

The Case for Mixed Methodology Research: A review of literature and methods

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A Working Paper

June 2004

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Introduction

Research based on a mixed methodology has often not been regarded as equal in status to that based on a single methodology within the traditional spectrum of philosophical perspectives. This is despite the progress made over recent times and the view that it does allow science to explain significant amounts of a particular observed phenomenon (Creswell et al., 2004). In spite of the fact that scientists have rejected positivism over the last 50 years, methodology textbooks frequently associate quantitative research with positivism (Feldman, 1998). The impact of only having quantitative methods associated with positivism is aptly illustrated by Barnett when describing Einstein's work:

“In trying to distinguish appearance from reality and lay bare the fundamental structure of the universe, science has had to transcend the “rabble of the senses”. But its highest edifices, Einstein has pointed out, have been “purchased at the price of emptiness of content.” A theoretical concept is emptied of content to the very degree that it is divorced from sensory experience. For the only world man can truly know is the world created for him by his senses.” (Barnett, 1953)

His point being that to fully describe a phenomenon it is necessary to supplement quantitative data with qualitative description. In that way a full and meaningful (a rich description) of the phenomenon can be derived.

New methodologies and epistemologies have emerged that allow for the integration of a variety of methods and researchers should be encouraged to use mixed methods, including quantitative and qualitative approaches (Yu, 2004). Even so, research reports and journal articles that employ mixed methods are still rare (Scandura & Williams, 2000; Mingers, 2001). This maybe due to the way doctoral students are trained and the types of articles accepted for publication by top tier journals. This paper argues the case for mixed methodology research, proposes a paradigm for such research and describes a number of robust examples of the approach.

Mixed Methodology: A review of literature and methods

In the first instance, it is necessary to define exactly what is meant by a mixed methodology because opinions do differ.

Definition of mixed methodology

A basic description of a mixed methodology is simply that it is a methodology with methods that have comparisons between quantitative and qualitative data (Jones, 2004). Quantitative data is data in numerical form, often derived from questionnaires or structured interviews. Qualitative data is descriptive data from observation or unstructured interviews (Taylor et al., 1995 p632). The separation of methodologies into quantitative and qualitative is a common distinction; the tendency has been to link quantitative methods with a natural science (positivist) and qualitative methods with a social science (interpretivist) (Mingers, 2001). However, this simple distinction has caused much debate concerning its accuracy and validity. In the first place, the distinction can be argued to apply to the data rather than the methodology (Yin, 1989) and also that the underlying paradigms are incompatible. On this latter point, there is a view within social research that the two are equally informing (Bryman, 2001).

In his review of Journal articles and the research methodologies used, Mingers (2001) lists the methods that are most commonly associated with the two paradigms of positivist and interpretive research; a paradigm being defined as a belief system or view of the world (Guba & Lincoln, 1994). Among those associated with the former are passive observation, measurement / statistical analysis, survey / questionnaire, experiment, simulation and case study. For the latter, the methods listed include interviews, content analysis, ethnography, grounded theory and participant observation.

Yu (2004) goes much further in his criticism of the lack of understanding of the relationship between positivism and quantitative research: In his paper, Yu cites the fact that philosophers of science have rejected positivism over the past fifty years (Feldman, 1998). He also argues that in comparing quantitative and qualitative research, the attributes of quantitative research have been “misidentified”. The basis for this argument is that the relationship between quantitative research and the positivist paradigm has been misunderstood. An example of this is the association of qualitative research with a method such as Grounded Theory (Glaser & Strauss, 1967) – the iterative development of categories that fit the data – and the use of exploratory factor analysis in quantitative research. Why is the former “grounded” and the latter “ungrounded”? This distinction is further blurred by the fact that Glaser himself stated that grounded theory came from quantitative work and that

it is a general methodology for use on both qualitative and quantitative work (Jones, 2004).

Reflecting on the definitions and arguments presented, there seems to be some confusion between epistemology and methodology in terms of the definitions of positivism and phenomenology (Stiles, 1995) versus the nature of the data and methods that are normally associated with them (ie quantitative data and qualitative data respectively). In fact the distinction is, on the balance of argument, largely artificial (Tashakkori & Teddlie, 1998). Currently, the view that seems to prevail is that the “paradigm wars” are over and the terminology used by pragmatists (Howe, 1988) now is that of “mixed methodologies”. Even so, there is a view that mixed method studies have yet to articulate a proper paradigm or theory (Datta, 1994).

The case for using mixed methodology

In arguing the case for mixing quantitative and qualitative research methods, Jones (2004) cites Lynch (1991) in saying that the differences between the quantitative and qualitative sides of the argument has been based on an over theoretical approach to research in the social sciences. Yu (2004) Approaches the debate from the point of view that there is a misunderstanding of philosophy that aligns quantitative research with empiricism and logical positivism. In arguing against that, Yu cites a

variety of evidence, including the view that pro-observation does not always lead to a realism stance (Phillips and Burbules, 2000) and that quantitative research methodology is not always objective. Overall, Yu espouses the use of a variety of methods and the use of Triangulation (Campbell & Fiske, 1959; Jick, 1979; McGrath, 1982). Triangulation has been defined as "...largely a vehicle for cross validation when two or more distinct methods are found to be congruent and yield comparable data." (Moebius, 2002).

In Howe's concept of pragmatism (Howe, 1988) the focus is on quantitative and qualitative methods being compatible. Therefore, researchers could use both. The pragmatist philosophy has roots in the work of Davidson (1973), Rorty (1982) and Wittgenstein (1958). This view was also postulated by Brewer & Hunter (1989) and further promoted by Reichardt & Rallis (1994). Tashakkori and Teddlie (1998) summarise the view that pragmatism forms a paradigm distinct from others (such as positivism, post-positivism and constructivism) and that this paradigm allows the use of quantitative and qualitative methods in social and behavioural research. As business research is a form of social and behavioural research (Easterby-Smith et al., 1991) there is every reason to believe that Pragmatism is applicable as a paradigm to business research.

With respect to specific methods, methodological triangulation has been successfully used across quantitative and qualitative methods and data (Patton, 1990). Creswell (1995) defined four mixed method research designs, but later (Creswell, 2004) stated that he did not think that the mixed methodology design had stood the test of time. However, his comment relates to his specific design rather than mixed methodology in general. Why his design in particular? Because his assertion was to apply mixed methodology to all phases of the research design, including the underlying philosophy. Initially he teamed with Lester Goodchild, a historian, and they took an interest in a thesis developed in Australia called the Unity Thesis (Walker & Evers, 1988). Creswell notes that many hopes seem to be pinned on Pragmatism and expresses concern that, in his view, the link between pragmatism and the practice of mixed methods research has not yet been fully developed. Pragmatism has been described as a "reactive, debunking philosophy" (Nielsen, 1991), reflecting the most contentious issue around mixed methodologies – ontology and causality. This boils down to the nature of realism: Positivists & post-positivists believe in an objective, external reality whereas constructivists believe in multiple, subjective realities (Greenberg & Folger, 1988). So what is the pragmatist view and can it bridge the philosophical gap? In essence, there are two parts to their view: Firstly, they agree with positivists and post-positivists that there is an external reality. Secondly, they deny that there is an absolute truth (Tashakkori & Teddlie, 1998). This does appear to meet the need for a philosophical underpinning of

mixed methodology research: It does relate to metaphysical concepts of truth and reality and it is a practical approach to research.

The philosophical debate concerning the use of mixed methodologies in research takes us so far but does not answer questions concerning details relating to the methods. As Tashakkori and Teddlie (1998) point out – the rate of change in the development of mixed method research techniques has been increasing due to the development of new computer techniques for analysis and the development of new tools.

Examples of mixed methodology

There are many examples of mixed method approaches to research. A few examples of approaches that have been successful are described below. The examples given are deemed to be successful because they have a solid grounding in methodological theory, have been applied in practice and the results of their application have been published as papers or included in successful doctoral theses. The list is by no means exhaustive.

Phenomenography

Phenomenography is grounded in the interpretivist paradigm, but with the use of quantitative data in the form of large-scale surveys. This approach has been used with considerable success by Ference Marton and Noel Entwistle (Jones, 2004). The method is used to explore the different ways

in which people experience the world. The methods typically used on research using phenomenography are individual interviews and a quantitative data collection instrument such as the ASI (Approaches to Study Inventory).

Triangulation

The two goals of triangulation are convergence and completeness (Yu, 2004). These goals stem from the ideas and work of Peirce (1934/1960) on convergence – linking arguments and evidence. This view was countered by Jick (1985) who thought that data from different methods should be used to add to the completeness of any description of a phenomenon rather than as a form of cross-validation.

Mixed forms of evaluation research

There are three research designs that are commonly used successfully in confirmatory studies (Tashakorri & Teddlie, 1998).

The three are:

- ⊙ Confirmatory investigation, qualitative data and operations, statistical analysis and inference.
- ⊙ Confirmatory investigation, qualitative data and operations, qualitative analysis and inference.
- ⊙ Confirmatory investigation, quantitative data and operations, qualitative analysis and inference.

There are also three commonly used research designs for exploratory studies, also known as descriptive studies (Tashakkori & Teddlie, 1998):

- ⊙ Exploratory investigation, quantitative data and operations, statistical analysis and inference.
- ⊙ Exploratory investigation, qualitative data and operations, statistical analysis and inference.
- ⊙ Exploratory investigation, quantitative data and operations, qualitative analysis and inference.

These methods represent practical solutions to using mixed methods in a research study in that they have been used successfully by others and have a robust grounding in theory.

Conclusion

From the review of prior work presented above, it is clear that the concept of mixed methodology research has been the subject of debate for a considerable period of time and that this debate was (and still is) referred to as the “Paradigm Wars” (Tashakkori & Teddlie (1998); Datta (1994)). One view of the debate was that it focused on data and aligned types of data to types of epistemology and method (Yin, 1989) or misinterpreted epistemologies altogether (Yu, 2004). In an effort to end the paradigm wars and to enable mixed methodology to gain an equal status with the positivist and interpretivist schools, the pragmatist approach was

developed (Howe, 1988). The pragmatist paradigm allows for the use of quantitative and qualitative methods (Tashakkori & Teddlie (1998). It appears to go a long way towards answering the doubts expressed concerning whether or not mixed method studies can articulate a proper paradigm or theory to justify their use (Datta, 1994). Despite this, the number of Journal papers employing mixed methods is still very low (Scandura & Williams, 2000; Mingers, 2001).

A number of examples of specific methods have been developed and a sample of these illustrated in the discussion above. Triangulation has been cited as a robust means of ensuring rigor when using mixed methods (Yu, 2004). In summary, the use of mixed methodology in business research does have a distinct paradigm. By judicial research design, possibly enhanced by methodological Triangulation (Peirce, 1934/1960; Yu, 2004) a robust and rigorous case for mixed method research can be made. This may or may not have an impact on the number of Journal publications employing mixed methods, but if robust arguments for their use are presented, it should increase the chances of publication. For sure, the use of such methods will certainly add to the richness of any research project (Creswell et al., 2004).

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