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An evaluation of the critical incident technique and its use within the global higher education community

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Abstract

Purpose: This study aims to investigate the use of critical incident technique (CIT) within Higher Education (HE) world-wide. CIT is an existing method for the collection and analysis of qualitative data and offers an alternative approach to more usual methods such as interviews and focus groups, as well as the ubiquitous quantitative tick-box surveys so beloved by university management. The main objective is to identify where, why, when, how and how often CIT has been deployed in the higher education sector over the last 20 years and by whom it was used.

Method: A systematic literature review was undertaken to identify relevant publications using a series of appropriate keywords to search the Scopus database. An initial 55 papers were screened using specific inclusion and exclusion criteria. Based on relevance and quality, 35 peer reviewed journal papers were then identified for inclusion in the study. These were subject to both a descriptive and a thematic analysis, to allow all research objectives to be achieved.

Main Findings: Descriptive statistical analysis identified the geographical origins of the papers, the journals that published the papers and the years of publication. This answered the “Where,” “Who” and “When” objectives. The findings of the thematic analysis were used to answer the “Why” and “How” objectives. Five main themes were identified that encapsulated the uses of the technique within higher education research; namely: Student Perceptions,

Leadership and Management Behaviours, Programme Evaluation and Development, Environmental Behaviours, and Methodology Development and Evaluation.

Research limitations/implications

Although Scopus provides access to the largest number of papers, some papers may have been accessible only in other databases and so they are not considered in this review. A very few full papers, although their abstracts were available, were not accessible so these too were not considered. The focus of this paper is the use of CIT in HE, outcomes or findings of CIT studies have not been reported on in any detail. This will be the focus of future research.

Originality/Value

As far as the authors are aware, research into the use of CIT as a method of evaluation within HE worldwide has not been previously undertaken.

Keywords

CIT; higher education; teaching and learning; student and staff perspectives; behaviours; leadership and management; research development; programme development.

Type of Paper: Systematic Literature Review

1. Introduction to CIT

During the 1940s, the Aviation Industry and its research personnel were concerned about 'pilot error' and human performance generally. Therefore, their studies at that time focussed on the evaluation of human performance and attitudes. Flanagan (1954) provided a comprehensive and detailed account of the critical incident technique (CIT) and its use in psychological studies. Since the post-war era, CIT has been adopted and adapted by many industries out with the higher education sector, for example service encounters (Bitner et al., 1990); the airline industry (Bejou et al., 1996), service quality (Voon, 2006) and health service physicians (Walsh et al., 2017). For a retrospective look back over fifty years of CIT see Butterfield et al., (2005) and for guidance for researchers see Gremler (2004). There are different schools of thought on whether the technique is a method or a methodology (Viergever, 2003). Regardless, those trained in the approach argue that it can be extremely useful in collecting and analysing data and reporting the issues surrounding a particularly complex issue.

Flanagan (1954) defined CIT as a "set of procedures for collecting **direct observations** of human behavior." He further stipulated that the data collection should be conducted in a manner that would assist in solving practical problems as well as aid in the development of "broad psychological principles." His seminal paper (Flanagan, 1954) concluded with a warning that CIT was not for the collection of opinions, hunches or estimates but rather for: "... observed incidents having special significance and meeting systematically defined criteria." An "incident" he defined as "any observable human activity that is sufficiently complete in itself to permit inferences and predictions to be made about the person performing the act." He further defined "Critical" as an act that: "must occur in a situation where the purpose or intent of the act seems fairly clear to the observer and where its consequences are sufficiently definite to leave little doubt concerning its effects." (Page 327). Since then, Chell (1998) provided an updated definition on its use as an enabling procedure for investigating "events, incidents, processes or issues" (cited in Gremler, 2004) and it is the *perception* of the respondent that the researcher is seeking to understand.

The CIT data collection method is usually via the provision of a blank piece of paper that instructs the respondent to write both a positive and negative narrative of a remembered incident on the topic under investigation.

Perhaps given the complexity of human behaviour, the critical incident technique, *per se*, has since been employed as a popular approach to understanding said behaviour in various educational service areas, including for example *inter alia*, within the health service for training physicians (Walsh, Lydon, & O'Connor, 2017), and for school teachers and their reflections (Voulgari and Koutrouba (2021), albeit with some enhancements to Flanagan's seminal work. It has long been recognised that CIT allows the researcher to gather and attempt to interpret perceptions in a systematic and meaningful way. However, it is not a technique that has been widely adopted in any standardised way across the global HE sector for collecting meaningful data on the perceptions of students and academics that might help to develop helpful principles for these groups.

Since 2003, its use within HE has been sporadic. Therefore, this study aims to answer the following research questions:

RQ1. Where, when and by whom was CIT used in the HE sector?

RQ2. What method of employing CIT was used and for what purposes?

To answer those research questions, the following objectives were developed:

1. Conduct a SLR of the Scopus database to identify research papers that have used CIT within the HE context.
2. Carry out a descriptive statistical analysis of the selected papers to identify geographical origins and publication details.
3. Determine the CIT method employed by the researchers.
4. Conduct a thematic analysis and synthesis to determine the purpose of the CIT studies.

2. Method

2.1 Systematic Literature Review

In order to achieve the research objectives a Systematic Literature Review (SLR) was undertaken. The Scopus database was compared against two others and was considered superior for the purposes of the current research study. The authors determined that reliability and relevance of information could be garnered from peer reviewed journal articles contained within this large database. The body of knowledge from over 5,000 publishers contained within its database, together with the facility to search, download and analyse data was considered vital in this type of study.

2.2 Literature Search and Scopus

The initial search began with the use of Boolean operators; “Critical Incident Technique” AND “higher education” to address the scope of the study. The search limiters were applied in terms of date range (2003-2023); publication type (conference and refereed journal papers); and by necessity only English language papers were considered for the purposes of this study. The search used data from the Scopus database to evaluate articles from a large body of publishers. This evaluation involved a review of the abstracts and keywords. Abstracts highlighted why a study was important to the specific community it was aimed at;

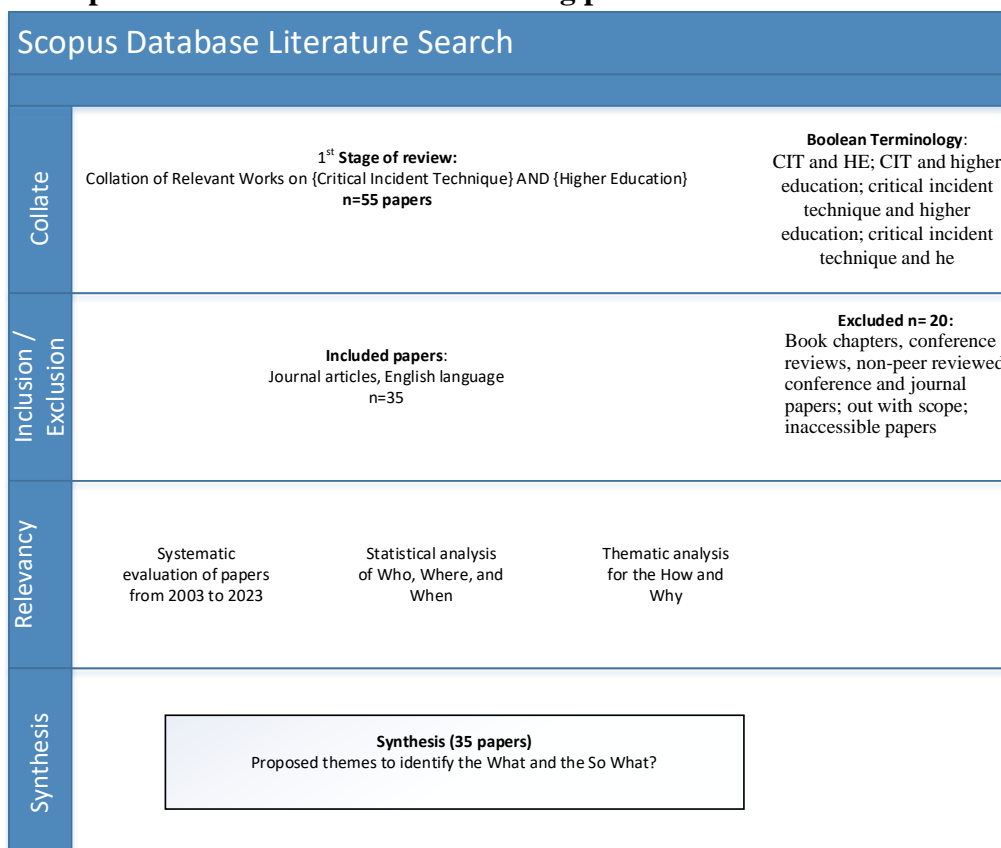
similarly, authors' keywords and article titles offer some insight into what the study was about.

2.3 Abstract Evaluation

All abstracts were read by at least two of the team members and full papers that fell within the scope of the study were then downloaded for further evaluation. Conference papers were removed from the full evaluation at this time as they were deemed not to be of the appropriate quality to review, for example, key information was missing. The remaining journal articles were then critically evaluated for themes, references recorded, and the overarching themes synthesised accordingly. Refinements were necessary to exclude papers from unnamed authors or where the papers were inaccessible via the university intranet facility.

The literature search and screening process is outlined in Figure 1 below in the form of a cross-functional flow diagram. It shows how the initial 55 papers were whittled down to 35.

Figure 1: Scopus Database Search and Screening process.



2.4 The Thematic Analysis Process

The thematic analysis process was undertaken by one of the authors who read each abstract and coded it based on the reason cited for using the CIT method, for example to gather student perceptions. For each abstract the theme was written on an individual post-it note with the corresponding reference number of the paper. A co-author then evaluated the abstracts to confirm or otherwise the original coding. There was 100% agreement between

coders. However, it was decided that one of the themes, Student Perceptions, could be subdivided into 3 separate themes.

Themes and sub-themes with their corresponding post-it note were then grouped using an Affinity diagram. The full papers were then read by the authors to confirm the themes, and extract relevant information to allow the papers to be synthesised and the research questions to be answered.

3. Findings Part 1: Descriptive Statistics

Annex 1 shows the list of authors and papers yielded after the screening process along with the journal title and year of publication. At the time of the search (March 2023) there were none published for this current year.

3.1. Publications per year (2003 – 2022)

Figure 2 below shows the number of CIT papers published each year in the 20 years research window that was the scope of this study.

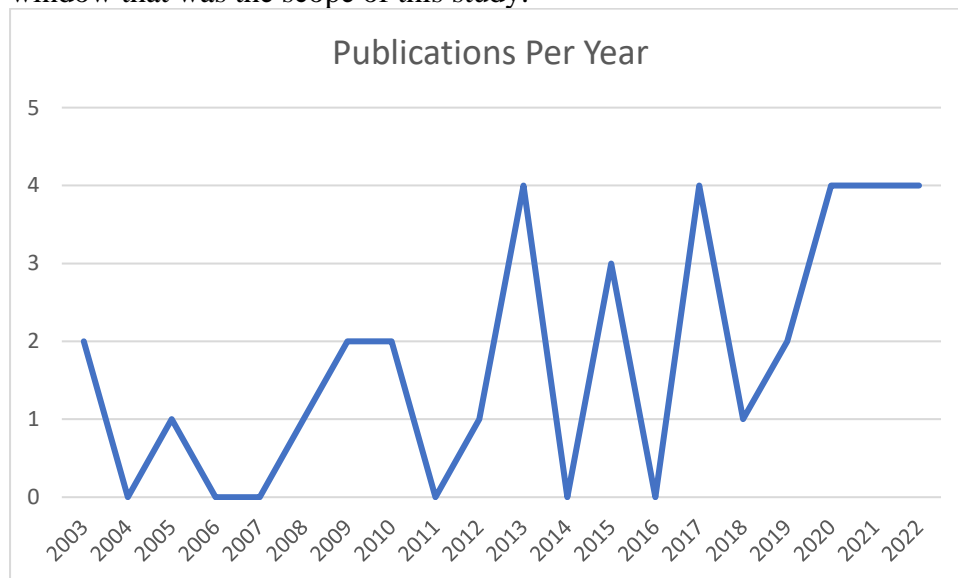


Figure 2. Publications per year

3.2 Geographical areas of study

In the evaluation of each paper, the geographical origin of each was identified in order to gauge how widespread the HEI studies were. As shown in Table 1 below studies were undertaken across the globe with the UK and New Zealand producing the most studies.

Area(s) of Origin	No. of CIT in HE papers
Unspecified	1
Finland, France, India, Netherlands, Russia, South Africa, Taiwan and Turkey.	1
Australia; Belgium, and Morocco	2
Germany and US	3
New Zealand	6

United Kingdom	8
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Table 1. Number of CIT in HE papers published by Country of Origin

The above analyses served to inform the “Where,” “Who” and “When” objectives.

3.3 Thematic Analysis

Thematic analysis was conducted to answer the “Why” and “How” objectives, i.e. how was CIT used and the rationale for its use within HE. In order to synthesise the findings, a critical evaluation was undertaken of each study’s methodology, data collection method and a judgement made on the fit of each study with CIT in HE generally.

4. Finding Part 2: Thematic Analysis / Synthesis

A total of five overarching themes and sub-themes were identified from the journal papers. They cover the many uses and adapted uses of CIT within higher education. These overarching themes encompassed either a student or staff perspective. These were:

- (1) Students’ perspectives on their HE experiences
 - (a) Teaching and learning experiences;
 - (b) Overall HE experiences;
 - (c) Staff - Student relationships;
- (2) Management and Leadership Behaviours;
- (3) Programme Evaluation and Development;
- (4) Environmental Behaviours;
- (5) Methodology Development and Evaluation.

4.1 Learning and Teaching

Universities across the world are keen to find out what contributes to a satisfactory or unsatisfactory student experience. To do this, some have sought to gather information from students using CIT as their qualitative data collection method. It is this student perspective on their HE experiences that is the first theme identified from the SLR. It has been divided into three sub-themes covering students’ perspectives on Teaching and Learning, their overall HE experiences, and Student-Staff relationships. In all three sub-themes CIT was used to record events that students themselves perceived as critical incidents.

4.1.1 Theme 1(a) Students’ perspectives on Teaching and Learning

This subtheme contained the highest number of papers (13) of all the identified themes. Six of the papers were studies conducted in New Zealand. Three studies, Subramanian *et al.* (2012), Subramanian *et al.* (2013) and Subramanian and Thomson (2017) used CIT to collect

data from dental students on their perceptions of their learning environment. The 2012 and 2013 papers' data were from final year postgraduate students and recent graduates, while the 2017 study was from professional doctorate students and postgraduates.

The sample sets (postgraduate students and recent graduates and professional doctorate students and postgraduates) had to describe in detail, via face-to-face interviews, at least one effective and one ineffective learning experience with the aim of evaluating teaching and learning. The focus of the 2012 paper was supervisory practices while the 2013 and 2017 papers focussed on the learning process generally. Interviewees used probing questions to gain additional information. Interviews were recorded and transcribed verbatim. The emphasis in both studies was on students' perspectives as being valuable sources of information that staff could respond to.

A further two of the New Zealand studies focussed on indigenous students (i.e. Māori students). Curtis *et al.* (2015) used face-to-face and telephone CIT interviews to investigate teaching and learning practices that either aided or hindered Māori student success in HE health programmes with the focus on non-lecture-based teaching and learning contexts such as tutorials, workshops, laboratory classes, clinical and small group sessions. In an increasingly diverse student body at the university of Auckland, indigenous students had the highest drop-out rates and lowest success rates across university programmes. Therefore, the CIT question was about describing in detail an occasion when the teaching and learning approach used on the undergraduate programme was helpful or hindered an individual's success as a student.

Wass *et al.* (2020) used CIT to collect Māori students' conceptions (not perceptions) of good teaching and effective learning. CIT was only part of the data collection method with the main emphasis on Photovoice. CIT was used with two audio recorded focus groups where participants were asked to recall a teaching and learning incident that stood out in their minds for any reason, hence conception and not perception. This was followed by open-ended questions to facilitate discussions about "good teaching" and "effective learning".

The final New Zealand paper (Anderson *et al.* (2020) again asked for students' conceptions of good teaching and effective learning at a research-intensive university using open-ended questions, CIT and Photovoice in a focus group setting. The central tenet was that care was a key marker of good teaching. Good teachers were described as people who cared about their subject, their teaching, and their students. CIT was used to ask students to recall a university class that stood out in their minds and to describe what happened, how it affected their learning and why they remembered it. Interestingly, no data was sought on bad teachers.

This theme also contained three papers where CIT was used to gather information on students' transition to HE. All three papers focussed on first year undergraduates and their experiences in their first semester of study. Authors believed that the first-year student experience impacted on important student outcomes such as academic success and well-being. Trautwein and Bosse (2017) reported a CIT study of German first year undergraduates that examined the range of requirements students perceive as critical for their first-year experiences. Semi-structured interviews were used to collect rich data on their real-life experiences in first year and to explore incidents that students perceived as critical for their first-year experience. Critical was defined as challenging or difficult not positive or negative.

Two studies by Willems *et al.* (2021 & 2022) also focussed on first year students and their transition to HE in the Flemish part of Belgium. The 2021 study was about the transition process for students on vocational education HE programmes. Emphasis was again on their first semester experiences. CIT was used in the form of paper and pencil reflective logs completed by participants at the beginning of semester 2. Students were asked to reflect on their first semester and describe 3 experiences that they themselves perceived as being critical regarding their academic adjustment to their new learning environment. Experiences could be positive or negative but must have had an impact on the student.

Willems *et al.* (2022) again used a Flemish (Belgian) university's first year students to examine how they adjusted socially to their new learning environment. As with their previous study reflective logs were used to collect data from first year students on what they perceived to be the most important social experiences associated with their first semester adjustment process.

Enhancing students' chances of academic success was the aim of a Russian university study by Almazova *et al.* (2021). They used CIT to gather information on foreign-language communications skills training with the focus on determining the instructional strategy for novice foreign-language teachers most likely to contribute to students' academic success.

The Covid-19 pandemic had a major impact on the way teaching was delivered across the globe. Swanson *et al.* (2021) decided to investigate the impact that the forced switch from traditional face-to-face learning to on-line approaches had on undergraduate marketing students at two US universities. CIT was used to gather data on student perceptions on which aspects of their learning experiences were satisfying and which dissatisfying, with the aim of giving teaching staff insights on how to improve the students' experiences and outcomes. To qualify as a critical incident, it had to have occurred on a course that had switched from classroom delivery to online delivery. Already established online courses were not considered. In addition to describing their experiences students had to rate their overall satisfaction with their reported incidents using a 7-point Likert scale where 1 = very dissatisfied and 7= very satisfied.

Students' experiences with online courses or e-learning classrooms were also investigated by Lin *et al.* (2019) in a study in Taiwan. CIT was used to collect information via interviews on students' satisfaction with their learning experiences related to targeted classes they had participated in. Targeted classes were both e-learning classes and face-to-face classes. Results found that the incidents in the e-learning classrooms differed from those of the face-to-face classroom.

In the UK, Douglas *et al.* (2015) used CIT to capture the voice of first and final year undergraduate students at two North-West UK university business schools to determine what satisfied and what dissatisfied them with regards to teaching and learning (as well as the supporting service environments). CIT was used to identify the drivers of satisfaction and dissatisfaction. Using a paper form in the classroom setting, individual students were asked to recall a satisfying and dissatisfying experience they had experienced in formal timetabled sessions or personal encounters with teaching staff. The participants were further asked to indicate whether their experiences would influence their loyalty behaviours with respect to remaining on their course, recommending the university, and continuing to a more advanced level of study. If an incident was reported as influencing such behaviour it was deemed to be "*critically* critical".

4.1.2 Theme 1 (b) Students' perspective of their overall HE experiences.

The overall HE experiences incorporates teaching, learning and assessment and other university ancillary services such as catering, administration, practical laboratories, indeed any experience within and beyond the classroom. There were six papers in this theme. Douglas *et al.* (2008) used CIT to collect data from undergraduates at a UK university as an alternative to using the more traditional methods of collecting student satisfaction data. A CIT paper questionnaire was used, and respondents were asked to describe in writing, within the space allocated, two situations they remembered (one positive and one negative) about teaching, learning and assessment and two situations (one positive and one negative) about ancillary services. As with the 2015 study described above (Douglas *et al.* 2015) participants were asked about loyalty behaviour-changing incidents which were labelled "critically critical". Findings were used to develop a conceptual model of student satisfaction with HE experiences.

Drivers of student satisfaction and dissatisfaction were also investigated by Bianchi and Drennan (2012). However, their target population was overseas students of Australian HE. They recognised the importance of customer evaluations in the competitive environment of attracting international students. They aimed to identify the role of core service attributes and peripheral service attributes as well as personal elements to the whole student experience. They defined core educational services as lectures, infrastructure, and course materials. Peripheral services included accommodation, safety, socialisation, living conditions and visa entry requirements. They argued that such services may be more crucial to overseas students and play a more significant role in enhancing international student satisfaction or dissatisfaction. They used CIT semi-structured interviews to collect data on extremely satisfying or extremely dissatisfying service experiences recalled by international students from 20 different countries on undergraduate and postgraduate degree programmes.

Bianchi (2013) repeated the earlier (Bianchi & Drennan, 2012) overseas undergraduate student research with international postgraduates at a university in Queensland, Australia. Respondent came from 17 different countries and CIT interviews were again conducted to elicit incidents that caused satisfaction or dissatisfaction while consuming the Australian educational services.

Chahal and Devi (2013) used CIT to collect data on students' service encounters at a North India college with the aim of identifying satisfactory and unsatisfactory encounters. The scope of the study covered teaching, examinations, library services, the computer laboratory, administration, and infrastructure. Incidents were collected using a CIT questionnaire and classified under the headings of service delivery system, (un)fulfilled needs and requests and polite behaviour / unprompted and unsolicited actions.

Cinkir *et al.* (2022) investigated the effect of students' perceived service quality on student commitment at a university in Turkey. They defined commitment in HE as a dedication to the university, enabling students to better integrate themselves into all aspects of university life including teaching and learning and campus services. They argued that student commitment was determined by the quality of education, the university/faculty image, and the quality of the facilities. The student commitment variable was defined as students' identification with the university depending on their positive feelings and experiences. Indicators of commitment

included satisfaction and quality of service, so CIT semi structure interviews were used to collect qualitative data.

Msoosa and Govender (2020) recognised that service failures generally may lead to customer dissatisfaction, so decided to study service failures in HEIs. The focus on failures would allow HEIs' management to identify strategies to avoid such failures happening again and allow resources to be channelled into improving the students' experiences. They used CIT to collect data on service failure incidents from students at a university in South Africa. They used the same three incident classification headings as Chahal and Devi (2013) reported above, but focussed on failure, so: employee response to service delivery failure; employee response to customer needs and requests; unprompted and unsolicited employee actions. This was one of the few studies that did not seek satisfactory and unsatisfactory incidents. Focussing only on the negative or unsatisfactory service failures.

4.1.3 Theme 1 (c) Staff - Student Relationships

A total of five research papers were categorised as using CIT to examine the relationship between university faculty (teaching staff), staff and students at universities in the UK, USA, and Europe. These studies argued that the qualities and behaviours of university staff generally, have a significant impact on how students perceive service quality at HEIs. They further argued that potentially teaching staff in particular, exercise the largest influence on student satisfaction. CIT is viewed as a useful tool for exploring classroom encounters.

Voss (2009) used CIT to collect data on students' perspectives of what constituted a satisfactory or unsatisfactory classroom encounter in a German university. CIT was used to categorise positive and negative interactions to identify quality dimensions of the lecturer and to identify attributes of the lecturer that were likely to cause satisfaction and dissatisfaction. A standard CIT questionnaire was distributed to students to write their responses in a large textbox on the sheet of paper. To address any memory issues, responses had to describe incidents that had occurred in the previous 4 months.

Voss *et al.* (2010) used CIT to examine satisfactory and unsatisfactory student professor encounters from the students' perspective at a European university. On this occasion a web-based CIT questionnaire was used to collect data with students typing their answers into a large text box. Responses were used to categorise positive and negative student-professor interactions to identify quality dimensions of professors. Results were deemed useful for professors to improve the student classroom experience and hence their overall education experience.

Nasser *et al.* (2022) examined the relationship between students' satisfaction and lecturers' satisfaction at a UK university, arguing that student satisfaction affects lecturers' job satisfaction. CIT was used to collect data from postgraduate students through interviews with student-lecturer dyads. Students were asked to relate a highly satisfactory or highly unsatisfactory experience (a critical incident) with one of their lecturers and the named lecturer was then invited for interview, thus completing the dyad. They concluded that lecturers would have greater job satisfaction if they received more positive feedback from their students.

Snijder *et al.* (2022), using social exchange theory, went beyond the relationship between student and faculty/staff to also explore relationship quality between students and HEIs in the

Netherlands, arguing that both relationships were usually intertwined. A CIT survey was used to collect students' positive and negative critical incidents with faculty and staff in their HEI to determine the quality dimensions used by students in their perceptions of their relationships with educational faculty and staff. The collected data was coded and analysed using a template of five *a priori* relationship quality measures:

1. Students' trust in faculty/staff's honesty
2. Students' trust in faculty/staff's benevolence
3. Students' overall satisfaction with faculty/staff's performance
4. Students' affective commitment
5. Students' affective conflict

Possible patterns of themes in the data set were investigated to further conceptualise the quality of the relationship.

Vianden (2015) also used CIT to study the relationship between students and their universities in the USA. The focus was on the interpersonal relationships students had with faculty, staff and peers and their influence on the student-university relationship. He argued that a positive student-university relationship and satisfaction were key predictors of student learning, loyalty, and persistence with the potential to influence students' commitment to their university and hence to impact staying or leaving behaviours. He used CIT to collect data from undergraduates at three midwestern public universities. The aim was for students to relate their most memorable satisfactory and unsatisfactory experiences regarding their perceived relationship with the university. He used a mix of face-to-face CIT interviews and an online CIT questionnaire. Those that were interviewed had two face-to-face interviews, the first focussing on unsatisfactory incident and the second on satisfactory incidents. The incidents were then coded using the three dimensions of peers, faculty, and staff.

4.2 Theme 2: Management and Leadership Behaviours

This second overarching theme was derived from the papers on staff development leaders' attributes, academic and non-academic managers' observed behaviours and leaders' effectiveness and behaviours in their relationships with the people they lead. Five papers were identified under this theme.

Earlier in the millennium, staff development and professional learning was considered a growth area within UK HEIs and in the two papers evaluated from Blackmore *et al.* (2003; 2005) people performance was explored. Their 2003 paper aimed to investigate the expertise of leaders in staff development. They used CIT semi-structured interview questionnaires to identify and explore some of the 'hidden' aspects of staff performance. Practitioners were invited to describe their role as they perceived it, identify some of the attributes they brought to the job and then to recall examples of occasions when they believed they were either outstandingly successful or unsuccessful. Their 2005 paper used CIT interviews to explore the conceptions of staff development leaders of their professional learning and the basis of their expertise. Again, the focus was on situations in which they were highly successful or unsuccessful.

An English / French collaboration between Hamlin and Patel (2017) studied management behaviours within the French HEI context. They used CIT interviews of academic/non-academic managerial/non-managerial staff to identify examples (critical incidents) of observed managerial behaviour that they perceived as being effective (positive behaviours) or

ineffective (negative behaviours). The purpose was to use their findings to inform leadership and management development training programmes specifically designed for HEIs.

A further two papers addressed management behaviours and leadership effectiveness within a Moroccan HEI context. Lekchiri *et al.* (2018). used CIT interviews to collect and analyse critical incident statements made by managers and non-managers. They provided comprehensive classification descriptions of what constituted manager effectiveness and ineffectiveness. They produced a framework of perceived managerial and leadership (effective / non-effective) behavioural criteria for use within the Moroccan HEI context. They found that such rich information was useful in addressing behavioural issues in managers. Lekchiri *et al* (2019) then explored gender bias and the resultant behaviours towards females within a male-dominated HEI environment where women were interviewed using CIT.

4.3 Theme 3: Programme Evaluation and Development

CIT has been deployed within HE to evaluate and develop programmes of learning. This set of two papers included the performance management of a business creation unit.

Woodier-Harris (2010) used CIT to gather ‘real-life’ perspectives from students on a business start-up programme in a UK university. She conducted unstructured interviews to explore the impact of the programme and the students’ subsequent employment experiences. During the interview participants were encouraged to indicate certain “effective” or non-effective” (critical) events during the programme that had impacted them and their business decisions and development.

Schulz and Bals (2020) used CIT to investigate the competencies required of a purchasing supply chain professional in the context of sustainable purchasing and supply management in order to inform HE programme design and development in a German university. Competency behaviours that were deemed critical to success from an expert point of view were collected. Several new competencies were added to the existing body of knowledge for professionals that could inform the development of HE programmes.

4.4 Theme 4: HE Environment Behaviours

Two papers reported on the use of CIT for studying workplace behaviours.

Seo *et al.* (2017) used CIT to aid in the identification of core competencies for female career advancement within U.S. HEIs They surveyed female professors via a series of questions put to them during an audio-recorded semi-structured interview of each participant. The analysis of the transcripts and identification of the competencies is detailed within their paper along with a set of guidelines for female associate professors in the U.S.

Ekstrom *et al* (2020) conducted a CIT-inspired study within HEIs in Finland. They focussed on what students said about meaningful emotions in learning. This was based upon the idea of psychological safety within the learning setting. They used specific criteria on which to judge the narratives (stories), including, *inter alia*, survival / learning stories and appreciative stories. They found that although mainly negative narratives were collected, the students themselves had said that they found the experiences *per se* to be a learning process, where they learned more about themselves. Thus becoming a positive outcome.

4.5 Theme 5: Methodology Development and Evaluation

Two papers reported on the development and evaluation of CIT.

Douglas *et al.* (2009) compared CIT with the more traditionally used quantitative student satisfaction feedback survey instrument. They considered the design and administration, the analysis of data and the quality of data, as well as its usefulness to HE managers. Their work was based on an earlier piloting of CIT (2008) and an earlier quantitative survey conducted in 2006 within a UK HEI's undergraduate student context.

A comparison of CIT and the “explicitation” data collection technique was made (Urquhart *et al.*, 2003) where the two reportedly related techniques and their use in studies on information-finding behaviour was considered within the UK HE library services context. They explored whether CIT could be enriched further by adding the explicitation technique in order to understand the reasoning behind the CIs. They utilised experiences of two projects for the CIT evaluation and a project on website interaction for the explicitation use.

5.0 Discussion

Clearly CIT has piqued the interest of academics and practitioners across the globe. Most papers reported academics' practical use and experience with CIT. Most of the researchers used CIT as an additional or alternative data collection method to the usual HE survey instrument in order to gather more detailed data than any tick-box questionnaire could deliver. They also used it to gather data on areas of HE that would not normally be covered by such questionnaires.

CIT is not a new method for collecting qualitative data. It has been around for nearly 70 years now. However, its use within the HE context is relatively new. As this review has shown, it has been used by academic researchers in many countries because it allows for the capture of rich data based on the perceptions of the participants. In HE, participants are usually students, academic and non-academic staff. All the studies in this review have collected and analysed the data so it can be used as the basis for future decisions, whether that decision is about taking actions to improve students' experiences at university, improve their course content and delivery or to improve student-staff relationships. All these areas contain complex issues, yet with one exception (Nasser *et al.* (2022) the perceptions of only one side of the student-staff dyad have been collected and analysed. The management guru Tom Peters might have said “perception is all there is. If the customer thinks he's right, he's right”, but is this fair to university academic and non-academic staff? Only Nasser *et al.* (2022) invited staff members who had been mentioned in a student's critical incident to be interviewed to share their view on what occurred. However, despite the fairness of such an approach it does raise some ethical issues around naming names.

This issue leads seamlessly into a discussion of the CIT method itself. The 35 papers report a wide variety of approaches to the way and type of data collected. The critical incidents must first and foremost be critical as perceived by participants. The student-staff dyad mentioned above did not meet this criterion as one half of the dyad (the staff member) was not asked to recall a critical incident. In several other papers (Blackmore *et al.* (2005), Wass *et al.* (2020), Anderson *et al.* (2020)) respondents were asked for their conceptions rather than perceptions. Why the distinction and why the change from the norm? Perceptions are what someone observes, hears or becomes aware of through their senses, whilst conceptions are formed in the mind. The differences seem to be within the domains of psychology and philosophy

(Goldstone and Barsalou, 1998) and the debate out with the scope of this paper, however. an incident, as defined by Flanagan (1954), is “any observable human activity” and, as stated earlier, it is the *perception* of the respondent that the researcher is seeking to understand. As well as the perception-conception variation there is a wide variation on how the CIT data is collected. Some researchers (Lin *et al.*, 2019, Willems *et al.*, 2021 & 2022; Douglas *et al.*, 2015; Voss, 2009; Douglas *et al.*, 2008) used paper questionnaires, some (Vianden, 2015; Voss *et al.*, 2010) used online questionnaires. Other researchers (Subramanian *et al.*, 2012, Subramanian *et al.*, 2013 and Subramanian and Thomson, 2017) used face-to face interviews with follow-up probing questions. Curtis *et al.* (2015) used a mix of face-to-face interviews and telephone interviews. Interestingly, given the individual nature of perceptions, Wass *et al.* (2020) and Anderson *et al.* (2020) used CIT interviews within a focus group setting. Other researchers (Swanson *et al.* 2021) added a quantitative element to their data collection by asking participants to rate their experiences on a Likert scale based on the metric they were measuring, for example satisfaction-dissatisfaction. The metric used varied considerably depending on what the academics were seeking experiences about, for example, successful – unsuccessful (Blackmore *et al.* 2003 & 2005), effective - ineffective (Subramanian *et al.* 2012, Subramanian *et al.* 2013 and Subramanian and Thomson 2017, Hamlin and Patel 2017), satisfactory – unsatisfactory (Chahal and Devi, 2013, Voss, 2009, Voss *et al.* 2010, Nasser *et al.*, 2022, Vianden, 2015). Some studies have also included degree adverbs such as extremely (satisfied – dissatisfied) (Bianchi and Drennan, 2012) or outstandingly (successful – unsuccessful (Blackmore *et al.* 2003) or highly successful – unsuccessful (Blackmore *et al.* 2005) or highly satisfactory – unsatisfactory (Nasser *et al.*,2022) to specify the degree to which an adjective applies. The use of such adverbs could lead to the participant having to distinguish between what is extremely satisfying and what is just satisfying leading to validity issues. Overall, the above variations demonstrate how versatile CIT is when it comes to data collection methods, with many authors using a mixed method approach that included CIT, with the CIT data itself being captured in reflective logs, archived statements, CIT questionnaires, interviews, and observations. However, it also demonstrates a lack of protocol or guidance for users and potential users of the method which might lead to problems when comparing the findings of different research projects.

6.0 Conclusions

CIT is a versatile method for collecting qualitative data on a range of complex issues in HE worldwide. It has been used to capture perceptions of HE stakeholders in a variety of settings including the classroom and beyond. Its geographic spread means that it is recognised in many countries around the world and used to gain information that more mainstream methods might not be able to. This is what makes it attractive to researchers as they can delve deeply into issues that require action. Its success hinges on the fact that it seeks the perceptions of service users (in this case, students and university staff) in order to identify what works and what does not work with a view to instigating improvements. This must surely make it attractive to HE decision makers.

Annex 1. List of Authors and Papers resulting from the Screening

Authors	Year	Title	Journal
1. Almazova, N., Rubtsova,A., Kats,N., Eremin, Y. Smolskaia,N.	2021	Scenario-based instruction: The case of foreign language training at multidisciplinary university	Education Science
2. Anderson V., Rabello R., Wass R., Golding C., Rangi A., Eteuati E., Bristowe Z., Waller A.	2020	Good teaching as care in higher education	Higher Education
3. Bianchi C.	2013	Satisfiers and dissatisfiers for international students of higher education: An exploratory study in Australia	Journal of Higher Education Policy and Management
4. Bianchi C., Drennan J.	2012	Drivers of satisfaction and dissatisfaction for overseas service customers: A critical incident technique approach	Australasian Marketing Journal
5. Blackmore P., Wilson A., Stainton C.	2005	Leadership in staff development: A role analysis	Research in Post-Compulsory Education

6.	Blackmore P., Stainton C., Wilson A.	2003	Developing and testing a methodology for analysis of the staff development leadership role	Research in Post-Compulsory Education
7.	Chahal H., Devi P.	2013	Identifying satisfied/dissatisfied service encounters in higher education	Quality Assurance in Education
8.	Cinkir S., Yildiz S., Kurum G.	2022	The Effect of Undergraduate Students' Perceived Service Quality on Student Commitment	SAGE Open
9.	Curtis E., Wikaire E., Kool B., Honey M., Kelly F., Poole P., Barrow M., Airini, Ewen S., Reid P.	2015	What helps and hinders indigenous student success in higher education health programmes: a qualitative study using the Critical Incident Technique	Higher Education Research and Development
10.	Douglas J., McClelland R., Davies J.	2008	The development of a conceptual model of student satisfaction with their experience in higher education	Quality Assurance in Education
11.	Douglas J.A., Douglas A., McClelland R.J., Davies J.	2015	Understanding student satisfaction and dissatisfaction: an interpretive study in the UK higher education context	Studies in Higher Education
12.	Douglas J.A., McClelland R., Sudbury L., Davies J.	2009	Using critical incident technique (CIT) to capture the voice of the student	The TQM Journal
13.	Ekström M.C., Raatikainen E., Isacsson A.	2021	Between despair and joy – emotions in learning	Journal of Applied Research in Higher Education
14.	Hamlin R.G., Patel T.	2017	Perceived managerial and leadership effectiveness within higher education in France	Studies in Higher Education

15.	Lekchiri S., Crowder C., Schnerre A., Eversole B.A.W.	2019	Perceived workplace gender-bias and psychological impact: The case of women in a Moroccan higher education institution	European Journal of Training and Development
16.	Lekchiri S., Eversole B.A.W., Hamlin R.G., Crowder C.L.	2018	Perceived managerial and leadership effectiveness within a Moroccan Higher Education Institution	Human Resource Development International
17.	Lin C.-L., Yu S.- W., Su Y.-S., Fu F.-L., Lin Y.-T.	2019	Charismatic learning: Students' satisfaction with e-learning in higher education	Journal of Internet Technology
18.	Msosa S.K., Govender J.P.	2020	Service failure in higher education institutions: A case study in diagnosing students' evaluation of critical incidents	International Journal of Educational Management
19.	Nassar M., Heinze A., Jasimuddin S.M., Procter C.	2022	Does students' satisfaction matter to faculty job satisfaction in higher education?	Journal of Marketing for Higher Education
20.	Seo G.-E., Hedayati Mehdiabadi A., Huang W.	2017	Identifying core competencies to advance female professors' careers: an exploratory study in United States academia	Journal of Further and Higher Education
21.	Shulze, H., Bals,L.	2020	Implementing sustainable purchasing and supply management (SPSM): A Delphi study on competences needed by purchasing and supply management (PSM) professionals	Journal of Purchasing and Supply Management
22.	Snijders I., Wijnia L., Dekker H.J.J., Rikers R.M.J.P., Loyens S.M.M.	2022	What is in a student-faculty relationship? A template analysis of students' positive and negative critical incidents with faculty and staff in higher education	European Journal of Psychology of Education

23.	Subramanian J., Thomson W.M.	2017	The learning environment in professional doctorate and postgraduate dental education: a qualitative study	European Journal of Dental Education
24.	Subramanian J., Anderson V.R., Morgaine K.C., Thomson W.M.	2013	Improving the quality of educational strategies in postgraduate dental education using student and graduate feedback: Findings from a qualitative study in New Zealand	European Journal of Dental Education
25.	Subramanian J., Anderson V.R., Morgaine K.C., Thomson W.M.	2013	Effective and ineffective supervision in postgraduate dental education: A qualitative study	European Journal of Dental Education
26.	Swanson S.R., Davis J.C., Gonzalez-Fuentes M., Robertson K.R.	2021	In these unprecedented times: a critical incidents technique examination of student perceptions of satisfying and dissatisfying learning experiences	Marketing Education Review
27.	Trautwein C., Bosse E.	2017	The first year in higher education—critical requirements from the student perspective	Higher Education
28.	Urquhart C., Light A., Thomas R., Barker A., Yeoman A., Cooper J., Armstrong C., Fenton R., Lonsdale R., Spink S.	2003	Critical incident technique and explicitation interviewing in studies of information behaviour	Library and Information Science Research
29.	Vianden J.	2015	What matters in college to students: Critical incidents in the undergraduate experience	Journal of Student Affairs Research and Practice

30.	Voss R., Gruber T., Reppel A.	2010	Which classroom service encounters make students happy or unhappy?: Insights from an online CIT study	International Journal of Educational Management
31.	Voss R.	2009	Studying critical classroom encounters: The experiences of students in German college education	Quality Assurance in Education
32.	Wass, R., Anderson, V., Rabello, R., Golding, C., Rangi, A., Eteuati, E.	2020	Photovoice as a research method for higher education research	Higher Education Research and Development
33.	Willems J., Coertjens L., Donche V.	2022	First-year students' social adjustment process in professional higher education: key experiences and their occurrence over time	European Journal of Psychology of Education
34.	Willems J., Coertjens L., Donche V.	2021	Entering Higher Professional Education: Unveiling First-Year Students' Key Academic Experiences and Their Occurrence Over Time	Frontiers in Psychology
35.	Woodier-Harris N.R.	2010	Evaluating the impact of SPEED on students' career choices: A pilot study	Education and Training

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