

The Impact of Technology on the Quality-Value-Loyalty Chain: A Research Agenda

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In this article, the authors first propose a simple model summarizing the key drivers of customer loyalty. Then, on the basis of this model and drawing on key insights from the preceding articles in this issue, they outline a set of issues for further research related to the quality-value-loyalty chain. Next, the authors develop a conceptual framework that integrates the quality-value-loyalty chain with the “pyramid model,” which emphasizes the increasing importance of technology-customer, technology-employee, and technology-company linkages in serving customers. Using this integrated framework as a springboard, they identify a number of avenues for additional inquiry pertaining to the three types of linkages.

The preceding articles in this special issue collectively offer a rich set of insights for both managerial practice and further research related to serving customers and consumers effectively in the twenty-first century. These insights cover macro perspectives (i.e., aspects pertaining to markets as a whole) as well as micro perspectives (i.e., aspects pertaining to individual seller-buyer linkages within markets). The primary goal of this concluding article is to offer an agenda for additional research on issues that augment those identified in the previous articles. We generate this agenda by drawing on insights from our prior research with colleagues (relating to the topics of service quality, perceived value, and customer loyalty) and melding those insights with the main points of the other articles in this

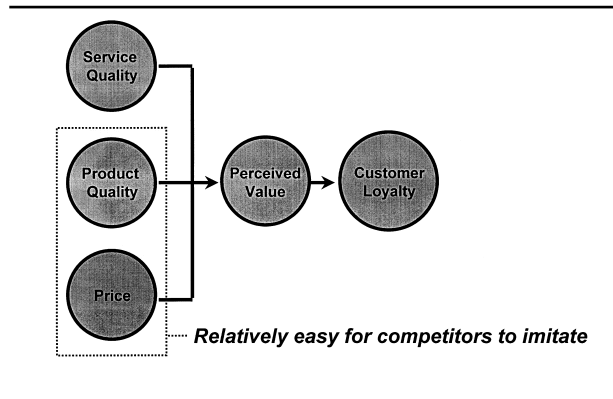
issue. While the agenda we propose is consistent with the theme of serving customers and consumers effectively, it is not intended to be exhaustive because it relies primarily on our own past research. But we hope that it will serve as a useful concluding synthesis for this special issue and highlight a set of critical issues worthy of further investigation.

The constructs of service quality, perceived value, and customer loyalty have been gaining increasing prominence in the marketing literature and in business practice. As implied by many of the preceding articles, these constructs will continue to be critical. Much of our past research with colleagues has focused on service quality (e.g., Baker, Grewal, and Parasuraman 1994; Gotlieb, Grewal, and Brown 1994; Parasuraman, Zeithaml, and Berry 1985, 1988, 1994a), perceived value (e.g., Dodds, Monroe, and Grewal 1991; Grewal, Monroe, and Krishnan 1998), and precursors of customer loyalty such as prepurchase and postpurchase product evaluations (e.g., Voss, Parasuraman, and Grewal 1998) and behavioral intentions (e.g., Zeithaml, Berry, and Parasuraman 1996). The cumulative insights from our studies support the general notion that service quality enhances perceived value, which, in turn, contributes to customer loyalty. The quality-value-loyalty linkage is also consistent with Heskett, Sasser, and Schlesinger's (1997) work on the service-profit chain and Reichheld's (1996) work on loyalty.

THE QUALITY-VALUE-LOYALTY CHAIN

Figure 1 shows a simplified synthesis of the scholarly literature as well as anecdotal evidence related to the drivers of customer loyalty. It is widely known that perceived

FIGURE 1
Key Drivers of Customer Loyalty



value, the key determinant of customer loyalty, is composed of a “get” component—that is, the benefits a buyer derives from a seller’s offering—and a “give” component—that is, the buyer’s monetary and nonmonetary costs of acquiring the offering (e.g., Dodds et al. 1991; Zeithaml 1988). Much of the past scholarly research on perceived value has focused primarily on product quality as the get component and on price as the give component (Grewal et al. 1998; Lichtenstein, Netemeyer, and Burton 1990; Zeithaml 1988). However, clearly, service quality is also a logical driver of perceived value. In instances where the core of what the seller offers to the buyer is a service (e.g., insurance, financial advice, consulting), there is no tangible product and, as such, product quality and service quality overlap. Even in instances where the buyer-seller exchange involves a physical product, superior presale and postsale service rendered by the seller can add to the benefits received (get component) and also reduce the buyer’s nonmonetary cost such as time, effort, and mental stress (give component). Figure 1 acknowledges the role of service quality in perceived-value determination by depicting it as a distinct component.

The relative influence of service quality, product quality, and price on a buyer’s assessment is an issue in need of systematic empirical research (Parasuraman, Zeithaml, and Berry 1994b). However, case studies and anecdotal evidence strongly suggest that achieving sustainable competitive advantage in the marketplace will be very difficult with just superior products and reasonable prices; regardless of whether a company’s core offerings are products or services, superior service quality is essential for excellent market performance on an enduring basis (Berry 1999). The primary rationale underlying this conclusion is that service quality is much more difficult for competitors to copy effectively than are product quality and price. As implied by the dotted box in Figure 1, the greater competitive leverage that service quality offers is also relevant in

the context of perceived value and customer loyalty since these are important determinants of market performance.

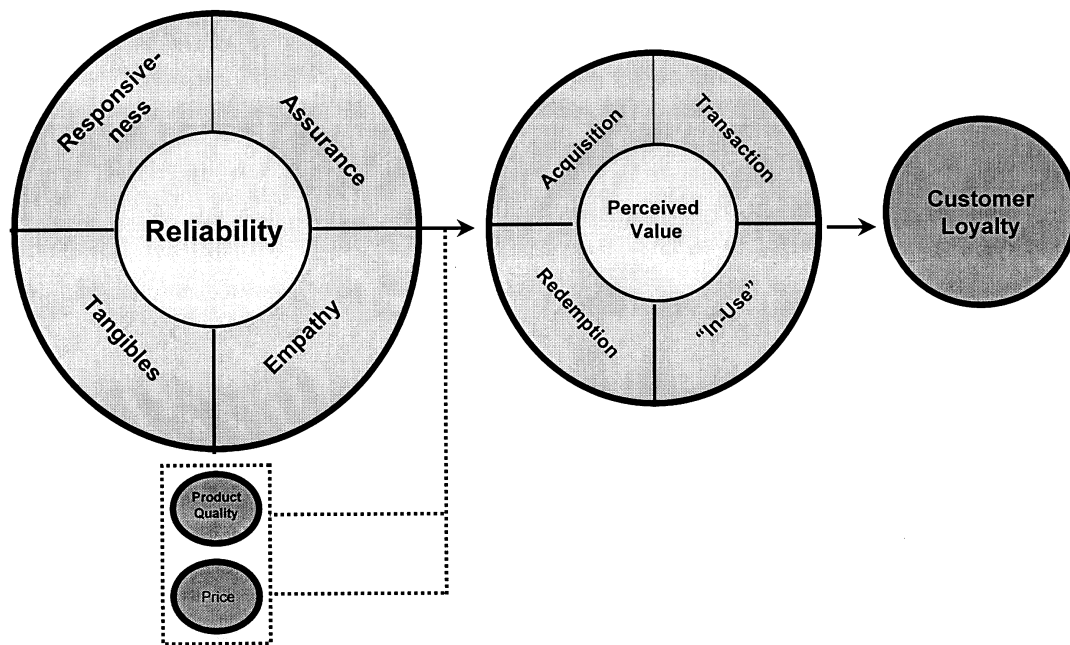
Early research (Gronroos 1982; Lehtinen and Lehtinen 1982; Lewis and Booms 1983; Sasser, Olsen, and Wyckoff 1978) has suggested that customers assess service quality by comparing what they feel a seller should offer (i.e., their expectations) with the seller’s actual service performance. This depiction of service quality found strong support in an extensive exploratory study (Parasuraman et al. 1985), which also identified various specific attributes on which customers might assess the expectations-performance gap. Building on this study, and on the basis of findings from empirical research in several sectors, Parasuraman et al. (1988; Parasuraman, Zeithaml, and Berry 1991) identified five generic dimensions that customers use as criteria in judging service quality:

- *Reliability*: Ability to perform the promised service dependably and accurately
- *Responsiveness*: Willingness to help customers and provide prompt service
- *Assurance*: Knowledge and courtesy of employees and their ability to inspire trust and confidence
- *Empathy*: Caring, individualized attention the firm provides its customers
- *Tangibles*: Appearance of physical facilities, equipment, personnel, and communication materials

Of the five service quality dimensions, reliability has generally surfaced as the most critical dimension, based on both direct measures of relative importance (Zeithaml, Parasuraman, and Berry 1990) and importance weights derived from regression analyses (Parasuraman et al. 1988, 1991). Providing reliable service is thus the core element of service quality as shown in Figure 2, a detailed version of Figure 1.

The perceived value component in Figure 2 shows four different types of value that have been identified in the literature (e.g., Grewal et al. 1998; Grewal, Krishnan, and Sharma 1999; Woodruff 1997): *acquisition value*, the benefits (relative to monetary costs) buyers believe they are getting by acquiring a product/service; *transaction value*, the pleasure of getting a good deal; *in-use value*, utility derived from using the product/service; and *redemption value*, residual benefit at the time of trade-in or end of life (for products) or termination (for services). As implied by these definitions, perceived value is a dynamic construct in that the relative emphasis on each component may change over time. For instance, while acquisition and transaction value may dominate during and immediately following purchase, in-use and redemption value may become salient only during later stages of product/service usage. The notion that perceived value is dynamic is also consistent with earlier work suggesting that the nature and determinants of value assessment may change during

FIGURE 2
Expanded Model of Customer Loyalty



various stages of a customer's association with a company (Parasuraman 1997; Slater and Narver 1994; Vantrappen 1992; Woodruff 1997).

Several of the micro-perspective articles in this issue (Bolton, Kannan, and Bramlett 2000; Rust and Oliver 2000; Singh and Sirdeshmukh 2000; Zeithaml 2000) have examined issues pertaining to the quality-value-loyalty chain. They have also identified a number of important questions that still await systematic inquiry. The multi-component portrayal of service quality and perceived value in Figure 2 suggests several additional areas for further research, as illustrated by the following issues:

- Do the five dimensions of service quality differentially affect the four types of perceived value? If so, which dimensions are more critical for each type of value assessment?
- What roles do the four types of value perceptions play in fostering customer loyalty?
- In determining overall value, does the relative contribution of the four components of value vary by buyer/user type (e.g., business-to-business vs. individual), demographics/psychographics, and product type (durable vs. nondurable vs. service)?
- Does creating high expectations of service quality (and product quality if a product is involved) relative

to the price enhance acquisition value and transaction value (as one might expect)? If so, does the enhanced acquisition/transaction value perception persist after product purchase? What impact does such a strategy have on perceived in-use value and on ultimate loyalty? To what degree does the actual product or service performance moderate this impact?

- What approaches are appropriate for assessing customers' perceptions of in-use and redemption value? (While scales for assessing acquisition and transaction value are available [Grewal et al. 1998], the other two value components lack measurement metrics.)

ROLE OF TECHNOLOGY IN THE QUALITY-VALUE-LOYALTY CHAIN

Some of the macro-perspective articles in this issue (e.g., Roberts 2000; Sheth, Sisodia, and Sharma 2000), as well as one micro-perspective article (Bitner, Brown, and Meuter 2000), focus directly on the impact of technology on market structures and on interactions between sellers and buyers. The remaining macro-perspective articles also allude to technology-related issues. Given that technology is likely to be a (if not the) major force in shaping buyer-seller interactions in the future, it would be instructive to examine how it is likely to affect the traditional quality-

value-loyalty chain. In an effort to initiate such an examination, we integrate the pyramid model, proposed by Parasuraman (1996) and referenced in the article by Bitner et al. (2000), with the quality-value-loyalty chain.

The Pyramid Model

To capture the complexities resulting from the growing infusion of technology into serving customers, Parasuraman (1996) proposed a pyramid model of services marketing as an extension of Kotler's (1994) triangle model of services marketing. Both models are shown in Figure 3.

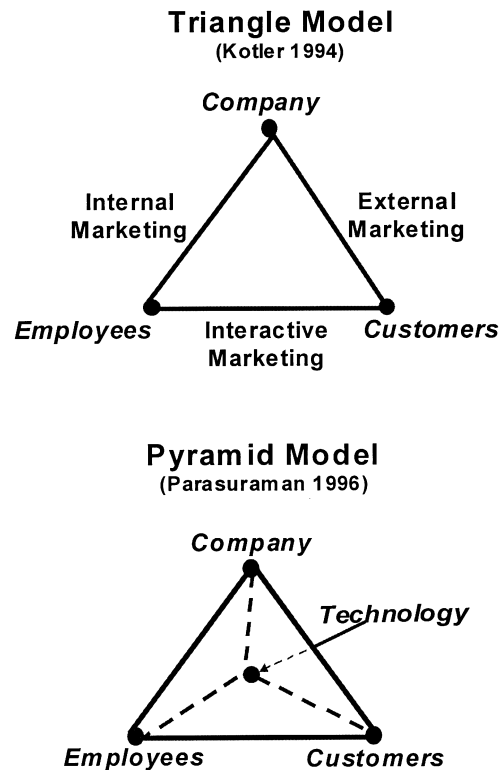
The triangle model summarizes the added complexities of marketing services relative to marketing goods. It suggests that in addition to *external* marketing—activities pertaining to the “4 Ps” (product, price, promotion, and place or channels of distribution) that are emphasized in the marketing of goods—the effective marketing of services requires *internal* and *interactive* marketing as well. Internal marketing deals with viewing service employees as internal customers and providing them with appropriate training, support, motivation, and rewards to serve external customers well. Interactive marketing deals with making a good impression on customers during their encounters with service employees. Because of the current proliferation of technology in the process through which products and services are purchased and consumed, the triangle model falls short of fully reflecting all the linkages involved in seller-buyer exchanges. The pyramid model addresses this shortfall by adding technology as a third dimension to the two-dimensional triangle model. By doing so, the pyramid model emphasizes the need for effectively managing three new linkages—company-technology, technology-employee, and technology-customer—to maximize marketing effectiveness.

Integration of Pyramid Model With Quality-Value-Loyalty Chain

In addition to calling for an increased managerial focus on the three new linkages, the pyramid model suggests important avenues for scholarly inquiry to enhance our understanding of how technology might influence the quality-value-loyalty chain. Emphasizing the need for research on technology-based service encounters, Bitner et al. (2000) have outlined several encounter-specific questions worth investigating. These questions can be complemented with a broader set of issues pertaining to the potential impact of all three technology-related linkages on the quality-value-loyalty chain. As a backdrop for discussing these issues, Figure 4 offers an integration of the pyramid model with the expanded model of customer loyalty shown in Figure 2.

Quality and value perceptions, as well as ultimate loyalty, are customer constructs since they depend on

FIGURE 3
The Triangle and Pyramid Models



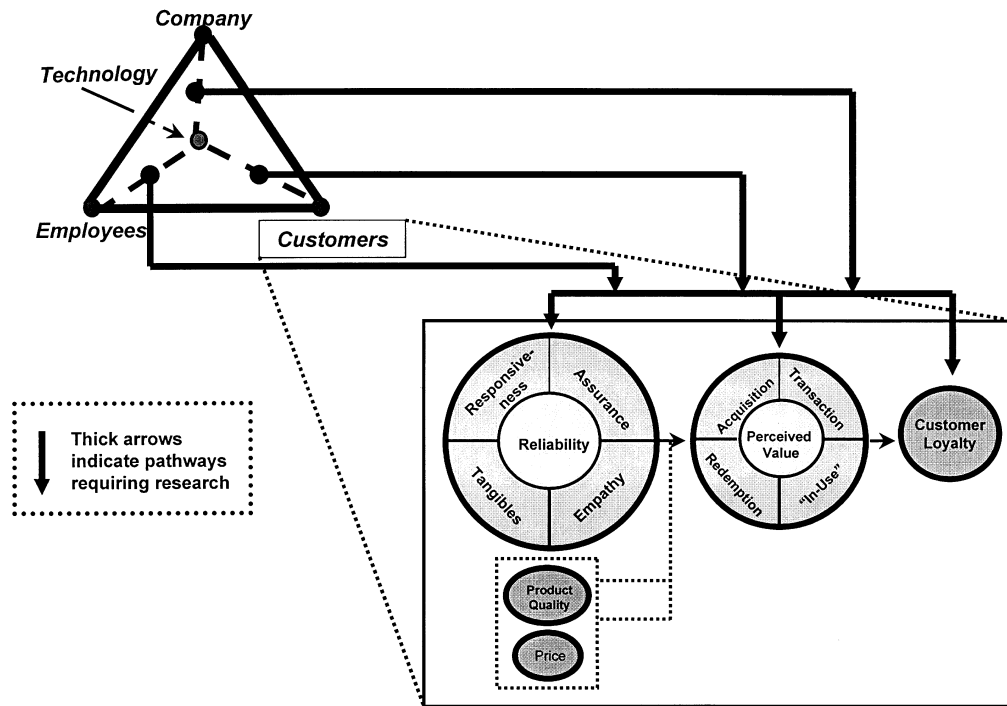
customers' assessments of various interactions with, and cues from, a company (and its employees and technology). Thus, the customers component of the pyramid model in Figure 4 is shown as having a one-to-one correspondence with the quality-value-loyalty chain. The remainder of this article presents the research issues stemming from the integrated framework in Figure 4.

Technology-Customer Linkage

As suggested by Bitner et al. (2000), “it is important to determine if the same conceptual factors established in interpersonal service encounter research are relevant in a technology-based environment” (p. 147). In a similar vein, Zeithaml (1999) has issued a call for research focusing on the meaning and measurement of service on the Internet. Consistent with these calls, and focusing on the framework in Figure 4, we offer the following questions for further research:

- Do the definitions and relative importance of the five service quality dimensions change when customers interact with technology rather than with service personnel?

FIGURE 4
Integration of Pyramid Model With Quality-Value-Loyalty Chain



- What impact does the greater degree of participation and involvement required from customers when they interact with technology have on their perceptions of acquisition and transaction value? Do their perceptions of in-use value depend on whether they have ready access to employees?
- For end customers (i.e., consumers), in what ways do characteristics such as their demographics, lifestyles, experience with other technology-based systems, and *technology readiness* (Parasuraman 2000) affect their perceptions of quality and value of their interactions with technology? What is the nature and extent of the roles of these characteristics in business-to-business contexts (i.e., when individuals in a buyer organization interact with a seller organization's technology)?
- Is customer retention/loyalty harder or easier to achieve when customers interact with technology rather than with employees? What boundary conditions or moderating factors are likely to be relevant in this regard?
- What is the meaning of, and how does one measure, the four components of value in business-to-business contexts wherein the buying organization's technology interacts directly with the selling organi-

zation's technology (e.g., the technology-based interactions between Proctor & Gamble's production plants and Wal-Mart stores' cash registers)? Is loyalty necessarily stronger in situations characterized by such technological bonding than in situations characterized by ongoing interactions between the selling and buying organizations' personnel?

Technology-Employee Linkage

Some of the research issues mentioned in the preceding section and in the article by Bitner et al. (2000) involve employees as well. However, specific to the role of the employee-technology linkage on customers' assessments of quality and value (and their loyalty), several additional questions arise:

- What impact do employee-technology interactions that customers can observe (a salesperson accessing his or her company's information system through a laptop computer in the presence of a customer) have on the various dimensions of service quality and components of value?
- Does the mere visibility of such interactions (i.e., the customer's being able to see that the employee has

access to sophisticated technology) serve as a signal of higher quality and/or value? Or, does the proficiency of the employee (as perceived by the customer) in using the technology play a moderating role in this regard?

- If the visibility and/or proficiency of employee-technology interactions have a favorable impact on customer perceptions, what surrogate signals can companies send to customers when such interactions occur below a customer's line of visibility? Alternatively, what approaches can companies use to lower the customer's line of visibility?
- Does giving employees instant access to detailed customer information through technology motivate them to deliver more personalized service and higher value to customers and thereby foster stronger loyalty? What employee and organizational characteristics are likely to determine the degree of such motivation?

Technology-Company Linkage

The macro-perspective articles in this issue have alluded to this linkage by, for example, implying the need for companies to (a) understand and calibrate the impact of technology on their markets (Roberts 2000); (b) develop technology-based (among other) capabilities (especially in business-to-business markets) if collaborative exchanges are the goal (Day 2000); and (c) leverage applicable technologies in practicing customer-centric marketing (Sheth et al. 2000). In the context of Figure 4, the technology-company link also raises certain, more micro-perspective, issues. These issues revolve around technology-related corporate cues that could influence the quality-value-loyalty chain. The articles by Berry (2000) and Webster (2000) imply that brand name and meaning can serve as important signals to buyers in both consumer and business-to-business markets. Issues related to corporate signaling that are especially ripe for research in the context of technology include the following:

- What impact do visible technology-based investments (e.g., a company Web site), or lack thereof, have on customers' service (as well as product) quality expectations? To what extent do they contribute to initial trial of the company's offerings?
- How important is it for a company to explicitly signal to customers (e.g., through advertisements) that it is keeping up with, or at the forefront of, technological developments in its field? Does such signaling affect one or more components of perceived value? And, if so, do the nature and magnitude of this effect vary for new versus existing customers? In other words, is such signaling more important for customer attraction than for customer retention?
- For customers of companies that engage in e-commerce, is perceived risk lower and, correspondingly, perceived quality and value higher, when the companies also have brick-and-mortar locations than when they do not? To what extent does a company's physical presence in addition to (or instead of) a virtual presence signal strength to customers and foster their loyalty?
- With respect to each of the aforementioned issues, are there differences between end consumers and business-to-business customers in terms of the likely impact of corporate signaling on their assessments of quality and value, and on their loyalty?

SUMMARY

In this final article of the special issue, we have drawn on our own previous research, as well as relevant research reported in the preceding articles, to synthesize key insights pertaining to the quality-value-loyalty chain and the role of technology in this chain. On the basis of this synthesis and the conceptual frameworks stemming therefrom, we proposed a research agenda focusing on unresolved issues relating to the quality-value-loyalty chain as well as the impact of technology on it. This agenda implies a strong need—as well as challenging opportunities—for both conceptual and empirical work addressing the various issues.

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REFERENCES

- Baker, Julie, Dhruv Grewal, and A. Parasuraman. 1994. "The Influence of Store Environment on Quality Inferences and Store Image." *Journal of the Academy of Marketing Science* 22 (4): 328-339.
- Berry, Leonard L. 1999. *Discovering the Soul of Service*. New York: Free Press.
- . 2000. "Cultivating Service Brand Equity." *Journal of the Academy of Marketing Science* 28 (Winter): 128-137.
- Bitner, Mary Jo, Stephen W. Brown, and Matthew L. Meuter. 2000. "Technology Infusion in Service Encounters." *Journal of the Academy of Marketing Science* 28 (Winter): 138-149.
- Bolton, Ruth N., P. K. Kannan, and Matthew D. Bramlett. 2000. "Implications of Loyalty Program Membership and Service Experiences for Customer Retention and Value." *Journal of the Academy of Marketing Science* 28 (Winter): 95-108.
- Day, George S. 2000. "Managing Market Relationships." *Journal of the Academy of Marketing Science* 28 (Winter): 24-30.
- Dodds, William B., Kent B. Monroe, and Dhruv Grewal. 1991. "Effects of Price, Brand, and Store Information on Buyers' Product Evaluations." *Journal of Marketing Research* 28 (August): 307-319.

- Godlieb, Jerry B., Dhruv Grewal, and Stephen W. Brown. 1994. "Consumer Satisfaction and Perceived Quality: Complementary or Divergent Constructs?" *Journal of Applied Psychology* 79 (6): 875-885.
- Grewal, Dhruv, R. Krishnan, and Arun Sharma. 1999. "Value-Based Marketing Strategies." Paper presented at the annual conference of the Academy of Marketing Science, Coral Gables, FL.
- , Kent B. Monroe, and R. Krishnan. 1998. "The Effects of Price Comparison Advertising on Buyers' Perceptions of Acquisition Value and Transaction Value." *Journal of Marketing* 62 (April): 46-59.
- Gronroos, C. 1982. *Strategic Management and Marketing in the Service Sector*. Helsinki, Finland: Swedish School of Economics and Business Administration.
- Heskett, James L., W. Earl Sasser, Jr., and Leonard A. Schlesinger. 1997. *The Service Profit Chain*. New York: Free Press.
- Kotler, Philip. 1994. *Marketing Management: Analysis, Planning, Implementation, and Control*. 8th ed. Englewood Cliffs, NJ: Prentice Hall.
- Lehtinen, U. and J. R. Lehtinen. 1982. "Service Quality: A Study of Quality Dimensions." Unpublished research report. Service Management Group OY, Finland.
- Lewis, R. C. and B. H. Booms. 1983. "The Marketing Aspects of Service Quality." In *Emerging Perspectives in Services Marketing*. Eds. L. L. Berry, G. L. Shostack, and G. Upah. Chicago: American Marketing Association, 99-107.
- Lichtenstein, Donald R., Richard G. Netemeyer, and Scot Burton. 1990. "Distinguishing Coupon Proneness From Value Consciousness: An Acquisition-Transaction Utility Theory Perspective." *Journal of Marketing* 54 (July): 54-67.
- Parasuraman, A. 1996. "Understanding and Leveraging the Role of Customer Service in External, Interactive and Internal Marketing." Paper presented at the 1996 Frontiers in Services Conference, Nashville, TN.
- . 1997. "Reflections on Gaining Competitive Advantage Through Customer Value." *Journal of the Academy of Marketing Science* 25 (Spring): 154-161.
- . 2000. "Technology Readiness Index [TRI]: A Multiple-Item Scale to Measure Readiness to Embrace New Technologies." *Journal of Service Research* 2 (May).
- , Valarie A. Zeithaml, and Leonard L. Berry. 1985. "A Conceptual Model of Service Quality and Its Implications for Future Research." *Journal of Marketing* 49 (Fall): 41-50.
- , ———, and ———. 1988. "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality." *Journal of Retailing* 64 (Spring): 12-40.
- , ———, and ———. 1991. "Refinement and Reassessment of the SERVQUAL Scale." *Journal of Retailing* 67 (Winter): 420-450.
- , ———, and ———. 1994a. "Alternative Scales for Measuring Service Quality: A Comparative Assessment Based on Psychometric and Diagnostic Criteria." *Journal of Retailing* 70 (Fall): 201-230.
- , ———, and ———. 1994b. "Reassessment of Expectations as a Comparison Standard in Measuring Service Quality: Implications for Further Research." *Journal of Marketing* 58 (January): 111-124.
- Reichheld, Frederick E. 1996. "Learning From Customer Defections." *Harvard Business Review* 74 (March-April): 56-61.
- Roberts, John H. 2000. "Developing New Rules for New Markets." *Journal of the Academy of Marketing Science* 28 (Winter): 31-44.
- Rust, Roland T. and Richard L. Oliver. 2000. "Should We Delight the Customer?" *Journal of the Academy of Marketing Science* 28 (Winter): 86-94.
- Sasser, W. E., Jr., P. R. Olsen, and D. D. Wyckoff. 1978. *Management of Service Operations: Text and Cases*. Boston: Allyn & Bacon.
- Sheth, Jagdish, Rajendra S. Sisodia, and Arun Sharma. 2000. "The Antecedents and Consequences of Customer-Centric Marketing." *Journal of the Academy of Marketing Science* 28 (Winter): 55-66.
- Singh, Jagdip and Deepak Sirdeshmukh. 2000. "Agency and Trust Mechanisms in Consumer Satisfaction and Loyalty Judgments." *Journal of the Academy of Marketing Science* 28 (Winter): 150-167.
- Slater, Stanley F. and John C. Narver. 1994. "Market Orientation, Customer Value, and Superior Performance." *Business Horizons* 37 (March-April): 22-28.
- Vantrappen, Herman. 1992. "Creating Customer Value by Streamlining Business Processes." *Long Range Planning* 25 (February): 53-62.
- Voss, Glenn, A. Parasuraman, and Dhruv Grewal. 1998. "The Role of Price and Quality Perceptions in Prepurchase and Postpurchase Evaluation of Services." *Journal of Marketing* 62 (October): 46-61.
- Webster, Frederick E., Jr. 2000. "Understanding the Relationships Among Brands, Consumers, and Resellers." *Journal of the Academy of Marketing Science* 28 (Winter): 17-23.
- Woodruff, Robert B. 1997. "Customer Value: The Next Source of Competitive Advantage." *Journal of the Academy of Marketing Science* 25 (Spring): 139-153.
- Zeithaml, Valarie A. 1988. "Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence." *Journal of Marketing* 52 (July): 2-22.
- . 1999. "Service in Cyberspace." Paper presented at the American Marketing Association's Summer Educators' Conference, San Francisco, CA.
- . 2000. "Service Quality, Profitability, and the Economic Worth of Customers: What We Know and What We Need to Learn." *Journal of the Academy of Marketing Science* 28 (Winter): 67-85.
- , Leonard L. Berry, and A. Parasuraman. 1996. "The Behavioral Consequences of Service Quality." *Journal of Marketing* 60 (April): 31-46.
- , A. Parasuraman, and Leonard L. Berry. 1990. *Delivering Quality Service*. New York: Free Press.

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