The role of a multi-method research approach on critical research

Deborah Blackman
University of Canberra
deborah.blackman@canberra.edu.au

and

Anneke Fitzgerald
University of Western Sydney
a.fitzgerald@uws.edu.au

ABSTRACT

This paper analyses the use of a multi-method approach to research, focusing predominantly upon the need for increased criticality in management research. Reasons for new methodological approaches will be established and the consequent role of multi-method research and its place in an interactive process of research will be explored. Two examples are analysed to demonstrate how the use of multi-methods may add value and criticality to management research. The paper concludes that, whilst it can be time consuming, a multi-method approach needs to be considered more often if research is to continually challenge current thinking.

INTRODUCTION

Mixed methodology is where both qualitative and quantitative research strategies are applied to the same research question(s). Reasons for doing this are to do with the fact that different research designs, when focussed upon the same question can lead to different understandings of the problem and alternative findings and explanations (Blackman and Benson, 2004). When undertaking research, it is usually argued that the framework of the methodology design will be directly relevant to the type and scope of the data collected (Cresswell 1994; Blaikie, 2000a); ‘The overall choice [of methodology] needs, of course, to be the most suitable to achieve the objectives of the specified piece of research’ (Amaratunga et al., 2002, p.30). As a result of this, it is logical to assume that a different methodology might lead to a different understanding of the same question. Such differences could be explored, compared and contrasted in order to develop a more holistic and considered perspective on complex
problems. For this reason, multi-methods are being applied to expand the answers to research problems (Cresswell 1994; Denzin 1970; Denzin and Lincoln 1994; Onwuegbuzie 2002) and develop more critical approaches to knowledge development (Blackman and Benson, 2004, 2005). Moreover, such methodologies are seen to have even greater value where a pragmatic approach is required which highlights the importance of understanding the consequences between different, but dependent elements (Carlile, 2002; James, 1970).

In research that adopts multi-methods, the design is usually still driven by the question, rather than using different methodologies to explore whether different answers are discovered to the same problem. However, such approaches highlight that there will be differences in outputs depending upon the methods chosen (Tashakkori and Teddlie 1998). Blackman and Benson (2005) argue that when different methodologies are applied to the same question, very different types of understanding emerge, enabling the development of greater levels of critical thinking. This paper will explore the possibility that multi-methods research designs can offer a wider range of ideas and thoughts which, in turn, leads to the emergence of greater criticality in research.

THE IMPORTANCE OF CRITICALITY IN RESEARCH

Grey and Willmott (2002) argue that the positivist legacy seems to have dominated management research within the United States since the 1950’s and that this has impacted upon the teaching of management worldwide. However, within the social sciences there has been a ‘near collapse of the positivist consensus’ (Grey and Willmott 2002, p.2). Thus, there is now a recognition that there needs to be a growth in the diversity of approaches towards management research and education (Zald 2002; Grey and Willmott 2002). This reflects the ideas of scholars, such as Habermas, who argue that ‘a preoccupation with method should not take precedence over purpose, motive, or the examining of interest’ (in Reynolds 1998, p.4). Grey and Willmott stress that ‘even the most optimistic positivist has to admit that the capacity of management research to produce, for example, predictive laws has been, at the
very least, limited. With the gradual debunking and discrediting of positivist authority, a space for alternatives has emerged’ (Grey and Wilmott 2002, p.3). This space is better developed in Europe and Australia, but there is still a predominance of more standard, Americanised research perpetuating the more typical management approach (Mingers 2000).

As a result of the concern that focusing upon only one paradigm of research led to a limited understanding of any subject studied, Critical Theory developed which aimed to encourage critical reflection upon the supposed reality of the world. Building upon this, critical management studies emerged, advancing ideas to challenge currently accepted perceptions of managerial and business problems. A wide variety of areas has been analysed from a critical perspective, including industrial relations, organisational behaviour, employee relations and organisational studies, with the core theme being the development of an alternative rhetoric (Parker 2002). In doing this, researchers ‘borrowed’ from diverse empirical and philosophical disciplines in order to support challenges to ‘the myth of objectivity’, and to argue for a very different, critical, conception of management (Alvesson and Willmott 1992, pp.3-4). This desire for a more critical approach has since permeated throughout much research as is reflected in the numbers of ‘critical’ streams conferences and the burgeoning literature.

Mingers (2000) identifies four dimensions which can be ascertained as encompassing the skills required for critical thinking, in that they enable the questioning of the implicit assumptions or validity claims that should be challenged when applying a critical approach to management:

‘First, the logical soundness of the argument and its manner of expression (rhetoric); second, the taken-for-granted assumptions about factual matters and acceptable social practices and values (tradition); third, assumptions made about legitimacy and whose views should be privileged (authority), and fourth, assumptions concerning the validity of knowledge and information (objectivity)’ (Mingers 2000, p. 225).
What will be fundamental, therefore, will be in what ways such questioning can be developed. Various research designs have been outlined that recommend alternative perspectives upon standard management thinking; all discuss epistemology and methodology in order to identify alternative ways of recognising and securing knowledge, but still tend to assume that there should be a choice of methodological application, based upon the epistemological perspective being explored. Zald (2002), whilst he advocates a change in approach to a ‘reflexive/pragmatist epistemology that questions its own grounds’ (p.382), is still not comparing differences between ideas; rather he is advocating choosing an alternative avenue of research. In other words, the application is still being chosen to suit the problem in hand. It will be a different methodology from traditional quantitative perspectives, but there will usually be one application at a time. This fits with most methodological teaching, which argues that the design of the methods applied must emerge from the problem to be researched.

However, the question can be raised that, if the desire is to challenge what is currently believed, would it not be possible to do this by demonstrating that different “knowledge” emerges if the same problem is approached from different perspectives. Such recognition would enable several of Mingers’ dimensions to be explored at once: the logical soundness would be challenged if different answers were emerging and thus rhetoric would be explored; tradition could be challenged as accepted assumptions could end up in conflict with alternative solutions; issues of authority would emerge, as it would become apparent that different methodologies favoured different stakeholders in a particular situation, whilst assumptions concerning the objectivity and validity of knowledge and information would be challenged. Bhalla et al. (2004) have made some of these arguments by showing how the way that a case study is analysed affects the “knowledge” that develops. The existence of alternative findings and “knowledge” would show that the notion of objectivity needs serious re-evaluation. The difference in this approach from standard triangulation is that, instead of starting with the problem and determining an appropriate methodological strategy (usually to validate data from different data sources and types), the researcher would start with a problem
and explore what emerges if alternative approaches to similar data sources and types are applied. The use of triangulating techniques demonstrates that such differences of output are recognised and, sometimes, welcomed, but by setting out to do this with no notions of mapping the findings together, the outcomes may vary.

METHODOLOGY

This paper outlines two research projects which were employed to identify how the way their methodology was structured enabled a greater level of criticality. The first example used more traditional multi-methods, mixing quantitative and qualitative methods. The second example utilised the same method but with a variety of researchers who worked independently on the same data sets with no history of the tasks, leading to a mixed analysis. Initially, each example will be outlined and then the outcomes from each will be used to discuss the impact of mixing data collection and analysis.

**Example 1**

The first example is of a study of a small district hospital that developed into a large tertiary centre of health care. This change, initiated by the State Government, impacted upon the identities of all involved, and, specifically, the study investigated how professional subcultures and identities affected the implementation of change. Several research problems were posed: What are the relationships between professions? What are the commonalities and differences between the occupational groups in adapting to change? What are the implications of these relations, commonalities and differences to the management of a health care organisation? How do different professional identities adapt to change?

Given the complexity of the social organisation of the hospital and the multi-dimensionality of the research questions, reliance upon a single methodology was deemed to impede the research findings and the analysis. It was, therefore, decided to undertake research using a
multi-method approach by combining qualitative and quantitative methodologies, combined and challenged by progressive critical reflection through 4 stages:

**Stage one:** Ethnographic portraits displayed the relationships between clinician doctors, clinician nurses and their managers, describing questions starting with “how”. Reflections, in the form of diary notes and journals on the dynamics of the social process, were an important consideration in the analysis, interpretation and writing up of the research. These portraits were used as illustrations to the story.

**Stage two:** Quantitative methodology was used to identify and examine the presence of subcultures at a health care institution, by a survey questionnaire. The questionnaire asked about beliefs that employees held about the hospital, the organisational goals and characteristics that employees believed the hospital exhibited. It also asked about decision making, resource allocation and methods of communication within the organisation. It answered questions beginning with “what”. It was a diagnostic tool.

**Stage three:** Qualitative methodology was used to identify and describe the culture and subcultures of the organisation by group interviews in focus groups. In addition, interviews were held with executive administrators and medical managers. The interviews focused on change and the perceived adaptation of the members of the organisation to this change. It answered questions starting with “what”, and allowed for further exploration not only to diagnose the problems but also to attempt to overcome them.

**Stage four:** Constant comparative methodology (CCM) is the dominant principle of qualitative analysis to the grounded theory approach developed by Glaser and Strauss (Glaser, 1999; Glaser and Strauss, 1967, 1992). Comparative analysis is essentially about identifying similarities and differences between social units. By comparing, theories were inducted,
through categorising, coding, delineating categories and connecting them (Boeije, 2000). This methodology attempted to answer “what” and “why”.

This research used critical reflection as a central notion. Stivers (2001) asserts that reflection involves searching out and understanding underlying codes emerging from interpersonal energy. Reflection is systematic thinking and pondering about all the linkages and interconnections between players in the social field of a healthcare facility (Weldon, 1996). Critical reflection means to make sense of and create a better understanding of what is going on around you by mirroring every aspect of an incident and viewing issues from all possible perspectives. In this research, triangulation was used to combine data gathered from the survey questionnaire, focus group discussion and participant observation. The methods examined the same phenomenon, namely the existence and expressions of cultures and sub-cultures and thus allowed sense-making of what happened in the organisation.

According to Denzin “the flaws of one method are often the strength of the other, and by combining methods, observers can achieve the best of both” (1970:308), meaning that the effectiveness of triangulation rests on the assumption that the methods or measurements used will not share the same biases. Rigour is greatly enhanced by using mixed methodologies and it is the individual critical thought, challenging findings and looking for new theories that makes for sound research. However, it must be acknowledged that observational objectivity is problematic, especially in qualitative methodologies. The perceptions of the researcher of the issues under investigation cannot claim exclusive privilege in the representation of those issues. Further, a limitation of triangulation is that it requires the introduction of judgment about what data to triangulate and how to use it. Recognising and challenging these limitations is vital for the credibility of the research and the researcher. It must also be acknowledged that whilst researcher bias is well described as a limitation in qualitative methods, quantitative methodology is not unbiased. Even as an external (non-participating) observer, the researcher constantly interacts with the subject, thus influencing the report.
Further, a combination of different methods may not necessarily provide a more complete picture of the phenomenon. Some researchers argue that data produced by different methods will invariably not converge. For example, Rossman and Wilson (in Blaikie, 2000b:18) describe the use of quantitative and qualitative data for at least three purposes: corroboration, elaboration and initiation. Corroboration is the classic use of triangulation to establish validity. Elaboration occurs when the variety of data expands understanding of the phenomenon, by providing different perspectives. Initiation refers to the use of non-convergent data in a provocative way to produce new interpretations and suggest further areas of research. Thus the use of mixed methods can add criticality to research. Rather than just looking for conceptual support in the data, the critical researcher also looks for different perspectives and illumination of emerging phenomena. Knowledge created by mixing methodologies remains inherently linked to the individual researcher. However, by mixing methodologies and applying critical reflection, assumptions about research rhetoric, traditions, authority and objectivity can be challenged.

Example 2
The plan was to undertake an experiment which would compare the results of three sets of analysis of the same set of data. A data set had been collected in 2003 which was a total of 8 semi-structured interviews relating to a business failure. The whole project team was only 10 people so it was a large percentage of the possible data set. The company had been moderately successful in the airline seat brokering business, but had then decided to develop a new branch of the business which was to run a charter airline. The airline ran for almost a year and then went broke. Some of the events have been described in Fuller, Moran and Argyle (2004) but the reasons for the ultimate failure are of real interest to researchers because the team is still divided internally as to the ultimate causes.
The original interviews had been collected by someone who knew what had happened to the company and who had had access to previous reports, articles and discussions with the project team. It seemed possible, therefore, that this researcher had entered the interview and analysis stage with some pre-existing expectations as to what would be found in the data. In order to explore whether the findings were really in the data or whether the ideas were found because of previous expectations, the interviews were loaded into QSR NVIVO™ and three different researchers coded the data. These researchers had different perspectives on organisational research (established via a questionnaire, interview and analysis of previous research) and none of them had set up the project or knew the company or individuals concerned. Three researchers were chosen and asked to complete a self-analysis questionnaire, which explored their perspectives of organisations, learning and research. These questions (see Table 1) were designed to establish the potential mental models held by the new researchers. The researchers were a psychologist, a management researcher who, although aware of differing frames for observing organisations favoured the symbolic and structural frames (Bolman and Deal, 2003) in her analysis, and a researcher who uses the complexity lens for his research. All had experience of undertaking qualitative research and were comfortable with the use of NVIVO. Their metaphors indicated differences: one focused on the lack of flexibility, one upon the culture of mistrust and one upon the lack of coherence to be found. These metaphors turned out to reflect the way they undertook the analysis of the data.

Table 1: Questions in the self-interview

- What type of research techniques do you prefer to use and why?
- How comfortable are you with using other techniques than those outlined in Q1?
- Please give a metaphor for the University of Western Sydney as an organisation and explain your choice.
- What is your preferred management style and why?
- How would you go about developing an effective organisational team?
- How would you outline the relationship between learning and knowledge in organisations?
- How would you describe your approach to research?
Once the initial rough coding was done the researchers analysed the data further using thematic and axial coding (Kelle, 1997). From this they prepared reports and developed a theory as to what was important and interesting about the data. A focus group was then run where the researchers compared their ideas and understandings of the data. The analysis reflected upon how their different worldviews of the way in which organisations and individuals behave, as well as how to undertake organisational research, framed their results and led to potentially different interpretations. Their results were then compared with those obtained in the original study. The original researcher had analysed the data from a mental models and a group analysis perspective and this was discussed. The focus group was chaired by a neutral researcher who had not analysed the data, and was not otherwise involved in the process.

Two key areas emerged during the discussions that took place about the analyses: matters of agreement, which lead to face validity within the data, and issues of difference. From the notes and the discussion it became clear that there was a large degree of agreement across the researchers in terms of key players, decision points and reasons for eventual failure. These agreements were across the three new analysts as well as the original researcher. Such agreement argues that, even without clear briefings, or a history of a project, experienced qualitative researchers can analyse data in a way that clarifies the commonalties and develops coherent patterns of events, key players and trigger points. In terms of where there are teams of researchers, this research indicates that those involved will enable clear patterns to be established, even if the reasons for the patterns will need further exploration. In terms, therefore, of face validity, a team will not detract from the potential accuracy of initial open coding or thematic development. It will be in terms of the analysis of the meanings that there will need to further consideration of the impacts of bias and different mental models.

However, there were differences in terms of ascribing reasons and meaning to the events and agents and the way that the data was perceived. The same events were described, but different
reasons for their impact were applied. All three researchers agreed that the project leader had had a key role to play in the events that occurred. Researcher 1 felt that too much ‘blame’ was being heaped on this individual and others needed to take responsibility for a wrong appointment. In complexity terms he is an ‘attractor’ who brings issues together, but he is not, in himself, the issue. Researcher 2 also felt that he was too inexperienced and had been given too big a role to play by dint of his charismatic personality whereas researcher 3 felt that his need for power made him undertake actions which were not done naively, but specifically to support his own cause.

Each researcher made conclusions as to the overall reasons for the ultimate failure of the organisation. Researcher 1 concentrated upon chaotic conditions and fluctuations and the serious dislocations of communication found in the data. The situation was complex and the way it was separated out did not control, but aggravated the inherent instabilities. Researcher 2 focused on the assumptions being made by the team and the lack of systems for controlling and reflecting upon the business itself. Researcher 3 argued that there were three key themes that contributed to the failure: finance, management and knowledge (both individual and organisational). There are clearly agreed themes here, particularly pertaining to the poor management of the project and the lack of clarity of responsibility for the events. However, the different ways of looking at them led to discussions which meant that all the areas could then be re-examined in more depth. Interestingly, the non-involved chair, who does a lot of research into teams, started to makes assessments on the situation in terms of group think, which led to more debates about how to develop systems to prevent this.

Historically, when teams of qualitative researchers work together the following is usually recommended as a way forward: all are briefed so that there is a common understanding of research and the meanings of the analytical process (for example codes to be allocated), coding of the same data is compared to ensure it is as similar as possible and efforts are undertaken to show, either how multiple coding will increase face validity because more
individuals are finding the same things, or how carefully the system has been created to reduce bias and ensure commonality across the project so that the data is ‘pure’ (Pettigrew, 1990). This example demonstrates that, in future qualitative research, teams might usefully be developed in an alternative manner. By declaring differences and actively seeking researchers with different assumptions and biases about the world, a phase in the research can be specifically about the differences that emerge. Such an approach will enable greater learning about the phenomena being researched.

DISCUSSION

Both examples have shown how being able to compare and contrast across methods or researchers gives a greater range of ideas. If we look at this in terms of Mingers’ analysis it can be shown how such methods will increase research criticality.

Logical soundness of the argument and its manner of expression (rhetoric)

Comparing different data sets and triangulating data across researchers ensures that arguments are tested and validated. In the first example, this was been done by using different data sets to compare, contrast and evaluate different answers. In the second example, the differences and similarities enabled more complex discussions and also ensured that logic was overtly discussed. Any topics of disharmony were key areas for amplification and debate as it ensured that inherent flaws in logic, causal deductions or leaps of faith were identified and overcome; this concurs with Davenport and Prusak (in Teodorescu, 2006) who argue that comparison, consequences, connections and conversations are needed for information to become useful knowledge. It makes sense, therefore, that using methodological devices which force these to take place should lead to more complex and critical knowledge being developed.

Taken-for-granted assumptions about factual matters and acceptable social practices and values (tradition)
In the first example, the use of multi-methods meant that no one methodological tradition was automatically favoured over any other. In the second example, the difference in the backgrounds of the researchers helped to encourage a more diverse set of debates and discussions. Consequently, no one set of research tradition was privileged over any other. This meant that the prevalent mental models did not have the opportunity to drive the research into any one particular path. Potential closure of the system (Blackman and Henderson, 2005) is averted through the prevention of self-referential processes developing. This will enable more challenge to emerge within the research process.

Assumptions made about legitimacy and whose views should be privileged (authority)

The authority of the predominant mind set was challenged as seen above. In the same way as diversity enabled a prevention of a privileging of research traditions, so having a range of researchers enabled an overcoming of a privileging of any one view owing to their position. This was clearly seen in example 2 where having a range of researchers led to a range of voices represented. Traditionally, the view of a lead or sole researcher will hold sway over a research project. This is not the case when there is a mixing of methodology and/or data sets as a range of views must, inevitably, be considered. In the first example, the researcher was the authority figure but being forced to reflect upon her data in the way that the use of multi-methods encourages, (see Table 2) meant that many assumptions of legitimacy were challenged.

Assumptions concerning the validity of knowledge and information (objectivity)

In both examples, the primary reason for the choice of a multi-methods approach was to challenge the assumptions being made about the nature of the knowledge being developed. There are several theories which would argue that the use of an alternative research method, such as in both examples, would enable the development of new, more creative knowledge (see for example Cook and Brown, 1999; Nonaka and Konno, 1998; Davenport and Prusak in
Teodorescu, 2006) because it encourages the sharing, moving and altering of the currently understood and accessible knowledge.
<table>
<thead>
<tr>
<th>Type of comparison</th>
<th>Data used</th>
<th>Analysis activity</th>
<th>Questions asked</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. intra focus group</td>
<td>One focus group</td>
<td>Open coding. Summarising of core of interview.</td>
<td>What is the main message? How are different fragments related? Are there contradictions?</td>
<td>Summary of interview concepts Provisional codes</td>
</tr>
<tr>
<td>3. intra interview</td>
<td>One interview</td>
<td>Open coding. Summarising of core of interview.</td>
<td>What is the main message? How are different fragments related? Are there contradictions?</td>
<td>Summary of interview concepts Provisional codes</td>
</tr>
<tr>
<td>5. inter interview different group</td>
<td>More than one interview. Theoretical sampling until saturated</td>
<td>Selecting themes from open coding that concern the relationship. Summarising the relationship.</td>
<td>How can the relationship be typified from all perspectives? What codes are used to cover the core themes. Are there contradiction/agreements between them. What are the central issues and how are they resolved?</td>
<td>Conceptional profile of relationships. Inventory of central issues.</td>
</tr>
<tr>
<td>6. professional group (doctors, nurses, other) and occupational group (manager, clinician)</td>
<td>Interviews with different groups</td>
<td>Data sources, triangulation. Summarising the relationships. Fitting criteria to compare groups. Development of a model.</td>
<td>What are the typical differences between group x and group y. What is the possible reason for this? On which criteria can groups be compared. What are the relationship issues under these circumstances? What patterns exist?</td>
<td>Clusters of relationships, commonalities and differences between professional identities.</td>
</tr>
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</table>

Adapted from Bouije, 200
Such movement enables the knowledge to be examined, re-evaluated, reflected upon and challenged where necessary in order to develop the validity of the findings. As indicated in Case 2, there was concern as to the objectivity of the initial researcher. By undertaking the comparative work, these concerns could be overcome and the areas of commonality could be developed. Where there was difference this could be argued and debated in a way that ensured that subjectivity, whilst it can never be fully overcome, could be reduced and research validity can be seen to be improved. What is crucial here is that the on-going program of reflection in both cases does not claim to develop objective knowledge, but it does claim to increase the relevance, face validity and reliability of the knowledge developed.

**CONCLUSION**

This paper aimed to show how the use of multi-method research designs can improve the criticality of the research being undertaken. The argument is made that if we are to be critical researchers we need to be able to develop more critical knowledge. This will need processes that enable the elements of criticality to be actively pursued and reflected upon. The cases outlined both enabled a managed approach to knowledge development that reflected the four elements of criticality described by Mingers. We argue that the ability to do this should not be accidental but should be a managed part of the methodological process, especially where consequences and relationships are going to be a critical part of the research findings. Table 2 is an example of how a researcher will make a positive plan that enables on-going reflection between methods to be an integral part of their methodological process.

Overall we argue that for critical management research to be effective, there needs to be a greater awareness of the need to develop critical knowledge which has been developed in a coherent and challenging way. Many papers will argue that they have been but, if Mingers model was applied, it would often have been found not to be the case. The model is advocated for use by researchers when planning their design so that they can consider, at the outset, the nature of the knowledge likely to be developed by their methodological processes.
REFERENCES


