CRITICAL INCIDENTS: THEIR USE AS A RESEARCH TOOL IN ADULT AND VOCATIONAL TEACHER EDUCATION

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For most of us our memories of childhood revolve around a series of critical incidents. They have been fixed in our memories for a number of reasons. They were significant in themselves. We had cause to reflect on them at the time. They involved parents or other adults who reminded us of them as we grew up. They were connected to a particular time or place or smell and the memory is triggered by similar conditions. They marked a step in our development as a person. Or any number of other personal reasons. My recollections of childhood are vague but there are such incidents that remain firmly etched in my memory. The day I put the drawing pin on the teacher's chair in first grade. The afternoon my brother allowed Cookie to escape from its cage. The Christmas I nearly lost my eyesight when the same brother fired what he thought was a blank ramset bullet. Interestingly I not only remember the incident but the lesson I learned from it. For instance, since that dramatic day in first grade, I have restricted my use of drawing pins to notice boards.

If most of us were asked to recall our professional life our account would be similarly composed of a series of critical incidents. Their selection would be entirely subjective. People who were in the same room when they occurred might, when reminded, see no significance in the event at all. What does all this tell us about critical incidents? That they are usually singular, significant, memorable, personal and the source of some sort of retrospective judgement or reflection. Almost invariably they result in our learning something. If one did a survey of a thousand such critical incidents one might find that they are also often unpleasant or dramatic. The death of a friend, a disfiguring accident, a job retrenchment, an insult or some irreconcilable conflict at work. Negative occurrences seem to stick in the mind. Because of this it is important for the purpose of this paper to show that critical incidents can include relatively unimportant incidents, pleasant events or occasions that gather significance and are fixed in our memories because of meaningful coincidence. What makes them critical is that they make us think, judge and decide. In the entry for the word 'critical' in the Shorter Oxford English Dictionary (vol 1, p 458) the definition 'involving or exercising careful judgement or observation' takes precedence over 'decisive or crucial'. No matter how minor critical incidents are they tend to change the way we feel, think or act. In order to make this point more clearly I want to quote at length an incident or association that appears in Herman Hesse's The Glass Bead Game. The narrator is Joseph Knecht, the main protagonist of the novel. Knecht was a schoolboy of fourteen at the time and already a pianist of great technical skill. He had gone to cut some elderberry switches with a companion. It was early spring.

"We came to the elder bushes. They had tiny buds, but no leaves, and as I cut off a twig, a powerful, bittersweet scent wafted toward me. It seemed to gather and multiply all the other smells of spring within itself. I was
completely stunned by it; I smelled my knife, smelled my hand, smelled the elder twig. It was the sap that gave off so insistent and irresistible a fragrance... Possibly I would never have forgotten this scent even if the experience had remained isolated. Rather, every future encounter with that smell deep into my old age would in all probability have revived the memory of that first time I had consciously experienced the fragrance.

"But now a second element entered in... on the day of that walk to the elderberry bush or the day after, I discovered Schubert's spring song, "Die linden Lufte sind erwacht," and the first chords of the piano accompaniment assailed me like something already familiar. Those chords had exactly the same fragrance as the sap of the young elder, just as bittersweet, just as strong and compressed, just as full of the forthcoming spring. From that time on the association of earliest spring, fragrance of elder, Schubert chords has been fixed and absolutely valid, for me. As soon as the first chord is struck I immediately smell the tartness of the sap, and both together mean to me: spring is on the way.

"This private association of mine is a precious possession I would not willingly give up. But the fact that two sensual experiences leap up every time I think, ‘spring is coming’— that fact is my own personal affair. It can be communicated, certainly, as I have communicated it to you just now. But it cannot be transmitted. I can make you understand my association, but I cannot so affect a single one of you that my private association will become a valid symbol for you in your turn, a mechanism which infallibly reacts on call and always follows the same course.” (Hesse, 1987 ed, pp 69-70)

The incident, so apparently insignificant to an outsider, was to affect Knecht's views on music and life and allow him to see them both holistically rather than in a narrow and purely academic way.

Most people already have an instinctive understanding of what a critical incident means for them. This is an important consideration when we decide to use critical incidents as a research methodology. We should avoid where possible confusing jargon which can obscure something that is naturally clear. The methodology is born of common sense and should be applied without losing sight of this. The introduction also makes the point that incidents in themselves and in their effects can be both positive and negative and it explains how individuals process the critical incidents in their lives in order to make them meaningful and effective. I would go so far as to say that unless an incident causes such reflection, conscious or unconscious, and unless that reflection leads to a change in attitude, thinking or behaviour, then the incident should not be described as critical.

The use of critical incidents as a research methodology has had its ups and downs since it was first employed by John Flannagan during the second World War. Flannagan used the technique to ascertain factors that helped or hindered effective pilot performance by asking pilots to record critical
incidents that occurred during a flying mission. These were categorized and analysed and measures introduced to obviate the causes of such critical incidents. The methodology was not enthusiastically embraced by the social scientists of the fifties and sixties who were busy aping their counterparts in the natural sciences. It was a methodology that could not be forced into a quantitative straightjacket since it relied heavily on the subjective memories of individuals. Despite its lack of popularity among academic researchers, professionals in a number of fields related to the social sciences used critical incidents to find out things about people and processes all the time. When patients entered hospital they were asked to remember any critical incidents that might have affected their previous state of health—any major illnesses, allergic conditions, etc. Psychiatrists in initial consultations asked clients to go over any significant or critical incidents in their lives. Lawyers preparing a brief only wanted to know the pertinent or critical events that had a bearing on their client's case. This was of course common sense. In seeking information on a subject one wants to know the important or critical detail rather than the trivia.

By the seventies when science and the scientific model was losing some of its gloss, social scientists again used critical incident methodology to investigate such things as work motivation, group processes, aspects of nursing, and the thinking-feeling process in achievement-related contexts (see Woolsey, 1986, p 242 for a list of such research). In an article published in 1978 Flannagan presented a progress report on developing and applying a research approach to improve the quality of the American way of life. The critical incident technique was used extensively. Over 6,500 critical incidents were collected from nearly 3,000 people of various ages, races, and backgrounds representing all regions of the country. A variety of questions were asked such as, 'Think of the last time you did something very important to you or had an experience that was especially satisfying to you. What did you do or what happened that was so satisfying to you? Why did this experience seem so important or satisfying? The incidents that were gathered in this way were sorted into categories involving similar types of behaviors and experiences. Through an inductive process of gradual refinement, a set of 15 categories was formulated. Three cohorts, each of 1,000 individuals representing different age groups were asked to rate the importance of the fifteen factors on their current quality of life. It was perhaps the most ambitious use ever made of the critical incident technique and the interim results are fascinating.

What Flannagan's massive project showed was that the technique, grounded as it is in common sense procedures, is ideal for gathering qualitative data. In Woolsey's words it is "an exploratory qualitative method of research that has been shown both reliable and valid in generating a comprehensive and detailed description of content domain" (Woolsey, 1986, p 242). Amundson and Borgen used it in 1988 to discover the factors that help or hinder in group employment counselling. Their informants were people involved in job search groups and they were asked during a guided interview to report on the positive high points as well as the lows they had experienced in their groups. The incidents were analysed and reduced to 19 helping and 10 hindering categories. A number of practical suggestions for assisting unemployed people were made on the basis of the research.
Professionals in the education area will be aware that two manuals aimed at helping teachers with classroom management issues have been produced using the critical incident technique. One, published in the USA in 1964 and entitled *Critical incidents in teaching* is a collection of 17 carefully selected incidents from elementary schools. Each incident is followed by a series of questions from the teacher involved and responses from experts in the field (Corsini and Howard, 1964). The other book is called *Critical incidents in TAFE teaching* and was prepared under a grant from the Tertiary Education Commission by Killen, McKee, Macleod and Spindler. It is similar in layout to the earlier book except that it is intended for use by TAFE teacher trainees and they are expected to discuss the questions that follow each incident in groups and devise solutions to the management problem presented in the incident (Killen et alia, 1983).

In research that I am currently conducting with Robyn Young of the Northern Territory University, we have targeted a group of 100 TAFE teachers and adult educators who are involved in an in-service teacher education program. We have collected critical incidents from them following the procedure I outline below and analysed that data in order to find answers to the following questions:

- What are the main categories of critical incidents in adult and vocational education settings in the Northern Territory?
- Is there a particular catalyst for each incident? Can one categorize such catalysts?
- To what extent does a critical incident change the subsequent feelings, thinking or actions of the practitioner involved (human development)?
- To what extent and in what ways does it change the educator’s practice (professional development)?
- Are time and place factors in the occurrence of critical incidents?
- What proportion of the actual incidents are perceived as positive or negative?
- What proportion of the effects that flow from the incident are perceived as positive or negative?
- Of the targeted group, who remembers the incident(s) most vividly. What are the factors that contribute to clear recollection? Time of incident (recent versus long past?), age, sex, specialization of the practitioner?

The impetus for this study came from requests by adult educators and TAFE teachers who were upgrading their qualifications in the Northern Territory’s Education Faculty. They specifically wanted assistance with problems of classroom management. Such problems (particularly discipline matters) are often ignored because it is assumed classes of adults are easy to manage. In
Critical incidents of a negative nature do occur and, in workshops particularly, can have implications for the safety of both the individual involved and/or the class itself. With increasing numbers of programs for the long term unemployed (schemes such as Newstart and Jobtrain) other adult facilitators are also finding themselves faced with difficult classroom situations, situations caused in part by the need to teach people who are not really interested but must attend for economic reasons (their allowance is tied to attendance).

Our original intention was to concentrate on troublesome incidents and categorize and analyse them with the aim of devising strategies to help practitioners cope when and if they occurred. We had hoped to build directly on the work of Corsini and Howard (1964) and Killen et alia (1983) and like them offer a practical manual to assist teachers of adults in the Northern Territory in dealing with a variety of situations which, judging from the data, are likely to occur here. We had hoped that our audience would derive some benefit from by being exposed to incidents that others in their profession have acknowledged as critical. Moreover we thought that the mere awareness that others have experienced such difficulties was likely to be reassuring and energizing for beginning practitioners in adult and vocational teaching. This latter aim was seen to be especially relevant in the 1990s when both the role and the circumstances of such teachers are undergoing rapid change.

One of the features of the sort of critical incidents mentioned above is that they occur unexpectedly. The lecturer is not prepared for the occurrence and is required to make some response, usually one for which no planning is possible. Being thrown back on his or her personal resources in what may be a very demanding situation (because of safety aspects, attacks on personal status or other reasons) can be traumatic and it is often for these reasons that an incident becomes 'critical' and leads to later soul searching. As we mentioned above more positive experiences, even though they have critical repercussions, are often not remembered as vividly as negative or humiliating ones.

When we looked at the repercussions of such incidents, we became aware that negative incidents can have very beneficial outcomes. The way a trade teacher handled an oilfight among apprentices in his workshop, resulted in a much better understanding of the ground rules by all parties and an increase in the teacher's confidence and authority. The opposite is also true. For instance a particularly good lesson or experience that was seen as a turning point by one practitioner and remembered as critical, actually lead to complacency and self satisfaction, unhelpful characteristics in an adult educator. We realized how important it was to analyse the actual incident and the learning outcome, whether positive or negative. We also became aware that an analysis of critical incidents has wider implications than the improvement of classroom management. Teachers can for instance use the technique with their own students both as a research and a teaching methodology. To incorporate these new features into our research design meant broadening our definition from a 'troublesome' incident, the sort of definition used mainly in the two books mentioned above, to a 'critical' incident in the sense that I have used it in this paper. This has allowed us to look at a wider range of incidents, some that may have seemed unimportant.
to an outside observer but which meant a great deal to the reflective practitioner involved. Broadening the definition however also meant broadening the methodology and it is to this subject that we now turn.

Since the whole process is a common sense one there are a number of common sense steps to be taken in using and adapting the critical incident methodology for research purposes. In our case the first step was to identify the aim of our research in clear and simple terms. Our current aim is to categorize critical incidents that our students have experienced in their teaching and determine whether they have helped or hindered their personal and professional development. The next step was to determine how the critical incidents would be collected. In our study the informants were given some background on the concept of critical incident and then asked to write down an account of one they remembered. The invitation to do this was kept open ended.

As Woolsey points out 'Because the critical incident technique is descriptive and exploratory, sampling requirements are much less stringent than for traditional methods of research. The major purpose of critical incident study is to provide complete coverage of the content domain.' (Woolsey, 1986, p 245). In our case the informants represented the entire population of the year two and three intake for the 1993 Associate Diploma of Education, Bachelor of Teaching and Graduate Diploma in Education courses in Adult and Vocational Education. Because of the University's location, small size and limited intake this complete sample of inservice teachers comprised a very interesting cross section of people including trade teachers, nurse and police educators, facilitators of programs for the unemployed, Aboriginal adult educators and others. Biographical data on the respondents was available to us (with permission) via the student information system (SIS). Although generalizations from our study would have most significance for TAFE and adult educators in the Northern Territory we felt the results of the study could benefit all teachers working in adult education settings. This was particularly so since we foresaw some additional outcomes from our study, namely, suggestions on the use of critical incidents as an action research technique, as an evaluative instrument and as a teaching technique, particularly with Aboriginal students and the long term unemployed.

In critical incident methodology the analysis of data is governed by the overall aim of the research. The results of our initial survey were rich enough to be used in a number of ways so it was important for us to keep in mind our frame of reference, that is, factors that help or hinder the personal and professional development of adult educators and TAFE teachers in the Northern Territory. The researchers sorted the hundred incidents into categories using, 'insight, experience and judgement' (Flanagan, 1954, p 344). This is, admittedly, a subjective process, but the final categories were arrived at by consensus between the three researchers who went through and categorized the incidents independently and then matched and argued for a set of categories. Given time and resources it would be advisable at this stage to ask three independent assessors to also go through the incidents and categorize them. If a body of literature exists in which similar categories could be found they should also be cross checked. Such a process would enhance objectivity. In our case we had neither the time nor the resources to
Our final list of categories consisted of incidents that were mostly to do with:

a) language based factors
b) culture based factors
c) gender based factors
d) safety based factors
e) mandatory attendance at sessions
f) student personalities
g) socio-economic factors
h) age based factors
i) lack of sophistication of learner in formal education setting
j) disability based factors
k) other

These categories will be used in a phone interview with the individuals involved. Informants will be sent a copy of their original written incident, along with an interview schedule. They will be contacted by our research assistant and asked to choose where they think their incident fits among the above categories. They will also be asked to describe the three main effects of the incident on their practice and to indicate whether the incident affirmed or denied adult learning principles as outlined by Brundage and MacKeracher (1980, pp 97-116).

We hope to report our findings in book form and in keeping with the methodology itself intend that the text be readable and evocative. Although we do not plan to publish a whole series of complete critical incidents as earlier books on the subject have done we will weave direct quotations from our informants into the text when and where it is appropriate. By doing so we hope to evoke an understanding and feeling for the sort of people who are involved in vocational and adult education in the Territory, and for the situations that they consider critical in their professional life. Where an incident captures the quintessence of a particular category we would be likely to report it in more detail. Since we are well aware of the limitations in such a qualitative study we will, as suggested by Flannagan, make mention of limitations specific to our study. It should be noted however that as regards validity Andersson and Nilsson (1964) found

the critical incident technique to be valid in representing the content domain, so much so, that other methods of assessing the same domain added no new information. After two thirds of the incidents had been classified, 95% of the content categories appeared. In addition the subcategories were found to be stable. The number and structure of the incidents were affected only slightly by different methods of data collection and by different interviewers. They concluded that the method is both reliable and valid' (quoted in Woolsey, p 251).

What then are the advantages and disadvantages of the critical incident methodology? In my opinion its greatest strength is that it is grounded in common sense. If you want to find out something about a particular group of people or a particular content domain you ask the people involved. If you want important rather than trivial information or data you only ask about
'critical incidents'. Since you are engaged in a phenomenological study it is not up to you as a researcher to decide what is important or not. That should become clear when you collect enough critical incidents and begin to categorize their content. What is of general value will become clear as themes or categories emerge. What is highly significant to an individual but unimportant or uncommon to the group will also emerge. Such datum can be treated as a 'one off incident' that may or may not be used in the report, depending on the study's frame of reference. In some cases such individual instances are the exceptions to the rule and help remind the researcher that since they are using a qualitative method of research their data will naturally be rich and diverse and may not easily fit into preconceived categories. This drawback is also an advantage. The researcher uses inductive reasoning to arrive at categories but the categories themselves are based on real instances. One could be tempted to see this process as cumbersome. Flannagan's massive 1978 analysis of 6,500 critical incidents resulted in fifteen 'quality of life' components that many people would have posited using common sense or common belief. But this of course denies one of the main purposes of research: to conclusively prove or disprove commonly held beliefs.

There is another decided advantage of the critical incident methodology. As Woolsey points out, it is also highly flexible. It can be used to study a wide range of phenomena, for example, relationships, decision making, self-actualization, vocational choice, and group process. It can be modified to collect data on factual happenings (rather than restricting its use to 'critical incidents'), and on qualities or attributes; to use prototypes to span the various levels of the aim or attribute (low, medium high); and critical or factual incidents to explore differences or turning points.

Woolsey's main application was with counselling work and one only needs to read popularized self help manuals such as I'm OK, You're OK by Harris and Harris to understand how effective the reporting of critical incidents can be in explaining psychological concepts and principles. Perhaps the most useful aspect of the critical incident technique is the way it enables the researcher to do preparatory or exploratory work in his or her chosen area. In our own case the critical incidents we have collected will enable us to come to some conclusions about issues in classroom management and help us answer some of the questions posed earlier. But more importantly it will provide us with enough data to begin constructing a theoretical model for use in further research. Information we gathered early in the project helped us prepare a more detailed interview schedule but could equally be used to construct a questionnaire for a related study. In other words the critical incident technique is ideal for generating information and ideas that can be applied in a new, related or more ambitious research projects.

I predict that critical incident methodology, under whatever name, will enjoy a resurgence in coming years because of the production of computer software that will enable researchers to more effectively process the mass of data generated by it. Nudist, a software package produced by La Trobe University, is a non numerical, unstructured data base that enables a researcher to index, sort and theorize about large chunks of transcribed interviews or other
such data. Nudist is project oriented in that the researcher uses it to manage and develop a project. How one uses it depends on the goals of the project. These could range from 'the categorization of data in the documents using the index system (for purposes of simple data organisation and retrieval), to the development and testing of analyses, explanations or theories about the documentary material' (Richards, seminar, February 1993). Certainly such software programs add another dimension to what has been a well tried but not always well respected research methodology. In the area of University and TAFE training research, which focuses on people and their understanding of effective adult learning, the collection and analysis of critical incidents is particularly appropriate. Hopefully research findings using this method will provide directions in teaching and teacher training that are based on the perceptions of the teachers and facilitators themselves rather than on the preconceived ideas of powerful bureaucrats with a national agenda in mind.

REFERENCES


