The development of an efficient technique for collecting and analyzing qualitative data: the analysis of critical incidents

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Traditionally, methods for collecting qualitative data have created practical difficulties in that they often require long-term engagement and, as a result, produce a great volume of data. This paper proposes and demonstrates a speedy technique for gathering and analyzing such data. It is argued that an analysis of critical incidents can be used by researchers interested in collecting qualitative data quickly as a method for doing a case study, but also, at the same time, in a participatory way that contributes to understandings that can be useful for the purpose of school improvement.

Setting the problem

Over the last few decades qualitative inquiries have become increasingly common in the field of educational research. Consequently, more and more books and articles are published reporting studies based on qualitative data. And, indeed, such reports are often attractive to readers because of their vivid and descriptive accounts, even though their production involves many difficulties. Often, researchers report having struggled to collect, manage and analyze their data. Existing methods usually require long-term engagement within the research context and, as a result, generate great volumes of data which are difficult to manage. Furthermore, they are time consuming and demanding in terms of resources. This suggests that there is a need to find new ways of collecting and analyzing data in order to make qualitative inquiry more feasible, not only for experienced researchers, but also for schools and teachers who want to carry out investigations in their school contexts.

The existing literature is not rich with examples of rapid methods for collecting and analyzing qualitative data. In a paper written mainly with external researchers in mind, Ainscow, Hargreaves, & Hopkins (1995) report the development of six techniques for collecting data for school improvement purposes that aim to be efficient in relation to the use of time. Three of their techniques focus on the individual teacher level and the other three on the school as an institution. They argue that the rationale of these techniques is to help in the generation of research data leading to refinement of relevant theory. From a similar perspective, Miles (1990) suggests two innovations for collecting and analyzing qualitative data quickly: the “vignette” and the “pre-structured case.” In the former, as Miles argues, the researcher is engaged in an intense short-term collaboration with a professional who reflects on a recent episode of practice by describing and then producing thoughtful explanations around it. In the latter, and in contrast with the traditional way of doing a case study that requires
extensive collection of data, the researcher has a predetermined framework which beforehand focuses on certain themes.

The present paper proposes yet a further efficient technique for carrying out qualitative research: the analysis of "critical incidents." As we shall see, this is a method by which an "outside researcher" can quickly gather rich data in a way in which otherwise would need a longer-term engagement. In this article, which aims to contribute to methodological discussions about carrying out qualitative research in schools, I focus on the technique of analyzing critical incidents as a method that can be used alongside others in creating a case study of a school. In my research (Angelides, 1999) critical incidents proved to be an efficient method for generating rich qualitative data, and in particular, for getting at the deeper levels of social processes within the context of schools. At the same time, I pay attention to the issue of carrying out research in a participatory way that can have some bearing upon development in the particular research context. It is a method that can be used for collecting data about practice for the purpose of bringing about improvements (Angelides, 2000) and for making sense of the role of culture in school improvement (Angelides & Ainscow, 2000).

The research background

The technique I promote here was developed as part of a three-year study (Angelides, 1999), the purpose of which was to find out how far an analysis of critical incidents can help us to understand the cultures of schools, what processes could be used to explore this question, and how might these help to bring about improvements in the practice of schools. This research was carried out following a qualitative naturalistic approach (e.g. Denzin & Lincoln, 1998; Lincoln & Guba, 1985; Miles & Huberman, 1994; Skrtic, 1985). The chief method used was an analysis of critical incidents. The use of critical incidents arose from David Hargreaves's (1995) analysis of the concept of culture, where he argued that school cultures can be considered as a "reality-defining function" often resulting from an earlier "problem-solving function." In combination with what Schein (1985) and Schon (1995) have suggested about "surprises" (see section "defining critical incidents"), we can assume that a critical incident, as it is defined below, is a surprise or a problematic situation, which stimulates a period of reflection (Schon, 1987; 1991a; 1995), or a solution of the problem. Linking Hargreaves's (1995) definition of culture with the ideas of Robinson (1998), who argues that practice is a manifestation of how earlier problems have been resolved, we can then propose the possibility that critical incidents (or practices) may conceal cultural assumptions, and that their analysis could be an efficient way of getting into the deeper culture of a school; or a way forward to an approach that can help in illuminating workplace cultures.

Defining critical incidents

The term "critical incident" has acquired a number of slightly different definitions. The working definition I use in this paper is based on Tripp's (1993, 1994) definition of critical incidents which includes the common-place events that occur in the everyday life of the classroom. He emphasizes that:
EFFICIENT TECHNIQUE

... the vast majority of critical incidents ... are not all dramatic or obvious: they are mostly straightforward accounts of very commonplace events that occur in routine professional practice which are critical in the rather different sense that they are indicative of underlying trends, motives and structures. (pp. 24–25)

From this perspective, critical incidents:

... are not “things” which exist independently of an observer and are waiting discovery ... but like all data, critical incidents are created. Incidents happen, but critical incidents are produced by the way we look at a situation: a critical incident is an interpretation of the significance of an event. (Ibid., p. 8)

Critical incidents, therefore, are not necessarily sensational events involving a lot of tension. Rather they may be minor incidents, small everyday events that happen in every school and in every classroom. Their criticality is based on the justification, the significance, and the meaning given to them. What I am suggesting here, in relation to the argument I have built above, is that these incidents can be used as a means for collecting qualitative data. Thus, everything that happens in classrooms is a potential critical incident, whose criticality depends on our interpretation – which is a quite complex intellectual process. Linking it, however, with Edgar Schein’s (1985) and Donald Schon’s (1995) ideas it becomes much clearer. Both have used the word “surprise”, which is the stimulus for reflection for the creation of a critical incident. A researcher (I explain the exact use of this term below) enters the school as an “interested outsider” (Schein, 1985) and he/she is engaged:

... in systematic observation to calibrate the surprising experiences as best he [or she] can and to verify that the “surprising” events are indeed repeatable experiences and thus likely to be a reflection of the culture, not merely random or idiosyncratic events. (Ibid., p. 114)

When an incident that surprises the researcher occurs, it becomes the stimulus for reflection (Schon, 1995), and this reflection leads to the decision about the incident’s criticality. This process is perhaps not very clear at the moment, but it will become much more concrete after we have discussed the issue of reflection in relation to critical incidents in the section “connecting critical incidents to reflection”.

Meanings given to critical incidents

At this stage in the argument, I need to make a distinction between “the analysis of critical incidents” that I propose in this paper and “the critical incident technique” developed by Flanagan (1954), who took a psychological orientation. He argues that to be critical:

... an incident must occur in a situation where the purpose or intent of the act seems fairly clear to the observer and where its consequences are sufficiently definite to leave little doubt concerning its effects. (p. 327)

From this point of view, the action in a critical incident has to be categorized by the researcher either as effective or ineffective, something that creates a need to know what the teacher is expected to accomplish. Therefore, this definition seems to limit possibilities, and requires the researcher to evaluate the teacher, something which is
likely to be risky and raises some ethical issues. Flanagan's technique was developed for use with occupational groups outside of schools and involved the use of quantitative criteria for collecting the critical incidents. Consequently, its application within schools might prove to be difficult and time consuming.

In the literature, as I have already mentioned, the term "critical incident" has acquired slightly different definitions. Researchers have approached the issue from a number of different angles. In general, the term "comes from history where it refers to some event or situation which marked a significant turning-point or change in the life of a person or an institution ... or in some social phenomenon" (Tripp, 1993, p. 24). These events "provoke the individual into selecting particular kinds of actions, they in turn lead them in particular directions, and they end up having implications for identity" (Measor, 1985, p. 61). In relation to schools and teachers' careers, critical incidents may be "highly charged moments and episodes that have enormous consequences for personal change and development" (Sikes, Measor, & Woods, 1985, p. 290). Furthermore, they are often:

... unplanned, unanticipated and uncontrolled. They are flash-points that illuminate in an electrifying instant some key problematic aspect of the teacher's role and which contain, in the same instant, the solution. (Woods, 1993a, p. 357)

Such major events, which occur very rarely in most teachers' lifetimes, become critical only after the event. Indeed, it is worth remembering that the criticality of an incident can be identified only after the consequences of such an incident are known. Consequently, we can examine those major incidents only later by interviewing the participants and those who were involved in them. Therefore, these definitions have limited flexibility and practicality in contrast with the working definition I have used for this paper, which is more elastic and can be applied any time and in any school context.

Between the career-phase periods and the flash-point incidents lie the "critical events," a related phenomenon to critical incidents, about which there has been some confusion (Woods, 1993a, 1993b, 1994). Critical events are "integrated and focused programmes of educational activities which may last from a number of weeks to over a year" (Woods, 1993b, p. 2). They are "in large measure intended, planned and controlled" (Woods, 1993a, p. 357). Consequently, their examination seems to be time consuming and produces a great volume of data, in contrast with the "analysis of critical incidents" which is a speedy technique for collecting and analyzing qualitative data.

Connecting critical incidents to reflection

Donald Schon has written a series of books analyzing the role of reflection in professional practice (Schon, 1987, 1991a, 1995). He introduces the concept of "knowing-in-action," which comprises the knowledge that can be articulated, and draws attention to knowledge that we know but cannot articulate (Schon, 1995). Behind this notion of "knowing-in-action," he argues, lies "reflecting-in-action," which is what the practitioner embodies in his/her practice intuitively through feeling, seeing or noticing. In examining critical incidents I found that the connection with "reflection-in-action" led me to think differently. Specifically, this made me realize the enormous impact of
teachers' reflections upon a critical incident, not least in relation to the way in which criticality comes to be recognized.

David Tripp (1995), in his book *Critical Incidents in Teaching*, refers to some routines that often become well established habits and notes that:

We often cannot say why we did one thing rather than another, but tend to put it down to some kind of mystery such as "professional intuition" or simply "knowing." (p. 17)

Concluding his book he makes a hint about the role of reflection in professional judgement, where, after the occurrence of an incident, the teacher makes a professional judgement and he/she reflects on the situation accordingly. This raises the question, "where does this reflection come from?"

Looking to Donald Schon for an answer I realized the tremendous complexity of the issue. In his book *Educating the Reflective Practitioner* (1987) he argues:

Depending on our disciplinary backgrounds, organizational roles, past histories, interests, and political/economic perspectives, we frame problematic situations in different ways. (p. 4)

In this sense, the teacher frames the incident and reflects according to his/her background, but is he/she aware from where such a reflection comes? The answer may be provided in Schon's (1995) book, *The Reflective Practitioner*, where he argues that:

Although we sometimes think before acting, it is also true that in much of the spontaneous behavior of skilful practice we reveal a kind of knowing which does not stem from a prior intellectual operation (p. 51) [and] when we try to describe it we find ourselves at a loss, or we produce descriptions that are obviously inappropriate. (p.49).

Additionally, he believes that we behave or reflect according to implicit rules and procedures:

- There are actions, recognitions, and judgements which we know how to carry out spontaneously; we do not have to think about them prior to or during the performance.
- We are often unaware of having learned to do these things; we simply find ourselves doing them.
- In some cases, we are once aware of the understandings which are subsequently internalized in our feeling for the stuff of action. In other cases, we may never have been aware of them. In both cases, however, we are usually unable to describe the knowing which our action reveals. (Schon, 1995, p. 54)

These rules and procedures are perhaps cultural assumptions embedded in our personalities, operating unconsciously. Therefore, we might presume that a teacher's reflection, which immediately follows an incident, is possibly related to these assumptions.

Furthermore, and perhaps more important for the development of this discussion, Schon (1995) emphasizes that:

... much reflection-in-action hinges on the experience of surprise; when intuitive, spontaneous performance yields nothing more than the results expected for it, then we tend not to think about it. But when intuitive performance leads to
surprises, pleasing and promising or unwanted, we may respond by reflection in
action. . . . In such processes, reflection tends to focus interactively on the out-
comes of action, the action itself, and the intuitive knowing implicit in the
action. (p. 56)

Connecting this perspective with what was said earlier about "surprises" and Schein's
suggestions on how to collect critical incidents, this theory of reflection has particular
implications for researchers who try to use critical incidents as a basis for their inqui-
ries. In particular, for the collection of critical incidents but also for their engagement
with the schools and later the data. Schon (1991b) raises a number of questions on this
issue. Among these are the following:

What is appropriate to reflect on? . . . How should the researcher choose a
strategy of attention? How should one choose units of description and analysis?
. . . . What is an appropriate way of observing and reflecting on practice? [p. 9] . . .
What does the reflective turn imply for the researcher's stance toward his enter-
prise - toward his "subjects," his research activity, and himself? In what sense
. . . should the researcher "give reason" to the practitioner he or she studies?
Does giving reason stop with the attempt to discover how the practitioner's
patterns of action make sense and reveal tacit understandings, or should the
researcher treat the practitioner as a researcher in his own right, an actual or
potential collaborator in the process of reflection on practice? (p. 11)

He reaches the conclusion that:

The researcher who would "give reason" has an obligation to turn his thought
back on itself, to become aware of his own underlying stories, to search out
possible sources of blindness and bias in his own ways of making sense of the
reality he has observed. And he cannot do this unless he is prepared to entertain
and test other ways of seeing his material, (Schon, 1991c, p. 357)

This statement has much to do with the trustworthiness and ethics of collecting and
analyzing critical incidents, something that I discuss in more detail later. In order to
make the link between critical incidents, reflection, and inquiry we have to pay
attention to the process of defining critical incidents. When something happens in a
classroom, an incident that surprises the researcher, it becomes the stimulus for re-
flexion regarding its criticality. When the researcher senses that the teacher was surprised
by an incident and, therefore, is reflecting on it, he/she records it as being critical and
forwards its analysis. Of course, sometimes it happens that some of the incidents that
the researcher considers to be critical are not recognized as such by teachers because
they were not surprised by the action of the critical incidents, but the researcher
wrongly thought that they were; therefore, they stay as just incidents and not critical
incidents. For others (e.g. Berlak & Berlak, 1981; Lyons, 1990) such surprises are
presented as dilemmas, where teachers have a choice from at least two options of
action, while eventually they follow one of their options.

**Analysing critical incidents**

So far we have examined perspectives of defining critical incidents and their relation-
ship to theories of reflection. This has shown how a critical incident is created and the
way a researcher can pick it up in order to proceed with its analysis. During this discussion I have made a number of references to “researchers,” without specifying who they might be. In this context the term implies “outsiders” (e.g., inspectors or academics) rather than a person within a school for ethical reasons. Within the research that has informed this article, I worked as an outsider in such situations and experienced many dilemmas (Angelides, 1999). For example, when an incident happens that has moral dimensions, should the researcher intervene in some way? This points to possible ethical difficulties that an “insider” might encounter.

Once the critical incident is noted, the researcher immediately proceeds with its analysis by interviewing the teacher and the child or children involved. For this process, no specific interview structure is needed; just knowledge about the event that has occurred. Because the analysis of critical incidents can be used as a method of conducting a case study, this knowledge can be strengthened when the researcher follows the three phases of inquiry recommended by Lincoln & Guba (1985) and keeps a research diary or a reflective journal (Burgess, 1982; Lincoln & Guba, 1985; Spradley, 1979). Thus, the “outsider” researcher, as Schein (1985) suggests, should help the “insider” teacher or child to:

...search in his/her own mind for the deeper levels of explanation that can help both persons [the researcher as outsider and the teacher or pupils] decipher the basic assumptions of the culture. Since the essential data are in the insider’s head, the process must be designed to bring out these data, which the insider takes for granted. The outsider must be sensitive to how best to probe without arousing defensiveness, including superficial explanations, or exhausting the insider to the point of wanting to terminate the relationship. (p. 116)

The interviews with teachers can be tape recorded. Interviewing children, however, raises a number of methodological issues. Considering the vulnerability of children, we need to take into account what other researchers have said about interviewing children (e.g., Armstrong, 1995; Cooper, 1993; Davies, 1982; Hopkins, 1993; Pollard with Filer, 1985; Pollard, 1996; Tatum, 1982). Cooper (1993), for instance, emphasizes the importance of the interviewer’s role for helping the interviewees “to express their views as lucidly as possible” (p. 253). For this purpose, techniques familiar to counselors, such as active listening, paraphrase, and reflection can be employed. Armstrong (1995) agrees with Cooper and lists the following suggestions:

Gaining access to children’s perspectives requires skill in communicating meanings embedded in children’s language and behaviour. It also requires an understanding of the nature of interactions between adults and children (p. 67).

With this in mind, the first priority for the “outsider researcher” is to help the children to accept him/her as someone to whom they can talk. When interviewing children, I found it better to adopt the style of an informal chat, usually walking and talking in the school playground rather than using tape-recorded private interviews where children might be stressed, anxious or uncomfortable (Angelides, 1999). Notes can be made immediately after the interview. With this style children feel much more comfortable, express their thoughts more freely, and consider the interview as simply a friendly talk. These interviews, of course, are voluntary and pupils have the right to conclude them at any time or to refuse to answer any of the questions that are put.

Having interviewed the people within the critical incident, the researcher tries to put together a composite picture of the perspectives of people within that situation.
This can be strengthened with Lincoln’s (1985) perspectival shift which implies multiple views of the same phenomenon that may reveal multiple realities that are constructed by the participants in the same situation. Therefore, the researcher should deliberately consider various explanations and interpretations of the actions of the people involved in order to gain a better understanding of the assumptions that they take for granted. In this way, he/she can look behind people’s actions in search of factors related to the life of the school that might have shaped their behavior, and might have driven their actions.

In order to go deeper into the taken-for-granted norms a methodological way is needed, an interpretive tool that would enable the researcher to look behind the ideas of teachers and pupils. For doing this, I suggest a device developed in another study that concentrated on an analysis of critical incidents in schools (Angelides, 1999). It is a series of questions which are a version of Smyth’s (1987, quoted by Smyth, 1991) questions. This device provides a guiding map, a way of probing into a critical incident in order to find what we really learned from that account (see Table 1). It is important to recognize that when asked to analyze critical incidents in which they were involved, people are often emotionally charged. Therefore, we need a system of doing this that minimizes these difficulties.

<table>
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<tr>
<th>Table 1. Probing questions for interrogating critical incidents</th>
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<td>1. Whose interests are served or denied by the actions of these critical incidents?</td>
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<td>2. What conditions sustain and preserve these actions?</td>
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<td>3. What power relationships between the headteacher, teachers, pupils, and parents are expressed in them?</td>
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<td>4. What structural, organizational, and cultural factors are likely to prevent teachers and pupils from engaging in alternative ways?</td>
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I provide below two critical incidents (I analyze only one because of space limitations) from a study conducted in schools in Cyprus (Angelides, 1999) which give a flavor of and illustrate what I have defined as “critical incidents,” whilst at the same time demonstrating how the procedure might be used.

**Critical incident 1: Late to class**

After a break, Mr Pericles stopped a group of four girls who came into the class a few minutes after him. “Why are you late?” he asked; the girls just laughed with an expression of surprise as if not expecting such a question, but also with an expression of guilt. “Sit down and don’t do it again, because I won’t accept you in the class” was Mr Pericles’s reaction and the incident ended there.

**Critical incident 2: “Bad reading”**

This occurred in a fourth-grade class with 24 children. Mrs Cleopatra, the 58-year-old deputy headteacher of the school, informed me that she had a “problematic” boy, Pantelis, that she could not handle. During the first two days of observation he did not display any significant problems of behavior. Occasionally he would raise his hand to
give answers and he always seemed willing to clean the blackboard. On the other hand, Mrs Cleopatra seemed to be preoccupied with Pantelis’s behaviour. For example, after he scored 85 in a math test she came to the class and said aloud to him:

You got eighty-five, that’s very good. You see, you can do it if you want, but you don’t make enough effort.

The following day, during an art lesson, Pantelis took his painting and went over to the teacher. He asked her for a new piece of paper because he had destroyed his first one, having used too much black color. At this point Mrs Cleopatra turned to me and made the following comment:

Look at him, the same again. The other day he made a good painting, a nice portrait and I put it on the board, but now nothing, he’s just making trouble again. I can’t stand this. [And turning to Pantelis] No, go and finish this painting.

Both incidents might well have been defined as being critical, but in fact they were not, since I was conscious of feeling influenced by Mrs Cleopatra’s comments about Pantelis. I wanted some more time to get closer to the situation.

During the first session of the third day of observation, Mrs Cleopatra asked the children individually to read aloud, correcting their errors when necessary. When Pantelis’s turn came, he made quite a few mistakes. Eventually the teacher interrupted him, saying: “You see, you have difficulties in reading. Reread it!” Pantelis immediately stopped reading, closed his book, and banged it on the desk. Mrs Cleopatra turned to me and said: “Again, he is angry, that’s what I was telling you about.”

This incident was considered to be critical and, therefore, further analysis was made. Interviewing Mrs Cleopatra and Pantelis revealed interesting interpretations of what had occurred, including some relevant background information. For example:

- Mrs Cleopatra declared that she would not pay attention to Pantelis unless he confessed he had made an error and re-read the sentence.
- At the beginning of the year Pantelis had been sent by Mrs Cleopatra to a newly created additional fourth-grade class because the numbers of pupils in the two existing classes were over the legal limit, but his father had threatened that if this happened he would complain directly to the Ministry of Education. So Mrs Cleopatra had felt obliged to leave Pantelis in her class.
- Comparing the situation of Pantelis with another boy in the same class (Soteris), who seemed to be allowed more chances by the teacher, Mrs Cleopatra revealed that Soteris’s grandfather, who had formally been the head-teacher at the school, had helped her to get the class she wanted, i.e., one with more “A” grade pupils. All this was accomplished with the help of the head-teacher and without the knowledge of the teacher in the parallel class, who had suggested that the classes be allocated by drawing lots.

Using the probing questions (see Table 1), it was possible to move to a deeper analysis, from which a number of further, more general issues emerged that seemed to throw light on the situation in the school. Here it must be noted that these issues were part of the overall case study of the school and arose as a result of the analysis of a series of critical incidents, observed in a number of different classrooms.

These issues were as follows:
Teachers seemed to categorize pupils on the basis of perceptions of their general ability to learn.

The headteacher's relationships with the teachers appeared to vary considerably in relation to two sections of the staff, based largely on their age, i.e., older staff (over 45), and younger staff (below 30).

The older teachers tended to dominate the school decision making and, indeed, the overall school environment. They seemed to have "vested interests" within the school and attempted to protect these from any proposed changes, not least from proposals made by their younger colleagues (e.g., to get an "easy" fourth-grade class and not a fifth- or a sixth-grade class that would probably require far more lesson preparation).

The older teachers appeared to use their powers of influence on the headteacher in order to sustain their domination of the school environment and to advance their interests.

Teachers' actions appeared to be under very strong parental influence.

Historical factors, related to past and recent events in the school, were seen to influence the actions of teachers, pupils, and parents.

The headteacher's managerial style seemed to have a significant influence on the overall culture of the school and the teachers' actions in particular.

There was evidence of a sense of complex political allegiances within the staff of that school that bears on the actions people take.

Once a series of critical incidents has been analyzed and interpreted, leading to an overall description of the school's practices within an accessible form, the analyses are returned to the staff as a "member check" (Lincoln & Guba, 1985) in order to elicit their feelings and their further reactions (Schein, 1985). This process provides further data which, in my experience (Angelides, 1999), have been very rich but, at the same time, it becomes a participatory process that can facilitate improvement efforts. Once different people in the school have had the critical incidents described to them with the interpretation, we can then ask:

- What does it tell us about ourselves?
- What can we learn from this analysis?
- What does it point to about the nature of the way in which we work together?
- Does it help us to see things that we could change?

In this way it becomes a participatory process that can facilitate improvement efforts. At the same time, it is a "collaborative inquiry" (Ainscow, 1999) where the researcher works together with teachers to generate meaning from relevant data.

Establishing trustworthiness

So far I have put forward my suggestion about collecting evidence around critical incidents. I have also provided a way of probing into a deeper level of interpretation in order to interrogate the social processes within the context of schools. My overall purpose was to illustrate how this technique can be used quickly, but also to make clear that this method can contribute to understanding within the context so as to facilitate school improvement. The question that arises, however, is: "how could we establish this technique as credible and trustworthy?"
Both Robson (1993) and Lincoln & Guba (1985) ask the same question regarding trustworthiness: "how do you persuade your audience, including yourself, that the findings of your inquiry are worth paying attention to, worth taking account of?" And perhaps more importantly, how can we do this when we follow the naturalistic paradigm that is value bound (Lincoln & Guba, 1985) and when the only research instrument is one individual, as happens in our case. In trying to establish findings from the technique I propose here as sufficiently plausible and credible (Hammersley, 1992; LeCompte & Goetz, 1982), we need to adopt a number of suggestions from other researchers (e.g. Lincoln & Guba, 1985; Schon, 1991a) for establishing trustworthiness, i.e., peer debriefing, triangulation.

Inquiry, according to the naturalistic paradigm, is value bound; therefore, the values of the researcher influence the process of inquiry. In using critical incidents as a method of doing qualitative naturalistic research, subjectivity is obvious. It is impossible to be neutral or objective in your investigations, your experiments, your methods, or your rational processes (Lincoln, 1985). However, by using Lincoln's concept of perspective, as it is explained above, we can minimize this difficulty. This is supported by Karl Popper's argument:

"Popper's argument is that, since we cannot confirm hypotheses and can at best disconfirm them, the fundamental test of validity consists in competitive resistance to refutation. One must juxtapose alternate plausible accounts of the phenomenon in question, and one must try to discriminate among these by means of a crucial experiment -that is, by making an observation consistent with only one of the contending hypotheses. (Schon, 1991c, p. 348)"

In this sense, the researcher should always be open to different possibilities by continually seeking alternative explanations of his/her interpretations. Each emerging theme should be examined from different angles, different perspectives and different points of view for the purpose of developing a richer understanding of it. In this way, the findings of the inquiry are most likely to be determined by the respondents and conditions of the inquiry and not by the values of the researcher.

"A further technique for establishing trustworthiness is that of peer debriefing, which is: a process of exposing oneself to a disinterested peer in a manner parallelling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind. (Lincoln & Guba, 1985, p. 308)"

This process helps the researcher to keep him/herself "honest" by exposing him/her to probing questions by somebody who is asked to play the role of devil's advocate after the collection and analysis of a critical incident. Moreover, it keeps the researcher aware of his/her role in the school and provides him/her with an opportunity to develop his/her thinking for the subsequent stages of the study. Finally, these sessions are also an opportunity for "catharsis, thereby clearing the mind of emotions and feelings that may be clouding good judgement or preventing emergence of sensible next steps" (ibid., p. 308). They give the opportunity to the researcher to turn back to his/her own thinking and find possible biases and mistakes during periods of observation and interpretation (Schon, 1991a).

Triangulation is a third technique for establishing trustworthiness. In the literature the idea of triangulation has very different meanings. McFee (1992) describes two types of triangulation: triangulation between methods and triangulation within a
method. The possible meaning of these is suggested by two sources, adopting different perspectives on research: Miles & Huberman (1994), who describe themselves as "logical positivists," see the idea of triangulation as confirmation (between methods). They ask themselves if what they saw is confirmed from what they heard. On the other hand, Lincoln & Guba's (1985) idea of triangulation, based on a naturalistic view, involves looking at things from different angles and exploring different understandings, trying to give added interpretation to them (within a method). The researcher has to sort out these conceptual tensions, but Lincoln & Guba's point of view seems to be closer to the technique presented here. By looking at the critical incidents from different angles while seeking alternative explanations of his/her interpretations the researcher can develop better understanding of the incident that has occurred.

Concluding remarks

This paper has explored and demonstrated that there is some potential in working with critical incidents as an efficient technique for gathering qualitative data quickly, but also as a method of efficiently getting at the deeper levels of the social processes within the context of schools. This technique can be used by "outsider" researchers who are interested in getting away from the traditional ways of carrying out case studies. The advantages are that they do not require a long-term engagement with the case, something very significant in terms of the difficulties that qualitative researchers often report. The collection of data can be made in a short time, the volume is almost always manageable and the themes of inquiry are not very wide, because they are concentrated around the collected critical incidents. Furthermore, the approach is flexible, and can be used not only as the chief method, but also alongside others in a case study of a school. Moreover, it provides a methodological way of analyzing data, a task which is usually rather complex, messy and not straightforward in qualitative research. The overall approach, therefore, saves time and perhaps money.

The information obtained through the analysis of critical incidents provides close proximity to the "real life situation" (Robson, 1993) and therefore is buttressed by "local groundedness" (Miles & Huberman, 1994). These data are focused on particular events embedded in their natural context. In analyzing them, we can precisely see which events led to which consequences and make our interpretations accordingly.

While this technique is valuable for researchers, it is, at the same time, a participatory process which has the power to contribute to knowledge that has some bearing upon development within the particular context. It has the capacity to facilitate schools to probe deeper into their norms as workplace norms in search of factors that might obstruct attempted innovations. In addition, it is a "collaborative inquiry" (Ainscow, 1999) between the researcher and teachers which aims to produce meaning for improvement.

On the other hand, the application of an analysis of critical incidents has some limitations and raises a number of ethical issues. During interviews, the researcher can easily be diverted from the purpose of his or her study, due to the fact that interviewees tend to try to give reasons for their actions and do not concentrate on the researcher's questions. There is also the danger of the researcher being stuck with superficial explanations of the actions of people as they try to present themselves as not being at fault in the incident under investigation. Although critical incidents are minor everyday events, the people involved are sometimes emotionally charged as a result
of the event and may feel offended by the researcher’s comments during the interviews; therefore, in such cases the researchers must be especially sensitive. In addition, the researcher sometimes faces an incident with moral dimensions. Should he/she intervene in some way?

The technique of analyzing critical incidents seems to be positive. In the context of a particular study (Angelides, 1999) it proved to be successful. In my opinion, it is a promising method and is worthy of further research. I therefore take the opportunity to invite other colleagues to take up the idea and try this method when doing qualitative inquiries. In the last few years there has been a considerable increase in the quantity and quality of contributions to the methodological debate. I hope that my proposal will add another interesting issue to this attractive discussion.

Acknowledgments

The author would like to thank Professor Mel Ainscow for his valuable comments on this paper.

References
