

A Transformative and Dynamic Approach to Advancing Qualitative Research: The Critical Incident Technique (CIT)

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ABSTRACT. The Critical Incident Technique (CIT) holds significant potential as a transformative methodology for educational research within the context of Rural Education. Through a bibliographic and theoretical-reflective investigation, the study examines the conceptual framework and evolution of CIT, proposing its specific application in the field of “Rural Schools” (Escuelas del Campo). The findings indicate that CIT allows the unique experiences of rural school actors (teachers, students, and the community) to emerge and gain visibility, capturing the complexity of learning processes in territories with singular social and geographical characteristics. It is concluded that CIT constitutes a powerful and versatile tool, capable of promoting reflexivity and improving pedagogical practices in contexts of marginality or territorial specificity, establishing itself as an essential resource for strengthening the scientific field of Rural Education.

Keywords: qualitative research, Critical Incident Technique (CIT), rural education, rural school, rural teacher training, reflexivity.

Un enfoque transformador y dinámico para avanzar en la investigación cualitativa: la técnica de incidentes críticos (CIT)

RESUMEN. La Técnica de Incidentes Críticos (CIT) posee un potencial significativo como metodología transformadora para la investigación educativa en el contexto de la Educación Rural. A través de una investigación de carácter bibliográfico y teórico-reflexivo, este estudio examina el marco conceptual y la evolución de la CIT, proponiendo su aplicación específica en el ámbito de las “Escuelas del Campo”. Los resultados indican que la CIT permite emerger y dar visibilidad a las experiencias singulares de los actores de la escuela rural (docentes, estudiantes y comunidad), capturando la complejidad de los procesos de aprendizaje en territorios con características sociales y geográficas particulares. Se concluye que la CIT constituye una herramienta poderosa y versátil, capaz de promover la reflexividad y mejorar las prácticas pedagógicas en contextos de marginalidad o especificidad territorial, consolidándose como un recurso esencial para fortalecer el campo científico de la Educación Rural.

Palabras clave: investigación cualitativa, Técnica de Incidentes Críticos (CIT), educación rural, escuela rural, formación de docentes rurales, reflexividad.

Uma Abordagem Transformadora e Dinâmica para o Avanço da Pesquisa Qualitativa: A Técnica do Incidente Crítico (TIC)

RESUMO. A Técnica do Incidente Crítico (TIC) possui um potencial significativo como metodologia transformadora para a pesquisa educacional no contexto da educação do campo. Por meio de pesquisa bibliográfica e teórico-reflexiva, este estudo examina o arcabouço conceitual e a evolução da TIC, propondo sua aplicação específica no campo das escolas do campo. Os resultados indicam que a TIC permite a emergência e a visibilidade das experiências únicas dos atores envolvidos na escola rural (professores, alunos e comunidade), capturando a complexidade dos processos de aprendizagem em territórios com características sociais e geográficas particulares. Conclui-se que a TIC constitui uma ferramenta poderosa e versátil, capaz de promover a reflexividade e aprimorar as práticas pedagógicas em contextos de marginalização ou especificidade territorial, consolidando-se, assim, como um recurso essencial para o fortalecimento do campo científico da educação rural.

Palavras-chave: pesquisa qualitativa, Técnica do Incidente Crítico (TIC), educação do campo, escola do campo, formação de professores rurais, reflexividade.

Introduction

The Critical Incident Technique (CIT) is a well-established qualitative research method based on the analysis of Critical Incidents (CIs). It is particularly effective for exploring significant educational experiences, primarily aiming to understand perceptions, decision-making processes, courses of action, and relevant behaviors within educational contexts.

Woolsey (1986) suggested that this method can be used not only to analyze CIs in the strict sense but also to understand real-world events, qualities, or attributes that mark important turning points within a specific context. Consequently, the use of CIT is especially suitable for the exploratory phases of qualitative research, given its ability to investigate discrepancies or shifts in perspective. The technique serves as both a foundational and exploratory tool, useful in the early stages of investigation and in the construction of interpretative models or theories (Butterfield et al., 2005, p. 480). This exploratory value is further confirmed by Kemppainen (2000) and Norman et al. (1992), who highlight its effectiveness in nursing and health research. Its application fosters a deeper understanding of the meaning individuals attribute to lived events, thereby contributing to theoretical development.

As an exploratory qualitative technique, CIT offers participants the opportunity to select and describe “evolutionary turning points” in their development (Skovholt & McCarthy, 1988). In the field of professional training, it serves as a valuable tool for building well-founded theories, examining complex educational issues that require in-depth explanation, and identifying how participants perceive phenomena and their interrelationships. In the educational sphere, this allows researchers to link the experiences of school actors to the quality of teaching and learning, facilitating an in-depth analysis of critical moments within teaching and educational relationships (Chell, 2004; Coleman, 2006). Furthermore, contemporary research in teacher education emphasizes that exploring critical incidents serves as a pivotal strategy to foster active reflection about practice and bridge the gap between theoretical frameworks and field experiences during initial training (Mena et al., 2024).

CIT is a systematic and inductive method used to analyze a range of pertinent issues and increase the reliability of qualitative research (Flanagan, 1954; Cox et al., 1993; von Post, 1996; Kemppainen, 2000; Arvidsson & Fridlund, 2005; Aveyard & Woolliams, 2006). It is a flexible approach involving the collection of descriptions of events and behaviors which, once gathered, are grouped and examined through contextual, content, or thematic analyses (Aveyard & Neale, 2009) to offer comprehensive interpretations of the phenomena studied.

The intrinsic inductive properties of the technique—which do not force the interviewee to recall a particular theoretical frame of reference or require the preliminary adoption of a hypothesis—characterize CIT as relatively culturally neutral (Gremier, 2004). This makes it particularly suitable for capturing the multifaceted nature of empirical material. Such properties underscore the effectiveness of CIT as a means of problematizing theory and exploring human interactions and behaviors in clearly defined situations (Schluter et al., 2008).

The central objective of this work is to propose the Critical Incident Technique (CIT) as a robust methodological device for the study of educational realities in rural territories. The choice of this theme responds to the need for tools that allow capturing the subjectivity and complexity of teaching practice and learning in contexts that, historically, have been analyzed from urban-centric frameworks that fail to reflect the richness and challenges of the “Rural School”.

The relevance of this study for Rural Education lies in the fact that critical incidents—those events that challenge routine and force reflection—acquire a unique dimension in the rural environment. Factors such as geographical isolation, multigrade classrooms, and strong community ties reconfigure the pedagogical act. Despite its potential, there is a notable gap in the scientific literature regarding the systematic use of CIT within the field of Rural Education. This article seeks to fill that gap, demonstrating that the technique is ideal for giving voice to rural subjects and transforming their experiences into situated scientific knowledge.

While the application of CIT has grown in standard educational programs, its implementation in underserved territories remains sparse. However, foundational literature in rural schooling and Educação do Campo (Molina et al., 2019; Mukeredzi, 2013) highlights the severe contextual challenges—such as pedagogical isolation and systemic social constraints—that teachers in these communities must constantly navigate. Exploring critical incidents allows rural novice teachers to unpack these realities, transforming localized constraints into catalyst spaces for professional growth and transformative reflexivity.

The Transformative and Dynamic Nature of the Critical Incident Technique: A Theoretical Perspective

While much of the literature has addressed the procedural and descriptive aspects of the Critical Incident Technique (CIT), this paper proposes a refined conceptualization emerging from the European Project REFLECT – Leonardo da Vinci. This reinterpretation frames the CIT as a transformative and dynamic methodology for studying reflexivity and professional

learning. As an international research initiative aimed at exploring and enhancing reflective competence in professional education and training (Nuzzaci, 2012), the project reinterprets the Critical Incident Technique not merely as a data collection tool, but as a generative and dynamic methodology capable of fostering profound reflective and developmental processes in both learners and professionals.

A Transformative Framework

Originally introduced by Flanagan (1954) to identify and analyze significant human behaviors, CIT has traditionally been employed as a descriptive technique. However, through the REFLECT project and the subsequent empirical studies (2007–2012), it has evolved into a transformative framework that empowers participants to reconstruct their professional knowledge through critical reflection on experience.

This reinterpretation aligns with Mezirow’s theory of transformative learning (1990) and the reflective practice models proposed by Van Manen (1995) and Gibbs (1988). CIT thus evolves into a methodological space in which individuals question their assumptions, explore dilemmas, and develop new interpretative and action strategies. The technique does not simply collect narratives of “critical events” but triggers processes of meta-reflection and professional awareness, leading to the transformation of both practice and identity.

Within this framework, the “critical” dimension acquires an epistemic function: it represents the threshold where reflection catalyzes transformation, as professionals reinterpret and reconstruct the meaning of their experiences. The studies developed under the REFLECT project and subsequent research (2007–2018) have shown that this reflective engagement leads to measurable growth in reflexive competence, defined as the ability to recognize, manage, and leverage knowledge emerging from lived experience (Nuzzaci, 2011a, 2012).

Dynamic Methodology for Contemporary Contexts

The dynamic nature of CIT emerges from its adaptability to emergent research and educational contexts, including digital, hybrid, and interdisciplinary environments. Building on design-based and technology-enhanced learning paradigms (Wang & Hannafin, 2005), CIT can be integrated with digital storytelling, online reflective journals, and collaborative platforms, thereby expanding the temporal, dialogical, and multimodal dimensions of reflection.

In such contexts, CIT becomes a multi-layered, participatory, and iterative process that combines qualitative depth with digital affordances. It can be paired with structured reflection

cycles (Johns, 1991; Gibbs, 1988) or narrative inquiry (McDrury & Alterio, 2003), thus allowing for continuous interpretation, feedback, and collective meaning-making. This dynamic adaptation maintains the rigor of the original method while enhancing its capacity to capture complexity, interaction, and transformation.

From Description to Transformation

The reinterpretation of CIT advanced through the REFLECT project and subsequent empirical research demonstrates that the method itself can evolve into a generator of professional growth and organizational learning. It moves beyond the traditional descriptive function toward a transformative-constructivist paradigm that integrates observation, reflection, and action.

Therefore, the transformative dimension of CIT lies in its potential to promote awareness, change, and learning through reflexivity, while its dynamic dimension derives from its continuous adaptation to diverse contexts and research needs. This dual nature positions the CIT as a reflexive, participatory, and future-oriented methodology within the landscape of qualitative inquiry.

Defining the Transformative and Dynamic Nature of the CIT

In line with the title of this contribution, the expression “transformative and dynamic approach” refers to an operational and epistemological re-interpretation of the Critical Incident Technique (CIT).

By transformative, we mean the capacity of the CIT to generate change in professional awareness and practice, not merely to describe events but to reframe them as learning opportunities that alter the participants’ perspectives (Mezirow, 1990; Nuzzaci, 2012). Transformation thus occurs through the reflective analysis of critical experiences that lead to new forms of knowledge and action.

By dynamic, we refer to the iterative and evolving nature of the CIT, which adapts to hybrid, digital, and interdisciplinary contexts by integrating multiple data sources, collaborative interpretation, and continuous feedback cycles (Watkins et al., 2022).

To clarify the focus and internal coherence of the paper, the discussion will be guided by two overarching research questions:

- How is the Critical Incident Technique evolving within contemporary qualitative inquiry?

- In what sense is it dynamic when compared with other qualitative methods?

These guiding questions orient the theoretical discussion, the methodological synthesis, and the empirical examples presented in the following sections.

The epistemological and methodological positioning of the CIT

The Critical Incident Technique (CIT) was first developed by Flanagan (1954). During his work with pilots in World War II, the method was employed to reduce flight accidents and was included as part of the U.S. Army Air Forces program to describe successful or failed bombing missions. In Flanagan's original formulation, the technique consisted of a set of procedures aimed at “collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems” (Flanagan, 1954, p. 327).

Consequently, the technique was initially developed to identify ineffective behaviors in a variety of military activities, where “criticality” represented a vital behavior that determined whether a certain situation would result in a positive or negative outcome. This approach highlighted a type of incident in which the purpose or intent of the act seemed clear to the observer, and its consequences were “sufficiently defined to leave little doubt as to its effects” (Flanagan, 1954, p. 327).

Since its inception, the technique has focused on concrete events experienced by participants, who are given full freedom to describe any experience they consider significant. The narrative is structured around “incidents” defined as “critical” and “significant” rather than “typical” (Nuzzaci, 2011a; 2012; 2017)—that is, episodes that the interviewees/informants themselves prioritize or consider of particular importance. This aspect has also been extensively discussed by Chell (2004), who highlights the value participants attribute to the narration of events perceived as relevant. As previously noted by Flanagan (1954), an incident is considered “critical” to the extent that it provides a substantial, “significant” contribution—positive or negative—to the understanding of the phenomenon under study. With the objective of being “criticized or analyzed” (Flanagan, 1954, p. 338), CIs represent the result of how participants perceive a given situation and interpret its meaning, thereby highlighting its essential features.

A meaningful situation is an event that stands out from the daily routine, capable of attracting attention, generating reflection, stimulating a decision, or producing an outcome—whether positive or negative. According to Tripp (2012), these events can be interpreted as moments of “rupture” capable of activating authentic reflective processes within the teaching

profession. In this sense, an incident can be defined as “any observable human activity that is sufficiently complete in itself to permit inferences and predictions about the person performing the action” (Flanagan, 1954, p. 327).

A critical incident does not necessarily have to be a dramatic event; rather, it can refer to any unusual or memorable situation that prompts reflection or questioning. In the educational field, these situations help identify the characteristics that determine, for example, the success or failure of a task or activity, offering significant insights for professional training and the understanding of teaching-learning processes.

From this perspective, CIs are inherently linked to the complexity and depth of events, facts, situations, and environments. Fully understanding these complex educational phenomena requires a variety of research methodologies and data collection techniques capable of adequately capturing the information necessary to explore the problems under analysis. A CI stimulates reflection, promotes critical evaluation, and encourages an engagement with the issues involved in its occurrence, often leading individuals to question consolidated convictions, beliefs, attitudes, and behaviors (Kirby, 2010).

Consequently, it is evident that within the educational context and daily teaching practice, it is neither realistic nor useful to reflect on each individual event. Instead, it is essential to exercise selective attention to identify the most relevant and significant elements of reality. The same episode can be reconsidered multiple times to deepen the understanding of its meaning and positioning within a broader educational perspective.

This is particularly important because learning is a fundamental component in the analysis of CIs: on the one hand, it contributes to their stabilization; on the other, it influences how these events recur over time. A dynamic and continuous process is thus established, in which the processing and application of acquired knowledge allow for the interpretation of the critical incident as an open system, capable of generating change and codifying new knowledge.

In this context, CIs play a central role in how individuals attribute meaning to their experiences, especially in the educational field (Dollarhide et al., 2007), and are used as effective tools to investigate personal perceptions and experiences. Due to this ability, among the numerous qualitative methods available today, CIT stands out as a privileged tool, capable of “capturing” the diversity of behaviors in highly complex and articulated educational contexts, where such events have a profound impact on the different actors involved.

CIT is widely used in qualitative research to understand phenomena in depth, facilitating the exploration of feelings and the clarification of the meanings attributed by the participants

themselves. This is possible due to a flexible and open data collection system (FitzGerald et al., 2008), which encourages subjects to freely share the experiences they consider most significant, guided by specific focal questions. In addition, the technique can be integrated with other methodologies to enhance the comprehensiveness of data collection and analysis.

Furthermore, one of the distinctive elements of CIT within the vast repertoire of qualitative research lies in its ability to prompt participants to recall real, concretely lived events rather than ideal or abstract experiences. This approach is supported by a clear operational definition of the critical incident provided in the research design, which guides both the researcher and the participants in the recognition and narration of relevant episodes. An explicit definition of the CI is essential to ensure methodological coherence and facilitate the emergence of significant and contextualized content, making the technique not only effective but also replicable in different contexts.

The structural strength of CIT is reflected in its methodological process, which is articulated in well-defined phases that support the collection, organization, and interpretation of qualitative data:

Figure 1. The phases of the Critical Incident technique



Source: Nuzzaci (2012)

This methodical structure allows the researcher to maintain rigor and transparency without sacrificing the flexibility necessary to grasp the complexity of the phenomena explored. However, to ensure the effective application of CIT, it is essential to utilize practical tools that

guide the different operational steps and prevent common methodological errors.

To support researchers in the implementation of CIT, a synthetic operational checklist is proposed below, designed to be useful during both the design and management phases.

Table 1. Operational checklist for the use of the Critical Incident Technique (CIT)

What to do	What to avoid	Common Mistakes
Clearly define the objective and research questions	Asking vague or overly abstract questions	Failing to differentiate between critical events and typical events, typical or routine situations
Formulate simple, experience-oriented focus questions	Improvising questions or using overly complex wording	Not providing an operational, clear and shared definition of a "critical incident" to participants
Select participants with direct and relevant experience	Involve marginal subjects or those who are out of touch with the phenomenon	Ignoring the context of the participants and the situated value of the experience
Fostering a safe, welcoming, and non-judgmental narrative environment	Forcing the interpretation of events or invasively guiding the narrative, neglecting the setting of the interview or forcing the answers	Underestimating the emotional influence of the event on the participant and neglecting implicit cues or significant pauses
Provide specific moments dedicated to explication and reflection	Neglecting the rhythm of the story or significant pauses	Not grasping latent or secondary narrative nuclei
Use a categorization system that is clear, consistent, and adaptable to the data	Apply rigid, abstract, or predefined categories without contextualization	Omit category validation with experts, cases or alternative methods or triangulations

Source: Author's elaboration based on Nuzzaci & Orecchio, 2023

Table 1 is intended to offer practical guidance for the conscious and methodologically rigorous use of CIT. By focusing on recommended practices, potential pitfalls to avoid, and the most frequent errors, this tool allows the researcher to design and conduct investigations more effectively. This approach favors the emergence of significant, valid data that remains consistent with the objectives of qualitative research.

The literature on the Critical Incident Technique (Flanagan, 1954) often describes its phases repeatedly, emphasizing procedural steps but rarely linking them to their underlying epistemological implications. To streamline the methodological description and highlight the transformative and dynamic nature of the CIT, Table 2 summarizes its operational phases while connecting them to the innovations introduced through the REFLECT – Leonardo da Vinci Project. This synthesis replaces earlier, repetitive descriptions and provides a conceptual bridge between the classical technique and its contemporary applications in reflexive and digital learning contexts.

Table 2. Operational Phases of the Critical Incident Technique (CIT) and their Transformative-Dynamic Dimensions

Phase	Classical Description (Flanagan, 1954)	Transformative-Dynamic Extension (REFLECT Project, 2007–2018)	Practical Tools / Examples
1. Defining the Aim and Context	Clarify the general purpose of the activity or behavior to be studied.	Define reflective objectives that link the investigation to professional learning or competence growth.	Reflective prompts; preliminary digital logbooks.
2. Identifying the Critical Incident	Ask participants to recall significant, positive or negative events related to the aim.	Encourage recognition of “transformative moments” that led to awareness, change, or redefinition of practice.	Narrative recall; digital storytelling; microblog reflections.
3. Data Collection	Gather factual descriptions of what happened, including context and outcomes.	Combine multimodal sources (written, oral, visual, digital traces) to capture the multi-voiced and evolving nature of incidents.	Interviews, e-portfolios, online reflective journals.
4. Data Analysis and Categorization	Identify key behaviors, conditions, and consequences from the narratives.	Conduct iterative and collaborative interpretation; use cross-incident and narrative re-storying to trace transformation.	Coding sessions; ECIT procedures; peer-analysis workshops.
5. Interpretation and Validation	Group and interpret findings to draw conclusions.	Co-construct meaning with participants; integrate member-checking and triangulation for rigor and shared insight.	Participant feedback forms; collaborative coding meetings.
6. Application and Reflection	Apply findings to improve practice or policy.	Close the reflective loop by translating insights into new actions, teaching strategies, or design principles.	Reflective action plans; digital dissemination; community of practice discussions.

Source: Adapted from Nuzzaci (2012), based on Flanagan, 1954; Gibbs, 1988; Johns, 1991; Watkins et al., 2022)

Table 3. Operational Planning Elements and Procedural Considerations for Applying the CIT

Operational Planning Elements	Procedural Considerations
Purpose of exploration	Define the specific focus or “accident” to be investigated.
Collection of information/data	Determine the scope, type, and sources of data.
Most appropriate method	Select the data-gathering strategy (e.g., observation, interview, narrative recall).
Instrument used	Choose or design the data collection tools (interview guides, observation grids, etc.).
List of questions	Prepare targeted prompts to elicit detailed critical incidents.
Data collection	Implement systematic procedures for recording incidents and contextual information.
Preparation of the researcher	Train in interviewing/observation techniques and reflexive note-taking.
Quality of instructions	Provide clear, standardized directions for data collection.
Details of the data to be produced	Specify the level of description and completeness required.
Form of data return and documentation	Define how data will be stored, anonymized, and returned for validation.
Focus of the incident	Clearly delimit what qualifies as a “critical” incident.
Definition of subjects	Identify participants and inclusion/exclusion criteria.
Structure and process of the interview	Plan sequence, timing, and structure of the interaction.
Phases of data collection	Align data gathering with the operational steps shown in Table 2.
Interview techniques and tips	Apply probes and follow-ups to ensure depth and completeness.
Demographic profile of the interviewee	Record contextual and biographical data.
Example protocols	Develop standard templates for interviewers or observers.

Source: Adapted from Nuzzaci (2012, 2017), based on Flanagan (1954); Butterfield et al. (2005, 2009); Di Salvo et al. (1989)

Following the overview of the CIT phases presented in Table 2, Table 3 outlines the main operational and procedural elements required for planning and conducting data collection. This detailed breakdown ensures that the implementation of the technique remains methodologically sound, while supporting the researcher in effectively capturing the complexity of critical incidents within educational settings.

The Methodological Positioning of CIT and its Applications

CIT has been successfully applied in multiple disciplinary fields, including pedagogy, psychology, medicine and marketing (Bitner, 1990; Butterfield et al., 2005; Gremler, 2004; Grove & Fisk, 1997; Peña & Rojas, 2014; Sharoff, 2008). Its methodological versatility allows it to adapt to a wide variety of contexts and situations, proving to be particularly effective in investigating partially or totally unexplored areas. In addition to the analysis of critical episodes, CIT can be used to explore factual events, qualities or attributes, offering a tool sensitive to the plurality of points of view and subjective differences. In this perspective, the technique is

configured as a basic exploratory tool, useful especially in the initial phases of research and in the construction of theories or interpretative models (Butterfield et al., 2005, p. 480).

The CIT Procedures and Tools

In recent years, CIT has undergone significant evolution regarding its application areas and data collection modalities. For instance, it has recently been used effectively in digital and online training contexts to analyze dynamics within virtual educational environments (Peña & Rojas, 2014; Nuzzaci, 2017).

Critical incidents—collected through a variety of approaches ranging from direct observation to narrative recall—have proven particularly effective when explored through in-depth face-to-face interviews. This approach ensures a high level of detail and depth, complemented by reflective and metacognitive elements (Kemppainen, 2000).

By the late 1990s, CIT had already been employed across numerous professional contexts (Bradley, 1992; Urquhart et al., 2003; Urquhart et al., 2004), establishing itself as a powerful tool for the collection of complex information. Its methodological flexibility, combined with its ability to actively involve the interviewee, allows researchers to obtain a multidimensional representation of the experience, capturing even the non-verbal components of communication.

However, the quality and effectiveness of the data collected through CIT depend largely on the chosen collection method. In fact, the technique can be implemented in different formats—oral, written, observational, or self-narrative—each of which affects the depth, reliability, and validity of the empirical data in a distinct way. For example:

- Oral interviews or focus groups: These allow for in-depth exploration, as the researcher can clarify and deepen the narrated content through follow-up questions. However, they are subject to conversational biases and require skilled facilitation to elicit explicit detail;
- Direct observations: These offer highly contextualized data that is less mediated by the participant's memory; however, they limit access to the subjective and reflective dimensions of the lived event;
- Written questionnaires or self-narrative modules: These facilitate large-scale data collection and reduce interviewer influence, but are highly dependent on the participant's expressive and reflective skills. Furthermore, the lack of direct interaction makes it challenging to clarify ambiguities or delve into critical passages;
- Retrospective self-reports: If well-guided by focal questions and collected shortly after the

event, these can offer authentic insights. However, they are particularly vulnerable to selective recall, ex-post reconstruction, and subjective interpretation.

For this reason, triangulating collection methods—for example, by combining interviews, observations, and desk analysis—is an effective strategy to increase the credibility and completeness of investigations conducted through CIT. This approach reduces the risk of bias associated with the use of a single source by incorporating a multiplicity of points of view and enhancing the contextual richness of the data.

Although the interview is often the preferred method within CIT to examine complex or problematic situations, it poses significant methodological challenges, particularly regarding the collection of explicit data (Vermersch, 1994). This is especially true when utilizing a retrospective corpus, in which the experience is reworked a posteriori.

According to Vermersch (1994, p. 17), the technique allows for verbalisation de l'action—a process through which the individual gives linguistic form to lived experience, transforming it from a pre-reflective state into a conscious and shareable representation. That is, it moves from a lived and reflective experience to one that is “represented” and “verbalized” (Vermersch, 1994, p. 80). In other words, the action is not simply told; it becomes the object of reflection, interpretation, and learning. This explains why, within CIT data collection, explicitation plays a central role: not only as a questioning technique but as a robust theoretical basis. This basis allows us to understand why an event is significant and how it is represented and transformed into knowledge. This process forms the foundation of qualitative inquiry and clarifies the value of the reflective and intentional use of the information collected.

CIT in Comparison: Flexibility, Units of Analysis, and Methodological Considerations

Compared to other qualitative techniques, CIT offers specific advantages but also presents certain limitations that may condition its application. The following table provides a comparative framework within the broader qualitative methodological panorama, facilitating a critical reflection on its appropriate use.

Table 4. Comparative Overview of Qualitative Methods and the Transformative–Dynamic Contribution of the CIT

Method	Focus and Purpose	Type of Data Produced	Analytical Approach	Distinctive Features and Transformative–Dynamic Contribution
Critical Incident Technique (CIT)	Identification and interpretation of significant events experienced by participants to reveal learning, meaning, and change.	Narrative–behavioural–reflective data (descriptions of actions, emotions, interpretations).	Inductive, interpretive, iterative; supports reflexivity and transformation.	Connects event and meaning, capturing situated action and professional awareness. Generates transformative learning and reflexive awareness through reflective reconstruction of experience. Adaptable to digital and hybrid contexts; integrates re-storying and cross-incident analysis, confirming its dynamic and evolving methodological nature.
Phenomenology	Understanding the essence of lived experience.	Narrative and perceptual data (participants' accounts).	Descriptive or hermeneutic.	Provides deep insight into subjective meaning but less focus on concrete behavioural sequences or transformative processes.
Grounded Theory	Generating theory inductively from empirical data.	Conceptual and categorical data from interviews or observations.	Constant comparison and coding to build theory.	Produces explanatory models but less attention to situated or reflective dimensions of experience.
Narrative Inquiry	Reconstructing personal and professional stories over time.	Narrative and temporal data.	Thematic and structural analysis of plots and storylines.	Emphasizes narrative coherence and identity formation, but less attention to specific action-triggered reflection or transformation.
Focus Groups	Exploring collective meanings and social interaction.	Discursive, interactional, and attitudinal data.	Thematic or discourse analysis of group dynamics.	Captures social construction of meaning but lacks individual depth and critical reflection on concrete incidents.
Case Study	In-depth exploration of a bounded case or context.	Mixed data (interviews, documents, observations).	Triangulation and cross-case analysis.	Provides holistic understanding but focuses on contextual systems rather than critical, transformative episodes.

Source: Adapted from Nuzzaci (2012, 2017), based on qualitative research methodologies (Flanagan, 1954; Butterfield et al., 2005, 2009; Gibbs, 1988; Johns, 1991; Watkins et al., 2022; Van Manen, 1995; Creswell, 2009)

As Table 4 illustrates, the distinctive contribution of the Critical Incident Technique stands out for its ability to combine methodological flexibility and interpretive depth, making it particularly useful in exploratory contexts or in the initial phases of research.

Unlike more structured approaches such as Grounded Theory—which often aim at general theory construction—or other qualitative techniques like focus groups and narrative interviews, which tend to elicit general opinions or retrospective life stories, CIT emphasizes the critical event as the primary unit of analysis. This coupling of event (a concrete, situated action) and meaning (the subjective and interpretive layer constructed through reflection) allows researchers to capture both the behavioral dimension (*what happened*) and the reflective dimension (*why it was significant*), thus bridging the micro-level of professional practice with the macro-level of learning and transformation.

In educational and reflective contexts, this dual focus positions CIT as a dynamic and transformative tool, capable of revealing how professionals reinterpret experience to construct new knowledge and self-understanding (Tripp, 1993; Nuzzaci, 2012; Watkins et al., 2022).

Building on this comparative perspective, while the method deeply values the participant's point of view, it maintains a more systematic focus on categorization and reflexivity. However, the method's reliance on memory and the potential subjective filter in the selection of episodes are critical elements to be addressed during the design phase. Ultimately, CIT can be considered a complementary technique to other qualitative methods, especially when exploring professional experiences, complex decisions, or boundary situations. In these contexts, it offers a rich but focused perspective on the meanings subjects attribute to their experiences.

This structured perspective directly informs the planning of data collection, which follows the sequence outlined in Table 2 and Table 3, integrating both the classical and transformative dimensions of the Critical Incident Technique (CIT).

In light of the preceding discussion, it is not surprising that CIT is an extremely versatile tool in the educational field. Its potential lies in its ability to generate significant information across multiple levels: it allows researchers, for example, to analyze training models, gather educational experiences from diverse contexts, and evaluate the quality of education by examining the challenges faced by teachers, as well as the perspectives of students and other relevant stakeholders. In addition, it facilitates the exploration of students' needs and the identification of teachers' professional requirements, perceptions, and daily practices (Schmidt et al., 1992).

Despite the extensive theoretical literature supporting it, a comprehensive understanding of the effectiveness of CIT requires the analysis of empirical applications in real-world contexts. Studies conducted in the field of initial teacher education have shown that the identification and analysis of CIs—particularly those related to communication crises or classroom management—have contributed to the development of reflective and metacognitive competencies (Tripp, 2012; Nuzzaci, 2017). In other contexts, CIT has been employed in initial and in-service training courses for teachers, where the narrated incidents addressed complex pedagogical decisions, frequently related to the management of students with special educational needs, as illustrated in the example below.

Box 1. Case study example

BOX 1**Case study: CIT in initial teacher education**

Adapted from Nuzzaci (2017)

During a laboratory activity carried out within the Degree Course in Primary Education, a group of students was asked to identify a relevant episode observed in the classroom during the internship activity. A student described an incident in which a pupil with Special Educational Needs (SEN) was excluded from his peers during group work. The teacher, although present, avoided a direct intervention, limiting himself to a generic reminder. In the subsequent reflective workshop, the episode was analyzed using CIT.

The student expressed frustration, a sense of helplessness and a growing awareness of the teacher's role as a facilitator of inclusion. The analysis highlighted the value of critical observation, peer relationship management and the activation of effective inclusive strategies.

The accident turned into a powerful educational opportunity, stimulating professional reflections in the participants on their future educational role. This example shows how the application of CIT can promote deeper awareness in learning and professional development processes.

Source: Adapted from the case study research framework conducted by Nuzzaci (2017)

During a laboratory activity carried out within the Degree Course in Primary Education, a group of students was asked to identify a relevant episode observed in the classroom during their internship. A student described an incident in which a pupil with Special Educational Needs (SEN) was excluded by his peers during group work. The teacher, although present, refrained from direct intervention, limiting themselves to a generic reminder. In the subsequent reflective workshop, the episode was analyzed using CIT.

The student expressed frustration, a sense of helplessness, and a growing awareness of the teacher's role as a facilitator of inclusion. The analysis highlighted the value of critical observation, peer relationship management, and the activation of effective inclusive strategies.

The incident turned into a powerful educational opportunity, stimulating professional reflection among the participants regarding their future educational roles. This example demonstrates how the application of CIT can promote deeper awareness within learning and professional development processes.

In certain contexts, such as teacher training, the technique is also valuable for initiating forms of self-reflection (Tripp, 1993/2011) and constructive self-criticism regarding one's actions, with the ultimate aim of improving them (Calderhead, 1989).

From a transformative perspective, this critical incident did not merely reveal a classroom management issue but functioned as a catalyst for professional awareness. Through reflective dialogue and guided analysis, the participants reinterpreted the episode as an opportunity to reconstruct their understanding of inclusion, shifting from reactive observation to proactive pedagogical planning. This illustrates the transformative function of CIT: by engaging learners in critical reflection, it facilitates changes in perception, decision-making, and professional

identity.

From a dynamic standpoint, the example also demonstrates the iterative and evolving nature of the CIT process. The discussion extended beyond the individual episode, generating new insights that were revisited in subsequent reflective workshops and digital portfolios. The incident thus became part of a continuous feedback cycle, in which new interpretations informed subsequent actions and reflections. In this way, CIT functioned not as a static tool for description but as a dynamic methodology supporting adaptive learning and ongoing professional growth within digital and collaborative environments.

The narration, analysis, and shared reflection on these critical episodes have led to a rethinking of teaching practices and a greater awareness of the impact of educational choices on daily professional life. The critical analysis of incidents delves deeper, aiming to identify the underlying problem that elicits intense reactions to a particular situation. For example, an incident involving teaching may prompt the teacher to reflect in a structured way and to consider potential future actions. This reflective function is crucial, especially in initial and in-service teacher training, where the narrative of the incident acts as a catalyst for professional development (Nuzzaci, 2011a; Tripp, 2011). Beech & Norman (1995) confirm the usefulness of CIT in collecting multilevel perceptions in clinical and educational contexts that align with this approach.

In this sense, CIT is also considered a systematic and open technique that involves the analysis of specific situations to determine actions or behaviors—including those of a communicative nature—that lead to the best possible outcome in a given situation. In this approach, data must be categorized inductively, without referring to pre-existing theories (Bradley, 1992). Instead of applying rigid rules to guide exploration, the method allows researchers to modify the principles of analysis on a case-by-case basis and to include contextual information regarding the background (the situation prior to the incident), the event experienced, and the consequences (the outcomes resulting from the event).

The operational phases of CIT have been previously summarized (see Table 2). To ensure methodological rigor, typical steps in using CIT require establishing specific conditions within the following stages:

1. *Selection of the observer group*: Identifying the participants or observers who are best positioned to provide detailed accounts of the activity or phenomenon under study;
2. *Collection of an adequate and representative sample of CIs*: Gathering a sufficient volume of incidents to ensure the data reaches theoretical saturation and reflects the

complexity of the context;

3. *Examination of incidents and rejection of outliers*: Reviewing all collected accounts and excluding those that do not meet the predefined criteria for a “critical” incident;
4. *Isolation of critical elements*: Identifying and extracting the core behavioral or situational components within each CI;
5. *Inductive categorization and taxonomy development*: Grouping identified elements into thematic categories to develop a comprehensive and evolving classification system;
6. *Inter-rater reliability and consistency checks*: Utilizing independent experts to classify random samples of incidents, thereby ensuring the objectivity and reliability of the categories;
7. *Evaluation of category proportions*: Analyzing the frequency and distribution of elements within the categories to determine their relative significance.

While the eight phases are developed sequentially, the effective application of CIT also requires adherence to specific operational conditions.

The following section provides a schematic summary of the primary phases of CIT, designed to visualize the fundamental methodological steps necessary for its rigorous application.

Table 5. Operational steps of the CIT

Phase	Description
Goal Setting	Clarify the purpose and questions of the research
Critical incident collection	Through interviews, observations, questionnaires or self-reports
Identification of significant elements	Recognize relevant behaviors within the narrated episodes
Categorization	Classify incidents into thematic or conceptual categories
Analysis and interpretation	Interpret the meaning of incidents in light of context and objectives
Cross-check	Validate categories through expert analysis or triangulation
Reporting	Draw up a summary or report consistent with the objectives of the research

Source: Nuzzaci (2011, 2012)

When followed rigorously, these steps allow for an in-depth and reliable analysis of critical incidents, ensuring results that are both consistent and methodologically sound.

Methodology

This study is developed using a qualitative approach with a bibliographic, theoretical-reflective focus. The research was structured through a systematic review of specialized literature on the Critical Incident Technique (CIT), examining both foundational documents and contemporary developments.

The analysis focused on the adaptability of CIT to contexts of territorial specificity, with a particular emphasis on Rural Education. The methodological procedure consisted of categorizing the phases of the technique to propose an operational model (detailed in Tables 1 and 2) that responds to the unique characteristics of pedagogical work in rural schools, ensuring coherence between the analytical instrument and the socio-educational context of rural areas.

Flexibility and adaptability: reliability and credibility

One of the greatest strengths of CIT is its flexibility. It can be adapted to various cultural and disciplinary contexts, the type of data collected, and the specific research objectives. This approach allows for the integration of reflective models and the use of narrative stimuli to structure participants' accounts (Irvine et al., 2008).

Research findings can be reported through categorical reports—utilizing either general or specific categories—depending on the level of analysis deemed most functional and practical (Butterfield et al., 2005) in relation to the research goals.

Rather than focusing exclusively on opinions regarding what is considered “critical”, CIT emphasizes the analysis of the context in which the event unfolds. This aims to obtain “an in-depth analytical description of an intact cultural scene” (Borg & Gall, 1989, p. 387), recognizing that behaviors, precisely because they occur in specific contexts, require an accurate understanding of situated actions. For example, in an interview, participants may be asked to reflect on and identify a specific incident that they perceive as critical in influencing the outcome of an action.

However, a fundamental challenge remains: how to ensure the reliability and validity of the technique.

Table 6. Criteria for Reliability, Validity, and Selection of Critical Incidents (CIs) in the CIT Process

Evaluation Area	Criteria / Requirements	Purpose / Notes
A. Validity of the Critical Incident	– Must contemplate a real experience. – Should have a positive or negative impact on the participant – Must involve a specific, identifiable episode – Requires detailed information including context, antecedents, and outcomes	Ensures that each incident is meaningful, contextually grounded, and analytically usable.
B. Reliability and Quality of the Reported Incident	– Relevant to the general purpose of the study. – Action-specific (behaviour-focused, not general traits) – Reported by a direct observer or participant – Actually observed or experienced by the informant – Recent enough to ensure accurate recall – Internally consistent – Clear and unambiguous – Complete and detailed.	Ensures that data are consistent, credible, and replicable.
C. Criteria for Selecting Critical Episodes for Analysis	– Include prior or contextual information – Contain a clear description of the episode – Present contextual and situational elements – Provide the participant's direct experience – Describe the outcomes of the incident	Defines selection standards for identifying usable and analytically rich incidents.

Source: Adapted from the case study research framework conducted by Nuzzaci (2012; 2017), integrating Flanagan (1954), Butterfield et al. (2005, 2009), Di Salvo et al. (1989)

These criteria guide the identification and selection of meaningful critical incidents, ensuring methodological rigor, internal coherence, and analytical depth in the application of CIT.

Flanagan (1954) emphasized the flexibility of this approach, highlighting how it can be adapted and tailored to meet specific research needs. For an account to be recognized as a genuine critical incident, it must contain:

- a) a significant personal experience or another form of self-revelation;
- b) the outcome or application of a theory in relation to that experience or revelation.

In this way, CIT ensures an in-depth and contextualized analysis capable of providing relevant insights into the phenomenon under study.

Moving forward, it is essential to identify the key issues to be addressed, as this allows researchers to set clear priorities for intervention and assess the expected impact against other needs. To this end, it is necessary to address several key questions (Nuzzaci, 2011a; 2012):

- What specific events or circumstances led to the CI? (Focusing on the contextual background and the “antecedents” of the incident).
- What specific behaviors of the agents involved transformed these events or circumstances into a CI? (Identifying the actions or lack thereof that triggered the

“critical” nature of the episode).

- What were the immediate outcomes or consequences of the CI? (Analyzing the direct impact on the participants and the environment).
- What are the potential future consequences if behaviors remain unchanged? (Evaluating the risk of repeating problematic patterns).
- What are the possible future outcomes if behaviors are modified based on the lessons learned? (Highlighting the transformative potential and the developmental trajectory of the reflection).

This process allows researchers to fully understand the critical incident and to direct interventions in a targeted and effective way. At this stage, it is necessary to determine the most appropriate method of investigation and identify the population to be involved within the intervention's context.

The subsequent steps build on established methodological tools and approaches, which include data collection and analysis, the design and review of problem-solving strategies, and the implementation and monitoring of actions. Finally, a comprehensive evaluation of the intervention is carried out, allowing for the necessary adjustments and an in-depth analysis of the results to ensure the success and sustainability of the adopted solutions.

The implementation of a wide array of credibility checks developed in recent years has increased the reliability of CIT results. These checks, while remaining consistent with Flanagan's original approach (Butterfield et al., 2005), have bolstered the technique's validity over time. Consequently, the methodology has been refined beyond its initial characteristics—incorporating, for instance, contextual questions at the beginning of the research interview to provide foundational information, and questions regarding facilitators or barriers within the situation—thereby improving the original model.

Numerous criteria of rigor have been identified in the literature, namely those of “goodness” (Miles & Huberman, 1994, p. 277) and “trustworthiness” (Guba & Lincoln, 1989, p. 233; Lincoln & Guba, 1985, pp. 289-300; Schwandt, 1997). However, it should be noted that in qualitative studies, reliability is often considered equivalent to credibility rather than internal validity (Zyzanski, 1992), and it aligns more closely with confirmability (Boyatzis, 1998, p. 150). This conceptual overlap sometimes leads to confusion regarding the methodological solidity of the research.

As with any qualitative research method, CIT is designed to address a diverse array of research questions.

The following table summarizes the primary methods employed to ensure reliability, validity, and credibility in the analysis of Critical Incidents. To ensure reliability, it is essential to standardize data collection and provide comprehensive training for interviewers, thereby reducing variations attributable to the collection method.

Validity is achieved by clearly defining the criteria for selecting incidents, utilizing triangulation of sources, and conducting member checking (confirming information with the participants themselves) to ensure that the collected episodes accurately represent the phenomenon under study. Finally, credibility is strengthened by actively involving stakeholders, analyzing events within their specific context, and accurately documenting details to provide an authentic and comprehensive representation of critical incidents.

Table 7. Summary of methods to ensure reliability, validity, and credibility in CIT

Aspect	Method to ensure it	Description
Reliability	Standardization of data collection	Use of clear and consistent protocols for interview and IC collection
	Training of interviewers	Training to ensure consistency in questions and in the way information is collected
Validity	Precise definition of selection criteria	Strict application of criteria to identify what constitutes a CI
	Triangulation of sources	Comparison of information collected from different sources or subjects to confirm data
	Check with attendees	Feedback and confirmation of critical incidents from the interviewees themselves to ensure fairness
Credibility	Active involvement of participants	Encourage participation and direct involvement to gather authentic experiences
	Contextualized analysis	Consider the context and circumstances in which the incident occurred
	Detailed documentation	Accurately and completely record all relevant details of incidents

Source: Authors' own elaboration

The flexibility of CIT allows for the utilization of diverse data collection methods. Flanagan (1954) originally identified four primary modalities:

- individual interviews;
- group interviews;
- questionnaires;
- record forms.

Although Flanagan (1954) recommends direct observation as the preferred method, he pragmatically acknowledges the numerous practical difficulties associated with this modality (Butterfield et al., 2005). In more recent studies employing CIT, data collection methods have become increasingly diverse, encompassing direct observation (Pescosolido,

2002), self-administered questionnaires (Krause et al., 2007; Lapidot et al., 2007), and semi-structured interviews.

These methods require the development of specific protocols for collecting factual incidents—for instance, by defining the appropriate informants—and the adoption of a multifaceted process that includes:

- ✓ the collection of incidents from knowledgeable informants;
- ✓ the identification of core themes derived from the CIs;
- ✓ the classification of incidents into predefined or emerging content categories;
- ✓ the interpretation and synthesis of the results.

Data can be collected through direct observations or systematic self-reports; however, incident classification and analysis represent the most complex steps, as interpretations frequently lean toward subjectivity rather than objectivity (Di Salvo et al., 1989). The operational phases of CIT are summarized in Table 2, which also highlights their contemporary transformative–dynamic reinterpretation.

Despite its widespread use, literature regarding the operationalization and application of the method—specifically concerning the execution of individual phases and the formation of categories—has not always been transparent or sufficiently detailed.

The incident selected by the interviewee must, in any case, be based on real events, allowing the researcher to explore aspects previously unforeseen. As Chell (2004) notes, since incidents are critical, they stimulate memory and provide the researcher with a precise focal point for the investigation. This is particularly useful in research employing semi-structured interviews, which allow for probing (Blanchet & Gotman, 2000) or the inclusion of questions not originally envisaged in the methodological guide.

CIT between adaptability, flexibility of method and data collection

CIT has been successfully employed across numerous disciplines, from the service industries—where it has been used for decades to assess consumer expectations—to the medical field and, more recently, educational research. Originally rooted in a behaviorist approach, CIT has expanded its scope to include the study of psychological states and experiences (Denscombe, 2001). In this context, the focus of analysis has shifted from the mere occurrence of specific events to the subjective significance these events hold for the participants themselves.

In this study, CIT shifts from its behaviorist origins toward what contemporary scholars

define as an Enhanced Critical Incident Technique (ECIT), emphasizing the subjective meaning-making process of the participants rather than mere objective behavioral tracking (Monzon & Martinez, 2023; Watkins et al., 2022).

The perspective of the respondents, rather than that of the researchers, becomes the pivotal factor in determining which aspects of the incident are most relevant and for what reasons. This represents a fundamental departure from traditional applications of CIT. In those initial studies, the identification of episodes considered “critical” was entrusted to those deemed to be in the best position to observe and evaluate the phenomena—namely, the researchers themselves.

Critical exploration of incidents through CIT is a key tool for researchers, educators, and practitioners who seek to understand how individuals attribute meaning to diverse learning experiences (Dollarhide et al., 2007, p. 361). It allows for an analysis of how individuals perceive certain incidents as “critical,” serving as focal points around which they construct the meaning of their actions and experiences (Coleman, 2006; Furr & Carroll, 2003). These incidents may be of a design-related, evaluative, communicative, or relational nature, among others.

Since its introduction by Flanagan (1954), CIT has undergone significant evolution, shifting the emphasis from the use of expert observers to collect data on human behavior to the utilization of retrospective self-reports. In educational research, retrospective self-reports—delivered through written or oral accounts—are now the most widespread methods for data collection.

Although Flanagan (1954) had already recognized the potential for utilizing incidents as retrospective self-reports, his primary focus remained on direct observation (Butterfield et al., 2005). This foundational approach continues to be a cornerstone in the application of CIT within the educational field. It highlights how, on the one hand, the technique has evolved to transcend a narrow behavioral focus, while, on the other hand, its essential characteristics continue to constitute the methodological pillars of the technique.

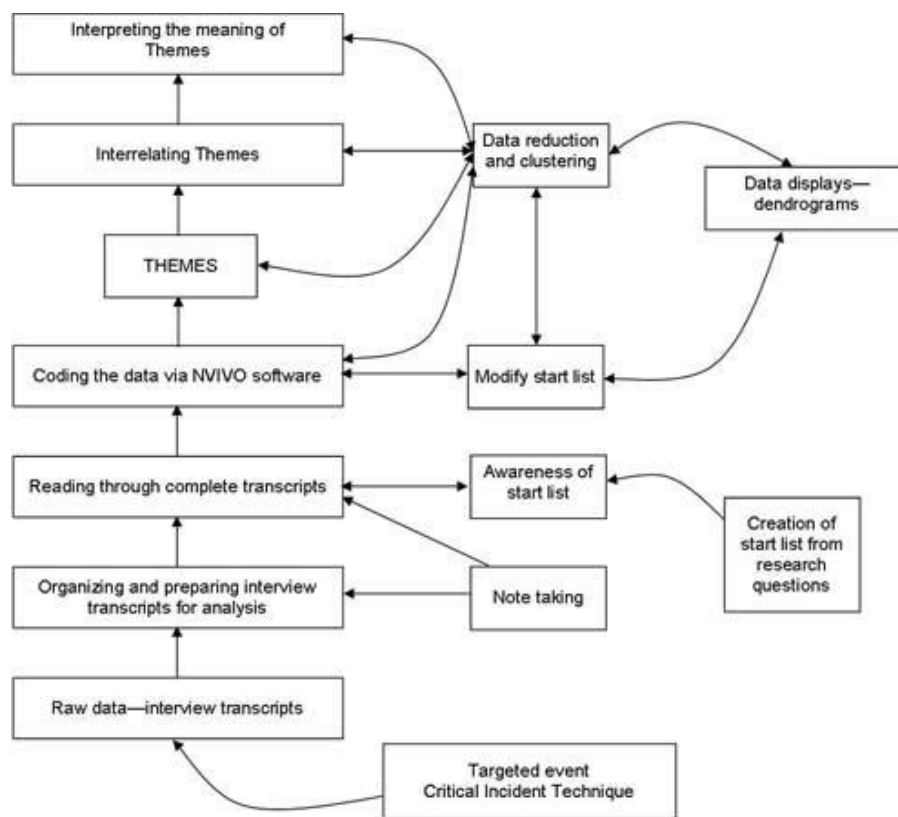
In terms of reflection strategies, Tripp (1993/2011) suggests considering several fundamental aspects, such as:

- the positive, negative, and interesting dimensions of the situation;
- the alternatives, possibilities, and choices that were available to the actors;
- the alternative views, perspectives, and opinions that may be held by other stakeholders.

It is crucial to emphasize, however, that the analysis of data collected through CIT requires a considerable investment of time, precisely because of the depth and complexity of the

evaluative and reflective processes involved.

Figure 2. Qualitative interpretive categorization



Source: Qualitative interpretive categorization by Stokes and Urquhart (2013) in relation to Creswell's (2009, p. 185) data analysis overview

The Application of the CIT in Reflexivity Research: Four Comparative Case Studies (2007-2018)

The empirical foundation of this study stems from a longitudinal research trajectory conducted from 2007 to 2018, originating in the European Project REFLECT – Leonardo da Vinci, which aimed to promote reflective competence among teachers, educators, and trainers. Across four phases, the Critical Incident Technique (CIT) evolved from a descriptive analytical method into a transformative and dynamic framework capable of supporting reflective, collaborative, and digitally mediated learning.

Study Design and Objectives

Across the four studies, CIT was employed as both a methodological device and a

pedagogical strategy to examine reflective practices, professional learning, and knowledge transformation.

Each phase sought to:

- Identify, analyze, and interpret critical incidents within diverse educational and professional contexts;
- Facilitate structured reflection to bridge the gap between individual experience and collective learning;
- Evaluate the contribution of CIT to the development of reflexive competence and adaptive expertise (Nuzzaci, 2011b).

Participants included a total of 171 professionals (teachers, educators, trainers) distributed across the four studies. Data were collected through interviews, reflective journals, learning portfolios, and digital collaborative platforms.

Table 8. Cross-Case Findings (2007–2018): Transformative and Dynamic Evolution of the CIT

Cross-Case Findings (2007-2018)					
Case / Year	Context and Participants	Objectives	Data Collection and Analysis	Key Categories (Emergent Themes)	Main Reflections and Outcomes
<i>Case 1 – 2007</i>	55 teachers & educators in postgraduate programs	Identify spontaneous reflective behaviors and classify professional dilemmas	CIT interviews, reflection diaries, qualitative coding	Triggers, beliefs, behaviors, outcomes	Recognition of reflective dilemmas; emergence of meta-cognitive self-awareness
<i>Case 2 – 2010</i>	36 teachers in blended training programs	Examine reflection–collaboration relationship in hybrid contexts	Online reflective journals, CIT-based semi-structured interviews	Interpersonal conflicts, emotional tensions, collaborative resolution	CIT supports emotional literacy and collaborative reflection
<i>Case 3 – 2012</i>	36 educators in continuing professional development courses	Integrate CIT into structured reflective cycles (Gibbs model)	CIT reports, peer and meta-reflective evaluations	Critical awareness, ethical responsibility, transfer of learning	Growth of reflexive competence; professional identity reconstruction
<i>Case 4 – 2018 (Innovation Phase)</i>	44 educators, mentors, and digital learning designers in interdisciplinary environments	Explore CIT's adaptability to digital and hybrid learning ecosystems	Digital storytelling, e-portfolios, synchronous and asynchronous reflective dialogues	Technological mediation, multimodal reflexivity, distributed agency, co-design of meaning	Demonstrated that CIT can be effectively applied through digital platforms; emergence of “networked reflection” and cross-disciplinary integration of qualitative data

Source: Authors' own elaboration

The four studies collectively reveal how the Critical Incident Technique evolved into a dynamic and transformative research methodology over more than a decade of application:

1. *From individual reflection to collective knowledge construction*: the CIT became a shared interpretive process that connects personal experience with collective

professional learning.

2. *Integration of digital and hybrid methodologies (Case 4 – 2018)*: the introduction of digital storytelling, e-portfolios, and collaborative reflection platforms expanded the temporal and multimodal dimensions of data collection and analysis. These tools enhanced accessibility, peer engagement, and traceability of reflective processes.
3. *Interdisciplinary and adaptive use*: in the 2018 study, the CIT crossed disciplinary boundaries (education, design, health, and technology studies), proving its flexibility as an interdisciplinary inquiry framework.
4. *Transformation through reflexivity*: across all cases, participants progressed from describing isolated experiences to interpreting their meaning and transforming professional perspectives — confirming CIT’s transformative potential.
5. *Sustained methodological rigor*: despite its evolution, the CIT retained its original systematic rigor (Flanagan, 1954) while embracing new interpretive and technological paradigms (Watkins et al., 2022; Wang & Hannafin, 2005).

The longitudinal application of the CIT from 2007 to 2018 demonstrates its progressive innovation and methodological vitality. The 2018 digital phase represents a turning point where the technique transcends traditional qualitative boundaries, merging reflective practice, technological mediation, and participatory inquiry.

This confirms that the CIT, when reconceptualized within the framework developed in the REFLECT project, acts not merely as a means of describing experience but as a transformative and dynamic methodological paradigm that generates learning, adaptation, and professional growth in increasingly complex and networked educational contexts.

Critical discussion: limitations of CIT and strategies to overcome them

Although the Critical Incident Technique (CIT) is confirmed as a powerful tool for investigating significant professional experiences and promoting reflexivity, empirical results and methodological literature indicate limitations that require critical discussion and operational solutions. Below I draw the main limitations that emerged in our REFLECT studies (2007–2018) and propose concrete strategies, based on consolidated approaches (Enhanced CIT) and recent methodological innovations (re-storying; cross-incident analysis), to increase their robustness, reliability and transformative potential.

1. *Limitation: retrospective memory dependence and recall bias*

Problem Classical CIT often relies on retrospective accounts, which may be incomplete, distorted, or influenced by subsequent events (recall bias). This can compromise the accuracy of the details of the accident and the validity of the inferences (Flanagan, 1954)

Practical mitigation strategies

- a. Narrow the time window required of participants (e.g., incidents in the last year or 6 months) when research allows; thus balancing breadth and accuracy (Flanagan, 1954).
- b. Stimulated recall / think-aloud / reflective pre-interview: invite participants to take notes or reflect days/weeks before the interview, or use multimedia stimuli (photos, videos, digital logs) to facilitate memory retrieval. These techniques reduce information loss and recall error (Stodter & Whitehead, 2024).
- c. Multimodal and real-time collection: integrate e-portfolios, learning logs or video recordings (when possible) to capture incidents at or near the event; This allows for a triangulation between memory and objective traces. The use of digital tools is consistent with design-based research paradigms for technological environments (Wang & Hannafin, 2005).

2. *Limit: subjectivity and interpretative bias (both of the participant and the researcher)*

Problem. CIT narratives reflect individual perceptions, emotional perspectives, and biases; the researcher's analysis may introduce additional subjective interpretations (Steven et al., 2020).

Practical mitigation strategies

- a. Data triangulation: combining CIT interviews with direct observation, documentary analysis, peer feedback, and digital data. This multi-method approach reinforces the plausibility and credibility of the interpretations (Serrat, 2010).
- b. Participant checking (member validation): returning summaries or transcripts to participants to verify interpretive fidelity (Flick, 2013).
- c. Collaborative analysis and independent coding: employing teams of coders to calculate inter-rater agreement (e.g. Cohen's κ), discuss discrepancies, and refine the codebook. Furthermore, the use of Qualitative Data Analysis (QDA) software facilitates traceability and maintains a clear audit trail (Flick, 2013).

3. *Limitation: selection and definition of “critical incidents” (problem of criteria and “sieving”)*

Problem. In our studies, we collected large repertoires of accidents (>1000) and the

selection of the "truly critical" ones was onerous and subject to inconsistent criteria (Nuzzaci & Orecchio, 2023).

Practical mitigation strategies

- a. Clear operational criteria and piloting: explicitly define inclusion/exclusion criteria (relevance, impact, observability, relevance to objectives) and test the protocol on a pilot sample to refine them (Butterfield et al., 2009)
- b. Contractual selection process: as in our REFLECT studies, encourage negotiation between participants (or between participant and facilitator) to choose the incidents to be analyzed, increasing relevance and consensus (Nuzzaci & Orecchio, 2023).

4. Limit: Costly in the collection, classification and analysis of cases

Problem. The breadth of CIT data requires significant resources for transcription, encoding and categorization; this can limit scalability (Nuzzaci & Orecchio, 2023).

Practical mitigation strategies

- a. Sampling by incidence: focus on the number of accidents rather than on the number of participants when the goal is saturation of the type of events; use theoretical sampling for key cases (Butterfield et al., 2009).
- b. Use of digital tools and automation: use quality management software (e.g. NVivo, MAXQDA) to automate parts of the coding (theme extraction, search for co-occurrences). Consider natural language analysis techniques only as a support (not a substitute) for qualitative interpretation (Flick, 2013).

5. Limitation: sectoral analysis and interpretative rigidity (lack of contemporary analytical approaches)

Problem. Traditional CIT analyses can remain at the categorical level and lose the narrative or trans-incident potential that generates deeper insights (Butterfield et al., 2005).

Practical mitigation strategies (contemporary methodologies)

- a. Enhanced CIT (ECIT): Following guidelines for enhanced procedures (e.g., Butterfield et al., ECIT version) to increase transparency and rigor in category isolation and review among experts (Butterfield et al, 2005).
- b. Re-storying and cross-incident analysis (Watkins et al., 2022): integrating narrative inquiry approaches that "re-compose" stories (poetic narrative, dramatic emplotting) and cross-incident analysis to highlight transversal patterns and dynamic processes. These approaches address the limitation of purely descriptive analyses and value the interpretive transformation of CIT data (Watkins et al., 2022).

6. Limit: ethical issues and managing emotional vulnerability

Problem. Discussion of critical incidents can reopen intense emotions or make participants vulnerable (Steven et al., 2020).

Practical mitigation strategies

- a. Enhanced ethical procedures: detailed informed consent, anonymization/pseudonymization options, availability of psychological support in sensitive settings, and clarification on data use and return (Steven et al., 2020).
- b. Graduality and participant control: leave participants in control of what to share and provide moments of debriefing after the interview.

7. Integrating CIT into digital contexts and design-based research: opportunities and precautions

The adoption of CIT within digital environments—such as e-portfolios, digital storytelling, and asynchronous platforms—expands the possibilities for “near-real-time” data collection and multimodality. However, this transition requires careful attention to privacy, traceability, and data quality. The design-based research paradigm offers a methodological ecosystem suitable for experimenting with and evaluating digital solutions for CIT, including tools like e-pockets and the integration of learning analytics tracks (Wang & Hannafin, 2005). To enhance the validity and transformative character of CIT, we recommend an integrated operational scheme comprising the following components: (1) definition of clear criteria and pilot testing; (2) multimodal and, where feasible, near-real-time data collection; (3) application of Enhanced CIT (ECIT) and contemporary narrative approaches, such as re-storying and cross-incident analysis; (4) rigorous triangulation and validation practices; (5) ethical oversight and robust support for participants; (6) the use of digital tools to ensure scalability and traceability.

These strategies enable CIT to retain its compelling descriptive quality while expanding as a dynamic and transformative method within contemporary research (Butterfield et al., 2009).

Advantages and limitations of CIT

Extensive literature emphasizes that the strengths of CIT essentially concern its high methodological flexibility (Beech & Norman, 1995; Bradbury-Jones et al., 2007; Flanagan, 1954; Keatinge, 2002; Norman et al., 1992). This characteristic is reflected in its multiple possibilities of application, as Flanagan himself highlighted in 1954 (p. 335), stating that CIT is not a rigid and immutable technique, but rather must be understood as “a flexible set of principles that must be modified and adapted to meet the specific needs of each situation”.

However, methodological adaptation and flexibility are the key positives (Butterfield et al., 2005) that allow researchers to integrate CIT within multiple forms of study design, covering aspects such as sampling, data collection and analysis. As a result, CIT is configured as a versatile technique, which can be applied and modeled according to the type of research, the research demand and the phenomenon under study.

This flexibility is also manifested in the incorporation, at various levels, of quantitative elements (Bailey, 1956; Bormann et al., 2006; Dachelet et al., 1981; Haag & Schoeps, 1993; Redfern & Norman, 1999a; 1999b), as well as in adapting to the different cultural contexts in which the technique is employed.

Not only does CIT have a global reach, but it is also flexible enough to be extended to all research contexts and conditions (Bradbury-Jones et al., 2007), thus reflecting the continuing needs and emerging evolutions in the field of educational research.

The modification and adaptation of CIT to meet the specific needs of each study are fully in line with Flanagan's (1954) indications regarding the flexibility of the method, which is also reflected in the different ways in which this technique is integrated into data collection, for example through interviews (Bormann et al., 2006), and in its ability to stimulate the recall of positive or negative incidents by each participant (Grant et al., 1996; Kemppainen et al., 1998; Redfern & Norman, 1999a; 1999b; Wendt et al., 2004).

The main reason for using this approach is to provide a more complete picture of the phenomenon studied, where written self-reports are also central tools for data collection and documentation.

In addition, the flexibility of CIT is also manifested in the degree of structure that researchers decide to provide, especially when the technique integrates reflective models that support participants in structuring their own reports (Irvine et al., 2008). This reflective approach emphasizes the importance of asking timely questions (Bradbury-Jones et al., 2007; Martin & Mitchell, 2001; Sharoff, 2007), encourage free writing and request details of who was involved in the accident and why the event was significant (Turunen et al., 2004).

Overall, when it comes to data collection, regardless of whether methods such as observations, interviews, or written reports are employed, researchers using CIT can leverage its flexibility to gain an in-depth, forward-looking understanding of phenomena and to chart paths for action.

In general, there is consensus among researchers to consider the analysis conducted through CIT as an inductive process (Arvidsson & Fridlund, 2005; Aveyard & Woolliams,

2006; Bradbury-Jones, 2007; Cox et al., 1993; Flanagan, 1954; Kemppainen et al., 1998; Kemppainen, 2000; von Post, 1996) and in following the data classification system proposed by Cormack (2000) as a guide for the interpretation of the results (Martin & Mitchell, 2001; Mitchell, 2001; Narayanasamy & Owens, 2001).

There is, however, a heated debate among researchers regarding the adaptability of CIT to different research methodologies and designs. Sharoff (2007) argues that the data collected with CIT should be analyzed according to the specific type of study conducted, underlining that the main issue remains the congruence of the technique with respect to the various qualitative methodologies.

Regarding sample size, Flanagan (1954) clarifies that the primary reference should be the number of critical incidents collected rather than the number of participants, since there are no set rules on the minimum number of incidents needed for a study (Butterfield et al., 2005). However, the issue of sample size and number of incidents remains a relevant aspect and should be carefully considered when designing research.

The variability in studies employing CIT is significant, with samples ranging from less than ten participants (Schluter et al., 2008) to over a thousand, and with the number of incidents varying in relation to the size and nature of the sample itself. As already discussed, most of the research conducted with CIT is based on direct observation or retrospective reporting, in which “observable human activity” is interpreted through lived experience and narrated by the participants. From this perspective, even when the observation is not direct, the human experience is still “observed” in a mediated way through the descriptions provided by those who lived through the accident.

In this regard, the use of CIT requires great ethical attention, as participants are often invited to share personal experiences, sometimes full of emotional significance and related to situations of failure, tension or critical moments. For this reason, it is crucial for researchers to take strict ethical measures. The main aspects to consider include:

- ✓ *informed consent*: they must be put in a position to fully understand the purpose of the research, the nature of the contribution requested, and the use of the critical incidents collected;
- ✓ *protection of anonymity*: narratives must be treated in a way that guarantees anonymity or pseudonymization, safeguarding the confidentiality and dignity of the people involved;
- ✓ *vulnerability management*: since the recall of critical experiences can generate emotional distress, researchers must be prepared to manage such situations, also preparing possible

forms of support;

- ✓ *restitution of results*: sharing a summary of results with participants in a clear and accessible form represents an ethical practice of transparency and respect, strengthening the sense of participation and recognition.

Compliance with these ethical principles not only protects the participants, but also strengthens the validity and integrity of the entire research process, promoting a responsible approach consistent with the educational and training purposes of the CIT.

CIT is a powerful, dynamic and constantly evolving quality technique. Although it presents some critical issues — including dependence on the subjective memory of participants — it stands out for its ability to grasp significant episodes, stimulate reflection and generate meaningful data, which makes it a very useful tool in educational and social research.

One of the main limitations recognized in the literature concerns the fact that, in the absence of direct observation, CIT is based on the retrospective memory of the individual participant, an aspect that has aroused numerous criticisms during the methodological debate. It has been observed, in fact, that the memory of past events can be distorted or incomplete, potentially questioning the reliability of the data collected (Chell, 1998; Gremler, 2004). Most scholars who adopt CIT recognize this limitation and point out how the time interval between the event and its narration can affect the quality and accuracy of information. However, it is also reiterated that, despite this criticality, the technique still allows access to significant observations that participants are able to report in sufficient detail, especially when the incidents are perceived as particularly relevant or emotionally engaging.

This limit is generally limited when the reported incidents are fairly recent and participants are sufficiently motivated to provide detailed observations and assessments at the time of the event. However, as Schluter et al. (2008) noted, many participants arrive at the interview struggling to remember events clearly, resulting in the difficulty of gathering rich and in-depth data.

To mitigate this problem related to retrospective memory, some authors have proposed support strategies. For example, Bradley (1992) and Schluter et al. (2008) suggest inviting participants to reflect on the event at least one week before the interview, to arrive at the interview with the clearest memories. Other studies, on the other hand, recommend limiting the time window, asking to report only accidents that occurred in the last year (Wheeler, 2003) or in the last six months (Pescosolido, 2002), with the aim of increasing the accuracy and vividness of the descriptions.

However, it is important to remember that this position is not shared by everyone. Flanagan (1954, p. 340) already observed how, in some circumstances, focusing only on very recent accidents can limit the variety and richness of the data collected, reducing the overall coverage of the phenomenon studied. As a result, the balance between recall accuracy and breadth of data collection still represents one of the main methodological challenges in the use of CIT.

The temporal dimension represents a crucial element in the application of CIT, since a CI needs an adequate amount of time to be observed, processed and to produce significant effects (Waldman et al., 2004). It is one of the factors that determine both the advantages and the limits of imposing time restrictions on the episodes mentioned, while outlining the degree of sensitivity to the context in the use of the method.

Precisely for this reason, it is essential that researchers exercise their methodological expertise in adapting the time window to the specificities of the phenomenon under investigation. This operation requires a careful evaluation of the contextual dynamics and nature of the events analyzed, often intrinsically linked to emotionally significant experiences. ICs, in fact, are not mere objective events, but situations that take on relevance precisely because of the subjective impact they generate, and which may need time to be understood, processed and narrated with awareness.

A further critical element concerns the “range of terminology” used in the literature to describe CIT. Although this variety can be interpreted as a sign of flexibility and adaptability of the technique over time, it risks, in some cases, generating ambiguities or conceptual inconsistencies. This is the case, for example, of the interchangeable – and often imprecise – use of the term’s methodology, research design and data collection methods, which should instead be clearly distinguished (Butterfield et al., 2005; Lacey, 2010).

In particular, the use of CIT should avoid eclectic, unreflective and undisciplined drifts, as warned by Holloway and Todres (2005), while maintaining epistemological and methodological coherence. It is not a question of giving up flexibility, which remains one of the strengths of technology, but of exercising it responsibly. As in any qualitative research, also in the application of CIT it is essential that researchers make explicit the theoretical and methodological choices that guide the study, favoring a conscious and rigorous use of terminology.

To avoid methodological confusion, it is important to remember that, like any qualitative technique, CIT also has limitations and strengths, as in the table below.

Table 9. Advantages and disadvantages of the CIT

<u>Disadvantages</u>	<u>Advantages</u>
It depends on the participants' memory, which can be selective or inaccurate	It allows us to investigate significant events or moments that often escape other research methods, offering targeted attention to critical issues which, if integrated with other techniques, can profoundly enrich the analysis and understanding of the phenomenon studied
Minor and more intricate details of episodes can be omitted	It enhances the experience that is lived and allows you to transform complex stories and experiences into meaningful data and information
Accounts are filtered by personal perceptions, biases, and distortions	It fosters storytelling, which is often appreciated by participants who feel heard and recognized
May require integration with other methods to get a complete view	It allows access to subjective emotions and meanings that are difficult to grasp with traditional approaches (researchers can gain deep insights into individuals' emotions, feelings, and actions to identify new meanings)
Requires participants' willingness and commitment to share ICs and experiences	Documents on the concrete impact of behaviors and illuminate their contextual relevance
Requires careful selection of critical episodes	Helps measure abstract constructs (e.g., motivation, empathy) through observed behavior
It is a long and laborious process in terms of data collection, analysis, and interpretation	It often allows for a greater depth of understanding than direct observation

Source: Authors' own elaboration

However, as highlighted in the table, some limitations of the CIT are related to the subjective nature of the data collected. The personal perspective on problems, expressed in the form of reports, is inevitably filtered through the individual perceptions, memory, honesty and prejudices of the participants, and for this reason it may not be entirely accurate. This aspect has also been explored by Holloway & Todres (2003), who underline the importance of maintaining methodological consistency in the selection and justification of the tools adopted. Precisely for this reason, the use of CIT can benefit from integration with other methods of data collection, analysis and interpretation, to obtain a more complete, articulated and reliable understanding of the situations studied.

In conclusion, CIT is configured as a solid, flexible qualitative methodology oriented towards interpretative depth, capable of enhancing individual experiences as cognitive resources. Its conscious and rigorous use represents a valuable opportunity to explore the hidden meanings in critical moments of learning and training, contributing significantly to the development of educational and professional research.

Conclusions

The research demonstrates that CIT is not merely a data collection method but a device for making rural reality visible. The relevance of this study for the field of Rural Education lies in its capacity to break with homogenizing visions, allowing the particularities of the rural school to emerge through the critical incidents experienced by its protagonists. By proposing this methodological framework, the article contributes directly to the journal's scope, offering researchers a clear path to document educational practices that often remain invisible. Finally, the connection between CIT and Rural Education strengthens reflexive praxis and contributes to teacher training that is more connected to the demands of rural territories.

CIT is confirmed as a solid, flexible and particularly effective qualitative tool in the exploration of significant educational experiences. The main points that emerged highlight his ability to grasp concrete episodes, full of meaning, encouraging critical reflection, theoretical construction and in-depth study of complex educational processes.

From a practical point of view, CIT stands out for its methodological versatility: it can be used in various educational contexts and with multiple data collection techniques, stimulating active and authentic involvement in participants. Its structure in operational phases allows it to maintain scientific rigor while leaving room for subjectivity and personal narration.

In the future, CIT can be further enhanced through integration with digital tools and qualitative analysis software, expanding the possibilities of triangulation, visualization and validation of data. This development will encourage a greater diffusion of the technique also in online and hybrid environments, strengthening its effectiveness in contemporary educational research. Beyond its technical evolution, the Critical Incident Technique is undergoing a broader epistemological transformation within qualitative inquiry. As researchers increasingly adopt multimodal, participatory, and design-based approaches, the CIT is shifting from a descriptive method of event analysis to a dynamic framework for understanding change, reflexivity, and professional learning. This transition positions the CIT as a bridge between traditional qualitative paradigms and emerging methodologies capable of capturing the complexity of lived experiences in digital and hybrid research environments. Its transformative potential lies in fostering adaptive knowledge construction, collective reflection, and methodological innovation — key directions for the future of qualitative research.

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