Designing Robust Service Encounters

Douglas M. Stewart

The Eli Broad Graduate School of Management
Department of Marketing and Supply Chain Management
Michigan State University
East Lansing, Michigan 48824-1122
Ph: (517) 353-6381
Fax: (517) 432-1112
dmstew@bus.msu.edu

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Abstract

This paper addresses the issue of service design, specifically that of designing the service encounter for improved quality. We introduce a framework based on the 3 Ts of task, treatment and tangibles as a means of organizing the application of the diverse and growing body of service quality literature to encounter design. The framework is consistent with how successful service managers disaggregate the design problem. More importantly, we show that mutually supportive interrelationships between the 3 Ts produce an opportunity for designing in robustness to service failure. The framework is supported the case based evidence.

Key Words: Service Quality, Service Design, Robust Design, Service Management,

                    Quality Management.

1. Introduction

Little doubt exists as to the importance of service quality. Services continue to increase their already dominant share of the GNP in the developed nations, while customers continue to grow more demanding in their expectations. While certain elements of service delivery may always remain reactive to the specific needs and foibles of the people involved, it is highly desirable to design as much quality into the service as possible. This is one lesson that translates well from the production environment.

There's a long history of design-focused research and service operations. These papers and focused on many different objectives from that of generating greater efficiency to attaining better alignment with the needs of the customers. The production line approach to service (Levitt 1972), the service-driven service company (Schlesinger and Heskett, 1991b) and the service profit chain (Heskett et al., 1997) are all familiar service design paradigms. Various tools or approaches also exist to support effective service design such as blueprinting (Shostack, 1987), customer contact (Chase and Tansik, 1983), the service process matrix (Schmenner, 1986), Wemmerlov's taxonomy of service processes (1990), the strategic service vision (Heskett, 1987), and service climate (Schneider and Bowen, 1985, 1995) among others.

Some research has focused more specifically on the design of the service encounter. Klauss (1985) addressed the need for moving beyond a purely product or process focus to incorporate the impact of the transient interpersonal nature of the service encounter on service quality. Various operations management researchers have addressed some aspect of encounter design. Chase and Bowen (1991) describe the impact of technology and systems on service quality, Armstrong's (1995) model relates

characteristics of the service, customer, process and physical attributes to service quality. And, Bitran and Lojo (1993) discuss how to analyze the service interface at different sequential (temporal) stages of the encounter.

In this paper we extend the literature on encounter design to address service quality. Specifically we introduce framework for encounter design based on the 3 Ts (Chase and Stewart, 1994 and Chase and Haynes, 2000). The three Ts consist of the *task* to be performed, the *tangible* things in the environment, and the *treatment* of the customer during the social interchange of the encounter. These three Ts are distinct elements of the service encounter, each with clearly different characteristics. They also correspond to how successful service managers disaggregate the design and management of the encounter. We will show how exploiting interrelationships between these three Ts can make the service encounter more robust service failure.

The paper is structured as follows: in the second section we discuss the definition and five dimensions of service quality. The following section provides an overview of the existing service quality literature, organizing this literature into four primary themes. The fourth section introduces our framework based on the 3 Ts and discusses the theoretical basis of each – providing evidence of their practical use through case-based examples from Southwest Airlines. Section 5 briefly relates the existing service quality literature back to this framework, and discuss how the framework can serve to integrate the diverse research themes discussed earlier. In section 6 we elaborate on the framework to describe how service robustness can be achieved in the service encounter through mutually supporting relationships that can be created between the 3 Ts. Again

we provide evidence of this phenomenon using case-based examples from Southwest Airlines and other services. We follow with a brief conclusion.

2. What is Service Quality?

Before embarking on a discussion of the service quality literature, it would perhaps be a good time to briefly define what we mean by the term. Quality, as it applies to services, is a rather complex topic, rife with semantic ambiguity. A service's "quality" is clearly more than just its ability to consistently perform as intended. The most widely accepted definition of service quality is a value-based definition developed by Wycoff (1984). "Quality is the degree of excellence intended, and control of variability in achieving that excellence, in meeting the customer's requirements." (p. 81) Zeithaml, Parasuraman, and Berry (1990), mirror this definition in their Gap Model. The essence of the Gap Model is that the quality of a service is defined by the gap between a customer's expectations for the service and her perceptions about what was actually delivered. The higher the perceptions are relative to the expectations, the higher the service quality will be. Zeithaml et al. go on to elaborate on how this gap can be the result of other internal gaps in the service delivery system and marketing functions of the service firm.

What is particularly interesting about Zeithaml et al., however, is that the authors identify five dimensions of quality – reliability, responsiveness, assurance, empathy, and tangibles. Moreover, they found the dimension with the highest importance to be the reliability of the service delivery. Additional work has been done by Carman (1990) to evaluate the stability of these dimensions. Although Carman found that some of the weaker dimensions are subject to change based on the type of service studied, reliability,

along with tangibles and security (a subcomponent of assurance), appeared important in all cases.

Inextricably tied to Zeithaml, Parasuraman, and Berry's gap model is the literature associated with the measurement of service quality, particularly that surrounding the relevancy of their SERVQUAL model. Historically, service quality has been measured by some sort of customer satisfaction survey instrument. However, few if any of these instruments have been scientifically tested to validate their actual relationship to quality or business success. SERVQUAL is one such validated instrument. Based on the gap model theory, this instrument is a survey tool that measures customers' perceptions of a given service encounter on each of the five dimensions of quality, and compares them with the customers' expectations for this type of encounter. The differences are weighted according to the relative importance of the various dimensions.

Despite SERVQUAL's contribution to our understanding, there has been considerable debate in the literature about the model, particularly revolving around Cronin and Taylor's (1992) work indicating that the expectations portion of the tool may be unnecessary, since customers include their expectations in their perceptions of performance. Their reduced model SERVPERF, containing only the perceptions portion of the instrument, was shown to better indicate repurchase intentions than SERVQUAL. More on this debate, and the recent advances in measuring service quality can be found in Grapentine (1998). This argument aside, the gap model of service quality with the five dimensions of service quality captured in the SERVQUAL instrument remains the most

widely known, empirically tested, and generally accepted definition of quality in the service literature, and we will work from this basis as we move forward.

3. Service Quality Improvement Strategies

If we now turn our attention to quality improvement, particularly from an operations perspective, we immediately see that our choice is one of addressing how we can deliver the service better, so as to increase the perceptions of the customer. Examining the service literature reveals this choice reflected in four primary themes, specifically, culture-based, design-based, variation-based, and failure-based improvement strategies.

3.1 Culture-based Improvement

One of the earliest approaches seen for improving quality in services was based on the soft side of the total quality management movement. One of the greatest sources of positive, or negative, perceptions of the service is derived from the interaction between the service provider and the customer during the service encounter. The providers' ability and willingness to be flexible according to customers' needs, and to resolve any problems which occur promptly and without hassle, is a function of their training and the organizational culture in which they operate. Hostage identified the importance of a service's employees and culture as early as 1975 in his analysis of the success of Marriott Corporation. These thoughts are echoed fifteen years later by Albrecht (1990) who asserts that relative to standards-based approaches, "…culture-based approaches will ultimately emerge as more effective for the management of service."

Schneider (1986) addresses improving service culture through a focus on individual and group psychology. Berry, Zeithaml, and Parasuraman (1990); and Schneider and Chung (1993); add the importance of employee selection and training; Schlesinger and Heskett (1991b); and Roth and Jackson (1995) elaborate on this importance of investing in people, since even though generic operations capabilities affect service quality, the employee's ability to exploit technology and market insight moderates this effect. Harrington and Akehurst (2000) confirm the importance of employee resourcefulness as well as senior management commitment to quality implementation. Hartline, Maxham and McKee (2000) discuss how a customer-oriented strategy from senior management can be disseminated to the front-line employees through specific control mechanisms.

Kingman-Brundage (1991) emphasizes the need to provide technology to support the service culture. One notable assertion made by Kingman-Brundage is the importance of the service logic being consistent with the service policies, so as not to induce customer frustration.

In a separate work, Schlesinger and Heskett (1991a) develop a system dynamics model to explain the feedback relationships between organizational variables that cause poor service culture and result in service failures. The system dynamics model indicates that poor culture is the result of two positive feedback loops, meaning that it will get worse at an increasing rate. The authors identify points of leverage in the system where the cycle can be reversed by management intervention. Georgantzas and Madu (1994) presented their own version of such a system dynamics model.

Kelly and Hoffman (1997) identified a positive relationship between provider affect and cultural variables of organizational citizenship and customer orientation, and a negative relationship with being sales oriented. This positive provider affect has, in turn, a positive impact on customer affect and service quality. Hartline and Ferrell (1996) investigate the interfaces of the service delivery process (manager-employee, employee-role, and employee-customer) and find that managers should decrease employee's role conflict and ambiguity, and increase self-efficacy and job satisfaction in order to increase customers' perceptions of service quality. Schneider, White and Paul (1998) indicate that in addition to a climate for service, policies and practices that focus attention on service quality are needed.

Other work has focused on fostering favorable social interaction between the customer and the provider. Tansik and Smith (1991) discuss scripting employees' behavior. Bitner, Booms and Mohr (1994) identify misbehavior of the customer as an unusual potential source of customer dissatisfaction. Bettencourt (1997) instead looks at how helpful discretionary customer behaviors can be promoted. Price, Arnould, and Tierney (1995) introduce a framework for extended, affectively charged and intimate encounters. Broderick (1999) introduces role theory as a means of understanding and managing the dynamics of long-term service relationships. Kandampully (1998) discusses how providers can form an emotional connection with customers that leads to exceptional service and long-term loyalty.

Measurement driven approaches are also seen. Lings (1999) develops an internal marketing schematic that focuses employees on the impact their activities have on the customer. Measures and improvement targets drive this approach. Rust, Zahorik and

Keiningham (1995) instead use a financial model of cost of quality to relate the cost of service quality initiatives to increased profitability.

Surveys have found that the quality culture in services, as a whole, still lags behind that of manufacturing indicating a strong potential for culture-based improvement strategies within many service firms (Troy and Schein, 1993). Ultimately, the service culture is the result of management style, organizational structure, incentive systems, and group dynamics. Because of this, improvement through service culture changes remains a difficult challenge to service businesses, and the focus of researchers who emphasize organizational behavioral issues.

3.2 Design-based Improvement

Another major service quality improvement approach is by addressing quality through design. There have been three approaches to using design in this manner— linking the design to customer needs, linking the design to customer perceptions, and direct psychological manipulation of satisfaction through design.

3.2.1 Linking Design to Customer Needs

The first structured approach to linking the service system design to customer's needs was Heskett's (1987) strategic service vision. Heskett indicates how a service should begin with an understanding of the target market. This understanding is used to derive a service concept, a strategy for delivering on the key points of this strategy is developed, and the strategy ultimately dictates the design of the service delivery system.

Behara and Chase (1991) take a slightly more quantitative approach, by combining quality function deployment (QFD) with SERVQUAL and producing what

they refer to as a house of service. The result is a matrix that links the needs of the customer to operating design variables under the control of the system designer. Applications of quality function deployment without the SERVQUAL component are also seen in services. Berkley (1996) takes a particularly rigorous approach to service QFD, using FAST diagrams to draw connections along the means-ends hierarchy, and morphology diagrams for the selection of appropriate technologies.

The most quantitatively advanced approach to assuring that the customers' needs are met by the service design is through the use of conjoint analysis (a good discussion of which can be found in Green and Srinivasan, 1990.) Probably the most widely know application of this technique was Wind, Green, Shifflet and Scarbrough's (1989) design of the Courtyard by Marriott hotel chain. Through conjoint analysis, the authors were able to assign a dollar value to each design option, based on the willingness of the customer to pay for them. The actual design then became a simple financial analysis.

3.2.2 Linking Design to Perceptions

Instead of linking the design to the needs of the customer, another approach in the literature seeks to link the design to the ultimate perceptions the customer has of the service delivery process.

Collier (1994) uses LISREL to develop his service/quality process maps. The maps are a series of causal relationships between design variables (in the form of process performance measures) and perceptual variables (such as customer satisfaction). The relationships are either direct, or through some intermediary variables. The validity and strengths on any anticipated relationships can be empirically derived from company data, and then used to guide quality improvement.

Armstrong (1995) investigated linking customers' perception of service quality with service system design variables through linear models, neural nets, and multivariate adaptive regression splines. In addition to demonstrating the usefulness of linking design to perceptions, the author found that simple linear models provided better fit than the more advanced techniques. Later work by Soteriou and Chase (1998) builds on this research, and provides more convincing empirical support of the methodology.

3.2.3 Direct Manipulation of Satisfaction

A final design approach to improving quality is through direct manipulation of satisfaction. Wirtz and Bateson (1992) suggest that it might be possible to increase customer satisfaction independently of the confirmation of perceptions relative to expectations. They suggest that producing pleasure for the customer can have direct effect on customer satisfaction. The design of the service setting is one means of producing such an effect. Pyzdek (1994) asserts that this second approach will be advantageous, since it would prevent inflation of expectations as superior service perceptions increase the expectations for the following encounter. It is not clear, however that such an effect exists. According to the original GAP model by Zeithaml, Parasuraman, and Berry, the expectations are derived not from the experience with the particular service firm, but rather from a broad exposure to similar service firms. Under this context, the effect could easily be considered part of perceptions. Regardless of whether or not this effect is distinct from perceptions, one author promotes the use of fun and random rewards to alter perceptions of the service experience. Gross (1994) suggests that what he refers to as random "outrageous service" will build regular desirable behavior, and improve customers' long term perceptions of the service delivery.

Bitner (1992) addresses the tangible characteristics of the service setting, which she refers to as the servicescape. In addition to impacting the ability to perform service tasks, the servicescape can affect customers' attitude towards the service. This attitude can be manipulated to elicit appropriate behavior, prompt favorable social interaction, and shape expectations for the service. In a later work, Bitner (1993) provides a strategy for identifying the important physical evidence of the servicescape, and how to integrate this with the goals of the service delivery system.

3.3 Variation-based Improvement

Our third theme builds on the success of statistical process control (SPC) in manufacturing, as people attempted to apply SPC to services. Where meaningful numerical data can be obtained, the approach has shown its expected success. Wyckoff (1984) discusses the successful use of SPC at Midway Airline. Midway tracks the percentage of flights departing on time with control charts, and can quickly identify when changes in the system have occurred. Negative changes elicit corrective action, and positive changes indicate opportunities for improving the system on a long-term basis.

Unfortunately, other than monitoring time, demand and satisfaction scores, there are not many meaningful statistical variables to measure in services. A 1993 special issue of *Quality Progress* emphasized customer service, provided many articles which used SPC to track service quality issues, but the scope of the different types of variables considered is, sadly, rather narrow. The applications seen were: the waiting time to replace a battery (Yoshida, 1993); the waiting time on hold for a service representative (Graessel and Zeidler, 1993); the time to return a call or resolve a technical support problem (Cleary, 1993); the time to process and order and the time to pick up an order

(Pratt, 1993); the percentage of insurance claims processed within 48 hours (Kirscht and Tunnell, 1993); and the American Society for Quality Control tracks simply the time until notification of certification test results (Vora, Harthun and Kingen, 1993).

Another SPC approach taken is variance reduction through parameter design. Parameter design was developed by Taguchi, and involves adjusting the parameters of the design so that the variation of the inputs produces a minimal variation in the outputs. The logic is that as the output deviates from its targeted level, the costs would increase at a quadratic rate. Krehbiel (1994) applies this approach to a service setting evaluating two process designs to determine which provides the more consistent service in terms of time spent in the system. The author concludes that although one system produces a slightly longer average time, its smaller variation makes it the best choice. The larger variation system is shown to cost customers sufficiently more in waiting time than the system with the longer average waiting time.

Once again, the approach is limited only to the subset of variables that are meaningful to the quality of the service, which can actually be measured. Snee (1993) discusses conceptually how robust work processes might be produced without the need for measurement, such as through simplifying work processes, mistake-proofing, clear communication, training and automation. In suggesting this approach, Snee begins to depart from the statistically based approach, and begins to look towards failure-based improvement.

3.4 Failure-based Improvement

With the absence of sufficient meaningful data to allow statistical process control, some researchers are turning to failure prevention, analysis, and recovery as our final

theme in service quality improvement. Schlesinger and Heskett (1991a) assert that "Most service failures are not failures: they have been designed into the system." And, as recently as 1997, Johns and Tyas have confirmed that service incidents play the most significant part in perception formation, although they also find some evidence of an effect from mythologies (generalizations of reality shared by a group of individuals).

One approach taken by Hart (1988) is the unconditional service guarantee. As a service quality improvement tool, a service guarantee is best seen as a means of generating reliable data about important service failures. The guarantee focuses on what is important to the customer, provides an incentive to the customers to provide information about service failures, and provides a measure of these failures in an easy to understand form (guarantee payouts).   Hart (1993) has also gone on to link guarantees to business performance through customer defections.

This link to customer defections leads us to a slightly broader concept promoted by Hart, Heskett and Sasser (1990); Zemke (1993); and Sinha (1993) – that of service recovery. The essence of service recovery is to identify when a service failure has occurred, and then to correct the problem and make amends to the customer. This has a two-fold effect. First, you are able to retain the customer's business, and second you avoid the negative word of mouth associated with a service failure. Youngdahl and Kellogg (1997) explore the cost associated with customers' efforts to increase their own satisfaction though recovery activities.

Chase and Stewart (1993, 1994, 1995) take a more active approach to service failures, which they refer to as fail-safing. The authors assert that service failures can be anticipated, and through the use of special procedures or devices, can be eliminated or at

least prevented from reaching the customer. Stewart and Chase (1999) investigate errors in services and find that errors drive dissatisfaction, and that the errors made by customers and those made by providers are different. One important source of that difference is the attribution of blame. They also discuss how design can be used to minimize errors. Van Raaij and Pruyn (1998) also discuss the critical factors of service production as validity (do the right thing) and reliability (doing things right) as well as the attribution of blame as customers gain greater control over the service.

Reichheld (1996) discusses using a failure-driven, cost-based approach to improvement. He suggests viewing each defection as a failure of the service system, and promotes the use of failure analysis to drive changes to the system, which are assessed by changes in the cost of defections.

4. A Framework for Understanding Service Quality

Although we have identified four distinct themes in the service quality literature, we require some framework as to how to apply these diverse themes in a coordinated fashion, particularly in the context of the service encounter. While some individual authors have indicated how their work may also impact other areas of the firm (e.g., service guarantees also may promote a better service culture), coordinated application of this literature to improving service quality will demand such an integrating framework. This framework should indicate how the various techniques within each theme act to influence the satisfaction derived by the customer from the service experience.

First, let us consider that what distinguishes the four themes discussed above is commonality of the underlying techniques and the subset of the literature from which they are derived, rather than any explicit statement about how these approaches impact

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the service delivery and quality. Service quality is simply too challenging and important
to rely on a piecemeal approach. We must be able to draw from all of our existing
knowledge in a coordinated fashion.

From an operations perspective, what is needed is an understanding of the broad
aspects of a service that must be addressed in the encounter in order to ensure that it
meets or exceeds expectations, and how the existing literature aligns with these aspects.
Zeithaml, Parasuraman and Berry's dimensions of service quality are inherently
psychological constructs of how the typical customer classifies different elements of his
or her **perceptions** of the just completed service encounter. Influencing the customer's
perceptions along the dimensions defined by Zeithaml, Parasuraman and Berry is the
ultimate objective of the service encounter. These dimensions, being derived
psychological constructs, are one step removed from the elements of the service
encounter that could be directly influenced by the service designer or manager.

In order to provide a perspective that is more closely aligned to the actual
decision-making and manipulation of the operations manager, we instead draw on Chase
and Stewart (1994), who suggest three critical aspects that a service must be managed to
ensure high quality service, the *task* (what must be done), the *treatment* (the
emotional/social content of the encounter) and the *tangibles* (or physical surroundings
and facilitating goods).   They refer to these as the 3 Ts, and it is through manipulation of
these 3 Ts that perceptions along the various dimensions of service quality are influenced.

In the following sections we will elaborate on the 3 Ts, more carefully defining
each, discussing the physical, psychological, temporal and customer contact differences
between them. And, following the approach used by Clark (1996) in manufacturing

strategy we will support our framework with examples drawn from a familiar series of published service operations cases – those based on Southwest Airlines. These examples are intended to show how successful service managers tend to view their services along the same three dimensions.

4.1 Tangibles

When we refer to the tangibles in the service environment, we are referring to the facilities and the facilitating goods of the service. Bitner (1992) used the perhaps more descriptive term "servicescape". Tangibles constitute the physical realm of the service encounter, concerning things or artifacts. Being physical nature, the evaluation criteria for tangibles is usually objective and clear, and measuring performance is relatively straightforward. Moreover, being physical, tangibles are non-temporal or enduring, capable of being present prior to the service encounter and lasting beyond it. As such planning or preparation window for tangibles is relatively long allowing much of the work associated with managing the tangibles to be conducted in low contact areas of the service.

Operations expertise in tangibles usually focuses on the production of facilitating goods (effectively manufacturing) and to some extent layout. Managing the tangibles requires not only addressing their inherent functionality, construction and upkeep, but also an understanding of their impact on the customers' perceptions and behaviors. The relevant experience for managing tangibles is usually found in those individuals with a strong background in facilities management and industrial design, although expertise may also be seen in consumer marketing, architecture and psychology.

Managers at Southwest Airlines paid specific and particular attention to the tangibles of their new service as it was launched in 1971. Among the cited advantages Southwest Airlines promised were "… new aircraft, attractive hostesses… and inexpensive, exotically named drinks." (Lovelock, 1975, p7) They discussed the benefits of using the 737 aircraft over the alternative DC-9 or 727, as requiring less crew and providing higher reliability. The planes were painted distinctive "candy-colored" schemes, and the flight attendants were dressed in distinctive knee-high lace-up boots and hot pants. And although the era of knee-high boots and hot pants is long gone, Southwest Airlines continues to dress their flight attendants in more casual attire (khaki slacks and polo shirts) than the industry norm. The firm is also made conscious decisions to minimize certain aspects of the tangibles in their service offering, most notably foodservice. Seen as an item that substantially increases ticket costs but adds little value to the customer, Southwest has limited foodservice to peanuts and pretzels. (Lovelock, 1975)

4.2 Task

The task is the means by which inputs to the service are transformed into the desired outputs, and is primarily active rather than physical in nature. Often task is referred to as the process, procedures, scripts, algorithms or decision-making activities. Our understanding of the task is represented as techniques or technology. Because there is a beginning state and a transformed state, there is a clearly specified start and finish to the task, making it temporal in nature. Evaluation of the task is somewhat more subjective than evaluation tangibles, and usually involves observing some closure of the gap between some initial state and some desired concluding state, usually resulting in

time-based metrics. The task may be planned ahead of time, but is more reactive in that it must be performed in time to resolve the service encounter, and often requires some interim inputs from the customer either as information or items. As such tasks may be seen as front or back office activities depending on the amount of customer input required. Task or process management has been a traditional focus of operations, and the skills to develop and manage tasks are well known to the competent operations manager. After all, formal study in operations typically includes, process mapping, scheduling, and capacity planning among other relevant techniques.

Managers at Southwest Airlines also paid specific attention to the task elements of their service offering from the onset. "Whereas the competition used traditional, handwritten airline tickets, Southwest counter staff shortened ticket purchases, using a machine to print out tickets and a pedal-operated tape recorder to enter names on the passenger list as they checked in…" (Lovelock, 1975, p 7). And this emphasis on task continues to the present-day. The Company recognizes the one task essential towards meeting their frequent on-time departures is turning around the plane (making it ready for the next flight) as fast as possible. Southwest manages to do this in under 15 minutes for two-thirds of their flights, compared to an industry average of 55 minutes. They do this by focusing all available people on the task at hand. "Pilots help flight attendants pick-up the plane between flights, ramp service agents (baggage handlers) notice the condition of the planes, and pilots sometimes carry luggage, especially if it means achieving an on-time takeoff." (Hallowell and Heskett, 1993, p. 4) Southwest Airlines will also not transfer bags to other airlines, because they recognize that they cannot perform this task

according to their own high standards if it they must coordinate their task with that of other airlines.

4.3 Treatment

When dealing with treatment of service encounter, we're primarily talking about a relationship between the participants. We tend to use terms like service attitude, empathy, assurance, trust, or fun to describe this aspect of the service encounter. Primarily it is an assessment of the intentions of the service provider in a social context as perceived by the customer. In essence, the social interaction becomes an important component of the customer's perception of the service and willingness to continue to include a particular service within his or her group social interactions.

Converging lines of investigation from such research disciplines as evolutionary psychology, cognitive science, and neuropsychology of humans and primates are coming together to provide a perspective of the human brain as a "large and heterogeneous network of functionally specialized computational devices." (Cosmides and Tooby, 1994, p. 329) In other words, we have dedicated, evolved capabilities devoted to interacting with our environment. Moreover, these capabilities "are applied without any awareness of their underlying logic; and are distinct from more general abilities to process information or behave intelligently." (p. 330) (For a general discussion of evolved capabilities to readers referred to Tooby and Cosmides, 1992)

An important group of such specialized capabilities that has been confirmed experimentally are those devoted to navigating the social milieu within cultural groups. (Reference Brothers Friday's Footprint) Humans have a subconscious capability for such things as understanding threats and friendly ovations, or identifying cheaters and liars,

and bluffers. These capabilities are based on interpretation of body language, facial

expression, verbal intonation and other subconsciously detected and evaluated cues.

Researchers have also identified that most of these social cues "are neither willed

performances nor socially unconscious discharges of raw feeling." (Brothers, 1997, p.5)

> Facial expressions are [socially] useful only if they are hard to fake. As a
> matter of fact, they *are* hard to fake. People don't really believe that the
> grinning flight attendant is happy to see them. That's because the social
> smiles formed with different configurations of muscles from a genuine
> smile of pleasure. These social smiles executed by circuits in the cerebral
> cortex that are under voluntary controls; a smile measures executed by
> circuits in the limbic system and other brain systems and is involuntary.
> Anger, fear, and sadness, too, recruit muscles that can't be controlled
> voluntarily, and the genuine expressions are hard to fake, though we can
> pantomime an approximation. (Pinker, 1997, p. 415)

The result is that even when we desire to convey a particular attitude, we may not

be successful in doing so if our actual attitude is different. Moreover, these capabilities

strongly influence our perceptions of the service encounter, which after all is merely a

particular of social interaction.

Obviously treatment will pose more of a challenge for the operations manager,

who typically lacks formal training in psychology and sociology, much less

neuropsychology. Evaluation of the treatment is purely subjective, based on some

internalized belief of what is appropriate for the particular encounter. Therefore, when

treatment is measured at all, it must rely on perceptual metrics. Moreover, the

assessments are formed as fleeting impressions that are refined throughout the encounter

(inter-temporal). Accordingly, treatment is less easily prepared for and must be highly

reactive to the particular customer.

There is a certain segment of the population that is able to intuitively handle these

social interactions quite well – those individuals we often refer to as people people. The

usual recourse of managers that recognize the importance of the treatment derived dimensions of customer services to fill front-line positions with employees that have demonstrated the requisite *intuitive* understanding of how to treat the customer well, and the personality that easily conveys the desired attitudes for the service. This ensures that that appropriate subconscious communication capability is present. Then they support these individuals with an appropriate service culture so that the employees can believe themselves that the attitude is appropriate, allowing for natural subconscious manifestation of the non-verbal cues (making them more believable by the customer.)

Southwest airlines management clearly views treatment as a distinct and important aspect of their service (even though the explicit service they offer is transportation). They also understand the importance of finding the right people and supporting them with the right culture to deliver it.

The CEO, Herb Kelleher, states "Southwest's essential difference is not machine and 'things'. Our essential difference is mind, hearts, spirits, and souls." (O'Reilly and Pfeffer, p. 14) Ann Rhoades, the Vice President "People" put it this way:

> We try to hire people who are fun, and that translates to friendly. We
> want to be sure that they are going to be comfortable here, and we want to
> be sure that our passengers are going to be comfortable with them. Fun
> and friendliness come from the heart. We don't want a phony smile. We
> want a genuinely open spirit, someone who really likes people, and wants
> to help out. (Hallowell and Heskett, 1993, p. 3)

Or in the words of Frank Kelleher "We draft great attitudes. If you don't have a good attitude, we don't want you, no matter how skilled you are. We can change skill levels through training. We can change attitude." (p. 9) The employees are then expected to use their judgment as to how best treat the customers. One rule used was "Do whatever you do comfortable doing for customer." (p. 7)

Because they recognized that socially adept individuals inherently have the capability to identifying other socially adept individuals, Southwest Airlines instituted peer hiring, where any individual referred by an existing Southwest employee is guaranteed an interview.

Southwest also realize the importance of culture in supporting attitude. Herb Kelleher referred to it as "a patina of spirituality" that pervades the business, while one visitor was quoted as saying "I've never seen so many people and each other excepted a family reunion."(p.8) Colleen Barrett, Executive Vice President "Customers" stresses the need to constantly reinforced the sculpture, "We'll never jumped on an employee for leading too far toward the customer, but we come down on them hard for not using common sense." (p.7).

4.4 Discussion of the 3Ts

We have described the 3 Ts, the theory behind these attributes, and evidence of management decision-making aligning with this framework. In this subsection we will discuss the benefits of the framework as well as some concerns that might be raised in the reader's mind.

There are several benefits to using the 3T framework. First, it clearly separates the physical, process and interpersonal issues inherent in service operations and design, so that they may be addressed more clearly. Second, distinguished as such, each of the areas is clearly associated with a relatively well-established body of knowledge, although the relevant knowledge is not in all cases part of our formal operations education and literature. And third, it reflects how successful practicing managers disaggregate the encounter design and management problem.

One point that may be raised about the 3Ts is the failure to mention technology, particularly in our increasingly computer driven world. We take the view that technology is already incorporated within this framework. For many of us, technology means software, and as such is actually means tasks performed by a computer rather than a human service provider. All other definitions of technology, including but not limited to hardware, databases, network and internet connections, and automated equipment, fall under tangibles as forms of facilitating goods or elements of the servicescape. By not including technology as the fourth T, we in no means are trying to trivialize its obviously important role in modern service management. Rather, we are simply saying that technology in and of itself is not one of the critical deliverables of a service.

It is also important to understand how 3Ts framework relates back to the established dimensions of service quality and associated literature (Zeithaml, et al. 1990). Recall that the dimensions of service quality were those dimensions that were important to the customer when assessing the quality of a service. These are primarily psychologically derived constructs of the resulting satisfaction with the service. The 3Ts are intended as operational management and design constructs that are intended to ultimately influence the dimensions. The relationship for the most part between the two is relatively clear. Reliability is primarily driven by the task. Assurance and empathy are primarily the result of treatment efforts. And, tangibles quite simply result from tangibles. Responsiveness, one of the most important dimensions of service quality is the only dimension whose driver within the 3Ts is not clear. Zeithaml et al. (1990, p. 26) define responsiveness as "Willingness to help customers and provide prompt service". As such, responsiveness is in part an attitude of willingness, which results from efforts at

providing better treatment, and in part an execution issue, which results from better task

structure. Figure 1 graphically represents the various relations between the 3Ts and the

service quality dimensions.

INSERT FIGURE 1 ABOUT HERE

One final issue that might be raised is the question of whether three aspects are in

some manner less useful than five dimensions, particularly with regard to treatment

relative to empathy, assurance and responsiveness. This really represents a difference in

intended use. After all, is not likely that there is a single internalized cognitive

mechanism that subconsciously evaluates service treatment, this overall impression is

formed through the collective interaction of many fleeting judgments across a range of

social cues and behaviors. However, it is also unlikely that there are specific mechanisms

for assessing assurance, empathy, and responsiveness. These impressions will also be

formed from the collective interaction of many undetermined judgments. Measuring the

service quality dimensions will identify the manner in which a perceived shortfall in

treatment has manifested in the customers mind. However, a decision must still be made

as to what mechanism will be used to rectify this particular shortfall (e.g., through

enhanced social communication of appropriate attitudes, alterations to the facilities or

artifacts to reinforce this communication, or scripting the encounter to emphasize these

attitudes.) In other words, the 3Ts become the mechanisms through which managers can

act upon performance shortfalls, guided by the information provided in the dimension

assessments. Perhaps responsiveness illustrates this difference best, as it is clearly and

directly impacted by not only by willingness to serve (an assessment based on and

influenced through treatment) but also actual performance (an assessment based on and influenced through task).

5. Relating the Service Quality Literature to the 3Ts

If we look closely to how the existing service quality literature fits with the 3Ts, we see that most of the literature proposes directly influencing one or more of these three aspects of service. We note, however, that some of the literature falls between the three Ts, which points to a relatively unexplored type of robustness opportunity in services that we will discuss shortly.

If we look at the literature on culture, it appears to deal predominantly with the aspect of treatment. (E.g., do servers have a service mentality, and if not, how can one be developed?) In part, this is because treatment is somewhat subjective, and correspondingly is more difficult to apply comprehensive standards. For example, The Ritz Carlton has standards of behavior dictating things such as showing a guest where something in the hotel is located, rather than simply telling them. However, to provide the type of treatment that they are known for, the Ritz must also rely heavily on their culture of refined service. The culture research does have some direct impact on task as well, as in some cases, culture is suggested as an alternative to well-controlled processes, particularly in cases were the service process is highly variable from one customer to another.

The design literature usually addresses either tangibles or tasks. This is no doubt in part due to the aforementioned difficulty in specifying the standards that would be implicit in designing the culture of the organization. The literature on linking design to perceptions usually implies changes only to the task, albeit indirectly. The techniques

actually attempt to set targeted performance standards, these targets will suggest

implementations primarily involving task changes that will have the desired effect.

Research on linking the design to the customer needs has focused on both the tasks and

the tangibles more directly through approaches such as conjoint analysis, QFD, and the

strategic service vision. Those approaches attempting to directly influence satisfaction

through design have focused on the task with some implications for the treatment.

Outrageous service suggests that a random additional task providing of unexpected

reward will promote regular behavior (tasks), but also that the delivery of unexpected

rewards also has implications for treatment. Bettencourt's (1997) work on voluntary

customer performance indicates that treatment will impact propensity of customers to

engage in beneficial tasks. And finally, the use of servicescape design focuses almost

exclusively on the tangibles, but also has interesting ramifications on the treatment and

task that we will return to shortly.

Variation-based improvement focuses exclusively on the task, and more

specifically control of variation within that task.

With failure-based improvement we see a broader focus on the other three areas,

although the emphasis remains on the task. With service guarantees, we are really talking

about a process for handling breakdowns in the task or tangibles. We assert that while

they can be applied to treatment failures, this usually requires a greater amount of

judgment in interpreting if the necessary conditions for evoking the guarantee have been

met. Most firms appear uncomfortable with a meaningful guarantee that remains so open

to interpretation of the involved parties. The related service recovery literature is of a

similar form. Both of these techniques do have interesting implications on culture.

While fail-safing is explicitly proposed for addressing task, treatment and tangible failures, the current approach remains weak in addressing more complicated failures in treatment.

As we mentioned earlier, some of the literature appears to fall between these aspects. Table 1 identifies what we believe to be a representative selection of the service improvement literature along with a brief description of the key points of each paper. We have also indicated which of the 3Ts we see addressed in the paper, as well as where we see some interaction between two of the three Ts addressed. It is these interactions that we will explore as a means of attaining robustness in the service encounter. A few papers discussed in the literature review do not directly address any of the 3 Ts, usually because their focus, while on service quality, did not have direct implications on service design (e.g., as Harrington and Akehurst's discussion of the impact of senior management commitment on implementation). The papers were nevertheless included in Table 1 for completeness.

INSERT TABLE 1 ABOUT HERE

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6. Robust Service Through the 3 Ts

In this section we will elaborate on the framework, by discussing relationships between the 3Ts. What we propose is that the 3 Ts do not merely form complementary parts of the service experience, but rather, they serve as mutually supporting aspects of the service experience, each capable of offsetting to some extent, weakness in the others. By this we mean more than that doing well on treatment can offset the adverse effects on satisfaction of poor task performance – that is a complementary relationship. Instead we mean that the proper use of treatment can improve task performance (or at least the

perceptions of task performance.) This may seem like a subtle distinction, but it is actually quite important. The aforementioned literature that appeared to fall between the cracks is actually addressing these mutual support relationships. This particular view of service quality becomes particularly useful, as it suggests a particular type of robustness that is potentially present in services, and that can be cultivated.

For example, we see Tansik and Smith's (1991) work on scripting employee behavior is a means of using tasks to support treatment. Service recovery on the other hand is actually a means of using superior treatment to address task failures. Servicescapes, in addition to the design of the tangibles, suggest that these tangibles can be used to elicit behavior from the customer (supporting the task) and prompt favorable social interaction (supporting the treatment.)

The idea of the 3 Ts being mutually supporting, rather than simply complementary, also serves to explain interesting phenomena in services, such as the emphasis on culture in services that experience little task commonality. The typical justification for this emphasis is that such services are too difficult to apply to task-heavy approaches like service design, variation-based or failure-based techniques. In reality, the emphasis may be because treatment heavy techniques such as culture-based quality improvement may allow treatment to support expected shortfalls in the task, which in such cases cannot be performed with the precision of more consistent services. Treatment, through service culture, could similarly be used to offset the tangible ambiguities associated with offsite services. The concept of the framework is shown in figure 2.

INSERT FIGURE 2 ABOUT HERE.

In the following subsections we will examine each of the 3 Ts and how performance on one can be made more robust through the support of the other two. We will examine what the existing literature has to say about these relationships, and provide examples of this "robustness" in practice, drawn from our own experiences and published cases.

6.1 Robust Treatment

We begin by turning our attention to how task and tangibles can be used to support treatment deliverables. Making treatment robust would be particularly important environments such as services with high employee turnover, services with cultural differences between servers and customers, and emotionally charged or stressful services, all of which pose particular challenges to good treatment.

<u>Supporting Treatment with Task</u>

If we consider first how tasks can make treatment more robust, this could be through supplementing or replacing treatment in difficult situations. Roth and Jackson (1995) have shown that it is possible to copy elements of the service know how of other firms, and this extends to treatment behaviors by the providers. Hostage (1975) alludes to using tasks (such as having the bellman check the guests luggage tags for departure city) to support treatment (striking up a conversation relevant to the guest's hometown.) Chase and Stewart (1993, 1994, 1995) also discuss how method-oriented fail-safing (such as noting customer eye color on a check sheet) can be used to influence treatment (in this case making eye contact.) Service recovery activities (Hart et al. 1990, Zemke 1993, and

Sinha 1993) are also tasks that are instituted in some cases to recover from poor treatment.

Schlesinger and Heskett (1991a, 1991b) provide some warning by highlighting the inverse of what we are suggesting when they note that deskilling of the tasks can lead to lower, skilled, paid and motivated workers and leading to poor treatment.

Tansik and Smith (1991) are more explicit about how treatment behaviors can be ensconced in the providers by employee scripting. Scripting can be used to mimic desirable treatment behavior before employees internalize it, as well as help facilitate the learning process. For example, a recently hired service provider can be given scripted behavior exercises to provide guidance for how customers of this particular service should be treated. As the scripts are internalized, other natural variations in behavior, consistent with the original script, will develop. This would be particularly important in services with high turnover, or services where the labor pool would not typically be familiar with the treatment expectations of the typical customer (e.g., a service in a U.S. city catering to Japanese tourists).

As we look at examples of task supporting treatment, we see that scripting also works through indirect means, whereby scripting decreases the provider's mental workload during routine activities freeing up those resources for special circumstances where non-scripted treatment is called for. The conserved resources may be applied merely to treatment enhancing activities, such as small talk, or to reading body language to better understanding the customer's unspoken needs, fears or concerns. For instance, much of the work of a financial planner involves gathering routine information about assets, income, expected retirement age, expected college tuitions, home ownerships, and

estate planning objectives. However, understanding the underlying fears, concerns, goals

and tolerance for risk, and helping the customer prioritize among these objectives differ

from customer to customer and will require careful attention to treatment, as the issues

are likely to be emotionally charged, involve marital tension, and the news may not be as

good as the customer hoped to hear. By scripting the common tasks, the financial

planner can focus her attention on the truly challenging treatment issues. More direct

means of using task to support treatment can be seen in dentists offices, with their

attention to such small task details as how they approach patients with often intimidating

equipment. Dentists are trained to prepare drills and syringes with their backs turned, or

below the eye level of the patient, and as they approach the patient they keep the tools

low and out of sight. This is not done to surprise the patient, as they also constantly

inform the patient of what they are about to do, but rather so as not to unduly disturb the

patient with the sight of the various sharp objects they will be using.

Funeral homes are another service that uses task structure to aid treatment in

emotionally difficult situations. For example, funeral homes follow a very structured

process to help the family through all of the decisions surrounding the funeral planning

one at a time. Naturally, the funeral director is an expert in the treatment of bereaved

families in his market, but the use of a structured process (task) keeps the family from

obsessing on the entire set of decisions, which in their emotional state can be quite

overwhelming. This is seen in their step-by-step decision trees, laid out as various

packaged plans that step the family through all of the necessary decisions from

embalming to internment.   They also excel at task shifting from the family to the funeral

home to remove stress, such as communicating with the cemetery, sending runners to the

courthouse for death certificates, and picking up and dropping off the family to be sure they arrive safely and on time. The limo carrying the family (along with the hearse) also serves as a guide for all of the other guests as they travel from the funeral home to the cemetery.

Southwest Airlines is very aware of the impact of task on the treatment delivered. They recognize that there is a direct effect of task performance on treatment. "If flights continually subject to delays, it can bring our people down, it diminishes the work environment and could make them less enthusiastic about delivering outstanding customer service." (Hallowell and Heskett, 1993, p. 10)

They also use task to support the culture underlying treatment. The company has a formal committee tasked with keeping the companies "small family and spirit." (Hallowell and Heskett, 1993) Careful attention is paid to the training process, "Not only are the values of hard work, fun, and cost consciousness inculcated, but the training is used to get internal customer feedback" to see what needs to be done to keep the culture alive. (O'Rielly and Pfeffer, p. 10) Formal celebrations are an important part of promoting the "fun" culture. Each station is given a budget for parties and celebrations, and the annual company party has become a rolling event with senior management moving from one city to the next. (O'Rielly and Pfeffer)

Southwest also use tasks in the form of games and contests with customers to promote "fun." Popular games such as "guess the weight of the gate agent" and "who has the biggest hole in your sock," are shared throughout the company and used regularly. (Hallowell and Heskett, 1993)

<u>Supporting Treatment with Tangibles</u>

If we consider the role of tangibles in making treatment robust, we find that tangibles can provide opportunities for better treatment, set expectations for treatment, and influence perceptions of treatment. Opportunities for better treatment means that the tangibles serve to support employees role in treating the customer well, such as through layout to promote privacy, discussion or unhurried browsing; available seating to make customers (or non-customer companions) comfortable; and auxiliary service items (e.g. coffee, water) that support social treatment gestures (such as offering customer a drink.)

Kingman-Brundage (1991 p. 47) makes this point explicit when referring to the helpful nature of the litter pickers at Disney's theme parks. She states "Less attention is paid to the fact that Disney has installed an elaborate system of pneumatic tubes at regular intervals throughout the park to assure that the litter pickers are not burdened with having to push or carry heavy containers of litter over tiring distances. What is the Result? Workers are ostensibly motivated to give extra information which customers perceive as service quality."

As with method-oriented fail-safing, Chase and Stewart (1993, 1994, 1995) also address using physically-oriented fail-safing (such as mirrors near the phone) to ensure treatment (a smiling telephone voice.)

Bitner's (1992) work on the servicescape is probably the most explicit about the role of tangibles influencing treatment. First, characteristics of the visible environment can aid customers in evaluating what type of service they expect to receive. Secondly, tangibles can also influence perceptions of treatment. Many of the techniques associated with the psychology of waiting involve using the environment to entertain or otherwise

distract the waiting customer, improving their perceptions of their treatment during the wait.

The funeral home is also a good service to demonstrate the use of tangibles to support a challenging treatment delivery. The first thing one notices when contracting the services of a funeral home is that although this is a business transaction, it is conducted in a room more like that of a formal living room, rather than an office. The wall tones are usually deep calming colors, and the room is furnished with sofas, tables and end chairs. There are plenty of tissue boxes around. There has been a growing trend in this industry to change the product showrooms as well. This is mainly because many individuals are ill at ease entering a room full of caskets. Instead, the new showrooms use displays that show relevant parts of the caskets without actually putting an entire casket in front of the customer. A wall display may have a full size replica of the side and the end of one model, and another may have various detail options that can be added to different models. The customer is given enough information to build the product without having to face the actual end result.

The impact of tangibles on the ability to deliver superior treatment, something that the funeral home business has known for many years, is now beginning to also show up in hospitals. This is evidenced in the growing emphasis by hospitals on their birthing centers, pediatric wards, and oncology wards, which are no longer tailored for the efficient delivery of medical services, but rather to support the treatment of the patients.

Southwest Airlines is adept at using tangibles to support treatment both directly, and through supporting the culture. This is seen in small but pervasive physical symbols, such as capitalizing the word "customer" in all corporate communications. It is also seen

in the props used to support attitudes and culture, and through them treatment. Flight attendants have been known to dress up in full-length bunny costumes and that colored eggs on Easter. Herb Kelleher is notorious for dressing at corporate events and in advertising, as Elvis Presley or in drag, emphasizing the "fun" that pervades the workforce. Corporate headquarters are filled with pictures of employees at parties, who works, trips, and celebrations. (O'Rielly and Pfeffer) The company has published book for their employees documenting legendary acts service entitled *The BOOK on Service: What Positively Outrageous Service Looks like It Southwest Airlines*. They also distributed their mission statement disguised as prizes in giant boxes of Cracker Jacks. (Hallowell and Heskett, 1993)

Even the colored plastic boarding passes handed out to customers enhance the treatment. Southwest conducted an experiment with using regular printed paper boarding passes. "The problem was that the employee collecting the passes at the gate had to read print on them, in contrast to just looking at the color of the plastic boarding passes we usually give out. You know what? That employee had to focus on reading, instead of welcoming passengers on board. The employees didn't like it, and neither did the passengers." (Hallowell and Heskett, 1993, p. 3)

6.2 Robust Tasks

The task can also be made more robust through the influence of treatment and tangibles. Making task more robust would be particularly important environment such as highly customized services, services where task fulfillment is subject to outside influences, services with complex tasks, services requiring substantial decision making,

and services with co-production involving inexperienced customers, all of which pose particular challenges to good task performance.

Supporting Task with Tangibles

Tangibles can help make task failures less likely. One way is by using the tangibles of the service to elicit desirable scripts from the customer, so that the customer is better able to perform their portion of the task correctly. For example, the presence of a standing desk at the entrance of a restaurant signals the customers to wait to be seated. This is based on the psychological concept of artifacts, which are physical items that are defined not so much by their physical characteristics, as by their perceived use. Consider for example a chair. There are many different types of chairs from recliners, to barstools, to beanbags, what defines them all as chairs is their intended use (Pinker, 1997, p. 328). The second way is through improving the visibility of important cues, and thereby reducing human errors. This is the basis underlying most fail-safing devices (Chase and Stewart 1993, 1994, 1995). The third way is through standardization of equipment and layout to allow task consistency across multiple locations and employee groups.

Southwest Airlines demonstrate several examples of the use of tangibles to support task performance. One way is through the use of the same model aircraft across their fleet. This greatly aids their ability to perform the tasks necessary for a prompt turnaround, and maintenance of on-time departures. Boarding ramps, and supply vehicles can have pre-determined locations requiring minimal adjustment. Supply carts are standardized, and crew can be substituted across flights without regard to equipment training. An aircraft taken out of service can be replaced with another without concerns over capacity of the substitute aircraft.

At a time when the competition was still writing tickets by hand, Southwest Airlines developed their "Love Machine" that printed out the tickets, combined with a better operated tape recorder to capture the customers' names for the passenger list (a classic example of service automation), supporting the required task with tangible equipment. (Lovelock, 1975, p. 7)

Southwest has also long used red numbered plastic cards in place of assigned seating. Customers are given the cards in the order they check in. They will later board the plane in lots of 30 and take any available seats they desire, with the lowest numbered cards boarding first. (O'Reilly and Pfeffer, p. 4)

More recently Southwest has added a three opening gateway immediately in front of the door to the boarding ramp to help the customers pre-stage before boarding. Each opening in the gateway is assigned a boarding lot number (e.g. 1-30), and the passengers can now cue in the appropriate line when boarding is announced. This tangible gateway serves several task related functions. First, it allows all of the passengers to get in line immediately, alleviating the familiar "timing game". This is where a passenger from a lot not yet called attempts to join the line, timing their entry so as to reach the gate just as their lot is called. Of course as most of the passengers play this game, they obstruct the ability of those in earlier lots to board. The second advantage is that a gate agent can inspect the individuals in line in order to determine if any of the carry on luggage is oversize and will need to be gate checked. Because this is done while the passengers are queued, rather then at the top of the boarding ramp, there is no delay of the other passengers behind them. Finally, by having subsequent lots already queued at the gate,

there is no delay between when the next lot is called and when the passengers reach the gate and start to board.

Supporting Task with Treatment

The primary way in which treatment can alleviate a poor task performance is through using superior treatment to influence customer behavior. Youngdahl and Kellogg (1997) show that customers will engage in their own service recovery activities. Bettencourt (1997) suggests that such discretionary activities on the part of the customer are driven by, in part, customer satisfaction and the perceived support for the customers. This indicates that better treatment may promote better task performance. Gross (1994) also indicates that outrageous service, which could include treatment, can also favorably influence customer behaviors.

The author has observed Northwest Airlines using treatment, rather than tangibles, to support similar boarding task to that discussed in the context of Southwest Airlines, but in a very different situation. In this instance, a flight was delayed out of Palm Beach International due to rolling bands of heavy rain that were moving across the airport area. The pilot knew that he would be unable to take off until there was a sufficiently large break between the storms, and radar showed that they would continue for at least 40 minutes with only small breaks between them. Because of recent bad publicity concerning passengers stranded in their aircraft within sight of the gates during a winter storm in Detroit, the pilot and Northwest were understandably reluctant to board the passengers on time, and wait for a break in the storms. The challenge in this situation is that the break when it showed up was expected to be relatively brief, during which time the plane would have to be boarded, pushed back, taxi, and take off. The Northwest

flight and ground crews would handle most of these tasks, but boarding promptly would take the assistance of the passengers as well. They demonstrated superior treatment of the passengers during this situation. In part this was to make up for the failure of the flight delay, but also it would facilitate the upcoming task of rapidly boarding the passengers. The pilot personally made the announcement from the waiting area, explained the situation, and provided the current best estimate as well as a minimum amount of time that the flight would be grounded. He then suggested that the passengers could leave the waiting area, but requested that they be back in the area for an update by a certain time, explaining that if we had a break in the weather, we would have to move quickly to take advantage of it. The pilot remained in the waiting area during the entire delay, answering questions from the passengers, and providing weather updates as they became available. When the break in the weather came, the passengers were well prepared and boarded quite promptly.

6.3 Robust Tangibles

The tangibles in a service may also be made more robust to adverse influences though task and treatment. Making tangibles robust would be particularly important environment such as services with no fixed place of business, services with generic facilities (or facilities originally designed for other uses), services where tangible amenities are degraded by sources beyond control of the firm, services that operate remotely, and services that deliver through multiple sub-contractors, all of which pose particular challenges to service tangibles.

<u>Supporting Tangibles with Task</u>

Task can, to some extent, take the place of tangibles by substituting ritual in place of trappings. After all, it is not necessary for the maitre de in a restaurant to wear a tuxedo, merely to be in the correct location with the correct mannerisms to be correctly identified. Service recovery activities (Hart et al. 1990, Zemke 1993, and Sinha 1993) are among the most prevalent form of tasks being used in support of tangibles, albeit in an after the failure form of support. Failsafing methods (Chase and Stewart 1993, 1994, 1995) may also be used to ensure important tangible elements of the service.

Task can play an important role in better defining or even creating a service environment, even in the complete absence of tangible facilities. This is seen most easily in services that do not benefit from having the customer in their servicescapes, but rather must go to the customer to conduct their tasks. Usually these services will carry along some tangible items with them, some of which are primarily symbolic, but they often must rely on ritual to put the customer in the correct state of mind. Lawyers (or doctors) making a house call will follow a routine of preliminary formalities (or routine diagnostics) that, in addition to gathering information that will be used later, quickly transforms the present environment into a service environment. In fact, even a business lunch (or interview lunch) has certain formalities that are followed leading up to and signaling the time when business is to be conducted. These formalities set the stage, turning a dining table into a conference table.

Of course careful focus on task can also directly impact the tangibles that do exist in a service. When Disney World runs their daily parade, visitors to the park gather all along the parade route to watch, usually eating and drinking something bought from the

concessions. This large body of relatively motionless, waste-generating people is far too much for the relatively prevalent trashcans throughout the park. Some trashcans overflow, in other cases they are simply not used. Disney handles this expected deterioration of the park by following the parade with a crew of trash collectors who vacuum the route, pick up overflowing trash, and remove any barricades that were erected to keep pedestrians out of the parade route. This task is as much a part of the parade as the band, and ensures the park looks as good within 5 minutes of the parade passing as it did before it began. Southwest Airlines too has a very efficient process for turning aircraft (making it ready for its next flight), which they can usually do in under 15 minutes. This task is supplemented by flexibility built into their union contracts and processes to allow other employees not normally tasked with cleaning, such as pilots, to help pick up the plane. (Hallowell and Heskett, 1993).

Supporting Tangibles with Treatment

Treatment can also alleviate shortfalls in the tangibles, often through what can only be described as "fun" evidenced in stellar service companies such as Club Med and Southwest Airlines – known for rudimentary accommodations offset by a stellar treatment. The ability to do this may be in part this may be because of the low relative importance of tangibles as a service quality dimension, and the relatively interrelated nature of all of the dimensions of service quality (Zeithaml et al. 1990), however, we have not found such an approach addressed in the service quality literature.

We see treatment supporting the tangibles in many successful services. Southwest Airlines, known in part for their peanuts only meal service, is also known for spicing up the delivery of these meals with good attitudes, wisecracks, and

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aggrandizement of the meal being served. Customers come away feeling like they have

had more than a small bag of peanuts. Club Med is known in a similar manner for

relatively meager accommodations that the guests accept because of the fun and

otherwise excellent treatment meted out by the staff. Similarly a local bank branch found

itself surrounded by roadwork, greatly disrupting the tangibles of the bank. Entering the

bank meant effectively crossing a construction zone. The bank outfitted their tellers with

orange construction vests, erected construction barriers with flashing lights in the place of

the waiting line chains, and gave away construction-themed trinkets such as toy

construction equipment. The customers joined in the fun of it, no longer seeming to mind

so much the construction inconveniences.

7. Conclusion

As we look back at our discussion we have elaborated on how each of the 3 Ts

can support the others, and generate robustness in a service, and have noted where these

relationships were specifically addressed in the literature. As we refer back to Table 1

and our preceding discussion, we notice that relative to the sources focusing directly upon

one or more of the three Ts, far less attention has been given to the interactions among

them. This leads us to conclude that there remains a substantial opportunity for further

investigation in these areas.

The primary benefit of the framework is that it can be used as a service design

aid, as it makes specific suggestions for dealing with requirements and limitations that

differ across the range of service activities. It structures the problem of encounter design

in a manner consistent with how management relates to the problem, while being

grounded in the legitimate and distinct realms of the physical world, the process, and the psycho-social interactions of the participants.

For example, the professional service firm is often plagued by limitations stemming from its highly customizable nature. In other words, there is limited task consistency from customer to customer, and often the tasks that are performed are very complex. Accordingly, professional service firms will likely benefit from a carefully constructed servicescape that supports the range of required tasks, and a strong service culture which promotes service recovery and adaptability.

In fact, a natural outgrowth of this second benefit is that the framework suggests particular types of service encounters that are unlikely to be successful, such as a highly customized service (with complex tasks), performed offsite or remotely (few tangibles), using contract workers (limited ability to influence treatment). (See Table 2.) Such services are faced with difficult challenges in meeting expectations for one of the Ts, and at the same time are void of opportunities to use the other two to enhance the robustness of the first. It also suggests that no service can excel by focusing on a single aspect of the encounter.

INSERT TABLE 2 ABOUT HERE

We in the field have generated a substantial amount of literature concerning service quality. While it is clear that while some portions of the service quality literature are quite well developed, substantial opportunity to improve the robustness of our service encounters exists through investigating issues that address the interactions between the tangibles, task and treatment. The 3 Ts framework points to opportunities to integrate,

research from diverse literature streams to attack a common problem. (E.g., allows us to

link servicescape design issues with fail-safing, through influencing customer scripts.) It

also highlights gaps in the literature where more work is sorely needed.

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Figures and Tables

Table 1. Relation of Existing Literature to Framework							
Source	**Major Contribution**	**Task**	**Task-Treat**	**Treat**	**Treat-Tang.**	**Tang.**	**Tang-Task**
Zeithaml et al. (1990)	5 Dimensions of service quality and their relative importance, quality is the gap between perceptions and expectations, SERVQUAL measurement tool.						
Carman (1990)	Weaker dimensions subject to change, reliability, tangibles and security always important.						
Cronin and Taylor (1992)	SERVPERF tool better correlated to repurchase intentions.						
Grapentine (1998)	Debate on SERVQUAL vs. SERVPERF						
Hostage (1975)	Importance of culture developed through training programs, hiring planning, performance standards, career progression, employee surveys, fair treatment and profit sharing to service quality at Marriott.		*	*			*
Albrecht (1990)	Asserts culture-based approaches more effective than standards-based or cosmetic approaches at improving service quality.						
Schneider (1986)	Importance of focusing on individual and group psychology to develop service culture			*			
Berry et al. (1990)	Importance of employee role clarity, selection, standards, teamwork, reliability, and problem resolution.	*		*			
Schneider and Chung (1993)	Service climate acts to control process in absence of direct supervision.	*					
Schlesinger and Heskett (1991a)	Production line approach and industrial economics approach to services makes exceptional treatment impossible. Employee selection and training for treatment essential to breaking the cycle of failure.		*				
Roth and Jackson (1995)	Employee ability to exploit technology and market insight moderates effect of operations capabilities. Service quality know how can be imitated.	*	*				
Harrington and Akehurst (2000)	Importance of employee resourcefulness and senior management commitment in service quality implementation.						
Hartline et al. (2000)	Importance of work group socialization and organizational commitment, as well as formalization and behavior-based evaluation to generating a service culture.			*			
Kingman-Brundage (1991)	Need to provide technology to support service culture. Service logic should be consistent and supportive of service policies [desired culture].		*		*		
Schlesinger and Hesket (1991a)	System dynamics model of customer satisfaction.. Poor satisfaction is the results from a positive feedback loop that contains deskilling of work leading to low wages, high turnover and poor service.		*				

Georgantzas and Madu (1994)	System dynamics model of service culture relating resource allocation through gaps in attention, courtesy and knowledge to profitability.			*			
Kelly and Hoffman (1997)	Positive relationship between provider affect, customer affect and service quality. Provider affect positively related to organizational citizenship and customer orientation, and inversely related to sales oriented.			*			
Hartline and Ferrell (1996)	Managers should decreases employee role conflict and ambiguity, and increase self-efficacy and job satisfaction.			*			
Schneider, White and Paul (1998)	Climate is insufficient, policies and practices that focus attention on service quality are also needed.			*			
Tansik and Smith (1991)	Employee behavior can be scripted.	*	*				
Bitner et al. (1994)	Misbehavior of a customer can be source of dissatisfaction.	*					
Bettencourt (1997)	Perceived support for customers along with customer satisfaction commitment can promote helpful discretionary behavior by customers.		*				
Price et al. (1995)	Framework for extended, affectively charged and intimate encounters			*			
Broderick (1999)	Role theory as a means of managing dynamics of long term service relationships.			*			
Kandampully (1998)	Forming an emotional connection between customers and providers can lead to exceptional service and long term loyalty.			*			
Lings (1999)	Use of a measurement driven internal marketing schematic to focus on impact of employees' activities on customers, both internal and external.	*					
Rust et al. (1995)	Cost of quality used to relate service quality initiatives to profitability.						
Troy and Schein (1993)	Service culture is the result of management style, organizational structure, incentive systems and group dynamics.			*			
Heskett (1987)	Strategic service vision (target market, leads to service concept, leads to service strategy, leads to design of service delivery system.	*				*	
Behara and Chase (1991)	Integration of SERVQUAL into Quality Function Deployment	*		*		*	
Berkley (1996)	Quality Function Deployment using FAST diagrams.	*		*		*	
Wind et al. (1989)	Application of conjoint analysis to service design in a hotel.					*	
Collier (1994)	LISREL based service process maps linking processes and performance measures to perceptions.	*					
Armstrong (1995)	Application of linear models, neural nets and regression splines to link design variables to perceptions. Found that linear models fit best.	*					
Soteriou and Chase (1998)	Empirical extensions of Armstrong (1995)	*					
Wirtz and Bateson (1992)	Customer satisfaction can be increased independently of expectations confirmation by producing pleasure for customers (e.g. through the design of the service setting.)			*		*	
Pyzdek (1994)	Raises concern about exceeding expectations leading to higher future expectations that cannot be met.						
Gross (1994)	Random "outrageous service" breeds regular desirable behavior and improves long term perceptions	*	*				

Source	Description						
Bitner (1992, 1993)	Servicescape can affect customers' attitude towards the service, influencing behavior, social interactions, and expectations.				*	*	*
Wyckoff (1984)	Application of SPC in services	*					
Krehbiel (1994)	Application of parameter design to services.	*					
Snee (1994)	Develops concepts for robust design in the absence of available measures.	*					
Johns and Tyas (1997)	Service incidents play the most significant part in perception formation. Tested using a SERVQUAL instrument.	*		*		*	
Hart (1988)	Unconditional service guarantees	*				*	
Hart (1993)	Linking service guarantees to business performance and customer defections.	*				*	
Hart et al. (1990)	Service recovery. The use of pre-planned procedures to compensate for a service failure.	*	*				*
Zemke (1993)	Service recovery.	*	*				*
Sinha (1993	Service recovery.	*	*				*
Youngdahl and Kellogg (1997)	Cost associated with customers' efforts towards their own service recovery.	*					
Chase and Stewart (1993, 1994, 1995)	Fail-safing services. The use of methods and devices to prevent human errors that lead to service failures.	*	*		*	*	*
Stewart and Chase (1999)	Errors in services generate dissatisfaction, and the error made by customers fundamentally differ from those made by providers. Service design can be used to minimize errors.	*	*				*
Van Raaij and Pruyn (2000)	Validity (was the right work done), reliability (was the work done right) and the attribution of blame are critical factors in service production.	*					
Reichheld (1996)	Using cost of customer defections to drive improvement through failure analysis.	*		*		*	

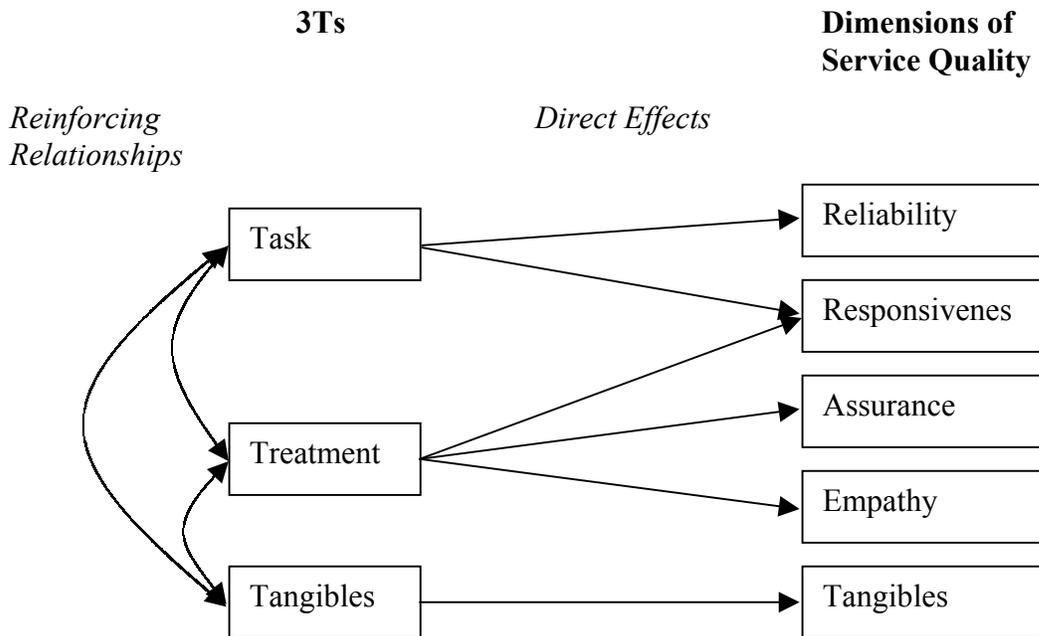
Figure 1. Relationship between 3Ts and Dimensions of Service Quality

3Ts　　　　　　　　　　　　　　　　　**Dimensions of Service Quality**

Reinforcing Relationships　　　　　　　*Direct Effects*

Table 2. – Unsuccessful Service Combinations			
Task	*Treatment*	*Tangible*	*Example Description*
Challenging	Limited	Limited	Off site, Highly customized service, using contract workers.
Limited	Challenging	Limited	Employees from different culture than customers with low emphasis on standard procedures performed in a generic office setting.
Limited	Limited	Challenging	A recreational service subject to the weather, with inflexible activities, and a stoic staff.

Figure 2. Concept of Framework