

**Case study and grounded theory:
Sharing some alternative qualitative research
methodologies with systems professionals.**

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Abstract

Tensions in practitioner research are endemic and inescapable but if these tensions are embraced rather than avoided, they can often provide access to useful energy and sensitivity, which in turn can be used to inform practice.

Systems research professionals adopt a wide platform of research methodologies when they engage in research projects. These research methodologies range from the use of systems computer simulation models to highly developed quantitative statistical models. Some systems researches have engaged the full gamut of qualitative methodologies and others have adopted the soft systems approach.

The aim of this paper is to review two methodologies that are available to systems researchers and practitioners and to analyse the effectiveness of these methodologies in gaining valid and reliable research outcomes.

The paper will focus on the use of case study and grounded theory as possible methodologies for systems researchers to consider for future research projects. Both methodologies have been successfully used by the authors to gain cultural change in organisations striving to become learning organisations.

Introduction

Research is the process of thoroughly studying and analysing the situational factors surrounding a problem in order to seek out solutions to it (Cavana, Delahaye and Sekaran, 2001, p.4). Research methodologies selected for systems research included: hard systems (management science); systems dynamics (Forrester 1961); soft systems (Checkland, 1981; Checkland & Scholes, 1990; Davies & Ledington, 1991); critical systems thinking (Mingers & Gill, 1997), and open systems thinking (F. Emery 1995; M. Emery 1997). Soft systems methodologies stimulated vigorous debate between Jackson (1987, 1991, 1997) and Checkland (1981, 1991, 1995).

Currently there is a growing acceptance of the use of pluralism and a more multi-methodology approach which in one instance resulted in the development of a "paradigm interplay model" by Ledington and Watson (1998). However Selsky and Barton (1998) preferred to remind current researchers of the values of the rather dated "open systems thinking" model developed by F.Emery and Trist (1973) and more recently resurrected by M.Emery (1997).

Our interest in this debate began at the 1998 4th Annual Australian and New Zealand Systems Conference where these methodologies and other issues were vigorously debated and several important issues were brought into focus. The first was made by keynote speaker Dr. Marcia Salner who suggested that it was time for systems researchers to look wider toward other qualitative methodologies that may prove to be more effective than those conventionally employed. In addition Dr. W. E Hutchinson somewhat unknowingly suggested that a more "grounded theory" approach to systems research in organisations should be adopted. These comments along with the development of Jackson's (1997) pluralism and multi-methodology have highlighted the need to review the methodologies that systems researchers employ.

Quantitative versus qualitative approaches to research

A recurring debate concerning the epistemology of research has dominated research journals and centred on issues related to quantitative versus qualitative approaches to research. After much debate during the 1980's researchers emerged with a much deeper appreciation of the strengths of not just the paradigms that included; objective-quantitative; interpretive-qualitative, but also the critical-theoretical paradigm as well.

While the quantitative design strived to control for bias so that facts were understood in an objective way, the qualitative approach strived to understand the perspective of the programme stakeholders, looking to firsthand experience to provide meaningful data. The accumulation of facts and causes of behaviour was addressed by quantitative methodology as the qualitative methodology addressed concerns with the changing and dynamic nature of reality. Quantitative research designs strived to identify and isolate specific variables within the context (seeking correlation, relationships, causality) of the study as qualitative design focused on a holistic view of what was being studied (via documents, learning histories, observations and interviews).

Quantitative methodology exemplifies the objectivist approach to social science and is characterised by a realist ontology, positivist epistemology, deterministic view of human nature, and nomothetic methodology. This approach can be differentiated from qualitative methodology or the subjectivist approach, which is characterised by a nominalistic ontology, antipositivist epistemology, voluntaristic view of human nature, and ideographic methodology (Alston & Bowles, 2003, pp. 202-207; Cavana, Delahaye and Sekaran, 2001, p.p. 8-9; Ellis, D. 1993. pp.469-470).

Zuber-Skerritt (1992,p.127) supported these findings in identifying two clear research paradigms. The natural science approach to human sciences was called "experimental", because the researcher set up an experiment, intervened in a process and manipulated certain variables. The ethnographic approach on the other hand, was called "naturalistic" because the researcher observed or tried to find out what happened in natural settings. "Experimental" versus "holistic" had also been described as "reductionist" versus "holistic" for it could be argued that social and human phenomena, if studied scientifically, cannot be reduced to a few isolated variables. The holistic approach tried to describe the context and a wide range of variables.

While the "experimental" approach prescribed and predicted future events on the basis of a study, the "naturalistic" approach described a natural setting as fully holistic as possible, with the aim of better understanding the people/events in that setting (Zuber-Skerritt 1992,p.125).

These are displayed in Table 2 below.

Paradigms of Research

<u>Paradigm 1</u>	<u>Paradigm 2</u>
Natural Science	Human Science
Traditional	Alternative
Experimental	Naturalistic
Prescriptive	Descriptive
Reductionist	Holistic
External	Internal
Nomothetic	Ideographic
Normative	Interpretive
Positivist	Non-positivist

Table 2
Source: Zuber-Skerritt (1992, p.127)

"Nomothetic" referred to a search for general laws and "ideographic" to a study of individuals. Thus in "nomothetic" studies data were collected from a number of cases in order to produce information on "norms" or trends in a wide population. Ideographic studies were case studies focusing on the one individual or a small group of individuals. As a result, "nomothetic" studies tended to be reductionist (i.e. the number of aspects to be studied had to be reduced) and prescriptive, whereas "ideographic" studies tended to be holistic, descriptive and naturalistic.

The "normative" model was based on the idea that human behaviour was essentially rule-governed and that it should be investigated by the methods of natural science. In contrast, the "interpretive" paradigm was characterised by a concern for the individual, and described and explained human behaviour by means of methods that were appropriate and in their own way as rigorous as, the ones used in normative (positivist) research (Zuber-Skerritt 1992,p.126).

By combining methods, advantages of each methodology complemented the other, and made for a stronger research design and resulted in more valid and reliable findings. The inadequacies of individual methods was minimised and more threats to "internal validity" were realised and addressed.

Qualitative methods offered an internal view which addressed the why of an issue, bringing insight to more quantitative findings. Qualitative methods offered ways to explore and investigate an obscure problem and to generate testable hypotheses. Quantitative methods offered ways to verify findings and to test hypotheses (Cavana, Delahaye and Sekaran, 2001; Schmuck, 2000; Olson, 2001; Eastabrooks, 2001; Page & Meyer, 2000).

CASE STUDY

Patton (1990, p.66) anchored different types of qualitative research in "the kinds of questions a particular researcher will ask". He identified ten traditions that included, ethnography, phenomenology, heuristics, ethnomethodology, symbolic interactionism, ecological psychology, systems theory, chaos theory, orientational inquiry, and hermeneutics. Merriam (1998) identified five types of qualitative research that included: basic or generic qualitative study; ethnography; phenomenology; grounded theory and case study.

The above five types of research were different from each other, but they all shared the essential characteristics of qualitative research that included "the goal of eliciting understanding and meaning, the researcher as primary instrument of data collection and analysis, the use of fieldwork, an inductive orientation to analysis, and findings that are richly descriptive" (Merriam, 1998, p.11) .

Merriam (1998, p.20) also noted that the five types of qualitative research could be distinguished in terms of: disciplinary orientation (ethnography, phenomenology); function (grounded theory);

form (case study, basic or generic qualitative study) and also highlighted that the five types were often used in conjunction with one another.

Ethnographic case study usually examined the culture of a specific group within a community (Cavana, Delahaye and Sekaran, 2001, p. 112). However there was confusion when ethnography was used interchangeably with fieldwork, case study, participant observation, or qualitative research. Ethnography has two distinct meanings. Firstly ethnography was described as a set of methods used to collect data, and secondly, the written record that was the product of using ethnographic techniques.

Ethnographic techniques comprised the strategies researchers used to collect data about the social order, setting, or situation under investigation (e.g. interviews, observation, and examination of life histories). An ethnography was a sociocultural interpretation of the data. Thus “ethnographies recreate for the reader the shared beliefs, practices, artifacts, folk knowledge, and behaviours of some group of people” (LeCompte & Preissle, 1993. pp. 2-3).

Culture remains a unifying construct of ethnography and in the case of the study of an organisation, consideration should be given to the history of the neighbourhood, socioeconomic factors, the community’s racial and ethnic makeup, and the attitudes of the members of the organisation and those who they served (LeCompte & Preissle, 1993. pp. 13).

The purpose of a case study was to gain an in-depth understanding of the situation and meaning for those involved. The interest was in process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation.

The case study approach to research is a way of conducting mainly qualitative inquiry, commonly used when it is impossible to control all of the variables that are of interest to the researcher. Merriam points out that the case study’s unique strength is its ability to deal with a full variety of evidence, including documents, artefacts, interviews and observations (1988, p.8).

The use a case study approach is determined by four factors: the nature of the research questions; the amount of control the researcher has over the variables under investigation; the desired end product; and the identification of a bounded system as the focus of investigation (Merriam, 1988, p.8). “How” and “why” questions are the most suitable for a case study because the approach draws attention to what can be specifically learned from the single case (Stake in Denzin & Lincoln, 2002, p.5). In many educational settings the lack of control that can be exercised by the researcher means that it is necessary to adopt a holistic approach to the issue, one that is grounded in the reality of the situation and one that illuminates the meaning what is occurring. A case study often builds upon tacit knowledge and provides a thick description of the case under investigation (Merriam, 1988, p.12). The end product of research using a case study approach is sometime the case itself, but often the case is used in an instrumental way to investigate a broader phenomenon (Stake, 1995, p.3). The most essential element of a case study is the identification of the case itself. This allows a “bounded system” to be identified with certain features occurring within the boundary of the case, and other features outside it (Stake in Denzin & Lincoln, 2002, p.436).

The end result of a case study can draw from some or all of the following:

1. The nature of the case itself.
2. The historical background of the case.
3. The physical setting in which the case is bounded.
4. Other contexts, such as economic, political and legal, that impact upon the case.
5. Other cases through which the case is recognised.
6. Those informants through whom the case can be known. (Stake in Denzin & Lincoln, 2002, pp.438-9).

Merriam defines a case study as “an examination of a specific phenomenon, such as a program, an event, a process, an institution, or a social group” (1988, p.9). However, Stake (in Denzin &

Lincoln, p.436) indicates that a case study is both a process of inquiry about the case and the product of that inquiry.

Yin (1984, p.23) offers a more technical definition by equating a case study with an empirical enquiry that investigates a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used.

Types of Case Studies

When a case study is linked with a discipline or area of specific interest, it can be named to reflect that interest or discipline e.g. an ethnographic case study, a historical case study, a psychological case study, or a sociological case study.

Case studies can also be described by the nature of the final report. A case study that presents a detailed account of the phenomenon under study is a descriptive case study. When the descriptive data are used to develop conceptual categories or to illustrate, support, or challenge theoretical assumptions the study becomes an interpretive case study, whereas evaluative case studies involve description, explanation, and judgment. A *descriptive case study* presents a detailed account of the phenomenon under study. Such case studies are atheoretical but they are useful in presenting information about areas of education where little research has been conducted. *Interpretive case studies* are used to develop conceptual categories or to illustrate, support, or challenge theoretical assumptions held prior to data gathering. Sometimes such case studies are called analytical case studies because of they involve a greater amount of analysis than descriptive case studies. An *evaluative case study* involves “thick description”, is grounded, is holistic and life-like, simplifies data to be considered by the readers, but most importantly, weighs up the information to enable a judgment to be made. Case studies can also be defined by some combination of the disciplinary orientation and the end product. There can be case studies that are ethnographic evaluation, program description, historical interpretations, sociological studies, and so on. Some case studies are purely descriptive; others are a combination of description and interpretation or description and evaluation (Merriam, 1988 pp.22-29).

Yin (2003, p.5) states that at least six kinds of case studies can be identified, based on a 2 x 3 matrix. In the first instance research can be based on a single case or on multiple cases. A *single case study* focuses on a single case only, but *multiple case studies* include two or more cases within the same study. He then classifies case studies as exploratory, descriptive, or explanatory (causal). An *exploratory case study* aims at defining the questions and hypotheses of a subsequent study or at determining the feasibility of the desired research procedures. A *descriptive case study* presents a complete description of a phenomenon within its context. An *explanatory case study* presents data that explains how events occurred and reflects a cause and effect relationship (Yin, 2003, p.5). His classification of case studies can be illustrated as follows:

Single Case Study Multiple Case Studies

Exploratory	Type 1	Type 2
Descriptive	Type 3	Type 4
Explanatory	Type 5	Type 6

Case studies were differentiated from other types of qualitative research in that they were intensive descriptions and analysis of a single unit or bounded system (Smith 1978) such as a single organisation, programme, event, group, or community. Case studies often accommodated different disciplinary perspectives and attempted to get as close to the subject of interest as

possible, partly by means of direct observation in natural settings, and partly by their access to subjective factors (thoughts feelings, desires), whereas experiments often used convenient derivative data such as test results.

Part of the confusion that surrounded case studies was that the process of conducting a case study was conflated with both the unit of study (the case) and the product of this type of investigation. Yin (1994, p.13), defined case study in terms of the research process when he stated a case study "is an empirical inquiry that investigates a contemporary phenomenon within the real-life context, especially when the boundaries between phenomenon and context are not clearly evident".

Stake (1994,1995) focused on trying to pinpoint the unit of study-the case. Wolcott (1992, p.36) saw it as an "end-product of field oriented research". However Merriam (1998, p.27) concluded that the single most important characteristic of case study research was in delimiting the object of study, the case. Smith's (1978) notion of the case as a bounded system was embellished by Stake's notion that it was an "integrated system" (Stake 1995, p.2). Miles and Huberman (1994, p.25) supported this notion when they claimed a case was a "phenomenon ... occurring in a bounded context" and Bromley (1986, p.21) also confirmed that a case study "must be limited in scope ... there must be conceptual boundaries and empirical limits to it". Merriam (1998, p.27) agreed and stated that "if the phenomenon ... is not intrinsically bounded, it is not a case".

One technique for assessing the boundedness of the topic was to ask how finite the data collection was. Was there a limit to the number of people involved? If there were no limits then the phenomenon was not bounded enough to qualify as a case. Adelman, Jenkins, and Kemmis (1983, p.3) claimed that the most straightforward examples of bounded systems were those in which the boundaries had a common sense obviousness, such as an individual, or a single organisation.

Case study was differentiated from other research designs by what Cronbach (1975, p.123) called "interpretation in context". By concentrating on a single phenomenon or entity (the case), the researcher aimed to uncover the interaction of significant factors characteristic of the phenomenon. The case study focused on holistic description and explanation. As Yin (1994) observed, case study was a design particularly suited to situations in which it was impossible to separate the phenomenon's variables from its context.

Several authors advanced definitions of the case study that were congruent with the above discussion. Wilson (1979, p.448), for example, conceptualised the case study as a process "which tries to describe and analyse some entity in qualitative, complex and comprehensive terms, not infrequently as it unfolds over a period of time". MacDonald and Walker's (1977, p.181) definition of a case study as "the examination of an instance in action" was congruent with Guba and Lincoln's (1981, p.371) statement that the purpose was to "reveal the properties of the class to which the instances being studied belongs".

Finally Merriam (1998, p.29) suggested that case studies were characterised as being particularistic, descriptive and heuristic. Particularistic case studies focused on a particular situation, event, programme, or phenomenon. Descriptive case studies produced a rich thick description of the phenomenon under study. Heuristic case studies illuminated the reader's understanding of the phenomenon under study and brought about the discovery of new meaning, extended the reader's experience, or confirmed what was known (Merriam, 1998, p.30).

Yin (1994, pp.9-11) identified three prejudices against case study strategy beginning with, lack of rigour of case study research. Here Yin (1994) acknowledged that case study researchers had possibly been sloppy in the past and had allowed biased views to influence conclusions but he also defended this claim and suggested that case study research was often confused with case study teaching and that bias was possibly, just as prevalent in experiments and quantitative analysis as well.

Secondly Yin (1994, pp.9-11) claimed that case studies provided little basis for scientific generalisation. However the same question can be applied to a single case study as well as a single experiment. In fact scientific facts were rarely based on single experiments. They were usually based on a multiple set of experiments. The same approach could be used with multiple case studies however case studies like experiments were generalisable to theoretical propositions and not to populations or universes. In this sense, the case study like the experiment, did not present a “sample,” and the researcher’s goal was to expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation (Yin, 1994, p.10).

Thirdly Yin (1994) claimed that case studies took too long and resulted in massive documentation. Yin acknowledged that this complaint may have been appropriate given the way case studies had been done in the past (e.g. Feagin, Orum, & Sjoberg, 1991) but with better design, this was not necessarily the case in the future (Yin, 1994, p.11).

Yin (1994, p.9) suggested that for “how” and “why” questions the case study had a distinct advantage over other research designs and Bromley (1986) claimed that case studies got:

“as close to the subject of interest as possible ... partly by means of direct observation in natural settings, partly by their access to subjective factors (thoughts, feelings, and desires), whereas experiments and surveys often use convenient derivative data e.g. test results, official records. Also case studies tended to spread the net for evidence widely, whereas experiments and surveys usually have a narrow focus”.

Bromley (1986, p.23)

Merriam (1998, p.33) recommend that case study was a particularly suitable design for an analysis of process. Process as a focus for case study research was viewed in two ways. The first meaning of process was monitoring and this involved describing the context and population of the study. The second meaning of process was causal explanation and this involved the discovery or confirmation of the process by which the treatment had the effect that it did (Reichardt & Cook, 1979, p.21).

In summarising, the importance of process rather than an outcome can be the justification for selecting case study and Sander’s (1981, P.44) commented that, “case studies help us to understand processes of events, projects, and programmes and to discover context characteristics that will shed light on an issue or object”.

Uniqueness of Case Study

Finally a case study might be selected for its uniqueness. Abramson (1992) underscored the value of unique or atypical cases and contended that:

“since such data are rare, they can help elucidate the upper and lower boundaries of experience. Second, such data can facilitate ... prediction by documenting infrequent non-obvious, or counter intuitive occurrences that may be missed by standard statistical (or empirical) approaches. Finally, atypical cases ... are essential for understanding the range or variety of human experience, which is essential for understanding and appreciating the human condition” Abramson (1992, p.190).

Merriam (1998, p.38-40) suggested case studies can be described by the overall intent of the studies. Was the case study largely intended to be ‘descriptive’, ‘interpretive’, or to be ‘evaluative’?

A 'descriptive' case study (called "atheoretical" by Lijphart (1971, p.691), moved in a theoretical vacuum and was not guided by established or hypothesised generalisations nor motivated by the desire to formulate general hypotheses but were found to be useful however, as they presented basic information about areas of education where little research had been conducted and often provided valuable data bases for future comparison and theory building. For example, Moore's (1986) descriptive case studies allowed him to devise a conceptual framework about learning in nonschool settings.

'Interpretive' case studies were also used to develop conceptual categories. The level of abstraction and conceptualisation in interpretive case studies ranged from suggesting relationships among variables to constructing theory. The model of analysis was inductive. Some sources labelled these case studies "analytical" and were differentiated from descriptive case studies by their complexity, depth, and theoretical orientation (Shaw, 1978).

'Evaluative' case studies involved description, explanation, and judgment (Merriam, 1998, p.39). Much had been written about naturalistic evaluation, responsive evaluation, and qualitative evaluation (Guba & Lincoln, 1981; Patton, 1987, 1990, 1996; Stake, 1981; Greene, 1994; LeCompte, Preissle & Tesch, 1993).

Guba and Lincoln (1981) concluded that case study was the best reporting form for evaluations as it provided thick description. It was also grounded, and was holistic and lifelike. It simplified data to be considered by the reader and illuminated meanings and communicated tacit knowledge. Above all else this type of case study weighed "information to produce judgment. Judging is the final and ultimate act of evaluation" Guba and Lincoln (1981, p.375).

Kenny and Grotelueschen (1980) supported choosing a case study design when doing an evaluation as it enabled "better understanding of the dynamics of the programme. When it is important to be responsive, to convey a holistic and dynamically rich account of a programme, case study is a tailor made approach" Kenny and Grotelueschen (1980, p.5).

The authors successfully used a Case Study (a large K-12 Independent School in Sydney) to research the impacts of organisational learning cultural change methodologies on staff over a twelve month period. The results of this research have been previously reported (Laws & McLeod, 1997, 1998, 1999; McLeod, 2002)

GROUNDED THEORY

Introduction

Grounded theory was first developed by Glaser and Strauss (1965,1967) as an approach to qualitative analysis while conducting an observational field study of the way in which hospital staff dealt with dying patients. Grounded theory may be best defined as:

"a qualitative research method that uses a systematised set of procedures to develop and inductively derive grounded theory about a phenomenon"

(Strauss & Corbin, (1990)p.24)

Hence the approach purported to be inductive rather than deductive. The intent was to develop an account of a phenomenon that identified the major constructs, or categories in grounded theory terms, their relationships, and the context and process, thus providing a theory of the phenomenon that was much more, than a descriptive account (Morse & Richards, 2002; Becker, 1993).

The purpose of grounded theory was to organise "many ideas from analysis of the data" (Strauss, 1967, p.23). Later Strauss and Corbin (1990, p24) extended this by saying that the purpose of grounded theory was to build a theory "that was faithful to and illuminated the area under study". Such theories developed were not necessarily intended to stand alone, but could be related to

existing theories within a field, thus amplifying and extending the current understandings of the phenomena in question.

Strauss (1967, p.22-23) summarised grounded theory procedures as the systematic analysis of documents, interview notes, or field notes by continually coding and comparing data that produced a "well constructed theory". Thus a grounded theory was inductively derived from researchers' studies of the phenomena it represented. The collection of data and its analysis and the resulting theory had a reciprocal relationship. Thus the researcher, rather than commencing with a theory which he or she attempted to verify, commenced with an area of study and allowed relevant theoretical constructs to emerge from that process of study, thus allowing an intrinsic relationship to develop between the data and the theory.

The end result of this type of qualitative research was a theory that emerged from, or was "grounded" in the data, hence, grounded theory. Rich description was important but was not the primary focus of this type of study. As Strauss and Corbin (1994, p. 274) noted, "the major difference between this methodology and other approaches to qualitative research was its emphasis upon theory development".

The assumptions of grounded theory held that any group shared an unarticulated basic social problem. This problem to be discovered by the researchers, was resolved through a basic social-psychological process. Research aims included discovering the basic social-psychological problem and process, its phases and their properties, and its strategies and consequences. Ultimately, the goal was to generate a substantive middle-range theory that explained the issue under study (Wilson & Hutchinson, 1991, p.268; Alston & Bowles, 2003, pp. 208-220).

Grounded theory was used successfully in many educational research projects that included: information seeking patterns of research physicists and chemists (Ellis, Cox, & Hall, 1993); information seeking patterns of academic researchers (Ellis, 1993); the idiosyncratic and reflexive nature of effective schooling and school improvement, (Proudford & Baker, 1994); resistance in counselling based on moment to moment experiences of participants, (Rennie, 1994); transformational leadership in Secondary high schools in New South Wales, (Laws, Bailey, Smith & McLeod, 1995).

Rationale for Grounded Theory

The advantages for grounded theory include its capacity for a detailed study of a micro issue of a larger reality within a particular setting (Glaser & Strauss, 1967). In this way the study has potential to develop detailed information about a particular phenomenon and to be influenced by the context in which the study is undertaken. Grounded theory places considerable value on the contextual setting. Gaining detailed knowledge of the context and the day-to-day events in a particular context are important dimensions in a study utilising grounded theory.

The progressive nature of grounded theory is also an important benefit of the approach. There is an openness in the process in that participants contribute to the collected facts (Dey, 1999). The researcher and the participants collaborate to generate the data which in turn generates the theory. (Strauss & Corbin, 1990)

Glaser and Strauss (1965, 1967), emphasised the importance of theory-building "within" the research, and grounded theories were not deduced from some general theory before beginning research, but were discovered during the research process "in" the data (Yin, 1991, p.303). Theoretical (coding and analysis) and empirical (data gathering) activities were not strictly separated in such research; they were, on the contrary, tightly interwoven in order to benefit from each other and, thus, advanced the growth of insight (Glaser & Strauss, 1967, p.43). Consequently, theory was not considered as perfected product, but rather as process, as an ever-developing entity (Glaser & Strauss 1967, p.32).

Grounded Theory and Qualitative Research

Dilthey (2003, p.34) described Hermeneutics as the methodology of the interpretation of written records. Babbie (2001) defined hermeneutics in social science as, "interpreting social life by mentally taking on the circumstances, views and feelings of the participants", whereas he described grounded theory as a "term used in reference to the creation of theory based on observation more than education". Such definitions do not clearly address the full research implications of these paradigms in comparison with deductive methods based on logical positivism.

Strauss and Corbin (1990) implicitly acknowledged the hermeneutic and phenomenological foundations of grounded theory when they stated:

"data collection, analysis and theory stand in reciprocal relationship with one another. One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area of study is allowed to emerge".

Strauss and Corbin (1990, p.23).

Grounded theory assumptions and methodologies were closer to those of hermeneutics than to logical positivism. Table 3 below sets out the key distinctions.

Positivist, Hermeneutic and Grounded Theory Assumptions

Positivism	Hermeneutics	Grounded Theory
* defines the world as objects	* resists objectification	* accounts for processes that can change the coded "meaning" of observed phenomena
* objectification seeks explanation	* seeks understanding	* seeks understanding based on interrelationships between conditions, meaning and action
* objectification seeks dissection and reduction	* seeks respect for the whole	* avoids reductionism by using conditional matrices and transactional systems
* "truth" is to be found in "agreement" by verification	* "truth" is revealed phenomenologically	* "truth" is approximated by the researchers creative engagement with systematic, iterative data collection, analysis and validation process
* "meaning" is to be found in closed definitions	* "meaning" is to be found through interpretation that allows future layers of interpretation	* "meaning" is found through interpretation that allows future levels and categories of interpretation and "explanation"

Table 3
Source: Parker, L.D. & Roffey, B. (1993)

Grounded theory was substantially within the qualitative research tradition although Glaser and Strauss (1967) recommended that the principles also be used in quantitative research. There was however variations in epistemological stance toward grounded theory methodology and Charmaz (1990) argued that the original approach presented by Glaser and Strauss (1967) was inconsistent in promoting both positivistic and phenomenological emphases. More recent presentations (e.g., Strauss, 1987; Strauss & Corbin, 1990) retained positivistic premises but emphasised phenomenology more heavily.

Glaser (1994) had taken issue with some of these presentations, and considered that this version of the method had eroded its essential focus on the data. Stern (1994) suggested that the

respective positions outlined by Strauss (1987) and by Glaser (1994) represented two fundamentally different approaches. Charmaz (1990, p.1165), in contrast, took a social constructionist approach to grounded theory, and viewed it as a method involving dialectical and active process, and the outcome of any research using this method "as a social construction of the social constructions found and explicated in the data".

Inductive Theory or Deductive Hypothesis?

Glaser & Strauss (1967,p.3) maintained that grounded theory provided an initial method of developing theory from data with the intent of providing theory that "will fit and work". They argued that one basis for judging the usefulness of a theory involved appreciating how it was actually generated, and thus inductively developed theory was likely to be more useful than logico-deductive theorising. Hypotheses and concepts remain generated from and directly connected to their source data, rather than becoming reified in isolation from their sources.

Indeed, it was argued that often when the major hypothesis of a positivist empirical study was found not to be supported, little more was observed by the researcher. Little attempt was made to offer alternative explanations or modified theories to assist in interpreting the actual data.

Grounded theory's methodological emphasis encouraged the actor's own interpretations and meanings to emerge with minimal prompting or predisposition by the researcher. Therefore any moves from the deductive to the inductive methodology allowed the researcher less control and those persons being studied more control (Alston & Bowles, 2003, p.206). Such a relationship had profound implications for ethical aspects of the research, for as the control increased for the participants (in their own environment rather than the researches), the moral and ethical risks involved in research decreased.

By its generative methodology and inductive nature, grounded theory coped with more complex data relating to a multiplicity of variables than traditional positivist models. For statistical "feasibility", positivist research methods traditionally restricted the number of variables contained in their models. Other important variables were assumed to be irrelevant or were ignored. Even some recently developed sophisticated casual modelling programs had such complex prerequisite assumptions about the nature of the data, that one wondered to what extent data thus analysed, reflected "reality".

Grounded theory dealt inductively with a complex array of variables, and as a result offered a theory, that provided more accurate reflections of relationships and influences and for these reasons was applied by the authors during various research projects.

How effective is Grounded Theory Methodology?

Grounded theory usually developed "substantive" rather than formal or "grand" theory. Substantive theory had as its referent specific, everyday-world situations such as the culture of a K-12 school. A substantive theory had specificity and thus usefulness to practice often lacking in theories that covered more global concerns.

A well-constructed grounded theory complied with four central criteria for judging the applicability of theory to a phenomenon: fit; understanding; generality; and control (Glaser & Strauss 1967 pp237-250). If theory was faithful to the everyday reality of the substantive area and carefully induced from diverse data, then it would have fitted that substantive area. Because it represented that reality, it should also have been comprehensible and made sense both to the persons who were studied and to those practising in that area. If the data upon which it was based were comprehensive and the interpretations conceptual and broad, then the theory should have been abstract enough and included sufficient variation to have made it applicable to a variety of contexts related to that phenomenon.

Finally, grounded theory provided control with regard to action toward the phenomenon. This was because the hypotheses proposing relationships among concepts, were systematically derived from actual data related to that (and only that) phenomenon. The above criteria was tested by asking had the: concepts been generated from the data examined; concepts been identified and systematically related; conceptual linkages been found and were the categories well developed and was there conceptual density; variations for different conditions been built into the theory; broader conditions, that may have affected the phenomenon being studied, been built into its explanation; question of processual change been accounted for; theoretical findings been significant ?

Strauss and Corbin (1990, p.257) warned that these criteria should not be read as collected from the hard and fast evaluation rules, but were suggested as guide-lines only. These guidelines proved to be very valuable when analysing the data collected from the case study research site.

Caution in the Design of Data Collection Methods

Popkewitz (1984, p.183) suggested caution in qualitative research, as the languages of social affairs were human inventions and, as such, contained assumptions, values, and priorities that responded to institutional arrangements, historical developments, and the contradictions of existing social conditions. No theory was therefore neutral or unattached as knowledge of inquiry was always socially and culturally bound.

The above warning was extended when Popkewitz (1988, p.379) argued that research programs were not conceived solely as those of individual imagination, but involved a complex relation among community, institutions, social structure, and individuals. Shavelson (1988, p.9) supported Popkewitz when he warned that researchers, policy makers and practitioners had different mind frames that restricted the potential utility of educational research.

Adler & Adler (1987, p.13) identified two roles for the researcher. Firstly there was the "overt" role where the researcher openly admitted to the participants that they were conducting a study and the "covert" role where the researcher did not admit the research dimensions of their participation. In the research projects the authors have been involved in the overt style has been employed with all participants being aware of the purposes of the research methods.

Researchers in the field were affected by other factors that included; existing inherent conditions at the site that affected "the getting in, staying in, or easing out" of the site; researchers abilities, identities, and theoretical orientations; changes in the setting during the research itself and the fact that the researchers themselves "undergo changes, organically, as people, as role-players, or as social scientists", and therefore sought out new roles for collecting data within the setting (Adler & Adler, 1987, p.14-15).

In addition they also warn of the "baggage" that even the most committed researcher carried into the field. They argued that "it is embedded, without having to cultivate it, expressly, in each of our unique biographies of multiple roles and inner reflections... therefore we carry our social science selves into research settings with us" (Adler & Adler, 1987, p.86).

Researchers must also consider gender issues and Krieger (1986, p.118) noted that gender conformity and deviation in a given culture were processual, dialectical, and reflexive. They changed over time and were related to one another and affected not only relationships with respondents, but also categories used in interpretation.

"Emic" or the "Etic" Approach?

The search for the "emic" or insiders perspective was fundamental to almost all qualitative methods (Fetterman, 1991 p.1). The distinction between "emic" and "etic" perspectives was first

mooted by Pike (1967) and later elaborated on by anthropologist Harris (1968, 1979) and by Headland, Pike and Harris (1990) and assessed by social theorists including Young P.D. (1993).

Headland et al. (1990) recommended the terms emic and etic be used to replace the terms "subjective" and "objective". The emic and etic distinction was designed to address a critical characteristic of research among human beings, namely, that as objects of research, they had a consciousness of their own along with ideas about the causes and consequences of their own thoughts and behaviour. As Harris emphasised, "in carrying out research in the emic mode, the observer attempts to acquire a knowledge of the categories and rules one must know in order to think and act as a native" (Harris, 1979, p. 32). It thus became critical to differentiate between the researcher's viewpoint and that of the participants being studied (Sandstrom & Sandstrom, 1995, pp.161-199).

On the other hand the etic perspective was that of the outsider and as Harris stated, "etic operations have as their hallmark the elevation of observers to the status of ultimate judges of the categories and concepts used in descriptions and analysis" (Harris, 1979, p.32). Good ethnography required both emic and etic perspectives according to Fetterman (1989, p.32). Although he conceded that his research was grounded in an emic understanding of the situation and group which required many hours, days, months, and years of eliciting, recording, and expressing this perspective it ensured validity of the data. At the same time he argued that the job was not done until he took a step back and made sense of the situation from both the emic and etic perspectives.

DATA COLLECTION METHODS

The nature of any research problem requires a sensitive and logical approach to research design so that open access to the research site can be permitted. Woods (1986,p.22-32) acknowledged that access could in some cases be difficult but magnified this problem by suggesting that there were in fact several access thresholds to be crossed before effective entry had been established. Once inside the research site proceeding across these thresholds, that marked the way to the heart of the culture, could be treacherous.

Structured Interviews

The structured in-depth interview capitalised on the richness of qualitative responses. It was not free flowing or determined by respondent's interests; it was focused on a specific issue or set of issues, and the questions guided the course of the interview.

This type of research instrument was excellent when standard information was needed from all respondents, but the data were too complex to gather in a closed-ended manner. Respondents were therefore free to tell their stories in their own words, unfettered by pre-established categories, but their data were codeable (Bauman & Greenberg, 1992, pp.10-11). These structured interviews played an important part in the data collection process at the case study school.

Unstructured Interviews

In these interviews the interviewer explored many facets of the interviewee's concerns, treating subjects as they came up in conversation, pursuing interesting leads and allowing imagination and ingenuity full reign.

In these unstructured interviews the conversation roamed in a number of directions and rather than search for replicable answers, the purpose was to let the interviewee's offer interpretations of reality, without preconceived ideas developed by the interviewer (Tierney, 1991, p.9). Unstructured interviews were also used at the case study school.

Semantic Taxonomy Interviews

These interviews were also used at the case study school and clearly borrowed techniques from cognitive anthropology. This was a non-directive interview technique in which structural and attribute questions were asked about categories provided not by the researcher but by the respondent (Young R.E. 1981, p.196).

Focused Interviews

In addition, focused interviews, based on some stimulus material (eg. Langfords and Oliver's (1997) Cultural Change Wall Model), were used to trigger discussion. Such research instruments added range, depth and specificity to the methodology (Alston & Bowles, 2003, p.208; Bauman & Greenberg, 1992, p.11).

Each of the above interview techniques were employed in the case study research school. In each instance the interviews were not simultaneously recorded on audio tape but extensive notes were taken similar to the study carried out by Holland and Kilpatrick (1991, p.138-144). At the conclusion of the interview the interviewer immediately recorded on audio tape of the interview based on the extensive notes taken during the interview. Thus an accurate representation of the dialogue of the interview was created, and from these recordings transcripts were prepared then coded.

Ellis (1993, p.447) suggested that Strauss and Corbin's (1990) coding paradigm perhaps was restrictive and may have stultified the process of full inductive theory generation. Therefore the grounded theory coding procedures suggested by Hutchinson (1990, p 123-140) were used by the authors in their research.

This technique included: Level 1 coding which broke the data into small pieces; Level 11 coding which created categories; Level 111 coding involved creating theoretical constructs and that derived from a combination of academic and clinical knowledge.

The constructs contributed theoretical meaning and scope to the theory (Glaser, 1978, p.70). In addition the technique of memoing was important, which included the researcher quickly and spontaneously recording ideas that captured the initially elusive and shifting connections within the data. Finally saturation occurred when all levels of coding had reached the point when no new conceptual information was available that indicated new codes or the expansion of existing ones. When all the data fitted into the established categories, interactional and organisational patterns were visible, behavioural variation was described, and behaviour could be predicted. The researcher, by repeatedly checking and asking questions of the data, ultimately achieved a sense of closure.

In generating grounded theory, creativity was required through the processes that forced the researcher to break through prior assumptions and thus created new order from the old. Creativity occurred when the researcher was called upon to name categories, to identify associations between categories and to make comparisons that yielded fresh insights into the data collected. Such sensitivity and creativity were referred to by Glaser and Strauss (1967) as invoking of 'insight' as a source of theory. Insights derived from the personal experience of the participants, of the researcher, and from subsequent systematic theorising. Indeed insights were cultivated until the conclusion of the research, because they had the capacity to emerge continually from ongoing reflection upon the data collected.

Indeed reflection was encouraged as grounded theory had some distinguishing features designed to maintain the "groundedness" of the approach. Data collection and analysis were deliberately fused, and initial data analysis was used to shape continuing data collection. This was intended to provide the researcher with opportunities for increasing the "density" and "saturation" of recurring categories, as well as for following up unexpected findings. Interweaving data collection and analysis in this way was held to increase insights and clarify the parameters of the emerging theory.

Additional Ethnographic Research Collection Methods

In addition to the above, ethnographic work was carried out that included: participant observation, corridor interviews, documentation collection. Participant observation was part of the ethnographic study and played an important role in the methodology process.

Corridor and other informal interviews were valuable in that they let the interviewee roam and therefore offered their interpretations of reality without preconceived ideas developed by the researcher (Tierney 1991, p.9). Although Walker (1993, p 72-91) suggested that photographs were a valuable source of data collection and Mehan (1993, pp.93-105) extended this to include videotaping, neither methods were utilised by the authors at the case study site.

VALIDITY

Internal Validity

The above research methodology can claim a high level of internal validity as respondent interviews formed a major portion of the data collected. Such data were phased close to the respondents and were collected in the natural settings that reflected the reality of their life experiences, and were thus possibly more accurate than more contrived or laboratory settings. In addition, the above methodology incorporated a process of researcher self monitoring (disciplined subjectivity) that exposed the research activity to continued questioning and re-evaluation.

Internal validity could be eroded by the reactivity of participant observation or respondents lying, omitting relevant data, or misrepresenting their claims (Burns, 1990, p.247; Morse & Richards, 2002). However, independent corroboration from multiple respondents and sufficient residence in the field clearly improved validity in this particular case study site.

According to Merriam (1998, p.204-205) internal validity was enhanced by the use of six basic strategies that included: triangulation; member checks that required data to be returned to the people from whom they were derived for checking; long term observation of the same phenomenon; peer examination where colleagues were asked to comment on findings; participative or collaborative modes of research that involved participants in all phases of the research.

Triangulation required the use of multiple investigators, multiple sources of data, or multiple methods that confirmed the emerging findings. In research it combined independent yet complementary research methods that: enhanced the description of a process or processes under study; identified a chronology of events; provided evidence for internal validity estimates and served as a corroborating or validating process for study findings. Thus, an expanded understanding and contextual representation of the studies phenomena resulted (Hinds & Young, 1987, p. 195).

Denzin (1970) established the principal types of triangulation that included triangulation in: time, where consideration of factors of change and process by utilising cross-sectional and longitudinal designs was considered; space, using different cultural groups; combined levels, using different groups that included the individual, group, and organisational level; theoretical variety using multiple theories rather than one view point; investigators, by using more than one; methodological, by using the same method on different occasions or different methods on the same occasion. These types of triangulation were endorsed by Keeves and Sowden (1994, p.1472).

McFee (1992b, pp.215 -219) disputed this description of triangulation and suggested that there may be two types that included triangulation between methods but here McFee (1992b) warned that researchers could not be sure that the different methods addressed one and the same issue. The second variety was triangulation within a method and here the data were built-up from inputs

of various perspectives: hence one issue was addressed. But this version failed to provide the sort of mutual support integral to the metaphor of triangulation. McFee (1992b) therefore called for caution and claims that Elliott (1991) supported this notion.

In addition to McFee (1992b), Mathison (1988) also expressed concern that triangulation produced data that were inconsistent or contradictory. She suggested shifting the notion of triangulation away from “a technological solution for ensuring validity” and instead rely on a “holistic understanding” of the situation that constructed “plausible explanations about the phenomena being studied” Mathison (1988, p.17).

On deeper investigation methodological triangulation was classified as simultaneous or sequential. “Simultaneous triangulation” was the use of the qualitative and quantitative methods at the same time. In this case, there was limited interaction between the two data sets during the data collection, but the findings complemented one another at the end of the study. “Sequential triangulation” was used if the results of one method were essential for planning the next method. The quantitative method was completed before the qualitative method was implemented or vice versa” (Morse, 1991, p. 120).

The benefits of triangulation served to enrich and deepen the understanding of the research environment while seeking convergence, corroboration, and correspondence of results across the different method types. This framework highlighted the integrative potential of these strategies, and underscored their potential power not only to incorporate qualitative and quantitative analyses, but also vice versa, and, even beyond, to spiral iteratively around the different data sets, adding depth of understanding with each cycle. (Caracelli & Greene, 1993).

The research methodology selected enabled triangulation in time (using cross-sectional data collection), space (using data from different faculties in the school), combined levels (use of more than one level of analysis from the three principal groups; individual level; interactive level (groups); and collectivities (organisational, cultural); methodological triangulation (using different research methods on the same site). Internal validity was therefore secured in the case study site.

External Validity

External validity involved the extent to which the findings of one case study could be applied to other situations and therefore answered the question of how generalizable were the results of the research study (Guba & Lincoln, 1981, p.115; Mason, 2002).

The purpose that a single case study site was selected was precisely to understand the site in particular depth and not to discover what was generally true of the many. The study could possibly have produced theories that were exportable to other sites but this was unlikely. However it was hoped that the study provided a clearer picture and thus assisted the direction of future research.

Estabrooks, Field, and Morse (1994, p 503-511), Aamodt, (1994, pp.40-53), and Morse (1994, pp.24-43), discussed the aggregation of qualitative data. In particular Estabrooks et al. (1994, p.510) suggested that the findings of independent, similar research results when aggregated into a cohesive study, enhanced the generalizability of the original studies and therefore produced a relatively solid mid-range theory.

However Erickson (1986) argued that the production of generalizable knowledge was an inappropriate goal for interpretative research. In attending to the particular, concrete universals were discovered. “The search was not for abstract universals arrived at by statistical generalisations from a sample to a population”, he wrote, “but for concrete universals arrived at by studying a specific case in great detail and then comparing it with other cases studied in equally detail” (Erickson, 1986, p.130). The general therefore lied in the particular and thus what was learnt in a particular situation could be transferred or generalised to similar situations

subsequently encountered (Merriam, 1998, p.210). Such aggregation may be possible in the future, when further similar studies were forthcoming.

CONCLUSION

The research methodologies outlined above, augmented the breaking of new ground in the research of organisational learning methodologies (Laws & McLeod, 1997, 1998, 1999; McLeod, 2002). The combined “case study/grounded theory” approach, allowed flexibility within the research site, and produced a rich harvest of fine grained research data, that illuminated an important research topic.

In the case study the analysis of data from interviews, observation, learning histories and written documents followed from traditional qualitative data analysis processes. A result of the analysis process was to develop grounded theory where the emphasis was on theory building from within the research and thus theory was not deduced from some general theory before the beginning the research, but it was discovered during the research process. Consequently theory was not considered as perfect product, but rather as process and thus as an ever-developing entity.

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