provider (employee) satisfaction is positively related to overall satisfaction.

As noted, guarantee coproduction is expected to influence self-satisfaction. This self-satisfaction should result in greater overall satisfaction. For instance, consider again a participant in a weight loss program. If the consumer follows the recommended diet and exercise program, he/she is much more likely to achieve his/her ultimate desired outcome – weight loss. This consumer would be expected to have greater self-satisfaction, which should then lead to greater overall satisfaction. Conversely, if the consumer is not satisfied with his/her efforts he/she is likely to be less satisfied overall:

- H7.* Consumer self-satisfaction is positively related to overall satisfaction.

Methodology and results

Context

The guarantee that is the focus of this study was offered to undergraduates enrolled in two undergraduate business courses. The guarantee (reproduced in the Appendix) focuses on service provider (employee) satisfaction by guaranteeing student satisfaction with the instructor's teaching performance[1]. All measures associated with service provider satisfaction in this research are focused on the instructor (as the service provider) while all measures associated with overall satisfaction focus on the course as the service product.

The guarantee offered was a specific-performance guarantee (as opposed to an unconditional, full satisfaction guarantee) as it guarantees student satisfaction with the instructor's teaching performance, not unconditional or complete satisfaction (Ostrom and Hart, 2000; Wirtz and Kum, 2001). Specifically, the student's satisfaction with

his/her grade was excluded as was satisfaction with the efforts of third parties (e.g. other classmates). However, the guarantee was subjective as opposed to objective. For instance, it was left up to the student to determine if she was satisfied with the service, as opposed to an objective guarantee which might, for example, promise that papers would be returned within a specified time period. Unconditional guarantees are generally held to be more powerful than specific-performance guarantees (Wirtz and Kum, 2001). However, Hart (1993) argues that subjective performance guarantees can be almost as powerful as unconditional satisfaction guarantees, as it is left up to the consumer to determine if the terms of the guarantee have been met.

Sample

The model was empirically assessed using a self-report questionnaire of individuals who had been offered a service guarantee. The respondents were undergraduate students enrolled in two business elective courses (retailing and services marketing) in a medium-sized university in the northwestern USA. The students were offered a satisfaction guarantee as part of their classroom experience from 1997-2001[2]. On completion of the course, students were asked to complete the survey. Participation was voluntary and the respondents were anonymous to the researchers. Out of 272 registered students, 187 completed the survey for a 69 per cent response rate.

Measures and measurement model results

The seven constructs in the model were each measured with multiple items. The lack of published measures for these specific constructs necessitated the development of new scales. Commonly accepted guidelines for measure development and purification (Babbie, 1989; Churchill, 1979; DeVellis, 1991) were followed. First, exploratory factor analysis was performed on each set of items expected to be related to each construct. Those items with low correlations (less than 0.40) or high cross loadings, were excluded from further data analysis.

Second, confirmatory factor analysis was conducted (using the CALIS procedure in

SAS) with all seven constructs simultaneously. Employing the criteria proposed by Stevens (1992), a total of three items which had either weak loadings (less than 0.40) or high cross loadings were eliminated. Table I includes the final items employed in this study.

The statistics for the measurement model are presented in Table I. Overall, the measurement model displays a good fit to the data (TLI = 0.917; CFI = 0.929; $\chi^2 = 481.0$, $df = 278$). All indicator variables are positive and significant ($p < 0.01$). The factor loadings are high, with all but one greater than 0.60 and most greater than 0.70. The coefficient alphas range from a low of 0.74 to a high of 0.91. Composite reliabilities are all above 0.70 as well, with the lowest being 0.739. The average-variance-extracted values for each construct exceed the recommended 0.50 cutoff (Bagozzi and Yi, 1988; Fornell and Larcker, 1981) for all but two of the measures (0.490 for guarantee coproduction and 0.499 for guarantee differentiation). Overall, the measurement model results suggest an adequate fit to the data and that estimating the structural model is acceptable.

Structural model results

In the second step of the data analysis, the structural model, as given in Figure 1, was assessed. To assess the structural relationships proposed in the model, factor scores were used in the path analysis for each of the seven constructs in the model. Specifically, as a result of the measurement model analysis, questionnaire items were multiplied by the latent variable score regression coefficient for their proposed underlying factor. Doing so places greater emphasis on those items that have the higher factor loadings. Each set of items was summed to generate a factor score for that construct. The intent of this approach is to reduce measurement error (Bollen, 1989).

Guarantee evaluation, guarantee differentiation, guarantee signaling, and guarantee coproduction were specified as the exogenous variables. Provider (employee) satisfaction, self-satisfaction, and overall satisfaction were modeled as endogenous variables. Table II provides the overall goodness-of-fit indices and the standardized parameter estimates of the hypothesized model,

Table I Measurement model results

Measurement model ^a	Overall model fit ^a			
	χ^2 481.0	df 278	CFI 0.929	TLI 0.917
Construct Scale items ^b	Internal consistency			
	Standardized loading ^c	Composite reliability	Coefficient alpha	Average variance extracted
<i>Overall satisfaction</i>		0.853	0.861	0.598
The course material seemed relevant and meaningful	0.735			
I am very satisfied with this course	0.927			
The amount of work is appropriate for the course credit hours	0.605			
I feel the course was very rewarding	0.792			
<i>Provider satisfaction</i>		0.901	0.903	0.695
Overall, the instruction was effective	0.870			
I am satisfied with the efforts of the instructor of this course	0.862			
The instructor prepared and organized the class effectively	0.748			
Overall, I believe this is an excellent instructor	0.850			
<i>Self-satisfaction</i>		0.816	0.813	0.601
I was a "good customer"	0.821			
I am satisfied with my own efforts in this class	0.860			
I would rate my class participation as excellent	0.642			
<i>Guarantee evaluation</i>		0.795	0.800	0.571
I think the class guarantee is a good idea	0.744			
The guarantee is a waste of time (reverse coded)	0.579			
I believe the class guarantee should be repeated next semester in this class	0.908			
<i>Guarantee coproduction</i>		0.739	0.740	0.490
The guarantee shifts the focus in the class away from "getting the grade" and toward learning	0.615			
The guarantee increases student accountability	0.632			
The guarantee challenged me to do my best	0.832			
<i>Differentiation</i>		0.798	0.789	0.499
The guarantee served to differentiate this instructor	0.658			
If this guarantee were offered on all classes, I believe more people would choose to attend the university	0.682			
If two sections of the same class were offered by two different instructors, one of whom guaranteed his/her performance, I would be more likely to take the course from the instructor who guaranteed his/her performance	0.809			
I knew this class would be different after the instructor introduced the guarantee	0.649			
<i>Signaling</i>		0.914	0.914	0.682
The guarantee increased my confidence in the instructor	0.908			
Because of the guarantee I had high expectations for the instructor's performance	0.781			
The guarantee communicates the instructor's commitment to high teaching quality	0.748			
The guarantee increased my trust in the instructor	0.867			
The guarantee increases instructor accountability	0.816			

Notes: ^aThe χ^2 statistic is significant at the 0.01 level. CFI refers to the Comparative Fit Index of Bentler (1990). TLI refers to the Tucker-Lewis ρ (Tucker and Lewis, 1973). Composite reliability is based on the reliability index suggested by Fornell and Larcker (1981)

^bThe items are seven-point Likert scales, ranging from 1 = strongly disagree to 7 = strongly agree

^cAll factor loadings are significant. In particular, all *t*-values are at least 7.8 or greater ($p < 0.001$)

Table II Structural model results

Overall model fit		
Structural model statistics		
χ^2	20.1	
df	8	
CFI	0.984	
TLI	0.965	
Standardized path estimates and t-values		
Path	Standardized path estimate	t-value
H1: Guarantee evaluation \equiv provider satisfaction	0.121	1.55
H2: Guarantee differentiation \equiv provider satisfaction	0.370	4.22
H3: Guarantee signaling \equiv provider satisfaction	0.277	3.03
H4: Guarantee coproduction \equiv self-satisfaction	0.141	5.09
H5: Guarantee coproduction \equiv overall satisfaction	0.220	4.73
H6: Provider satisfaction \equiv overall satisfaction	0.709	15.38
H7: Self-satisfaction \equiv overall satisfaction	0.090	1.86
Variance explained for endogenous variables		
R^2 – Overall satisfaction	0.735	
R^2 – Provider satisfaction	0.486	
R^2 – Self-satisfaction	0.020	

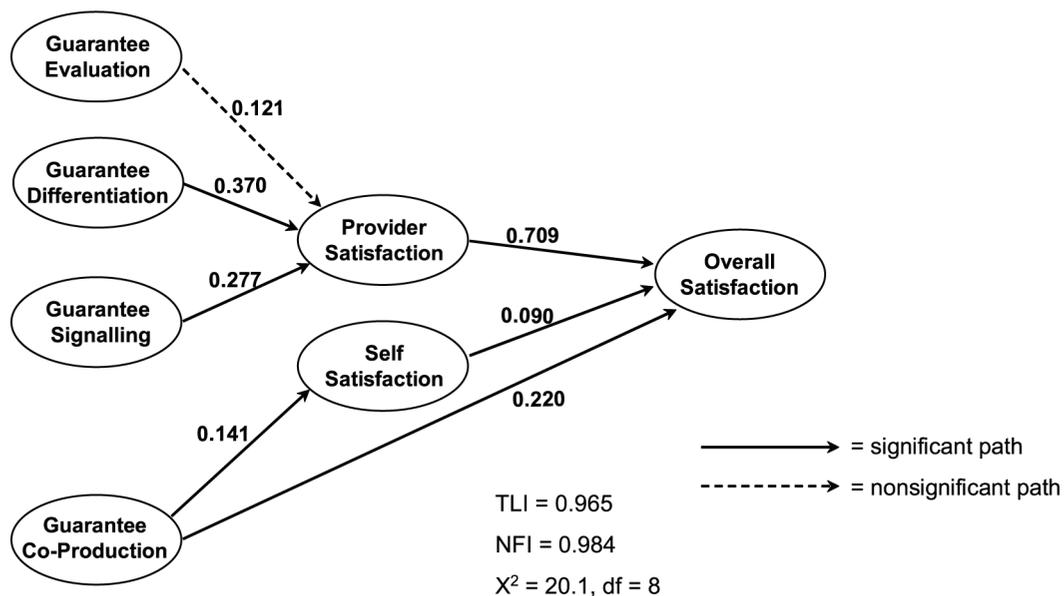
Note: The χ^2 statistics are significant at the 0.01 level. CFI refers to the Comparative Fit Index of Bentler (1990). TLI refers to the Tucker-Lewis ρ (Tucker and Lewis, 1973). All t-values of 1.86 or greater are significant at the 0.05 level

which suggest an overall good fit of the model to the data (TLI = 0.965; CFI = 0.984; $\chi^2 = 20.1$, df = 8). All path coefficients are positive and significant ($p < 0.05$) with the exception of guarantee evaluation on provider (employee) satisfaction. Figure 2 includes the

path coefficients for the hypothesized model. The discussion section further explores these findings.

The amount of variance explained by the model is substantial for overall satisfaction ($R^2 = 0.735$) and provider satisfaction

Figure 2 Summary of structural model results



($R^2 = 0.486$). The R^2 for provider (employee) satisfaction is impressive, given the three factors modeled as influencing this construct are somewhat limited in that all three are related to the guarantee (guarantee evaluation, guarantee differentiation, and guarantee signaling). The amount of variance explained for self-satisfaction is very modest ($R^2 = 0.020$). The relatively low variance explained may be because only one factor, guarantee coproduction, is specified in the model as driving self-satisfaction. Conceivably, many constructs not specified in the model and unrelated to service guarantee impact self-satisfaction (as well as provider satisfaction).

As noted previously, Kashyap (2001) contend guarantees should influence post-consumption evaluations, even for highly reliable services where the consumer is relatively pleased. In the present study, one could argue that customers were relatively satisfied. In particular, of the 272 students that received the guarantee, only one customer chose to invoke the guarantee. Likewise, of the 187 respondents that completed the survey instrument, the overall satisfaction scale mean is relatively high at 4.67 on a seven-point scale (with a standard deviation of 1.04). Further, the distribution is skewed, with over 80 per cent of the respondents reporting satisfaction above 3.5, the mid-point of the scale. Therefore, the impact of a guarantee on consumer satisfaction evaluations reported in the structural model results should be understood in the context of a situation in which the vast majority of the customers appear to be essentially satisfied with performance of the service provider. The findings suggest a service guarantee can have a significant impact on post-consumption consumer evaluations, even if the service is highly reliable. In essence, it appears that a service guarantee is valued and has an impact on consumer's evaluations, even if not invoked.

Discussion

Differentiation

One important reason advocated for warranting services is that a guarantee can be a source of competitive advantage by differentiating the

service provider from competitors, thus influencing consumer choice. Our data, however, was collected after consumption, allowing us to investigate the impact of differentiation on post-consumption provider satisfaction instead of pre-consumption service choice. The results reported here suggest the differentiation aspect of a guarantee can have a significant influence on post-consumption provider satisfaction. Thus, it appears differentiation can influence not only service provider choice (as demonstrated previously by the service guarantee literature) but also provider satisfaction. The results are especially pronounced in this situation given the nature of the guarantee. Students were aware the two professors offering the guarantee were the only instructors in the institution to do so. Therefore, as would be expected, the differentiating aspect of this valued service attribute seems to have attached directly to the consumer's satisfaction evaluations of the service provider.

A related but distinct question is the differentiating impact of a guarantee when more than one competitor warranties their service. The guarantee literature would hold that, all other things being equal, the service provider offering the strongest guarantee would reap the greatest benefit. For instance, an unconditional satisfaction guarantee would generally be viewed more favorably than a specific-results or performance guarantee. In addition, the service provider with the less known brand would benefit the most from offering a guarantee; doing so might serve to level the playing field against a larger or better known service provider, regardless of whether the competitor with higher brand recognition offers a guarantee. For instance, Wirtz *et al.* (2000) report that when two hotels offered a guarantee, one with an "outstanding" reputation and the other with a "good" reputation, both hotels saw improvement in pre-purchase consumer evaluations. However, the impact of the evaluations for the "good" reputation hotel was significantly stronger than for the "outstanding" reputation hotel.

Justice and attribution theory (Kashyap, 2001) may explain why the differentiating aspects of a service guarantee can affect consumer satisfaction, even if there is no service

failure and the guarantee is not invoked. Kashyap (2001) argues that guarantees can impact consumer satisfaction after being invoked by addressing consumer's perceptions of justice. For instance, consider the Bennigan's "15 minutes or lunch is free" guarantee discussed previously. It is possible that while a free lunch awarded as a result of a service failure would help in customer perceptions of distributive justice, the procedural and interactional aspects of the guarantee can impact consumer satisfaction even if there is no service failure.

Services are in essence a promise, and by agreeing to purchase a service the consumer not only accepts the service providers promise, they also promise to pay the service provider. A guarantee acts at a procedural and interactional justice level to enhance consumer satisfaction with the exchange aspects of the service encounter by increasing trust and providing justice in the "promise" phase of the service encounter. Note, in a service encounter, both the consumer and the service provider are at risk of moral hazard. Frequently, the effort a service provider will invest cannot be determined beforehand and a problem of moral hazard emerges in which producers have a temptation to undersupply the service after the consumer had paid for it (Mills and Morris, 1986)[3]. Moral hazard is, in essence, a question of justice and the promissory nature of services. How does the consumer, as well as the service provider, know the promise of each will be kept? By offering a guarantee the problem of moral hazard is addressed and perceptions of justice made tangible, both before and after the service encounter and regardless of whether the guarantee is invoked.

A guarantee can increase satisfaction by magnifying the salience of service success (Kashyap, 2001). In essence, consumers notice many services only when they fail. By offering a guarantee a service provider emphasizes its reliability. Consumers therefore may make positive service provider attributions following successful service performance if prompted by a service guarantee. Again, if the service provider is the only competitor to warrant its service in a competitive environment, the differentiating impact of the service guarantee would lead to

higher provider satisfaction even if the guarantee is not invoked.

Guarantee evaluation

Interestingly, this research shows that when the differentiating and signaling aspects of a guarantee are modeled, guarantee evaluation has a very weak impact on satisfaction with the provider (employee). Perhaps a guarantee must first be evaluated positively for the guarantee to exert a differentiation and signaling effect, making a positive guarantee evaluation a necessary, but not sufficient, condition for provider satisfaction. Since the measures in this research were collected after consumption, it is also possible the positive evaluation of the guarantee might be more significant when evaluating consumer choice prior to consumption. Clearly, more research is needed to better understand the impact of the consumer's evaluation of a service guarantee on provider satisfaction.

Signaling

Signaling theory is one of the principal perspectives employed to understand guarantees, both in the marketing literature and in the traditional warranty literature. Signaling theory places the emphasis on the warranty as a pre-purchase signal of product quality. However, all measures employed in this research were collected at the end of an ongoing and involved consumption period of 15 weeks. Given the difficulty of judging the quality of high credence services, we proposed the service guarantee might serve to tangibilize the intangible service quality provided. Therefore, we hypothesized the guarantee would influence post-purchase service provider satisfaction; this hypothesis is supported. Because the signaling theory of guarantees has been challenged by proponents of the investment theory of guarantees (Priest, 1981), this finding is potentially significant for both the (traditional) goods-based literature and the service guarantee literature. If future research supports the effect of guarantee signaling on post-consumption, and not just pre-purchase evaluations, the veracity of signaling theory *vis-à-vis* investment theory will need to be re-evaluated. The signaling properties of service

guarantees on pre- and post-consumption evaluations deserve further research.

The finding of a direct impact of signaling on post-consumption evaluations is all the more significant because in this service setting the customers (students) encountered multiple other cues they could utilize in judging the performance of the service provider (instructor). For instance, in addition to the guarantee, customers could evaluate the provider based on the specific service performances (e.g. timeliness in returning assignments, promptness in arriving for class, preparation for the class). These factors could have eroded the signaling impact of the guarantee on post-purchase satisfaction. In situations with fewer service quality cues, the signaling power of a guarantee to influence satisfaction judgments could be even more pronounced. In essence, this argument is an extension of Ostrom and Iacobucci's (1998) finding that the presence of other information about service quality eroded the ability of a service guarantee to affect pre-purchase service quality evaluations. In counterpoint it could be argued the presence of other cues enhanced, via a halo effect, the evaluation of the guarantee. For instance, positive evaluations of the instructor's performance could have enhanced the evaluation of the signaling effect of the guarantee. This argument is possible, of course, and is difficult to empirically evaluate. However, it should be noted that the weak impact of guarantee evaluation on provider satisfaction argues against a general halo effect related to provider satisfaction. Further, an assessment of the discriminate validity of the measures indicates a halo effect was not a problem in general. Finally, the wording of the measures and the overall structural model supports the argument that signaling influences provider satisfaction, and not the other way around.

Since moral hazard, or what we have called in this context coproduction, is at the heart of the criticism of the signaling theory of guarantees by proponents of the investment theory, the inclusion in this research of both signaling and coproduction demonstrates that for post-consumption evaluations of service guarantees both theories may have some validity.

Coproduction

Our measures attempt to model the coproduction aspects of service guarantees. For instance, the measure with the highest factor loading for guarantee coproduction is worded, "The guarantee challenged me to do my best". The findings suggest guarantees can encourage consumer coproduction efforts, which, in turn, directly influence the service customer's self-satisfaction and overall satisfaction. Further, self-satisfaction exerts a small (but significant) effect on overall satisfaction (see Table II). Previous research has indicated consumer abuse and fraud are not a problem for service guarantees. Our research extends this finding by suggesting that a service guarantee might actually encourage customers to increase their efforts, leading to greater self- and overall satisfaction. Rather than fearing that service guarantees will lead to less effort from consumers, providers should consider how a guarantee might be proactively used to encourage greater consumer coproduction.

From a theoretical perspective, moral hazard is the primary objection to the signaling theory of guarantees. If moral hazard is not a problem for service guarantees, it may be there is significant theoretical difference between how goods and service guarantees are evaluated by consumers. When combined with the finding that the signaling properties of a guarantee can directly influence service provider satisfaction, a re-examination of the efficacy of the signaling theory of guarantees for services may be in order.

The interplay between coproduction, self-satisfaction, provider satisfaction, and overall satisfaction is interesting and intriguing. The impact of coproduction efforts on overall satisfaction appears to be primarily direct. The impact of coproduction on self-satisfaction is less than its impact on overall satisfaction. In turn, self-satisfaction has a slight impact on overall satisfaction. Given high consumer coproduction, self-satisfaction is an important outcome in and of itself for service providers to focus on beyond its impact on overall satisfaction. As an example, feelings of self-satisfaction with an exercise program might encourage consumers to renew their

memberships as well as work out (coproduce) more.

The service literature emphasizes that service guarantees can improve service quality, and thus satisfaction, by challenging an organization to critically examine every aspect of its service offering. At the employee level, Hays and Hill (2001) showed that a service guarantee can have a positive effect on employee motivation and vision. Our research extends the finding that a service guarantee can challenge the service organization and employees to do their best by suggesting a guarantee may also encourage service consumers to do their best in coproducing the service product and thereby increase their post-consumption satisfaction.

It is interesting to speculate on other situations in which the service guarantee would serve to increase consumer coproduction efforts. First, by clarifying the consumer's role in the service production process, a guarantee may serve to reduce role ambiguity. By fostering role clarity a service guarantee may therefore focus both service provider and consumer efforts, thereby enhancing the effectiveness of coproduction. In any situation in which the consumer's coproduction role is vague and ill-specified, a guarantee may serve to enhance consumer coproduction efforts by fostering role clarity and focusing consumer efforts. If so, a guarantee would be less effective in a situation such as a self-serve gasoline station than in a health center, where a detailed fitness regime must be followed. Further, in any situation in which a personal relationship is formed between the consumer and the service provider, the effect of a guarantee on consumer coproduction is apt to be higher because first, the service provider can monitor the consumer's efforts and, second, the consumer may strive to please the service provider. For instance, a health club member may be more likely to follow the fitness regime provided with a service guarantee when he values his relationship with the fitness trainer.

Overall satisfaction

In addition to guarantee coproduction and the weak effect of self-satisfaction, we found overall satisfaction to be a function of service provider (employee) satisfaction. Indeed, service provider satisfaction is the strongest driver of

overall satisfaction. For high credence services with few tangibles, the impact of service provider satisfaction on overall satisfaction is likely to be exceptionally strong as few other cues to judge service quality are available.

As noted previously, Kashyap (2001) contends the primary impact of a service guarantee on post-consumption consumer evaluations is in the absence of service failure. Simply put, a service organization offers a guarantee in the hope that it will not be invoked and consumers generally accept service guarantees in the expectation they will not be needed. In our situation only one consumer invoked the guarantee; the vast majority (271 of 272) of the consumers did not invoke the guarantee. Furthermore, the consumers appear to have been satisfied with the service.

Therefore, our research supports the proposition that a guarantee can influence post-consumption evaluations, even if the guarantee is not invoked. This is a potentially significant finding, as it shifts the emphasis for offering a guarantee from service failure and recovery to service reliability. Further research should investigate post-consumption evaluations by consumers in situations in which there is high reliability and others where significant numbers of consumers frequently invoke the guarantee to allow comparisons across the two groups.

Directions for future research

As always, care must be taken when generalizing results from one research study, especially when generalizing from one industry with unique characteristics to other industries. Because the data for this study were drawn from only one industry (education), future research should seek to duplicate the findings reported here in different research settings. Clearly, the research setting (university classroom setting) and the sample (undergraduate business students who had actually received a service guarantee) make the context of this study unique. It would be advisable to conduct other studies using nonstudents and a guarantee in a more conventional service setting. Nevertheless, education is generally held to be the most intangible of all services (Shostack,

1977), high in inseparability, heterogeneity, and perishability. If education can be viewed as one of the most “prototypical” services there is reason to expect that the results reported here will prove generalizable to a variety of highly intangible services.

Often students, when used as research subjects, are asked to respond to experiments and scenarios that ask them how they think they would react to a described experience. In our sample the student respondents actually received and “consumed” a service guarantee. In this respect, the sample offers advantages over asking respondents how they might react to a service guarantee. Similarly, most research, particularly those employing scenarios and experiments, have focused on pre-purchase choice. This study was designed to evaluate responses to a consumption experience in which the guarantee is an integral aspect of the service offering. In other words, respondents were not asked to react to scenarios about how they thought they might feel or act. Rather, the students responded to post-consumption measures based on how they actually felt. Likewise, it would be very difficult for scenario research to explore post-consumption evaluations as opposed to the impact guarantees have on pre-consumption choice. Regardless of the limitations of the sample utilized here, employing subjects, even students that are responding to an actual service guarantee they received, would seem to be preferable to subjects responding to a hypothetical guarantee. Still, alternative samples would address some potential shortcomings of this sample.

Additional research should focus on determining how the specific characteristics of services, including inseparability, heterogeneity, and perishability, influence how guarantees impact provider and overall satisfaction. For instance, our research indicates that inseparability (via coproduction) may result in service guarantees operating in a very different manner than goods guarantees. Future research should examine other services high in coproduction to extend the findings of this research. Alternatively, an examination of services low in inseparability could assess whether service guarantees function in a different manner depending on this

characteristic of the service. Finally, it might be insightful to explore other relationships among the constructs than those investigated here. For example, rival models might be assessed, such as specifying the various constructs included in our model in moderating or mediating roles.

The ability of service guarantees to act as a form of relationship contract and to foster greater, rather than less, customer coproduction effort should also be examined further. As Wirtz and Kum (2000) found, consumers who value the relationship may be reluctant to abuse the guarantee, because doing so would jeopardize the bond with the service provider. Alternatively, services that are more discrete, less relational, and afford less opportunity for consumer monitoring, should be examined to assess the impact of offering of guarantees in such contexts on consumer coproduction or abuse of the guarantee.

Future research should focus on the signaling and differentiating impact of guarantees on pre-consumption, as well as post-consumption evaluations. The high credence nature of the service studied here may explain why provider (employee) satisfaction was a function of differentiation and signaling. Therefore, priority should be given to studying guarantees for services, varying not just in their credence qualities but also in those characterized by experience qualities.

Conclusions

This research adds to the growing body of empirical research investigating how service guarantees actually affect consumers' evaluations. Specifically, this study investigates the impact of a service guarantee on actual post-consumption consumer evaluations and has shown that a guarantee can have a positive effect on post-consumption evaluations for highly reliable services in which the guarantee is not invoked. Our findings largely support many of the normative, conceptual arguments advanced for offering a service guarantee. Further, our study extends these arguments by showing that the differentiating and signaling properties of guarantees, two reasons widely offered for offering a service guarantee, can affect post-consumption evaluations and not

just pre-consumption choice. Given the emerging empirical evidence which supports many of the normative arguments advanced for guaranteeing services, academics and managers alike can take confidence in these findings and justifiably conclude that the offering of a service guarantee is not just an example of good academic theory, but sound business practice.

Notes

- 1 The guarantee was not offered by the university in any other courses. Students understood that the guarantee applied to their satisfaction with the instructor, and not with the institution. Therefore, in this situation, post-purchase evaluations associated with the provider are apt to focus on the instructor, and not the service organization.
- 2 For more on the pedagogical issues associated with the teaching performance satisfaction guarantee the reader is directed to McCollough and Gremler (1999a, b) and Gremler and McCollough (2002).
- 3 Consumers are also at risk of the service provider "oversupplying" the service, as in the case of an insurance agent that sells the consumer more insurance than they need, a consultant that bills for unneeded work, a doctor that performs unneeded and expensive medical procedures, etc. The moral hazard arising from oversupplying a service is known as adverse selection (Mills and Morris, 1986) and a service guarantee can be constructed to address this problem as well. Simply put, a service guarantee is a promise to provide the proper type and amount of service.

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Further reading

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Appendix

Figure A1

