Sequence-Oriented Problem Identification
Within Service Encounters

Günther Botschen
Ludwig Bstieler
Arch G. Woodside

ABSTRACT. Sequence-oriented problem identification (SOPI) within service encounters include "blueprinting" the sequence of steps that makeup a service encounter, and asking customers to provide evaluations for each step they may experience in the service encounter process. In part, SOPI is a strategic tool that combines and extends Shostack’s (1984; 1987) blueprinting of services with the critical incident technique (CIT) (Flanagan 1954; Bitner, Booms & Tetreault 1990). SOPI is a method for learning customers’ perspectives of the little things that go right and wrong, as well as the critical incidents, in each of the locations and sequence of steps customers experience related to a service encounter. Such information may be useful in designing customer-inspired improvements in service offerings and in eliminating both minor and major incidents that annoy customers. Here the SOPI technique is illustrated with comparisons of findings from the research method with findings from the critical incident method in an empirical study of customers’ evaluations (n = 190) of the augmented and core services in adult education courses of an Austrian enterprise. The study included personal (face-to-face) interviews with 54 customers and written surveys completed by 136 customers. The SOPI results provide very specific information about problems experienced by customers that were not included in the CIT results. Conclusion: the SOPI research method may be a useful tool...
A service encounter is a process of interaction between a customer and a service provider organization; the process often, but not necessarily, includes human interactions. Many service encounters include a combination of human (interpersonal factors) and nonhuman elements (e.g., equipment, facilitating goods, atmospherics) experienced by customers at various moments, or milestones, during the process (cf. Shostack 1977, 1985; Bitner 1990; Gronroos 1990).

Detailed knowledge of the sources of customer judgments of service quality likely will be helpful for the service provider in managing and improving the service encounter, as well as maintaining customer loyalty. The sources of customer judgments of service quality include three major categories of service evidence (Bitner 1992): (1) people (e.g., interacting with employees providing the service, noticing and interacting with other customers during the service encounter); (2) process (i.e., the actual steps the customer experiences); and (3) physical evidence (e.g., written forms of communication, physical surroundings of the service).

In this article we report a study to learn customers’ judgments about the processes they experience with a service organization. As suggested by Stauss and Hentschel (1990), our study combines elements of “blueprinting” (mapping the details of a service process, see Shostack 1987) with Flanagan’s (1954) critical incident technique (CIT) to learn customer judgments of both major (critical) and minor (what we label as process) incidents that customers report experiencing with the service organization. Through the research, 170 critical incidents and 617 process, blueprinting-related, incidents were collected from 190 customers of an adult-education, government sponsored institute in Austria.

Our aim is to describe all the judgments customers make about each step, or scene (Shank 1980; Smith and Houston 1983; Solomon, Surprenant, Czepiel, and Gutman, 1985) in a service encounter. Thus, we attempt to build on the empirical work of Bitner, Booms, and Tetreault (1990) who applied the CIT method to diag-
nose favorable and unfavorable incidents customers report in service encounters; we illustrate customer descriptions and evaluations of the total service encounter process. The research approach is designed to assess customer judgments of each act and scene experienced during the process of the service encounter, including both critical and minor incidents.

Thus, we introduce, and illustrate empirically, a research method to assess both critical and process incidents that customers are prompted to recall about a service encounter. We label the research method as sequence-oriented problem identification (SOPI) within service encounters.

SOPI is defined as the research method that includes: (1) blueprinting the sequence of steps that occur in a service encounter, (2) asking customers to provide evaluations for each step they experience in the process of interacting with a service provider or a service-related process, and (3) assessing their responses. Before discussing the SOPI method, procedure, and results of the study, we review related work on blueprinting, CIT, and assessments of customer satisfaction with service encounters. After describing SOPI, details of an empirical application of the method and results are presented for the adult education center. We close with a discussion of implications for managing services and for additional research.

ASSESSMENTS OF CUSTOMER SATISFACTION AND INCIDENTS WITH SERVICE ENCOUNTERS

Worthwhile distinctions should be kept in mind in discussing the concepts of service quality, customer satisfaction, and conative measures (e.g., behavioral intention and recommending the service provider to friends). Service quality is the consumer’s comparison between service expectations and service performance (see Gronroos 1982; Lewis and Booms 1983; Parasuraman et al. 1985; 1988). Global assessments of service quality by customers would be their answers to such questions as, “Is the service delivered to you what you expected or different from what you expected?” “Was the service you received approximately what you expected?” Measuring customer perceptions of service quality is attempting to measure a belief, not an attitude (limiting the definition of attitude to positive
and negative evaluations toward an attribute, act or an object, see Fishbein and Ajzen 1975). Thus, service quality should not be equated with customer satisfaction and dissatisfaction; rather, customers’ perceptions of service quality influence their global judgments of satisfaction.

As a construct, customer satisfaction is a special form of consumer attitude; it is a postpurchase phenomenon reflecting how much the consumer likes or dislikes the service after experiencing it (see Bearden and Teel 1983, p. 27; Churchill and Surprenant 1982, p. 502). Customer satisfaction has been proposed as an important hypothetical construct influencing conative constructs, such as behavioral intention and repeat purchase behavior (see Bennett and Mandell 1969; Howard 1989).

The theoretical work by Parasuraman et al. (1985) and Solomon et al. (1985) serves as an important foundation for understanding dimensions of service quality and how service quality is linked to customer satisfaction and behavioral intentions. Based on insight and in-depth interviews of service providers and customers, Parasuraman et al. (1985) identified ten determinants of service quality that may be generic to possibly all service encounters.

Most of these ten dimensions are “experience properties” that can be known only as the customer is purchasing and consuming (experiencing) the service, for example, reliability (i.e., consistency of performance and dependability). For the ten dimensions of service quality, Parasuraman et al. (1988) provide a 26-item SERVQUAL Scale to assess and compare customer perceptions and expectations of service quality; assessments of the scale’s validity and reliability indicate that the scale has good psychometric properties.

The use of SERVQUAL has been criticized on two grounds. First, when responding twice to the 26-items (once for perceptions and once for expectations) many respondents interpret expectations differently; for example, some interpret the “should” expectations items to be questions about predicted performance and others interpret the expectations items to be questions about attribute importance (Carman 1990; Teas 1993). Both Carman (1990) and Teas (1993) suggest modifying the SERVQUAL framework and scale by eliminating the expectations measure and relying on the “perceptions” component alone.
Second, while assessing customer perceptions of the ten dimensions of service quality is helpful, the use of the SERVQUAL Scale does not permit detailed examination of customer perceptions of specific events in a service encounter in a given service industry. Bitner et al. (1990) point out the value of assessing customer perceptions of critical incidents in service encounters; "Unlike previous research that has identified general, abstract dimensions of service quality, our study isolates specific events and behaviors that result in dis/satisfaction" (Bitner et al. 1990, p. 83; see also Parasuraman, Ziemhnl, Berry 1994; Cronin and Taylor 1994; Teas 1994).

An incident is a perceived activity or event that is complete enough in itself to permit inferences, judgments and predictions to be made about participants and outcomes of the act.¹ A critical incident is one that contributes to or detracts from the general aim of the activity in a way perceived important to the customer (Bitner et al. 1990, p. 73). Critical incidents in a service encounter do not always involve interactions of a customer with a service firm employee, for example, a customer may perceive a traffic accident blocking access to a service facility as a critical incident related to the service encounter. Also, not all service incidents are critical, only those that customers find memorable enough to recall on their own (unaided) and because the incidents were particularly satisfying or dissatisfying.

THE SOPI METHOD

Sequence-oriented problem identification (SOPI) is an attempt to combine and extend blueprinting of service encounters with assessing customer perceptions of critical incidents occurring in service encounters. Definition: sequence-oriented problem identification within service encounters includes "blueprinting" the sequence of steps that make up a service encounter, and asking customers to provide evaluations for each step they may experience in the service encounter process.

¹. This definition is intended to be more general than that offered by Bitner et al. (1990, p. 73), "An incident is defined as an observable human activity that is complete enough in itself to permit inferences and predictions to be made about the person performing the act."
The approach of combining blueprinting with interviewing customers about their service encounter experiences in order to evaluate service quality was first suggested by Stauss and Hentschel (1990) and Stauss (1991; 1993). These authors pointed out that while blueprinting is helpful for learning potential stress points in existing service encounters, data on customer perceptions of the steps and sequences in service encounters are needed to confirm the existence of problems. Also, they describe the possibilities for uncovering annoying minor problems, as well as critical incidents, customers experience in service encounters by combining blueprinting with direct questioning of customers.

Stauss (1991) refers to the SOPI research approach as the “sequential incident method,” whereby, with the help of a blueprint, customers are guided through the service and are requested to give an account of their experiences during individual encounters. “Particular emphasis is placed on any negative incidents related to these encounters. The evaluation of these incident reports results in the detection of ‘fail points’” (Stauss 1991, p. 46).

Stauss (1991; 1993) emphasizes that the sequential incident method complements and extends the critical incident technique. According to Stauss (1993), given that each customer participating in a study of customer assessment on service quality is guided and asked to respond to each step appearing in the service blueprint, the sequential incident method will result in greater completeness in detecting problems compared to the critical incident technique. The fact that the CIT is limited to identifying particular customer satisfying and dissatisfying activities in a service encounter, not minor incidents that also may affect customer evaluations, then intuitively a research method designed to gain customer evaluations for all steps in the service encounter will result in a greater number of evaluations.

Consequently, the real issue involves learning how much additional information is gained by using SOPI beyond the information learned from using the CIT, as well as learning the specific contents of the additional information. Hereetofore, these issues do not appear to have been examined empirically; the results reported in the present study are unique in providing some specific answers to the issues. The findings discussed in the next section are limited to one
study and for one service industry; however, they provide some initial benchmarks on the increases in completeness that may be gained by using SOPI in addition to the CIT.

THE EMPIRICAL STUDY

For the research on customer service encounters with an adult education center, we focused the empirical study on examining customer perceptions of elements of the augmented service offering, both facilitating and supporting services. Customers’ evaluations of core service elements (i.e., perceived quality of classroom and laboratory instruction) were not included in the study because the service provider had separate evaluation measures for the core service offerings and information was lacking on the other elements of the augmented service.

Thus, the decision was made to examine only the elements of service encounter experiences beyond customers’ experiences with the core service. Given that customers’ evaluations of their experiences with facilitating and supporting services may be affected by their evaluations of the core service, and vice versa, our empirical study is limited by not examining this issue. Additional research is needed to examine the relationships among customers’ evaluations of core, facilitating, and supporting services; this issue was outside of the scope planned for the present study.

The location for the study, the adult education center, is in Vienna, Austria. The education center is designed to provide personal skills-training and knowledge-development, non-degree, courses for Austrian residents on a part-time basis. The education center is one of the two largest centers in Austria; more than 500 vocational and avocational courses are offered in the center in more than 35 disciplines, for example, personal finance, corporate finance, taxation, management, marketing, entrepreneurship, tourism management, foreign languages (e.g., English, French, Spanish), history, mathematics, and art history.

The study was designed to include (1) blueprinting of the augmented service encounter, (2) assessing the contents and quantities of critical incidents and process incidents reported by customers, and (3) comparing the results of two methods of assessing critical
incidents and process incidents. For different samples of customers, two survey methods were used to collect data for the study: face-to-face interviews and open-ended written surveys. The two methods were used to test the hypotheses that: (1) the quantity of reported incidents would be larger from the face-to-face interviews versus the written surveys, and (2) the contents of the reported incidents would differ substantively between the two methods.

**Blueprinting Steps**

For the adult education service, a series of observations and interviews was completed to develop blueprints of each scene occurring in the augmented service encounter. Descriptions on activities that always, as well as sometimes, occur in service encounters were collected by face-to-face interviews completed individually with members of the following groups: two managers; two service provider "consultants" who advised potential students and assisted students in booking one or more courses; one cashier (service provider employee); three curriculum and staff (i.e., teacher) coordinators working behind the line-of-visibility; and ten customers (5 first-time and 5 repeat customers).

Each person interviewed was asked to describe each step s/he experienced and observed in their most recent service encounter with the adult education center. Managers and service provider employees were also asked to describe the "typical" service encounter process with customers, and several "less typical or unusual" service encounter processes.

Direct observations were recorded for 15 customers entering the adult education center including their behaviors and interactions with other persons while inside the center. These observations were collected during three days of observation periods. Based on these interviews and observations, initial blueprints were developed of each sequence-of-steps (i.e., scenes) in the service encounter. These initial blueprints were shown individually to the two managers and the six service encounter employees with the request to offer suggestions to improve the accuracy and insure the completeness of the blueprints.

The initial blueprints were revised and the revisions shown in further individual interviews to the managers and employees. A
final round of suggested changes was included in the third versions of the blueprints. These final blueprints are included in the results section.

**Application of the Critical Incident Technique**

To learn critical incidents from customers, after being pretested with five customers and revised, the following questions were asked in both the written and verbal interviews:

- When you think about your first experiences and visits here at the Volkshochsule Hietzing, what events related to your visits come to your mind which you particularly liked or disliked?
- When did each event happen (month, day, and time-of-day)?
- What specific circumstances led up to each event?
- For each event, exactly what occurred? What was said or done, if anything, during the event?
- What resulted that made you feel each event was particularly satisfying or dissatisfying?

While these questions are similar to the ones asked in the Bitner et al. (1990) study, the questions are somewhat broader: the questions in the Bitner et al. study refer to an "interaction with an employee of an airline, hotel, or restaurant" while the questions here are broader and refer to "events related to your visits." This broadened approach was used to help learn about critical incidents that customers report to occur which do not involve customer-employee, or other human interactions, such as, being frustrated by failing to find car parking before entering the center, finding no one behind the desk to answer questions, being confused when reading program and course brochures in the center. While the CIT questions were focused on gaining customer responses related to the augmented service, customer responses related to the basic (specific course related) service were collected, if offered, by the respondents (comparisons of proportions of responses are provided in the Findings section).

**Data Collection for the CIT and SOPI**

For both the face-to-face, personal interviews and the written survey interviews, the respondents answered the CIT questions first
and then responded to the SOPI questions. Possibly answering the CIT questions first may affect responses to the SOPI questions; if viewed as a limitation, using different samples of respondents to answer each set of questions might be used to eliminate such an influence. The respondents in the study were not informed at the start of the interviews that they would be asked to complete two interview forms.

A total of 54 face-to-face, personal interviews were completed. Individuals in classes were sampled on a quota basis to include representative numbers of day and evening classes, and beginning and advanced courses. Customers in these courses were selected on a convenience basis as specific classes were concluding and customers started to exit the classrooms. For the written survey study, a total of 136 persons completed the two surveys. Customers enrolled in a total of 13 classes of 13 different courses were asked to complete the written survey; the classes were selected in a quota sample to insure some representation of the most and least enrolled courses were included in the study. The useable response rate to the written surveys was 93%; this high response rate was achieved most likely because the survey forms were completed during class meetings. For the face-to-face interviews, a total of 7 persons approached reported an inability to participate due to time pressures or other reasons (i.e., the presence of young children requiring attention).

Close to 80 percent of the respondents in both samples were females; 35 percent were under 30 years of age, 30 percent were 30 to 50, and 35 percent were over 50. These sample proportions matched closely with the population distribution of customers of the service provider. All responses were collected inside the adult education center. The face-to-face interviews were completed in a two-person office setting; the written, self-report, surveys were completed in classroom settings.

The small sample sizes and the use of quota sampling plans are limitations to generalizing the findings of the study; the results may not be representative of the customer population for the adult education center. The limitations on sample size and sample design were due to both budget and time constraints. While the results were found to be useful by the chief executive officer for designing improvements into the augmented service encounter, more repre-
sentative samples would be necessary for generalizing from the samples to the population. Not including customers who entered the adult education center and did not book a course, and/or did not speak with a service provider, is an additional limitation of the study. The study we report is limited to customers who enrolled and participated in one or more courses offered by the center.

RESULTS

We first describe the sequence of service encounter steps found in blueprinting initial customer-center interactions. Second, the results from the critical incidents surveys are discussed. Finally, the results from the process incidents surveys are reviewed.

Blueprinting Findings

The blueprinting results for sequences 1 and 2, include customer entry and orientation. Customer arrival is shown to include five steps in the first sequence. Pre-steps to this sequence include parking the car, or exiting public transportation, and walking toward the education center. Related steps not included in the first sequence include telephone calls, and written inquiry to the centers; these steps were not included in the present study. Pre-steps as car parking problems and the geographic difficulty in reaching the center received some mentions in survey responses. Thus, transportation arrival steps, especially car parking, should be considered at least as pre-steps to sequence 1 (see Figure 1).

The sub-step 1.3.1 of leaving the center without moving to a reception and consultancy desk, and possibly without human interaction with anyone while inside the center, is analogous to retail store customers entering a store, looking at merchandise, and exiting without interacting with a salesperson, or anyone else (see Spiggle and Sewall 1987). Understanding the possible occurrence of such sub-steps as customer entering and leaving without contact with a service provider (sequence 1.0 to 1.3.1) illustrates the importance of examining events and learning about customer evaluations of events that occur very early in the service encounter.
FIGURE 1A. Blueprint of an Adult Education Service Encounter: Sequences One and Two.
Sequence two: Reception and quality of consultancy

3.1. Gathers additional information
   - 3.2.1. From brochure
   - 3.2.2. From computer
   - 3.2.3. From course-book
   - 3.2.4. From colleague

3.2.1.1. Search of relevant information
   - 3.2.2.1. Computer search
   - 3.2.3.1. Search of relevant information
   - 3.2.4.1. Contact colleague

3.2.1.2. Gets relevant information
   - 3.2.2.2. Gets relevant information
   - 3.2.3.2. Gets relevant information
   - 3.2.4.5. Gets relevant information

3.2.4. Information search
   - 3.2.4.4. Offers info to colleague
   - 3.2.4. Additional info support

Coordination and advice for special requests
Both the looking in the show-window from the street (1.1) and gathering information from the notice-board (1.3) represent possible terminating versus continuing points of contact between the customer and service organization. A proposition resulting from blueprinting sequence 1 in the service encounter is that more effective show-window and notice-board displays serve to increase customer traffic and enhance the quality of human interactions inside the education center. While appearing to be an intuitive proposition, before the study the possible importance of the steps 1.1 and 1.3 was being overlooked by the senior managers of the center.

Sequence 2 includes human interaction between the customer and service provider. Note the substantial complexities displayed in Figure 1 that may be involved in completing such interactions. The service provider's role in gaining and processing information from the customer (steps 2.2 to 3.1) illustrates the attempt by the service provider to uncover specific, available service designs, that is, course offerings, that fit the needs expressed by the customer.

After collecting information from the customer (3.1), the service provider may, or may not, need to go behind the line of customer visibility to collect relevant information to the customer's request. In searching for relevant response-information, the service provider follows the sequence shown behind the line of visibility in Figure 1. Contacting a colleague is close-to-a-last-resort step for the service provider; service-providers pride themselves in being able to respond to customers' information requests without human assistance from colleagues or senior managers.

Note in Figure 1 that a "line of strategy" is included. For unusual customer requests, and/or for some critical incidents, information will be sought by the service provider from a senior manager. For example, if a customer requests special price discounts for a ten-person course registration of members of a club, and no policies exist to cover such requests, the service provider will seek a response from a senior manager. Sequence 2 ends with the customer's decision to book a course (5.1), or to leave the organization (4.2.1), and possibly return at some future occasion. The steps in booking a course are described in Sequence 3, Figure 1B. Given that the customer does not have access to computer records and usually does not have access to the service provider's computer monitor,
FIGURE 1B. Blueprint of an Adult Education Service Encounter: Sequence Three.

SEQUENCE THREE: PROCESS OF BOOKING

5.1. Decision for booking
6.3.2. Fills out data sheet

6.3.1. Hands over data sheet

6.1. Gives Course Number in PC
6.2. Checks booking
6.4. Enters customers dates
6.6. Customer is booked
6.5. Recalls customers dates

LINE OF INTERACTION

LINE OF STRATEGY

LINE OF VISION

LINE OF internal interaction

SERVICE PROVIDER

CUSTOMER
Sequence 3 covers several steps that are behind the line of customer visibility.

Sequence 3 ends with the customer having booked a course (6.6), and the start of Sequence 4, the process of payment. Sequence 4 starts with the service provider offering different types of payment plans to the customer, step 7, Figure 1C. Depending on whether or not the customer proposes a unique method of payment, the process of payment may or may not include the service provider seeking advice from colleagues and senior management. For unique payment negotiations, the possibility does exist for senior managers once again being involved from behind the line of strategy. Sequence 4 ends with the customer receiving a course entrance ticket and leaving the adult education center (step 16).

How well the service provider acquires-processes-transfers information in Sequence 2 represents a complex series of steps in the depicted service encounter. Sequence 2 includes a feedback loop (4.3 back to 2.2) and the substantial possibility of service breakdown by failing to adequately exit this loop to reach the purchase and booking decisions. Feedback loops have been described as “hidden demons” in decision making (see Hall 1984; 1991) because executives often fail to recognize their existence and consequently, do not blueprint-in decision routines to adequately handle problems feedback loops create.

Given the greater complexity occurring in Sequence 2 versus the other three sequences, larger proportions of critical and process incidents may be hypothesized to occur for Sequence 2 versus the other sequences. Also, the proportions of negative critical and process incidents may be hypothesized to be greatest for Sequence 2 compared to the other three sequences. Rationale: the high complexity and feedback loop in the steps in Sequence 2 increases the difficulty of achieving successful sequence outcomes, that is, customer bookings.

Results from the Critical Incident Technique

Three judges worked independently and then together to develop listings of response topics for the CIT and SOPI data. Then, using the resulting topic categories, survey responses were classified by topics and by valence. We calculated the Perreault and Leigh (1989)
FIGURE 1C. Blueprint of an Adult Education Encounter: Sequence Four.

LINE OF INTERACTION

Service Provider

LINE OF VISIBILITY

Service Provider

6.6 Customer is booked

LINE OF INTERNAL INTERACTION

Support Functions

LINE OF STRATEGY

Management Functions

8. Desired type of payment
9. Choice of payment
10. Accepts or rejects type of payment
10.1 Advises for payment desired
10.2 Decides for acceptance
11. Enters type of payment
12. Charges cash or check
13. Prints course ticket
14. Offers ticket to customer
15. Customer takes ticket
16. Customer leaves the encounter

Sequence four: Process of payment
reliability index in classifying the CIT and SOPI response data by topic categories and by valence; the index range (.79 to .93) was high and more narrow than anticipated. We judged the reliabilities to be satisfactory for examining the results of the study.

The average number of critical incidents reported by the respondents was greater from the face-to-face versus the written surveys (1.22 versus .76, respectively). Both the average numbers of positive and negative critical incidents were greater from the face-to-face versus written surveys. Details are reported in Table 1.

These results support the hypothesis that method of data collection in applying the CIT does matter. While the cost and time savings from using written versus face-to-face interviews may be substantial, a trade-off occurs in the average number of critical incidents uncovered when using self-reported written versus face-to-face surveys.

The ratio of positive versus negative critical incidents per person was somewhat greater than 2 to 1. This ratio did not vary

<table>
<thead>
<tr>
<th>Research Interview Method</th>
<th>Number of Persons</th>
<th>Evaluation of Positive</th>
<th>Evaluation of Negative</th>
<th>Total Critical Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-Face</td>
<td>54</td>
<td>47 (71%)</td>
<td>19 (29%)</td>
<td>66 (100%)</td>
</tr>
<tr>
<td>Cl per Person</td>
<td>.87</td>
<td>.35</td>
<td></td>
<td>1.22</td>
</tr>
<tr>
<td>Written Survey</td>
<td>136</td>
<td>79 (76%)</td>
<td>25 (24%)</td>
<td>104 (100%)</td>
</tr>
<tr>
<td>Cl per Person</td>
<td>.58</td>
<td>.18</td>
<td></td>
<td>.76</td>
</tr>
<tr>
<td></td>
<td>(0.52)</td>
<td>(0.48)</td>
<td></td>
<td>(0.74)</td>
</tr>
<tr>
<td>Total</td>
<td>190</td>
<td>126 (74%)</td>
<td>44 (76%)</td>
<td>170 (100%)</td>
</tr>
<tr>
<td>Cl per Person</td>
<td>66</td>
<td>.23</td>
<td></td>
<td>.89</td>
</tr>
<tr>
<td></td>
<td>(0.60)</td>
<td>(0.46)</td>
<td></td>
<td>(0.81)</td>
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</table>

Note: Planned comparison results:
(a) t-test for difference in average total critical incidents between face-to-face and written survey groups, 1.22 - .76 = .46, t = 3.65, p < .001
(b) t-test for difference in average positive evaluations between face-to-face and written survey groups, .87 - .58 = .29, t = 3.26, p < .001
(c) t-test for difference in average negative evaluations between face-to-face and written survey groups, .35 - .18 = .17, t = 2.25, p < .001
significantly between the face-to-face versus written surveys. Thus, no significant interaction effect occurred for method and response valence. The distributions of topics of responses did not vary significantly between the face-to-face and written surveys. Consequently the topic distributions were combined for the two survey methods; a summary of results is provided in Figure 2.

Even though the CIT questions were focused on the augmented service, most of the positively reported topics by respondents focused on the core service offering (i.e., course climate, program content, and quality of teachers include 74% of the positive CIT topics). However, the majority of the negative topics focused on topics related to facilitating and supporting services (i.e., parking space, center organization, building decoration, the building itself,

FIGURE 2.
opening hours, computer facilities, noise level, and odors). Thus, the CIT is helpful for learning customer perceived strengths and weaknesses of all three levels of service offerings.

**Results from the SOPI Interviews**

The average numbers of total, positive, and negative reported process incidents from the face-to-face, personal interviews were not significantly greater than the average numbers reported from the written survey responses. Details are reported in Table 2.

Most likely, the use of a greater number of questions prompting customers to respond for each sequence in the service encounter, versus the number of questions used in the CIT, is related to the insignificant difference in average number of responses between the two survey methods for the SOPI results. Given that greater average numbers of responses are found for both the face-to-face and written survey SOPI versus CIT responses, and the differences between

<table>
<thead>
<tr>
<th>Research Interview Method</th>
<th>Number of Persons</th>
<th>Evaluation Positive</th>
<th>Evaluation Negative</th>
<th>Total Process Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-Face</td>
<td>54</td>
<td>103 (54%)</td>
<td>86 (46%)</td>
<td>189 (100%)</td>
</tr>
<tr>
<td>PI per Person</td>
<td></td>
<td>1.91</td>
<td>1.59</td>
<td>3.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.01)</td>
<td>(1.33)</td>
<td>(1.55)</td>
</tr>
<tr>
<td>Written Survey</td>
<td>136</td>
<td>246 (57%)</td>
<td>182 (43%)</td>
<td>428 (100%)</td>
</tr>
<tr>
<td>PI per Person</td>
<td></td>
<td>1.81</td>
<td>1.34</td>
<td>3.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.80)</td>
<td>(1.57)</td>
<td>(2.72)</td>
</tr>
<tr>
<td>Total</td>
<td>190</td>
<td>349 (57%)</td>
<td>268 (43%)</td>
<td>671 (100%)</td>
</tr>
<tr>
<td>PI per Person</td>
<td></td>
<td>1.84</td>
<td>1.41</td>
<td>3.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.61)</td>
<td>(1.51)</td>
<td>(2.44)</td>
</tr>
</tbody>
</table>

Note: Planned comparison results:
(a) t-test for difference in average total process incidents between face-to-face and written survey groups, 3.50 - 3.15 = .133, t = 1.11, not significant
(b) t-test for difference in average positive process incidents between face-to-face and written survey groups, 1.91 - 1.81 = .10, t = 0.48, not significant
(c) t-test for difference in average negative process incidents between face-to-face and written survey groups, 1.59 - 1.34 = .25, t = 1.11, not significant
these SOPI averages are not significant, an order bias of completing the CIT survey first is not evident.

Additional details of the average number of positive, negative and total responses for each of the four sequences are provided in Tables 3 and 4. With a mean of 1.31, as hypothesized, the average number of total responses for process incidents was highest for Sequence 2, reception and consultancy. Given the greater number of steps involved in Sequence 2 versus the other sequences, this finding may not be surprising.

The findings of an average 1.81 positive, overall, process incidents were judged to be impressive because several senior managers of the adult education center believed that customers would

<table>
<thead>
<tr>
<th>Sequence Step</th>
<th>Description</th>
<th>Evaluation</th>
<th>Total Process Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>1</td>
<td>Entry and Orientation</td>
<td>83 (40%)</td>
<td>124 (60%)</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.44</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.58)</td>
<td>(0.77)</td>
</tr>
<tr>
<td>2</td>
<td>Reception and Consultancy</td>
<td>160 (64%)</td>
<td>90 (36%)</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.84</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.91)</td>
<td>(0.82)</td>
</tr>
<tr>
<td>3</td>
<td>Process of Booking</td>
<td>55 (56%)</td>
<td>43 (44%)</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.29</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.52)</td>
<td>(0.46)</td>
</tr>
<tr>
<td>4</td>
<td>Process of Payment</td>
<td>51 (82%)</td>
<td>11 (18%)</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.27</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.51)</td>
<td>(0.23)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>349 (57%)</td>
<td>266 (43%)</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>1.84</td>
<td>1.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.61)</td>
<td>(1.51)</td>
</tr>
</tbody>
</table>
TABLE 4. Positive and Negative Process Incidents (PI's) by Sequence Step by Research Interview Method. Means (Standard Deviation)

<table>
<thead>
<tr>
<th>Sequence Step</th>
<th>Description</th>
<th>Research Interview Method</th>
<th>Face-to-Face (n = 54)</th>
<th>Written Survey (n = 136)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Positive</td>
<td>Negative</td>
<td>N</td>
</tr>
<tr>
<td>1</td>
<td>Entry and Orientation</td>
<td>44%</td>
<td>56%</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.63</td>
<td>0.81</td>
<td>1.44</td>
</tr>
<tr>
<td></td>
<td>Person</td>
<td>(0.59)</td>
<td>(0.75)</td>
<td>(0.89)</td>
</tr>
<tr>
<td>2</td>
<td>Reception and Consultancy</td>
<td>63%</td>
<td>37%</td>
<td>62</td>
</tr>
<tr>
<td></td>
<td>Quality</td>
<td>0.72</td>
<td>0.43</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>(0.45)</td>
<td>(0.56)</td>
<td>(0.66)</td>
</tr>
<tr>
<td>3</td>
<td>Process of Booking</td>
<td>56%</td>
<td>44%</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.35</td>
<td>0.28</td>
<td>0.63</td>
</tr>
<tr>
<td></td>
<td>Person</td>
<td>(0.48)</td>
<td>(0.56)</td>
<td>(0.65)</td>
</tr>
<tr>
<td>4</td>
<td>Process of Payment</td>
<td>73%</td>
<td>27%</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>PI per Person</td>
<td>0.20</td>
<td>0.07</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>Person</td>
<td>(0.41)</td>
<td>(0.26)</td>
<td>(0.49)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>189</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI per Person</td>
<td></td>
<td>3.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person</td>
<td></td>
<td>(1.55)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

focus nearly all of their reporting on events that impressed them negatively—the small annoyances occurring during their visits. These managers had not expected to find that the average, overall negative responses (1.41) would be somewhat less than the number of positive process incidents. The senior managers of the education center were particularly interested in learning the topics of the negative, process incident responses for Sequences 1 and 2. Details of these topic responses and the topic responses for the other two sequences are summarized in Figures 3-6.

**Sequence 1: Entry and Orientation.** The average number of negative responses was highest for Sequence 1 for the process incident results; given the relatively simple sequence of steps involved in
FIGURE 3.

Categorization of process incidents within sequence one: Entry and orientation

207 incidents (190 persons 33% of total)

positive 40% (83 incidents)

before entry 6%

entry and hall 62%

orientation 32%

entry and hall 62%

before entry 5%

negative 60% (124 incidents)

entry and hall 74%

orientation 21%

easy to enter for invalids 60%
good location 40%
clean 20%
quiet 12%
friendly
atmosphere 51%
acceptable
atmosphere 17%
quantity of brochures for information 31%
quality of brochures 57%
board information 12%

no parking space 100%
uncomfortable and cold 50%
waiting time 9%
entrance door 11%
no snacks and drinks 10%
no smoking area 10%
no relaxing and communication zone 8%
no wardrobe
small or hidden
boards 67%
difficult orientation 33%
FIGURE 4.

Categorization of process incidents within sequence two: Reception and quality of consultancy

- 250 incidents (190 persons 41% of total)
  - positive 64% (160 incidents)
    - information and consultancy 20%
    - quality of personnel 55%
    - organization & coordination 25%
  - negative 36% (90 incidents)
    - information & consultancy 13%
    - quality of personnel 41%
    - organization & coordination 46%

- sufficient 42%
- precise & quick 18%
- home service 21%
- other 18%
- nice & friendly 62%
- correct 12%
- polite 16%
- is able to listen 10%
- no waiting-time 87%
- flexible solutions 13%
- information overflow 32%
- poor catalogue 16%
- unprecise information 42%
- unfriendly 15%
- stressed 44%
- telephone disturbs contin. 19%
- no competences 8%
- different levels of knowl. 8%
- impersonal 8%
- no separation of information and cash-desk 39%
- computer breakdown 24%
- opening hours 5%
- waiting time 32%
Categorization of process incidents within sequence three: Process of booking

98 incidents (190 persons 16% of total)

positive 56% (55 incidents)

quality of personnel 6%

very fast 67%

organization & coordination 85%

no waiting-time 21%

very fast system 23%

prompt and quick recall 11%

correct and right booking 21%

option for book, follow, courses 2%

booking alternatives 9%

booking per telephone 20%

booking per fax 20%

booking very early possible 20%

booking after trying 40%

nice & friendly 33%

no booking per telephone 50%

no booking via mail 50%

stressed 66%

quality of personnel 14%

problem with PC-usage 17%

exceeds competence 17%

changes not announced 11%

no information about

other booked participants 3%

computer breakdown 37%

inflexible dates 9%

waiting time 40%

negative 44% (43 incidents)

organization & coordination 81%
entry and orientation, the relatively high average of .65 negative responses was surprising for both the research team and senior managers of the education center.

For the process incident data, the distributions of the topics covered by the respondents did not vary significantly between the face-to-face and written surveys. Consequently, results for the combined data on the topics mentioned by the two respondent samples are reported here. The relatively high, negative response rate for Sequence 1 held up for both the face-to-face and written survey responses (.81 and .60, respectively). The distributions of positive and negative responses by the two survey methods did not differ significantly. Details are provided in Table 4.

Two findings are particularly noteworthy about customer response topics for Sequence 1: (1) the number of negative incidents is greater than positive incidents and (2) customer observations related to atmospherics inside the building dominate the negative incidents. A total of 46 respondents mentioned being uncomfortable

FIGURE 6.

| Categorization of process incidents within sequence four: Process of Payment |
|-----------------------------|---------------------------------|
| positive 83% (51 incidents) | fast and efficient system 88%    |
| 62 incidents (190 persons 10% of total) | all alternatives of payment 6%   |
| negative 18% (11 incidents) | no advance payment necessary 2% |
| | no problems with cancellations 4% |
| | waiting time 63% |
| | no discount 18% |
| | no remittance possible 18% |
and/or cold inside the building during Sequence 1; this response was the most frequently mentioned topic, positive or negative, for the first sequence. See Figure 3 for details.

In examining the topic responses in Figure 3, note also that both the quality and quantity of brochures available were mentioned positively and never negatively. However, 27 respondents referred negatively to the size of the bulletin boards inside the entrance of the building. None of the respondents referred positively to the size of the bulletin board. Thus, the SOPI method was helpful in identifying specific strengths and weaknesses related to entry and orientation of customers inside the education center.

**Sequence 2: Reception and Quality of Consultancy.** For Sequence 2 the average number of negative topic responses was lower than for Sequence 1 (.47 versus .65, respectively). While the higher, average, overall topic responses were highest for Sequence 2 (1.31) as hypothesized, the lower, average negative topic responses for Sequence 2 versus 1, was a finding opposite than hypothesized.

However, the total negative Sequence 2 process incidents (90) represent about 15 percent of the grand total of process incidents reported by customers; this number was viewed to be excessive by the senior managers of the education center. Given the analysis of the distribution of negative responses as shown in Figure 4, several specific actions were considered to help reduce the amount of negative processes. More specifically and based on customer responses concerning stress and lack of separation of information from the cash-desk, the reception and consultancy sequence was revised to incorporate the use of two-person reception teams during most hours of operation. Also, a back-up software system was employed in an attempt to substantially reduce computer breakdown complaints by customers, complaints unknown to senior managers before the report of findings of the study.

Thus, the findings from the SOPI data were used to justify additional assignments of service providers for handling reception and consultancy for most hours of operation. The need expressed specifically by five customers to provide consultancy without telephone interruptions was perceived to be a compelling requirement for improving the steps in Sequence 2.
Sequence 3: Process of Booking. Most of the positive topics mentioned by customers in the process incidents related to booking resulted from the computer software booking system: both high speed and accuracy comments were offered by customers. However, 13 percent of the total process incidents for Sequence 3 were negative comments about computer breakdowns. Also, 14 percent of the total process incidents for Sequence 3 relate to waiting too long to complete the booking process. Thus, more than 25 percent of the total booking process incidents mentioned by the respondents relate to efficiency of the booking process. Details are reported in Figure 5.

Given that process incidents only represent 16 percent of the total reported process incidents, this booking efficiency problem mentioned by customers may appear minor. Still, more than 4 percent of the total process incidents reported by customers related to booking efficiency problems.

Note also in Figure 5 that two customers reported that no booking by telephone or via mail was a negative process incident. Yet, two customers reported that booking by telephone was a positive process incident. Booking courses by telephone is available for customers, but not all customers know of this supporting service.

Sequence 4: Method of Payment. A greater proportion of process incidents was positive for method of payment (82%) compared to any of the other three sequences. The efficiency of the payment process received the most mentions for Sequence 4. Details appear in Figure 6.

Note in Figure 6 that only 10 percent of the total process incidents relate to Sequence 4. Possibly this relatively low proportion of reported process incidents is due to an order bias effect. The sequence of questions asked followed the sequence order from the blueprinting results. Possibly, the respondents may have tired and provided fewer answers when responding to the final set of questions related to Sequence 4.

Overlap in Responses between the CIT and SOPI Methods

For the adult education study, very little overlap in responses occurred between the CIT and SOPI methods. The overlap that did
occur related to the inability to find parking spaces reported by two respondents for both the CIT and SOPI methods.

Both the CIT and SOPI methods provided unique information about the strengths and weaknesses of characteristics of the education center. The CIT application provided proportionally less negative responses compared to the SOPI application. Possibly, this finding is due, in part, to an order bias effect; the respondents may have needed to "warm up to the task," to mention negative feelings about their interactions with the education center.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Several limitations have been noted in the method and findings section for the reported study. Some limitations need to be emphasized and coupled with a discussion of how they might be overcome.

First, how critical is a critical incident? How important is a process incident? Which positive (critical or process) incidents help sustain a marketer-customer relationship? Which negative incidents cause the customer to say, "That's it! I'm outa here!" Our application of the CIT and SOPI did not examine how customer incident perceptions-affections related to their intentions and behaviors. In-depth tracking research is needed on the complete service encounter experience of customers that sustain and end customer-marketer relationships. The use of the CIT in consumer (dis)satisfaction research has been limited to categorizing incidents customers judge to be significant, but not in actually assessing the impacts of such events.

Second, the adult education study we report did not include research on customers who did not buy. To date, no studies appear to be available in the literature (including the study reported here) that address the issue of how critical and process incidents influence customers not to buy. Some customers do report experiencing critical and process incidents before human interactions occur at service locations. We did find in blueprinting customer entry into the education center that some customers left without making contact with a service provider. What caused these customers to turn and
leave? Additional CIT and SOPI related research is needed to answer this question. In hindsight, a sample of these customers should have been included, but was not, in the mistaken belief that customer-provider interaction was a necessary part of the definition of a service encounter.

Third, the possible order bias effect of first asking the CIT questions followed by asking the SOPI questions is a limitation of the study. Most likely, the average numbers of CIT positive and negative responses may be higher when the order is reversed. The best alternative might be to use two different samples of customers to independently assess critical and process incidents.

Fourth, while the interactions of a service provider with real-life customers were examined, the findings presented may not be relevant in other service-customer environments. Performing similar studies in several service-customer environments is needed before attempting to generalize the results.

**CONCLUSIONS**

*Managerial Implications*

Both the CIT and SOPI are applied research methods to assess customer evaluations of strengths and weaknesses of service offerings. Both methods help to identify the actual contents of nonhuman and human service-related interactions that customers are willing to describe. As noted by Bitner et al. (1990, p. 82), "The results of CIT studies provide much greater detail and depth of understanding than do typical customer satisfaction surveys." As mentioned by one of the anonymous reviewers to this present article, Bitner et al. do provide empirical evidence to support this assertion.

Based on the results in the education center study, SOPI is a technique that complements and extends the CIT. The development of the customer-service blueprint and use of the blueprint for developing the SOPI questions, does appear to prompt additional customer responses that they do not provide in responding to CIT questioning. The number of SOPI responses may average more than three times the number of CIT responses in customer-service en-
counter research, when independent customer samples are used to collect data for each method. Rationale: SOPI includes more questions and prompts to aid the customer in recalling specific incidents experienced during the service encounter compared to the CIT.

Service marketing executives sometimes like to refer to the axiom that “God is in the details.” SOPI research is designed to respond to the importance of this rule: the method is to learn the little, as well as the big, things that customers notice and evaluate in service encounters. The results from SOPI applications may be helpful particularly in identifying details that can be improved to help sustaining relationships with customers.

For the adult education center in Vienna, close to 50 specific changes were designed into the service encounter based on the results from both the CIT and SOPI data. Both human and nonhuman elements experienced by customers were changed. For example, (1) two-person teams during most hours of course registration were started to reduce service provider stress and increase attention to the customer during human interactions; (2) an on-line backup computer software program was designed as a fail-safe system to customer experiences with transaction failures; (3) five car parking spaces were contracted for daytime use by customers visiting the center to register for evening courses; (4) the bulletin boards were tripled in size and presented as a series leading from the front door to the service provider stations; (5) additional lighting was added to the entrance and waiting areas inside the center; (6) heating was increased in the entrance and reception areas; (7) registration by telephone was advertised in new brochures; (8) fresh coffee, free-of-charge, and vending machines were added to the reception area; (9) discounts for senior citizens and club enrollments were offered; (10) monthly in-house training programs of service providers were implemented to improve their effectiveness and efficiency in accurately and quickly processing “unusual” customer requests, requests which were occurring more often than noticed before the study.

SOPI research applications are attempts to go one step deeper than CIT applications to learn specific customer observations about service encounters that shape customer evaluations. In part, the SOPI method is designed to respond to the research need described
by Bitner et al. (1990, p. 82) concerning CIT customer-service research; "whereas our study and others focus on interpersonal factors, future research should consider also the role of nonhuman elements (e.g., equipment, facilitating goods, atmospherics) in service encounter dis/satisfaction."

Research applications of the SOP1 method provide details of customer interpretations of all steps blueprinted in their service encounters. Care needs to be taken in the blueprinting stage to include the nitty-gritty happenings related to customers during their service experiences. Including such minute details in the SOP1 questions may provide customers with the justification to comment about very minor annoyances or niceties without appearing foolish to themselves. Designing continual improvements in service encounters is more likely possible when the service marketers receive such information. The SOP1 method helps to provide evidence for service marketers that "God is in the details," and that the opposite axiom, "don't sweat the small stuff," is wrong. The service design changes based on the results of the study are offered as evidence for this assertion. However, a direct test of these two opposing heuristics was not included in the study.

REFERENCES


