

The Critical Incident Technique in Service Research

Dwayne D. Gremler

Bowling Green State University

The Critical Incident Technique (CIT) has been used in a variety of service contexts in recent years to explore service research issues and has been instrumental in advancing our understanding of these issues. Despite the popularity of this methodology, no published research synthesis systematically examines this research. The primary purpose of this study is to review the use of the CIT method in service research to (a) help current and future researchers employing the CIT method to examine their methodological decisions closely and (b) suggest guidelines for the proper application and reporting of the procedures involved when using this method. The study provides an overview of the CIT method, reports the results of a research synthesis conducted of 141 CIT studies appearing in service marketing and management publications, discusses implications for service research, and suggests guidelines for researchers employing this method.

Keywords: *Critical Incident Technique; service research; synthesis; method*

Qualitative methods, like their quantitative cousins, can be systematically evaluated only if their canons and procedures are made explicit.

—Corbin and Strauss (1990, p. 4)

The amount of service research has exploded in the past three decades, and a variety of methods and techniques have been employed to study marketing and management issues in service contexts. One particular approach, the Critical Incident Technique (CIT), has been used frequently in this research in recent years. Although the CIT method appeared in the marketing literature as early as 1975 (Swan and Rao 1975), the major catalyst for use of the CIT method in service research appears to have been a *Journal of Marketing* study conducted by Bitner, Booms, and Tetreault (1990) that investigated sources of satisfaction and dissatisfaction in service encounters. Since Bitner and her colleagues' seminal article, more than 140 CIT studies have appeared in marketing (or marketing-related) literature. A review of these studies suggests this methodology has been used in a variety of ways to explore services marketing and management issues. Despite the recent popularity of this methodology, to date, no published research synthesis has systematically examined this research.

A research synthesis of this kind serves to integrate and systematically critique past research (Cooper 1998) and can help current and future researchers employing the CIT method to examine their methodological decisions closely. Other research synthesis studies, such as Gardner's (1985) study of mood states or Tripp's (1997) analysis of services advertising research, have provided researchers with a comprehensive summary of findings

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across studies and made suggestions to encourage further investigations. Therefore, the primary purpose of this study is to review the use of the CIT method in service research and then propose guidelines for the application and reporting of the method in future studies.

The article is organized as follows. First, a brief overview of the CIT method and a discussion of both the strengths and drawbacks of this method are presented and its contribution to service research illustrated. Second, the procedures employed to collect and analyze CIT studies included in this study are described. Third, the results of the research synthesis are reported. The article concludes with a discussion of implications for service researchers and proposes a framework for conducting CIT studies and reporting their results.

OVERVIEW OF THE CRITICAL INCIDENT TECHNIQUE

CIT, a method that relies on a set of procedures to collect, content analyze, and classify observations of human behavior, was introduced to the social sciences by Flanagan (1954) 50 years ago. Initially, Flanagan conducted a series of studies focused on differentiating effective and ineffective work behaviors; in the beginning, his research teams observed events, or "critical incidents," and over time reports provided by research subjects were used in place of direct observation. Since its introduction, the CIT method has been used in a wide range of disciplines. Chell (1998) provided the following description of the CIT method:

The critical incident technique is a qualitative interview procedure which facilitates the investigation of significant occurrences (events, incidents, processes, or issues) identified by the respondent, the way they are managed, and the outcomes in terms of perceived effects. The objective is to gain understanding of the incident from the perspective of the individual, taking into account cognitive, affective, and behavioral elements. (p. 56)

Bitner, Booms, and Tetreault (1990) defined an incident as an observable human activity that is complete enough to allow inferences and predictions to be made about the person performing the act. A critical incident is described as one that makes a significant contribution, either positively or negatively, to an activity or phenomenon (Bitner, Booms, and Tetreault 1990; Grove and Fisk 1997). Critical incidents can be gathered in various ways, but in service research, the approach generally asks respondents to tell a story about an experience they have had.

In initially describing the CIT method, Flanagan (1954) provided a very detailed description of the purpose of the method and the processes to be used in conducting CIT research, and very few changes have been suggested to the method since his seminal *Psychological Bulletin* article. In particular, once the stories (critical incidents) have been collected, content analysis of the stories takes place.¹ In this data analysis, two tasks have to be tackled: the decision about a general frame of reference to describe the incidents and the inductive development of main and subcategories. In performing these tasks, the researcher considers the general aim of the study, the ease and accuracy of classifying the incidents, and the relation to previously developed classification schemes in this area (Neuhaus 1996). Information contained in the stories is carefully scrutinized to identify data categories that summarize and describe the incidents (Grove and Fisk 1997; Stauss 1993). The main categories of classification can either be deduced from theoretical models or formed on the basis of inductive interpretation (Stauss 1993). Generally, the goal of the content analysis is a classification system to provide insights regarding the frequency and patterns of factors that affect the phenomenon of interest.

Strengths and Advantages of the CIT Method

The CIT method has been described by service researchers as offering a number of benefits. First, the data collected are from the *respondent's* perspective and in his or her own words (Edvardsson 1992). The CIT method therefore provides a rich source of data by allowing respondents to determine which incidents are the most relevant to them for the phenomenon being investigated. In so doing, the CIT is a research method that allows respondents as free a range of responses as possible within an overall research framework (Gabbott and Hogg 1996). With the CIT method, there is no preconception or idiosyncratic determination of what will be important to the respondent (de Ruyter, Perkins, and Wetzels 1995); that is, the context is developed entirely from the respondent's perspective (Chell 1998). Thus, the CIT method reflects the normal way service customers think (Stauss 1993) and does not force them into any given framework. During an interview, respondents are simply asked to recall specific events; they can use their own terms and language (Stauss and Weinlich 1997). The CIT method produces unequivocal and very concrete information as respondents have the opportunity to give a detailed account of their own experiences (Stauss and Weinlich 1997). Thus, CIT is an attrac-

1. For detailed descriptions of the Critical Incident Technique (CIT) method, see Chell (1998) and Stauss (1993).

tive method of investigation because it does not restrict observations to a limited set of variables or activities (Walker and Trully 1992).

Second, this type of research is inductive in nature (Edvardsson 1992). Consequently, the CIT method is especially useful (a) when the topic being researched has been sparingly documented (Grove and Fisk 1997), (b) as an exploratory method to increase knowledge about a little-known phenomenon, or (c) when a thorough understanding is needed when describing or explaining a phenomenon (Bitner, Booms, and Tetreault 1990). CIT can be particularly effective when used in developing the conceptual structure (i.e., hypotheses) to be used and tested in subsequent research (Walker and Trully 1992). The CIT method does not consist of a rigid set of principles to follow, but it can be thought of as having a rather flexible set of rules that can be modified to meet the requirements of the topic being studied (Burns, Williams, and Maxham 2000; Hopkinson and Hogarth-Scott 2001; Neuhaus 1996). CIT does not rely on a small number of predetermined components and allows for interaction among all possible components in the service (Koelemeijer 1995); indeed, the CIT method is effective in studying phenomena for which it is hard to specify all variables a priori (de Ruyter, Kasper, and Wetzels 1995). In summary, the CIT is an inductive method that needs no hypotheses and where patterns are formed as they emerge from the responses, allowing the researcher to generate concepts and theories (Olsen and Thomasson 1992).

Third, the CIT method can be used to generate an accurate and in-depth record of events (Grove and Fisk 1997). It can also provide an empirical starting point for generating new research evidence about the phenomenon of interest and, given its frequent usage in a content analytic fashion, has the potential to be used as a companion research method in multimethod studies (Kolbe and Burnett 1991).

Fourth, the CIT method can provide a rich set of data (Gabbott and Hogg 1996). In particular, the respondent accounts gathered when using this approach provide rich details of firsthand experiences (Bitner, Booms, and Mohr 1994). CIT can be adapted easily to research seeking to understand experiences encountered by informants (Burns, Williams, and Maxham 2000), particularly in service contexts. The verbatim stories generated can provide powerful and vivid insight into a phenomenon (Zeithaml and Bitner 2003) and can create a strong memorable impression on management when shared throughout an organization. The CIT method provides relevant, unequivocal, and very concrete information for managers (Stauss 1993) and can suggest practical areas for improvement (Odekerken-Schröder et al. 2000). CIT has been described as “a powerful tool which [yields] relevant data for practical purposes

of actioning improvements and highlighting the management implications” (Chell and Pittaway 1998, p. 24). Critical incidents can also be easily communicated to customer-contact personnel, particularly when describing what behaviors to do and not do in order to satisfy customers (Zeithaml and Bitner 2003).

Finally, the CIT method is particularly well suited for use in assessing perceptions of customers from different cultures (Stauss and Mang 1999). In their study, de Ruyter, Perkins, and Wetzels (1995) characterized the CIT method as a “culturally neutral method” that invites consumers to share *their* perceptions on an issue, rather than indicate their perceptions to *researcher-initiated* questions. In particular, they contend CIT is a less culturally bound technique than traditional surveys—there is no a priori determination of what will be important.

Drawbacks and Limitations of the CIT Method

Although the benefits of using the CIT method are considerable, the method has also received some criticism by scholars. For example, the CIT method has been criticized on issues of reliability and validity (Chell 1998). In particular, respondent stories reported in incidents can be misinterpreted or misunderstood (Edvardsson 1992; Gabbott and Hogg 1996). Similarly, problems may also arise as a result of ambiguity associated with category labels and coding rules within a particular study (Weber 1985).

CIT is a naturally retrospective research method. Thus, the CIT method has been criticized as having a design that may be flawed by recall bias (Michel 2001). Similarly, the CIT method may result in other undesirable biases, such as consistency factors or memory lapses (Singh and Wilkes 1996). Indeed, the CIT method relies on events being remembered by respondents and requires the accurate and truthful reporting of them. An incident may have taken place some time before the collection of the data; thus, the subsequent description may lead the respondent to reinterpret the incident (Johnston 1995).

The nature of the CIT data collection process requires respondents to provide a detailed description of what they consider to be critical incidents. However, respondents may not be accustomed to or willing to take the time to tell (or write) a complete story when describing a critical incident (Edvardsson and Roos 2001). Because the technique requires respondents to take time and effort to describe situations in sufficient detail, a low response rate is likely (Johnston 1995).

Generally speaking, however, CIT has been demonstrated to be a sound method since Flanagan (1954) first presented it. Relatively few modifications have been suggested to the method in the 50 years since it was intro-

duced, and minimal changes have been made to Flanagan's proposed approach.

The Role of the CIT Method in Service Research

Service researchers have found CIT to be a valuable tool, as the analysis approach suggested by the CIT method often results in useful information that is more rigorously defined than many other qualitative approaches. It allows researchers to focus on a very specific phenomenon because it forces them to define the "specific aim" of their study and helps identify important thematic details, with vivid examples to support their findings. Two studies, Bitner, Booms, and Tetreault's (1990) study of service encounters and Keaveney's (1995) study of service switching, illustrate the impact the CIT method has had on service research.

Bitner, Booms, and Tetreault's (1990) study focusing on service encounters provides an example of the value of the CIT method to service research. Their analysis of 700 critical service encounters in three industries, examined from the perspective of the customer, led to the identification of three types of employee behaviors (ultimately labeled *recovery*, *adaptability*, and *spontaneity*) as sources of satisfaction and dissatisfaction in service encounters. Their study was one of the first to identify *specific* employee behaviors associated with customer satisfaction and dissatisfaction. Prior to their research, much of what scholars understood about such evaluations was limited to global assessments of satisfaction or abstract concepts (e.g., service quality). The CIT method allowed the authors to capture vivid details and resulted in the identification of important themes that a literature search, quantitative research, or even depth interviews would not have illuminated—particularly at a time when scholars knew very little about service encounters.

On the basis of the knowledge gained from the 1990 study, Bitner and her colleagues have developed a programmatic stream of research on service encounters by creatively applying the CIT method in a variety of ways. For example, Gremler and Bitner (1992) extended the generalizability of the 1990 study by investigating service encounters across a broad range of service industries; their findings indicate that the initial set of employee behaviors that lead to satisfaction or dissatisfaction in service encounters is robust across contexts. In a later study, Bitner, Booms, and Mohr (1994) employed the CIT method to examine the service encounter from the perspective of the firm—specifically, the customer-contact employee. Doing so expanded the initial framework by identifying a fourth group of behaviors (employee response to problem customers, labeled *coping*) not identified when only cus-

tomers were studied. In a recent study, Bitner and colleagues used the CIT method to examine self-service encounters where there is no employee involved in service delivery (Meuter et al. 2000). The findings from this study suggest a different set of factors are sources of satisfaction and dissatisfaction when service is delivered through technology-based means. As these studies suggest, the CIT method is flexible enough to allow service encounters to be extensively studied in a variety of ways.

In addition to Bitner's own programmatic research, the findings from the 1990 CIT study have stimulated much additional research by other scholars. Three studies illustrate this point.² For example, Arnould and Price's (1993) examination of the "extended service encounter" subsequently built on Bitner's research by investigating a context in which an extraordinary service experience can occur in service encounters that may continue for several days. Bitner's research on service encounters has focused primarily on customers' cognitive responses and/or assessments of service encounters; van Dolen et al. (2001) have extended service encounter research by focusing on understanding affective consumer responses in service encounters by examining the emotional content in narratives of critical incidents. Kelley, Hoffman, and Davis's (1993) study developed a typology of retail failures and recoveries, a direct result of wanting to extend the work of Bitner, Booms, and Tetreault (1990) in the area of service recovery. All three studies were stimulated by findings resulting from Bitner's use of the CIT method to study service encounters.

Keaveney's (1995) study on service switching also illustrates the contribution that the use of the CIT method has made to service research. In her study, Keaveney employed the CIT method to understand reasons service customers switch providers. Her analysis of more than 800 critical behaviors of service firms (critical incidents) led to the identification of eight distinct categories of reasons why customers switch providers. Prior to her CIT study, most research attempting to identify causes of service switching focused on issues related to dissatisfaction. Although some causes Keaveney identified are fairly predictable dissatisfaction-related issues (e.g., core service failure, service encounter failure, recovery failure), other causes fall outside the satisfaction-dissatisfaction paradigm (i.e., customers were satisfied, but they still switched). Had Keaveney stayed within the satisfaction paradigm, as most of the researchers studying consumer switching had been doing prior to then, she would never

2. A search of citations of the Bitner, Booms, and Tetreault (1990) article on the Social Sciences Citation Index revealed more than 230 references to the study to date. It is clearly beyond the scope of this article to point out all of the research triggered by this study. The three studies listed here illustrate the extent to which the findings from the initial CIT study on service encounters stimulated further research.

have identified convenience, competition, involuntary switching, and pricing as four major causes of switching *not* related to dissatisfaction. Although each of those four issues had been discussed in the literature, until her study, they had not been considered in one research project. However, as Keaveney (1995) pointed out, *all* of these issues need to be considered if service switching behavior is to be understood. Thus, Keaveney's application of the CIT method has opened the door for a much broader and more comprehensive switching behavior paradigm.

As these two studies indicate, the CIT method provides a valuable means for service researchers to rigorously study a phenomenon and identify issues not previously considered. Given the recent popularity and potential usefulness of the CIT method in service research, a research synthesis was undertaken to assess the nature of past applications of the technique.

RESEARCH SYNTHESIS METHOD

The following paragraphs describe the sample of studies included in this research synthesis as well as how the studies were coded and analyzed.

Sample

Studies that referenced the CIT method and were published in marketing-related journals from 1975 through 2003 were considered for inclusion in the data set.³ A search of leading marketing, consumer behavior, services marketing, and services management journals was undertaken to identify studies employing the CIT method. The initial set of journals included the *Journal of Marketing*, the *Journal of Marketing Research*, the *Journal of Consumer Research*, the *Journal of the Academy of Marketing Science*, the *Journal of Retailing*, the *Journal of Business Research*, the *European Journal of Marketing*, the *Journal of Service Research*, the *International Journal of Service Industry Management*, the *Journal of Services Marketing*, the *Journal of Satisfaction, Dissatisfaction, and Complaining Behavior*, and the *Service Industries Journal*. Conference proceedings of the American Marketing Association, the Association for Consumer Research, Quality in Services (QUIS), and Frontiers in Services Marketing were also considered. Other published CIT studies were identified through computerized (Internet) searches using *ABI/Inform*, *Uncover*, and *Business Source Premier* electronic databases. Finally, a "snowball" technique was

3. The original intent of this study was to focus on CIT studies conducted *in marketing*. However, as noted later in the article, nearly all of the CIT studies in marketing included in this study were conducted in service contexts. For that reason, most of the article refers to the use of the CIT method *in service research*.

employed by perusing CIT studies collected from the above sources to identify other CIT studies referenced (e.g., book chapters).⁴

The initial collection of studies referencing the CIT method numbered 168. To be included in the sample for further analysis, a study had to meet three criteria. First, the study had to be conducted in a marketing or marketing-related context. Second, the study had to actually collect CIT data as part of the study and not merely discuss the merits of using the CIT method. Third, the study had to provide some discussion of how the CIT method was employed. Of the 168 CIT studies identified, 19 studies *described* how to use or apply the CIT method (or suggested the method be used) but did not actually do so, and another 8 studies referenced "critical incidents" or CIT but did not explicitly discuss how the CIT method was employed. These 27 studies were excluded from the sample. The resulting sample of 141 studies includes 106 journal articles, 27 papers published in conference proceedings, and 8 book chapters.⁵ The diversity of journal articles and other publications indicates the extent to which the CIT method has been used in service research in the past three decades.

Although Swan and colleagues (Swan and Combs 1976; Swan and Rao 1975) introduced CIT to the marketing literature in the mid-1970s, the method was not widely used in marketing until the 1990s. To illustrate, nearly all of the studies included in the sample for analysis (125 out of 141) were published *after* 1990, the year of Bitner, Booms, and Tetreault's (1990) seminal work. This article seems to have served as a springboard for the use of the CIT method in service research; indeed, 101 of the 125 studies published after 1990 cite the Bitner, Booms, and Tetreault (1990) article. Table 1 displays the distribution, by year, of the articles included in the sample. The major sources for CIT studies (those publishing at least five CIT studies) include six journals (the *International Journal of Service Industry Management*; the *Journal of Marketing*; the *Journal of Satisfaction, Dissatisfaction, and Complaining Behavior*; the *Journal of Services Marketing*; *Managing Service Quality*; and *The Service Industries Journal*) and two conference proceedings (*Association for Consumer Research* and *American Marketing Association*).

4. Although a concerted effort was made to include every CIT study published in marketing (or marketing-related) outlets during the past three decades, additional research may have been unintentionally omitted. However, the studies included in the research synthesis can be presumed to constitute a representative and comprehensive sampling of CIT studies in service research during the 1975-2003 period.

5. All identified CIT studies were included in the sample if they met the criteria for inclusion; no screening of the studies was made based on the quality of the manuscript or the publication outlet. Thus, any explicit (or implicit) assessments or criticisms of the application of the CIT method in service research on the issues explored in this study must be cautiously made, as there was no attempt made to include only the "better" studies. A complete list of the 141 CIT studies included in the analysis is provided in the appendix.

TABLE 1
Distribution of Critical Incident Technique
(CIT) Manuscripts Published by Year

<i>Year</i>	<i>Number of Manuscripts</i>	<i>Percentage of Sample</i>
1975-1979	2	1.4
1980-1984	3	2.1
1985-1989	6	4.3
1990	5	3.6
1991	1	0.7
1992	7	5.0
1993	5	3.6
1994	6	4.3
1995	13	9.2
1996	12	8.5
1997	7	5.0
1998	14	9.9
1999	14	9.9
2000	12	8.5
2001	13	9.2
2002	9	6.4
2003	12	8.5
Total	141	100.0

Classification of CIT Studies

CIT data can be used both quantitatively and qualitatively and, indeed, have been used both ways in service research. Chell and Pittaway (1998) briefly described both uses:

Used quantitatively it can assess the type, nature and frequency of incidents discussed which when linked with other variables . . . can provide important insights into general relationships. Used qualitatively the CIT provides more discursive data which can be subjected to narrative analysis and be coded and categorized according to the principles of grounded theory. (p. 26)

Given the different ways CIT-generated data are used, each of the 141 CIT studies included in the sample was classified as one of three general types: (a) studies in which data generated from the CIT method are not directly analyzed but rather are *combined* with another method (e.g., a survey or an experiment), (b) studies analyzing the CIT data primarily in an *interpretive* fashion, and (c) CIT studies employing *content analytic* methods.

CIT studies combined with other methods. In 19 studies, the CIT method is employed primarily to produce data that are not the primary focus of the study; that is, it is used in combination with another empirical method. To illustrate, in these studies, the researchers use data generated from the CIT method for such purposes as (a) creating a frame of reference for the respondent (e.g., Folkes 1984;

Hausknecht 1988; Singh and Wilkes 1996), (b) assisting in the development of a quantitative survey instrument (e.g., Martin 1996; Miller, Craighead, and Karwan 2000) or in a dramatic script (Harris, Harris, and Baron 2003), or (c) creating realistic scenarios for an experiment (e.g., Swanson and Kelley 2001). In many of these studies, respondents are asked to think of a particular event and to write down specifics (i.e., tell a story) related to this event. However, the primary focus in these studies is the analysis of a subsequent (non-CIT) data set; consequently, the researchers generally provide a limited discussion about the CIT data and data collection procedures, and there is no report of any analysis of the respondents' stories. These "combination" studies are included in the discussion of study contexts and research topics but are excluded from the analysis and discussion of the content analytic CIT studies presented later.

CIT studies employing interpretive methods. CIT studies in marketing contexts have typically not employed interpretive or postmodern approaches (Hopkinson and Hogarth-Scott 2001). Indeed, of the 141 studies, only 7 employ an interpretive approach exclusively in analyzing the data. These 7 studies generally employ an interpretive methodology to identify themes emerging from analysis of the critical incidents. Examples of such studies include Guiry (1992), Hedaa (1996), and Mattsson (2000). An additional four studies analyze the CIT data using *both* content analysis and interpretive methods. In these studies, a content analysis approach is used to reveal what events occurred in the critical incidents, and the interpretive methodology is then used as a means of interpreting and understanding the experience (cf. Guiry 1992). Examples of such studies include Mick and DeMoss (1990) and Ruth, Otnes, and Brunel (1999). Because such a small number of CIT studies employ interpretive methods, an assessment of the application of the interpretive method in these studies is not included in this study except in the analysis of study contexts and research topics; however, the issue of employing interpretive methods to analyze CIT data is addressed in the Recommendations section.

CIT studies employing content analytic methods. Most CIT studies identified typically treat respondent stories as reports of facts. As a result, analysis typically focuses on the classification of such reports by assigning incidents into descriptive categories to explain events using a content analysis approach (cf. Hopkinson and Hogarth-Scott 2001) instead of using interpretive approaches. A total of 115 CIT studies were classified in this manner.⁶ Because an overwhelming majority of the empirical CIT studies

6. The four studies that include both content analysis and interpretive methods are included in the subsequent discussion of CIT studies that employ a content analytic approach.

published in marketing have primarily employed a content analysis approach in analyzing the data, the research synthesis focuses on these studies when investigating issues concerned with CIT data analysis procedures.

Coding and Analysis of Studies

To assess the CIT studies, 51 variables were identified and include such issues as study contexts, research topics, sampling, and data analysis methods. Many variables were borrowed, when applicable, from Kolbe and Burnett's (1991) synthesis of content analysis research. After the variables were identified, the author analyzed the 141 articles separately and coded each of the 51 variables, when applicable, for every study. Once the studies were coded, an independent judge coded the articles separately. Disagreements in coding for any variables were resolved by discussing key terms and jointly reviewing the articles until an agreement was reached.

CIT STUDY CONTEXTS AND RESEARCH TOPICS

Two areas of interest in examining the CIT studies include identification of the specific *contexts* in which CIT has been used as well as the research *topics* investigated. The following discussion examines both study contexts and research topics in all 141 CIT studies before narrowing the focus of the discussion to the 115 CIT studies that employ content analytic methods.

Study Contexts

A variety of contexts are reported across the 141 CIT studies; nearly all ($n = 134$ or 95%) can be considered service contexts (i.e., where the primary or core product offering is intangible). Examples of such services include hospitality (including hotels, restaurants, airlines, amusement parks), automotive repair, retailing, banking, cable television, public transportation, and education. In more than half of the studies ($n = 78$ or 55%) one context (or industry) is used. Nineteen studies (13%) report using between two and four contexts, and 44 studies (31%) report soliciting incidents from five or more contexts. Most of the CIT studies ($n = 117$ or 83%) are set in business-to-consumer contexts. Fifteen studies (11%) collect incidents in business-to-business contexts, whereas 9 studies (6%) focus on internal services. Eleven CIT studies (8%) are cross-national in nature, exploring a research issue in more than one country. Overall, an extensive variety of service contexts have been reported in the CIT studies, suggesting

the method has wide-reaching applicability in studying a broad assortment of service research issues.

Research Topics

The 141 CIT studies have explored a range of issues. The most frequently researched issue is customer evaluations of service ($n = 43$ or 31%), including issues related to service quality, customer satisfaction, and service encounters. Service failure and recovery is the second most popular research topic ($n = 28$ or 20%), followed by service delivery ($n = 16$ or 11%). Thirteen studies (9%) focus on service employees, and 10 studies (7%) illustrate or demonstrate the use of the CIT method in service research. The other 31 studies (22%) encompass a variety of topics, including word-of-mouth communication, channel conflict, fairness, customer delight, salesperson knowledge, and critical service features, to name a few. (See Table 2 for a more complete list.)

CONTENT ANALYTIC CIT STUDIES

As indicated earlier, 115 of the 141 studies in the sample employ content analytic procedures in analyzing the CIT data. Thus, it seems to be particularly relevant to assess the procedures typically used when analyzing CIT data in this fashion. Kassarian (1977), in a classic article on content analysis, called for such research to be especially concerned with sampling, objectivity, reliability, and systematization issues. Following the guidelines proposed by Kassarian and employed by Kolbe and Burnett (1991) in their synthesis of content analysis research, the CIT studies were assessed and coded in each of these four areas. Thus, Kolbe and Burnett's (1991) operationalization of these issues is used, when appropriate, as an organizing framework for assessing the 115 content analytic CIT studies.

Sampling

Sampling addresses the issues of the data collection method, respondent selection, respondent characteristics, sample size, the number of usable incidents collected, and incident valence. Each of these issues is discussed in the following paragraphs.

Data collection method. A variety of methods have been used to collect data for the 115 CIT studies employing content analytic procedures. Using students as interviewers is the most frequently reported method ($n = 33$ or 29%); of those 33 studies, 30 studies report the number of students serving as data collectors (the average number of

TABLE 2
Research Topics Investigated by Critical Incident Technique (CIT) Studies

<i>Research Topic</i>	<i>Combination Studies^a</i>	<i>Interpretive Studies</i>	<i>Content Analysis Studies</i>	<i>Row Total</i>
Customer Evaluations of Service				
Service quality	2	—	13	
Customer satisfaction	2	1	10	
Service encounters	—	—	3	
Service encounter satisfaction	1	—	7	
Customer dissatisfaction	—	—	2	
Customer attributions	—	—	2	
Total	5	1	37	43
Service failure and recovery				
Service (or product) failure	1	—	6	
Service recovery	3	1	9	
Service failure and recovery	1	—	2	
Customer complaint behavior	2	—	3	
Total	7	1	20	28
Service delivery				
Service delivery	—	—	6	
Service experience	1	—	4	
Customer participation in service delivery	—	1	4	
Total	1	1	14	16
Service employees				
Employee behavior	2	—	2	
Customer/employee interactions	—	—	2	
Internal services	1	—	6	
Total	3	0	10	13
Illustration/demonstration/assessment of CIT method in service research				
Total	0	0	10	10
Other issues				
Entrepreneurial marketing, relationship dissolution, customer acquisition, interpersonal influence in consumption, services internationalization, self-gifts, word-of-mouth communication, channel conflict, customer welcomeness, assessment of industry grading schemes, customer repurchase, customer-to-customer interactions, fairness in service delivery, customer switching behavior, customer delight, salesperson knowledge, relationship strength, critical service features, customer costs of service quality				
Total	3	8	24	31 ^b
Column total	19	11	115	141 ^b

a. The primary empirical focus in the combination studies is analysis of non-CIT data. That is, CIT data are collected to be used in combination with another research method. In these studies, no attempt is made by the researchers to describe the CIT data or data collection procedures nor to report any analysis of the respondents' stories.

b. Four CIT studies were classified as being *both* interpretive and content analysis studies, as both methods were employed in these studies. Thus, the total for these rows is adjusted in order to avoid double-counting these studies.

data collectors is 29), and nearly all of those studies ($n = 29$) report training the students. Among the remaining studies, 27 studies (23%) report that the authors served as interviewers and/or data collectors, 12 studies (10%) describe mailing a research instrument to respondents, and 14 studies (12%) report using a variety of other methods (e.g., collection of data via the Internet). Six studies (5%) analyze secondary data and thus did not collect data directly from respondents. The remaining 23 studies (20%)

do not indicate how the critical incident data were collected.⁷

Respondent selection. A total of 30 studies (26%) report some type of probability sample (e.g., simple random,

7. The findings presented in this research synthesis are limited to the details of the procedures and methods reported in the CIT studies. Authors may have initially provided additional information in earlier versions of their manuscripts that was later removed as a result of the review process.

systematic, or proportional) in selecting respondents. Among the other selection methods employed, 26 studies (23%) report using a convenience sample, 19 of the studies that used student data collectors (17%) employed a snowball technique, 16 studies (14%) were administered to students, and 14 studies (12%) used purposive (judgmental) sampling. The respondent selection method is not delineated in 10 studies (9%). Thus, although the method of selecting respondents in the CIT studies varies, most of the studies do not report using a probability sample.

Respondent characteristics. The gender of respondents is reported in 63 studies (55%). When reported, the ratio of females to males in the samples is approximately equal; the average rate of females in these studies is 50%. Only 19 studies report more than 60% of the sample being from one gender. Respondent age is less frequently reported ($n = 54$ or 47%); across these studies, the average age is 34.5. The respondent's level of education is reported in 22 studies (19%), whereas ethnicity characteristics of the sample are reported in only 12 studies (10%). Thus, generally speaking, most CIT studies include minimal description of the respondents providing the critical incidents.

Sample size and number of usable incidents. The distribution of sample sizes—that is, the *number of respondents*—varies considerably across the 115 CIT studies, ranging from 9 to 3,852; the average number of respondents per study is 341. Nearly half of the studies ($n = 56$ or 49%) include more than 200 respondents. Fourteen studies do not report the number of respondents. The distribution of the *number of usable critical incidents* reported in the studies also varies considerably, ranging from 22 to 2,505; the average number of incidents per study is 443. A majority of the studies ($n = 69$ or 60%) report using at least 250 incidents. Interestingly, four studies do not indicate the number of incidents collected—even though the critical incident is the unit of analysis in each study.

Number of incidents requested and incident valence. About half of the studies ($n = 58$ or 50%) indicate each respondent was asked to provide a single incident; 34 studies (30%) had respondents provide two incidents, and 9 studies (8%) asked respondents to provide more than two incidents. Fourteen studies (12%) do not report the number of incidents requested from respondents. Across all of the studies, including both studies asking for a single incident or those requesting more than one incident, 83 studies (72%) collected a mix of both positive and negative critical incidents. In 21 studies (18%), respondents were asked to provide only negative incidents,⁸ and in a single study, respondents were asked to provide only positive incidents.

8. Negative incidents are typically those situations where the respondent's experience is dissatisfying, unpleasant, trying, difficult, embarrassing, troublesome, or irritating.

The valence of the incidents collected is either neutral or not reported in 10 studies.

Objectivity

Kolbe and Burnett (1991) described objectivity as referring to the process by which analytic categories are developed and used by researchers and those interpreting the data. They suggest that “precise operational definitions and detailed rules and procedures for coding are needed to facilitate an accurate and reliable coding process. Detailed rules and procedures reduce judges' subjective biases and allow replication by others” (Kolbe and Burnett 1991, p. 245). Following the guidelines of Kolbe and Burnett, objectivity in the 115 content analytic CIT studies is assessed by investigating reports about the judges coding the incidents as well as reports of the rules and procedures used in incident classification procedures in the studies.

Number of judges. The number of judges used to categorize the CIT data is mentioned in 85 studies (74%). Generally speaking, a majority of the CIT studies ($n = 73$ or 63%) report two or three judges (sometimes referred to as coders) were used to analyze, and ultimately categorize, the critical incidents. The number of judges across all of the CIT studies ranges from 1 to 8, with one exception (one study employed 55 student judges); an average of 2.6 judges were used in the studies (not including the outlier). The number of judges is not reported in 30 studies (26%).

Judge training. Trained judges are important when content analytic methods are used; as they become familiar with the coding scheme and operational definitions, intrajudge and interjudge coding reliability would be expected to increase (Kolbe and Burnett 1991). Following the approach of Kolbe and Burnett, studies in which the authors served as judges ($n = 40$ or 35%) were classified as “no training” studies, although it is likely they did indeed receive some sort of instruction prior to coding the incidents. Given this criterion, judge training is explicitly reported in just nine studies (8%); however, the finding that only 8% of the studies appear to have trained their judges may simply reflect a failure to report these procedures.

Judge independence. Another salient issue when evaluating the judges used in content analytic investigations is the extent to which autonomous assessments of the data are made. In less than half of the 115 CIT studies ($n = 51$ or 44%) the authors indicate that those serving as judges (many of them coauthors) categorized incidents without prior knowledge of *other* judges' coding; 64 studies (56%) do not report if the judges categorizing the incidents did so independently. Again, the relatively low percentage of studies describing judge independence may simply reflect a failure in reporting this information.

Rules and procedures. As with any research, in order to be subject to validation and replication by other researchers, CIT studies using content analytic procedures should provide thorough descriptions of the rules and procedures used to categorize the critical incidents. However, only 12 of the studies (10%) provide a detailed description of the operational definitions used to classify incidents into categories. Another 20 studies (18%) cite previous research as the source of the study's rules and procedures; the remaining 83 studies (72%) do not provide a detailed description of the rules and procedures employed. These results suggest service researchers using the CIT method generally do not report many details concerning the rules and procedures for categorizing incidents.

Classification scheme details. Of the 115 CIT studies that employ content analytic methods, 105 (91%) report developing or using some sort of classification scheme to analyze and categorize the incidents. In those 105 studies, an average of 5.4 major categories ("major" as labeled or implied by the authors) are identified and subsequently used to sort the data; the number of major categories ranges from 2 to 53. In 64 of the studies (56%), minor categories (or subcategories) are used; the average number of subcategories is just under 16 (ranging from 3 to 56).

Classification scheme pretesting. Definition checks and pretesting of categories should contribute to the reliability of the CIT coding process when employing content analytic methods (Kolbe and Burnett 1991). However, very few CIT studies report any pretesting of the classification scheme in judge training or elsewhere; in most of these studies, the pretesting of a classification scheme occurred in a previously published study. Only 16 studies (14%) indicate that a set of incidents were placed into a holdout sample and either (a) used to develop a classification scheme or (b) after the classification scheme was finalized were subsequently used to verify the scheme. For these studies, the average size of the holdout sample is 112. These results suggest that, generally speaking, the same data set is used to both develop and verify classification schemes.

Summary assessment of objectivity in CIT studies. Reports of the content analytic processes deployed in CIT studies are important because doing so provides details about issues affecting the overall quality of the CIT judgment and coding process. One concern raised from the findings is that despite the importance of such reporting, service researchers generally provide minimal, if any, descriptions of the rules and procedures for analyzing the CIT data. The absence of this information does not necessarily mean appropriate steps are omitted; however, there is reason for concern regarding the judging precision of those analyzing critical incidents as well as the ability of

future researchers to adequately replicate and extend past studies (cf. Kolbe and Burnett 1991). Another concern is that in most of the 115 studies, the authors report using the same data set to develop *and* verify classification schemes. A more prudent approach would be to use one data set to develop a classification scheme and a second, independent set of critical incidents to validate and confirm the scheme (cf. Strauss 1993).

As indicated earlier, minimal changes have been suggested to the CIT method since Flanagan (1954) initially outlined his suggested procedures, and many of the CIT studies analyzed here appear to be generally following these procedures. However, service researchers employing content analytic methods with CIT data could clearly do more in terms of *reporting* their analysis procedures. Reporting procedures are discussed further in the Recommendations section.

Reliability

Reliability is concerned with consistency; it is a matter of whether a technique, applied repeatedly to the same object, would yield the same result each time. In CIT studies employing content analytic methods, assessments of reliability generally focus on judges' (or coders') abilities to consistently classify incidents into specified categories. Reliability in such studies could include discussions of both intrajudge and interjudge reliabilities. However, *intra*judge reliability, which is concerned with how consistent a given judge is in making categorical decisions over time (Weber 1985), is reported in only five CIT studies (in those studies, the average intrajudge reliability is .884). Thus, the discussion here focuses on *inter*judge reliability—the degree to which two or more judges agree that a given observation should be classified (coded) in a particular way (cf. Perreault and Leigh 1989). Reliability is assessed by investigating the reliability indices used and the magnitude of the statistics reported in the studies.

Reliability index usage. Reliability indices attempt to determine the probability that different judges would achieve similar results when coding and classifying critical incidents. Overall, 71 of the CIT studies (62%) report some sort of interjudge reliability statistic to provide support for suggesting that different judges have arrived at the same result. Although a variety of interjudge reliability indices are used in evaluating the reliability of CIT incident assessment (see Table 3), clearly the most common reliability index used is the coefficient of agreement (the total number of agreements divided by the total number of coding decisions); 45 studies (39%) report this statistic. The second most commonly reported statistic is Perreault and Leigh's (1989) reliability index I_r (which takes into account the number of categories); this statistic is reported in

TABLE 3
Reliability Indices Reported in Critical Incident Technique (CIT) Studies

<i>Reliability Index</i>	<i>Number of Studies</i>	<i>Average^a</i>
Percentage of agreement	45	.850
Perreault and Leigh's (1989) I_r	22	.857
Cohen's (1960) Kappa	2	.745
Ronan and Latham's (1974) Index	2	.880
Cronbach's alpha	2	.920
Cramer's V	1	.791
Holsti's (1969) coefficient of reliability	1	.820
Spiegelman, Terwilliger, and Fearing's (1953) reliability statistic	1	.980
Absolute agreement	5	1.000 ^c
Two reliability indices reported ^b	9	.849 ^d
Not reported	44	—

- a. In several studies, reliabilities are reported for data subsets or for various major categories. For such studies, the *lowest* reliability reported was recorded.
- b. One study reports three reliability indices.
- c. The reliability statistic reported for the *Absolute Agreement* index is 1.000 as the requirement for judges is that they must agree on the categorization of all incidents when coding them.
- d. This number represents the average value of *all* the reliability indices reported across all of the studies.

22 studies (19%). Other reliability statistics mentioned in the CIT studies include Ronan and Latham's (1974) reliability index ($n = 2$); Cohen's (1960) kappa ($n = 2$); Cronbach's alpha reliability test ($n = 2$); Cramer's V ($n = 1$); Holsti's (1969) coefficient of reliability ($n = 1$); and Spiegelman, Terwilliger, and Fearing's (1953) reliability statistic ($n = 1$). Eight studies report two reliability statistics, and 1 study presents three reliability indices. Five studies required the judges reach agreement on categorizing an incident and are thus labeled *absolute agreement*. A surprisingly large number of studies ($n = 44$ or 38%) do not report *any* reliability index or statistic.

Reliability index values. As indicated in Table 3, the average (lowest) coefficient of agreement percentage⁹ across the 45 studies reporting it is .850, and the average Perreault and Leigh (1989) reliability index (I_r) across the 22 studies including it is .857. The averages of the less commonly used reliability indices listed in Table 3 are all above .740, and most are above .800. Throughout the studies reporting reliability statistics, the authors generally appear to believe a strong case can be made for good interjudge reliability within the study.

Summary assessment of reliability in CIT studies. Reliability is a key component in content analytic methods.

9. Reliability is reported in a variety of ways, such as for data subsets, for various major categories within a study, or between different sets of judges. As a result, the lowest reliability score reported in a study is the statistic used for this research synthesis.

The most commonly reported statistic in these CIT studies is the percentage of agreement, and the average percentage of agreement in these studies is relatively high (.850), particularly considering that the lowest reported statistic is the one recorded for each study. However, one weakness of this statistic is that the number of coding decisions influences the reliability score (Perreault and Leigh 1989); as the number of categories decreases, the probability that judges would reach agreement by chance increases (Kolbe and Burnett 1991). As Kolbe and Burnett (1991) pointed out in their examination of content analysis research, "Reliability does not occur simply because the agreement coefficient exceeds .80" (p. 249). However, in service research CIT studies, the generally accepted, although informal, rule of thumb for a lower limit for suggesting that judges' coding decisions are reliable appears to be a value of .80.

As indicated earlier, an alarming 38% of the studies do not report any type of reliability statistic. Perhaps there are two explanations for such omissions: (a) The calculated reliability statistics were not high enough to convince the reader (reviewer) of the reliability of the results and thus the authors did not report them, or (b) the authors did not feel that calculating and reporting reliability statistics is essential in presenting the results of the study. Either way, it is difficult for the reader to assess whether the application of the method would yield the same result every time. Clearly service researchers conducting CIT studies using a content analytic approach need to do better in reporting reliability statistics.

Systematization

Systematization in content analysis research, as described by Kassarian (1977) and Holsti (1969), means that inclusion and exclusion of content or categories is done according to consistently applied rules. Systematization can also refer to the extent to which the research procedures documented in the selected group of studies examine scientific problems (through hypothesis and theory testing and research designs) (Kassarian 1977; Kolbe and Burnett 1991). In the present study, systematization is assessed by investigating the following issues: specificity of the phenomenon being investigated, the overall purpose of the study, and triangulation of the CIT method with other research methods.

Specificity. Bitner, Booms, and Tetreault (1990) defined an incident 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" and a *critical* incident as "one that contributes to or detracts from the general aim of the activity in a significant way" (p. 73). In his original discussion of the CIT method,

Flanagan (1954) described a critical incident as "extreme behavior, either outstandingly effective or ineffective with respect to attaining the general aims of the activity" (p. 338). Thus, CIT researchers should be expected to identify precisely what a critical incident is in the given context. Indeed, in 31 studies (27%), the authors clearly specify what behaviors or events constitute a critical incident, and in another 11 studies (10%), the authors refer to a previous study for the definition of a critical incident. In most studies, however, the authors are not explicit in defining what constitutes a critical incident. In particular, 9 studies (8%) refer to a generic definition of a critical incident (such as Flanagan's) but do not specify how this would relate to the issue they are studying, 46 studies (40%) are ambiguous in explicitly describing what the authors consider to be a critical incident (although some studies imply what is considered to be a critical incident in discussions of how the data were collected), and 18 studies (16%) provide no description at all as to what constitutes a critical incident.

In addition to defining what a critical incident is for a given context, it is important to determine and report the criteria for whether an incident should be included in a study. In 29 studies (25%) authors explicitly describe the criteria they used for including (or excluding) an incident, and in another 13 studies (11%) authors refer to criteria presented in an earlier study. However, a majority of studies ($n = 73$ or 63%) do not provide any discussion of such criteria, suggesting that either (a) all incidents that were collected are included in the study or (b) the authors do not feel it is important to describe what is required for an incident to be considered appropriate for inclusion in a CIT study.

Study purpose. The primary purpose of the CIT studies that employed content analysis techniques varies considerably. One hundred and five studies were coded as being driven primarily by research questions or hypotheses; in particular, 20 studies (18 percent) present formal hypotheses, whereas 85 studies (74%) provide research questions as the basis for empirical investigation.¹⁰ Ten studies were written primarily to illustrate the use or applicability of the CIT method and were coded as having neither hypotheses nor explicit research questions. Among the 105 studies, 42 (37% overall) focus primarily on developing or testing a classification scheme; of these, 29 studies (25%) have the intent of developing a classification scheme for better understanding of the phenomenon being investigated, whereas the other 13 (11%) are conducted primarily to test

a previously existing classification scheme. In the remaining 63 studies, hypothesis testing is the primary purpose of 20 studies (17%), whereas theory development is the primary purpose of 6 studies and testing of a conceptual model is the primary purpose of 2 studies; in the remaining 35 studies (30%), the authors indicate that the primary purpose of employing the CIT method is simply to answer the research questions proposed.

Methodological triangulation. Methodological triangulation refers to the use of different research methods to investigate a phenomenon (Denzin 1978). Such triangulation was observed in about one third of the 115 content analytic CIT studies, as 35 studies (30%) employ a second research method (generally a quantitative method) with a second set of data to compliment the use of the CIT method in understanding the phenomenon of interest. This finding suggests that many researchers employing content analytic methods on CIT data do not rely solely on a single method in an attempt to understand the phenomenon of interest. Thus, the CIT has been used as a companion research method in several studies (cf. Kolbe and Burnett 1991).

Summary assessment of systematization in CIT studies. Service researchers using the CIT method generally do not identify precisely what a critical incident is in the given context, nor do they provide much detail regarding the criteria for whether an incident should be included in a study. Thus, the aspect of systematization that is concerned with ensuring that inclusion and exclusion of content or categories is done according to consistently applied rules is generally weak in CIT studies in service research. That is, researchers have not been prudent in reporting how they have defined a critical incident or the criteria for including an incident in a study. This is particularly disappointing, given that in most CIT studies the *unit of analysis* is the critical incident itself. Indeed, in most of these studies, the authors have not clearly specified the unit of analysis, making it difficult for the reader to assess the extent to which a systematic approach has been taken in the research project. Furthermore, as reported earlier, 72% of the CIT studies do not provide a detailed description of the rules and procedures employed in categorizing the critical incidents. Thus, most CIT studies employing a content analytic approach do *not* "conform to the general canons of category construction" for content analysis studies (Holsti 1969, p. 4).

As suggested earlier, systematization is also concerned with the extent to which the research procedures examine scientific problems (through hypothesis testing and research designs). The large number of CIT studies listing research questions as the basis for empirical investigation is not surprising given the inductive, exploratory nature of

10. Hypotheses are formal statements of predicted relationships between two variables (Kerlinger 1986). CIT studies that include such statements were coded as proposing hypotheses; studies that propose (or imply) research questions or make general predictions without the specificity of hypotheses were classified as proposing research questions.

the method. Indeed, the contribution of many of these studies appears to be in their ability to (a) describe relevant phenomena for further research, particularly when no theoretical underpinnings exist, and (b) suggest hypotheses for future investigation; perhaps they might be best labeled *theory-building* or *hypothesis-generating* studies (Kolbe and Burnett 1991). Overall, the CIT method appears to have been used primarily for theory development in service research.

DISCUSSION

Research Synthesis Summary

Acceptance of CIT method in service research. Clearly the CIT method has been accepted as an appropriate method for use in service research, as evidenced by the large number of CIT studies published during the past three decades. The method itself appears to be a credible approach for service researchers to use; indeed, virtually none of the 168 studies in the original set have identified any substantial problems with the method itself. These CIT studies have been undertaken in numerous contexts to investigate a wide range of services marketing and management issues. Many of these studies have included extensive discussions that explain the technique and justify its usage—not surprising given the relative newness of the usage of the method in service research. However, as future service researchers craft their manuscripts (and reviewers review them), it is time to transition from explaining what the CIT method is and defending its usage to providing more detailed discussions of the operational procedures (e.g., data collection, data analysis) being used in the studies. The CIT method has clearly been accepted as legitimate, so discussions in methodology sections should focus more on operational procedures and less on justifying it as being an appropriate method of inquiry.

Research contexts and topics. The findings from the 141 studies included in this research synthesis suggest the CIT method has been useful in exploring a wide range of service research issues. However, despite this wide-reaching applicability in studying an assortment of service issues, the CIT method has been primarily used in business-to-consumer contexts. The topics receiving most of the attention in the CIT studies include service quality, satisfaction, and service failure and recovery. Given the apparent soundness of the method, CIT appears to be a particularly relevant and appropriate method for conducting service research and should be considered in studying a broader range of issues (e.g., service loyalty, customer perceived value, or service convenience) and for use in other disciplines beyond services marketing.

Content analytic CIT studies. In this research synthesis, the 115 CIT studies using content analytic approaches were assessed on issues of sampling, objectivity, reliability, and systematization, following the guidelines of Kolbe and Burnett (1991). In terms of *sampling*, the review of these studies suggests that critical incident data have been collected in a variety of ways, often employing students as data collectors, and generally include a relatively large number of incidents from a relatively large number of respondents. However, most of the studies either fail to perform, or at least report, *objectivity* issues as operationalized by Kolbe and Burnett (1991). For example, about half of the CIT studies provide minimal information about details of the process used to analyze the critical incidents and the rules and procedures they developed for categorizing incidents, making it difficult for other researchers to replicate and validate earlier findings. Another area of concern is that most authors report using the same data set both to develop and to verify classification schemes. *Reliability* statistics are provided in a little over half of the studies, with percentage of agreement and Perreault and Leigh's (1989) I_r being the two most commonly reported statistics; however, an alarming 38% of the studies do not report *any* type of reliability statistic, making it difficult to assess whether the application of the CIT method to the data collected would yield the same result every time. Finally, the aspect of *systematization* concerned with ensuring that inclusion and exclusion of content or categories is done according to consistently applied rules is generally weak in CIT studies, as reports of how service researchers define a critical incident or the criteria for including an incident in a study are few.

Although the CIT method appears sound, perhaps there should be some concern about how the CIT method has been used by service researchers. In particular, scholars should be concerned about reproducibility of the findings from CIT studies because many of them do not include sufficient descriptions of their methodological procedures. Clearly CIT studies conducted in service contexts need to be more thorough in reporting procedures, especially in terms of providing details about the unit of analysis (i.e., what is a critical incident in the given context?), the criteria for including critical incidents in a data set, issues affecting the overall quality of the CIT judgment and coding process, and reliability assessment and statistics.

Past Criticisms of Use of CIT Method in Service Research

Some scholars have noted additional concerns about how the method has been applied (or misapplied) in service research, such as issues related to sampling, the type of critical incidents typically collected, and the explor-

atory nature of CIT studies. These concerns are addressed in the following paragraphs.

Sampling issues. When used in service research, CIT samples have been criticized for being too small and too heavily based on student populations (Bell et al. 1999). However, the findings reported earlier suggest a relatively large number of respondents are generally included in CIT studies, resulting, on average, in a relatively large number of incidents per study. In addition, although students served as interviewers in about 29% of the CIT studies using content analytic methods, only 14% of the studies were administered to students. Thus, the findings here suggest that criticisms that CIT studies in service research have small samples and are often based on student populations are not warranted.

Types of critical incidents. Many CIT studies specifically instruct respondents to think of situations that are in some fashion "critical" or are exceptional customer encounters (Stauss and Weinlich 1997). That is, only the most critical, most memorable events are sought when using the CIT method; "usual" or "ordinary" incidents are generally not reported (Stauss 1993), and service researchers typically use the CIT method to study only the "extremes" (Johnston 1995). This criticism appears valid, as those studies providing descriptions of the critical incidents collected generally indicate that only exceptional events are requested from respondents. Indeed, Flanagan's (1954) original discussion of the CIT method called for investigation of extreme (i.e., "critical") events. However, the collection of such events can actually be an asset for a study, depending on the research questions being considered. For example, in investigations of customer outrage and delight (e.g., Verma 2003), surprise (Derbaix and Vanhamme 2003), service failure and service recovery (e.g., Hoffman, Kelley, and Rotalsky 1995; Kelley, Hoffman, and Davis 1993; Lewis and Spyropoulos 2001), and customer switching behavior (Keaveney 1995), CIT appears to be a particularly useful method in examining such "extreme" events.

Similarly, service researchers using the CIT method have also been criticized for collecting "top-of-the-mind memories of service interactions that are socially acceptable to report" (Edvardsson and Strandvik 2000, p. 83). With the exception, perhaps, of the interpretive CIT studies, this concern may be valid. That is, respondents are often not asked to elaborate on *how* negative or positive an incident has been or on *how much* it has influenced a relationship. Also, multiple instances of a certain critical incident for a particular individual or the reporting of multiple incidents occurring in the same context are generally not collected (Edvardsson and Strandvik 2000). The findings presented here are consistent with Edvardsson and

Strandvik's concerns; service researchers should consider these issues when designing future studies employing the CIT method.

Exploratory approach. Another criticism of service research using a CIT approach relates to the nature of studies in which the method has been used. As indicated earlier, CIT studies are generally of an exploratory nature (Bell et al. 1999) and are often employed as an exploratory method to increase knowledge about a little-known phenomenon (Bitner, Booms, and Tetreault 1990). Although the findings here concur that CIT studies in service contexts are frequently used in an exploratory mode, a major contribution of many of these studies is to provide the groundwork for theory development. The two studies described earlier (Bitner, Booms, and Tetreault 1990; Keaveney 1995) provide examples of such research. A large number of studies in the sample (nearly one third) implicitly address this concern by using both the CIT method and another research method within the same study in an attempt to better understand the phenomenon of interest.

RECOMMENDATIONS

Contextual Recommendations

Additional contexts. Most of the CIT studies in marketing have taken place in service contexts. More than a decade ago, Walker and Truly (1992) suggested the CIT method should be used beyond just services in such contexts as sales management, marketing management, channels, negotiation and bargaining, and consumer behavior. However, with the exception of consumer behavior, CIT does not appear to have been readily applied (or accepted) to date in these contexts. Similarly, the use of the CIT method to investigate issues in business-to-business contexts, cross-national contexts, and internal services contexts has been minimal. Given the contributions made by many of the studies using the CIT method, researchers might consider using the method in the future to study a variety of issues in such contexts.

Dyadic studies. Many CIT studies focus on issues concerned with the interaction between customers and employees (e.g., customer evaluations of service, service failure and recovery, service delivery, service encounters). However, the CIT data collected in these studies almost always capture a single, rather than dyadic, perspective. Indeed, even those few CIT studies that include both customer and employee perspectives capture distinct events, rather than different perspectives of the same incident. Much insight might be gained from looking at criti-

cal incidents from a dyadic perspective. For example, Price and Arnould's (1999) study on commercial friendships included data from both customer and service provider perspectives, allowing them to gain a more thorough understanding of how such friendships form. Perhaps using the CIT method to capture both the customer's and the employee's view of the *same* incident would provide additional insights on other service interaction issues (cf. Edvardsson 1992).

Physical evidence. Most of the 141 CIT studies in the sample deal with *interpersonal interactions* or the service delivery *process* and thus address two of Booms and Bitner's (1981) three additional *Ps* for services marketing: people and process. Issues relating to *physical evidence*, Booms and Bitner's third *P*, have received minimal attention from those using the CIT method (cf. Edvardsson and Strandvik 2000). However, the environment where the service is delivered (i.e., servicescape), one aspect of physical evidence, can also influence the service customer's experience. For example, in a recent study using the CIT method, Hoffman, Kelley, and Chung (2003) suggested that a significant percentage of service failures are related specifically to the servicescape. Meuter et al.'s (2000) study of self-service technology uses the CIT method to understand how a service provider's equipment can have an impact on a customer's experience in the absence of service personnel. As these two studies illustrate, the CIT method can be valuable in examining the impact that the servicescape, as well as other types of physical evidence, has on a customer's service experiences and should be considered for usage in future studies.

"Critical" critical incidents in customer-firm relationships. Edvardsson and Strandvik (2000) have raised an interesting question: Is a critical incident *critical* for a customer-firm relationship? Generally, CIT studies assume that the incidents reported are considered critical to the respondents; however, the magnitude or seriousness of an incident is often not assessed—at least not in terms of how the respondent perceives it (Edvardsson and Strandvik 2000). The reported incidents may indeed stand out as being particularly memorable to the respondents, but whether or not an incident is critical to their relationship with a firm is contextually dependent, depending on such factors as the customer, the service provider, the history of interactions with the firm, and the overall health of the relationship (cf. Edvardsson and Strandvik 2000). Indeed, Edvardsson and Strandvik have contended that the criticality of critical incidents may differ over time and between customers. Thus, future CIT research might try to determine which events are truly critical to the long-term health of the customer-firm relationship.

Application Recommendations

Interpretive approaches. As indicated earlier, an overwhelming majority of CIT studies in service research employ content analytic methods when analyzing CIT data; only 11 of the 141 studies in the sample employ an interpretive approach in analyzing the CIT data. As a result, critical incidents are typically analyzed with minimal contextualization and very little interpretation or explanation from the respondent. Service scholars tend to treat the respondent's story as a "report," and the emphasis is on analysis of the "facts" presented; an examination of the respondent's account of *why* the events took place or why the events are worth reporting is generally excluded (Hopkinson and Hogarth-Scott 2001). Thus, even though the critical incidents are *described* from the *respondent's* perspective (a documented strength of the method), most CIT research attempts to *explain* events through the *researcher's* analysis.

Service researchers employing the CIT method in future studies should consider taking a more ethnographic or narrative approach in analyzing the data to gain insight from *interpreting* respondents' experiences. To illustrate, the focus in most CIT studies is generally on customer cognition; collection of emotions related to an incident are rarely recorded (Edvardsson and Strandvik 2000; van Dolen et al. 2001). Employing an interpretive approach may help researchers better understand emotions in the context of the critical incidents. An interpretive approach might also be used in analyzing an incident within a series of incidents rather than in isolation (cf. Edvardsson and Strandvik 2000). Two studies that incorporate an interpretive approach (in addition to the standard content analysis approach) are those by Mick and DeMoss (1990) and Ruth, Otnes, and Brunel (1999). Chell (1998) provided guidelines for researchers who desire to take a more interpretive approach in analyzing CIT data.

Variations of the CIT method. CIT studies generally focus on single events or short-term interactions (Edvardsson and Roos 2001); incidents are analyzed in isolation, and the customer-firm *relationship* is seldom considered. Multiple instances of a certain type of critical incident are generally not captured, nor are occurrences of multiple *different* incidents by the same respondent in the same context (Edvardsson and Strandvik 2000). Other critical incident-based methodologies have been suggested recently to address these shortcomings, such as the Sequential Incident Technique (SIT) (Stauss and Weinlich 1997), the Critical Incident in a Relational Context (CIRC) method (Edvardsson and Strandvik 2000), the Criticality Critical Incident Technique (CCIT) (Edvardsson and Roos 2001), or the Switching Path Analysis Technique

(SPAT) (Roos 2002). Such variations of the CIT method may be more appropriate in assessing relationship issues by looking at several critical incidents, and thus various interactions, during an extended period of time.¹¹ Other variations of CIT have also been suggested for studying service phenomena. For instance, LaForge, Grove, and Stone (2002) have introduced the Sales Introspection Technique, a method resembling the CIT method, as an approach for training a sales force, and Harris, Harris, and Baron (2003) suggested using the CIT method in the development of a dramatic script for service contexts. Other creative uses and adaptations of the CIT method should be encouraged in future service research.

Procedural Recommendations

The CIT research process. As a result of conducting the research synthesis, 6 studies using a content analytic approach were identified that can be considered “model” CIT studies in terms of how the method is employed and reported: Bitner, Booms, and Mohr (1994); Bitner, Booms, and Tetreault (1990); Edvardsson (1992); Keaveney (1995); Meuter et al. (2000); and Stauss and Weinlich (1997). Such exemplars should be used as a guide for service researchers conducting content analytic CIT research and reporting the methods and results. Although it is beyond the scope of this article to provide a complete description of the CIT research process, a list of five phases that should be considered when employing the CIT method are included in Table 4.¹² The five phases, based in large part on Flanagan’s (1954) original description of the method, include problem definition, study design, data collection, data interpretation, and report of the results. The more thorough studies among the 141 included in the sample—particularly the 6 studies listed above—pay close attention to these five phases in Table 4. Topics provided in the checklist, which includes key issues to consider when designing and executing a CIT study, are discussed in the following paragraphs, and examples that illustrate some of the issues in each phase are provided.

When planning a CIT study, *problem definition*—the first phase listed in Table 4—should be carefully considered before deciding to employ the CIT method. The Bitner, Booms, and Tetreault (1990) study illustrates how authors should carefully consider issues related to problem definition; in their article, they explicitly state their research questions and suggest why CIT is an appropriate method for examining the phenomenon of interest—in

their case, service encounters. Unfortunately, some of the studies included in the research synthesis sample appear to have used the CIT method without clearly thinking about whether it is the most appropriate approach to use in addressing the given research questions. Successful use of the CIT method begins with determining the general aim of the study.

In CIT research, the *study design*—the second phase listed in Table 4—needs to be thoughtfully planned. Edvardsson (1992) and Bitner, Booms, and Tetreault (1990) clearly delineated in their research what they consider to constitute a critical incident by providing precise definitions. Similarly, Keaveney (1995) very precisely identified the unit of analysis in her research. In Keaveney’s study, the unit of analysis is not the critical incident itself; rather, discrete critical behaviors contained within an incident are the units of analysis to be analyzed. Careful consideration should also be given to the data collection instrument; Meuter et al. (2000) and Stauss and Weinlich (1997) are two studies that provide detailed descriptions of the questions included in the research instruments used to collect the critical incidents. Another issue to consider when designing a CIT study is determination of the appropriate sample of respondents to study, given the research questions of interest. Both the Bitner, Booms, and Mohr (1994) and Edvardsson (1992) studies provide logical arguments as to why the chosen sample is relevant to the phenomenon being investigated. In summary, prior to starting data collection, CIT researchers should determine how the critical incidents will be identified and then used to contribute to the general aim of the study.

In terms of *data collection*—the third phase listed in Table 4—researchers need to consider how the critical incidents are to be collected. For example, as reported earlier, often data are collected through trained interviewers—in many cases students. Studies that report carefully training student data collectors include Baker, Kaufman-Scarborough, and Holland (2002); Bitner, Booms, and Mohr (1994); and Edvardsson (1992). Alternatively, critical incident data can be collected through research instruments given directly to respondents (cf. Odekerken-Schröder et al. 2000; Stauss and Weinlich 1997) or solicited through the Internet (cf. Meuter et al. 2000; Warden et al. 2003). Whatever the data collection mechanism, the key challenge in collecting CIT data is to get respondents to provide sufficient detail about the phenomenon of interest. Another data collection issue is data purification; that is, determining (and then applying) criteria for inclusion of a critical incident in the final data set. To ensure data quality, CIT researchers need to consider what constitutes an appropriate critical incident and identify relevant criteria for excluding inappropriate incidents. Two studies that clearly specify the criteria for incidents to be included in

11. See Edvardsson and Roos (2001) and Roos (2002) for detailed discussions of variants of the CIT method.

12. For those interested in an extensive discussion of the application of the CIT method, see Flanagan (1954) for the initial description of the method and Chell (1998) and Stauss (1993) for more recent discussions.

TABLE 4
Research Process and Reporting
Checklist for Critical Incident
Technique (CIT) Content Analytic Studies

Phase 1: Problem definition
Determine what the research question is
Determine if CIT is an appropriate method for understanding this phenomenon
Phase 2: Study design
Determine what a critical incident will be defined as
Determine the criteria for determining what is not a critical incident
Determine the unit of analysis
Develop data collection instrument (clear instructions, appropriate story-triggering questions)
Determine appropriate sample (appropriate context(s), appropriate respondents)
Phase 3: Data collection
Train data collectors (if applicable)
Data collectors collect data
Identify usable critical incidents
Identify/develop criteria for incident inclusion (or exclusion)
Phase 4: Data analysis and interpretation
Content analysis of critical incidents
Read, reread incidents
Identify recurring themes
Develop classification scheme
Create descriptions of categories (incidents, behaviors, or other units of analysis)
Sort incidents using classification scheme
Assess intracoder reliability
Have additional judges/coders sort incidents
Assess intercoder reliability
Test classification scheme on a holdout (validation) sample
Phase 5: Results report
(1) Study focus/research question
Explicit identification of focus of study
Description of the research question
Precise definition of what a critical incident is in the given context
Discussion of why CIT is an appropriate method for understanding this phenomenon
(2) Data collection procedures
Data collection method
Description of data collectors (training, background, number of collectors)
Data instrument (instrument instructions, interview questions)
(3) Respondent (sample) characteristics
Description of sample characteristics
Sample size (number of respondents)
Response rate
Compelling rationale for the selection of respondents
Respondent characteristics (gender, age, ethnicity, education, income, other relevant information)
Description of multiple samples (if applicable)
Discussion of number of incidents requested from each respondent
(4) Data characteristics
Type of incidents requested from respondents
Incident valence
Description of context(s) and/or number of contexts
Number of incidents collected
(5) Data quality
Report on number of (usable) incidents
Discuss criteria for incident inclusion (or exclusion)
(6) Data analysis procedures/classification of incidents
Operational definitions of coding
Identification of the unit of analysis
Category development discussion
Classification scheme description (major categories, subcategories)
Discussion of judges/coders (training, independence, number of judges used)

(continued)

TABLE 4 (continued)

Reliability (intrajudge reliability statistics, interjudge reliability statistics)
Content validity of classification system
Discussion of results of applying classification system to holdout (confirmation) sample
(7) Results
Classification scheme—description and discussion of major categories
Classification scheme—description and discussion of subcategories (if applicable)
Connection to existing literature/theory
Suggestions for future research

the study are Bitner, Booms, and Tetreault (1990) and Keaveney (1995).

As an example of the fourth phase of the process, *data analysis and interpretation*, the Bitner, Booms, and Mohr (1994) study provides an elaborate description about how critical incidents were analyzed, includes the instructions and coding rules given to coders of CIT incidents, and presents a detailed description of category definitions. Edvardsson (1992) also provided a thorough description of his analysis of critical incidents. Reliability assessment is another critical element to consider in this phase and should be included in every CIT study using a content analysis approach. Perreault and Leigh's (1989) I_r statistic appears to be the best index to use as it takes into account the number of coding decisions made and is fairly straightforward to calculate. Keaveney's (1995) study includes assessments of both intercoder and intracoder reliability, and the Bitner, Booms, and Mohr (1994) study presents several different intercoder reliability assessments. As indicated earlier, careful adherence to rigorously defined rules and procedures provides the opportunity for other researchers to verify findings from CIT studies.

The results of the research synthesis indicate that nearly all of the content analytic CIT studies report using the *same* data set to *both* develop and verify classification schemes. One way to empirically test (or pretest) a classification scheme is to employ a *holdout sample*. Such a practice entails setting aside a portion of the incidents and using only the first set of incidents to develop the categories. Stauss (1993) recommended dividing the total set of incidents into two halves, using one half to create categories and the other half to determine if the incidents can be classified within that category scheme. Three CIT studies employing a holdout (or validation) sample in order to empirically assess a classification scheme developed on an earlier data set include Keaveney (1995); Mangold, Miller, and Brockway (1999); and Michel (2001). Although Stauss's suggestion of using a holdout sample when testing newly developed classification schemes has not been followed by most service researchers using the CIT method, it could be done relatively easily—especially

given the large number of critical incidents that are generally collected.

Reporting methods and results of content analytic CIT studies. The success of a research project is judged by its products. Except where results are only presented orally, the study design and methods, findings, theoretical formulations, and conclusions of most research projects are judged through publication. Generally speaking, service researchers have not been very prudent in the final phase of the CIT process—describing their application of the CIT method in their publications. For example, more than 38% of the CIT studies in the sample do not bother to report any type of reliability assessment, and nearly 63% of the studies provide little (if any) description of what constitutes a critical incident—the key unit of analysis in most of these studies. Service researchers employing CIT need to be more diligent in describing their methods, and reviewers of CIT manuscripts need to be more demanding in requiring such details.

Perhaps one reason for the insufficient descriptions of the application of the CIT method in many studies is uncertainty about what *should* be reported. During the past 20 years, structural equation modeling (SEM) has become a very popular research method in service research. Consequently, a general (albeit informal) standard has developed across the hundreds (thousands?) of SEM studies in terms of what should be presented when describing the procedures employed in applying this method, including discussions related to such topics as respondent characteristics, measurement model statistics, and structural model statistics. Many service researchers employing the CIT method may be somewhat unsure about what information should be reported, as there is no clear consensus as to what is appropriate to mention. Researchers employing the CIT method would be well served by revisiting Flanagan's (1954) original article and studying it carefully.

The six exemplar studies listed earlier have at least two things in common: They all employ the CIT method well, and they all report their methods and results well. The outline provided as part of Phase 5 (Results Report) in Table 4

attempts to capture many of the issues these studies report; in so doing, it provides (a) a template for the CIT researchers to suggest what issues to report upon and (b) a guide for readers and reviewers in assessing the methods and contributions of a CIT study. In particular, the following “generic” topics are offered as a suggestion in an attempt to create a standard of what service researchers should report in CIT studies:

- Study Focus/Research Question
- Data Collection Procedures
- Respondent (Sample) Characteristics
- Data Characteristics
- Data Quality
- Data Analysis Procedures/Classification of Incidents
- Results

Two issues in this list not addressed in the previous discussion are *respondent characteristics* and *data characteristics*. Because the CIT method is highly dependent on the respondent for generation of incidents or stories, it can be insightful to understand who the respondents are; thus, a detailed description of respondents should be included. Similarly, a thorough description of the CIT data, such as the type of incidents requested from respondents and incident valence, should also be reported. Although no one

CIT study published to date addresses all of the issues listed here, Keaveney’s (1995) study includes a detailed description of many of these issues, such as specific details on the unit of analysis, category development, and reliability statistics.

In summary, Table 4 presents a checklist of suggestions for researchers to consider when designing CIT studies and crafting methodology and results discussions. The issues included in the table and described above should serve as a guideline as to what reviewers and editors should expect/demand from authors employing the CIT method.

CONCLUSION

The intent of this research synthesis is not to criticize past work in service research using the CIT method but rather to describe the state of practice in the use of the method and to provide some suggestions for future use of the method. It is hoped that this research synthesis will motivate service researchers employing the CIT method in future studies to carefully examine their methodological decisions and to provide sufficient detail in discussing their use of this method.

APPENDIX

CIT Studies Included in the Research Synthesis

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Dwayne D. Gremler is an associate professor of marketing in the College of Business Administration at Bowling Green State University. He received all three of his degrees (B.A., M.B.A., and Ph.D.) from Arizona State University. His current research interests are in services marketing, particularly in issues related to customer loyalty and retention, relationship marketing, word-of-mouth communication, and service guarantees. His work has been published in several journals, including the *Journal of the Academy of Marketing Science*, the *Journal of Service Research*, the *International Journal of Service Industry Management*, *Advances in Services Marketing and Management*, and the *Journal of Marketing Education*. Prior to pursuing an academic career, he worked in the computer industry for 10 years as a software engineer and project manager.