

MIXED METHODS RESEARCH: PHOENIX OF THE PARADIGM WARS

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ABSTRACT A new era in research methods is emerging and has been quietly lauded by several emerging authorities in the field of mixed methods research. The paradigm wars of the 1980s have been replaced by a ‘paradigmatic soup’ (Buchanan & Bryman 2007) and multimethodology or methodological pluralism has become a dominant part of the research landscape. Like the mythology of the phoenix, mixed methods research has arisen out of the ashes of the paradigm wars to become the third methodological movement. The fields of applied social science and evaluation are among those which have shown the greatest popularity and uptake of mixed methods research designs. This paper provides an overview of the rise of mixed methods research, its usage in business and management fields and its relationship to the notion of triangulation and the philosophy of pragmatism. Typologies of mixed methods are discussed and a case study of a mixed method research design in the Human Resource Management field that used a sequential mixed model research design is presented.

Keywords: *mixed methods, design pragmatism, career development*

The Aftermath of the Paradigm Wars

The debates surrounding research paradigms have a long history and were particularly active in the 1980s. Some commentaries on the debate contend that the struggle for primacy of one paradigm over others is irrelevant as each paradigm is an alternate offering with its own merits (Guba 1990: 27). Creswell (1994: 176) identifies several schools of thought in the paradigm debate or so-called ‘paradigm wars’. At one end of the debate are the ‘purists’ who assert paradigms and methods should not be mixed. Another school of thought is identified as the ‘situationalists’ who contend that certain methods can be used in specific situations. In direct opposition to the ‘purists’ are the pragmatists who argued against a false dichotomy between the qualitative and quantitative research paradigms and advocate for the efficient use of both approaches.

Proponents of mixed methods research have been linked to those whom identify with the pragmatic paradigm. Historically, pragmatism can be traced to an early period from 1860-1930 and the neopragmatic era from 1960 to present (Maxcy 2003). Many mixed methods researchers and theorists draw strong associations with mixed methodology and pragmatism (Datta 1997; Bazeley 2003; Greene & Caracelli 1997 & 2003; Maxcy 2003; Tashakkori & Teddlie 2003; Johnson and Onwuegbuzie 2004). Johnson and Onwuegbuzie (2004: 17) summarise the philosophical position of mixed method researchers when they say:

We agree with others in the mixed methods research movement that consideration and discussion of pragmatism by research methodologists and empirical researchers will be productive because it offers an immediate and useful middle position philosophically and methodologically; it offers a practical and outcome-orientated method of inquiry that is based on action and leads, iteratively, to further action and the elimination of doubt; and it offers a method for selecting methodological mixes that can help researchers better answer many of their research questions.

Pragmatism has a strong philosophical foothold in the mixed methods or methodological pluralism camps. This paper now looks more closely at the mixing of qualitative and quantitative research methods.

Research methodologies are often categorised under two approaches: quantitative (positivist) and qualitative (postpositivist), each with unique strengths and limitations. Positivist inquiry takes a realist position and involves a dualist epistemology which requires separation of the researcher to the researched. Postpositivist inquiry takes a relativist position and allows for multiple constructions of reality and a monist epistemology where the researcher and the researched interact and are bound together (Caulley 1994: 4). Neuman (2006: 177) provides the following argument in terms of these two methodological approaches and argues against the rigid dichotomy between the two:

The qualitative and quantitative distinction is often overdrawn and presented as a rigid dichotomy. Too often, adherents of one style of social research judge the other style on the basis of the assumptions and standards of their own style.....The well-versed prudent social researcher understands and appreciates each style on its own terms and recognizes the strengths and limitations of each. The ultimate goal of developing a better understanding and explanation of the social world comes from an appreciation of what each has to offer.

Guba and Lincoln (2005: 200) discuss how positivists and postpositivists can be reconciled through mixed methods and can be:

.....retrofitted to each other in ways that make the simultaneous practice of both possible. We have argued that at the paradigmatic, or philosophical, level, commensurability between positivist and postpositivist world views is not possible, but that within each paradigm, mixed methodologies (strategies) may make perfect sense..

In particular, qualitative research can be a site of multiple practices where there is no 'distinct set of methods or practices that are entirely its own' (Denzin and Lincoln 2005: 7) and no one method or practice is rated more highly than another. Nelson (1992) puts forward the following argument in terms of a qualitative approach to research:

Qualitative research is an interdisciplinary, transdisciplinary, and sometimes counterdisciplinary field. It crosscuts the humanities and the social and physical sciences. Qualitative research is many things at the same time. It is multiparadigmatic in focus. Its practitioners are sensitive to the value of the multimethod approach. They are committed to the naturalistic perspective and to the interpretive understanding of human experience. At the same time, the field is inherently political and shaped by multiple ethical and political positions. (Nelson et al. 1992: 4 cited in Denzin and Lincoln 2005: 7)

The Rise of Mixed Methods Research Designs

Mixed method research has a short history as an identifiable methodological movement which can be traced to the early 1980s and has been described as a 'quiet' revolution due to its focus of resolving tensions between the qualitative and quantitative methodological movements (Tashakkori & Teddlie 2003: 697). Mixed methodologies is an emerging area with a growing amount of interest across several discipline areas and has been particularly popular in the areas of applied social research and evaluation (Bazeley 2003). Tashakkori & Teddlie acknowledge the effects of the residue from the paradigmatic wars but are very positive in acknowledging the signs of change:

'the mixed methods research movement is a positive reaction to this split personality and to the excesses of both the QUAN [quantitative] and QUAL [qualitative] camps. We believe that mixed methods will eventually pave the way for more commonality in research language that will benefit both the QUAL and QUANT camps' (2003: 699).

Several authorities have been emerging as mixed methodologist researchers and theorists (Green and Caracelli 1997; Mingers and Gill 1997; Creswell 2003; Tashakkori and Teddlie 2003; Mertens 2005) along with the emergence of mixed methods chapters in recent research text books (Creswell 2003; Mertens 2005; McMillan & Schumacher 2006). In addition to this, the publisher Sage has published a handbook of mixed methods (Tashakkori & Teddlie 2003) and a *Journal of Mixed Methods Research* in 2007.

In the field of management research Mingers and Gill (1997) have been strong advocates for multimethodology as has Bazeley (2003, 2007). Mingers (1997: 9) argues for a strong pluralism or multimethodology which takes the position that most if not all intervention situations would be dealt with more effectively with a blend of methods from different paradigms. Whilst Buchanan & Bryman (2007) draw attention to the contextual issues surrounding the field of organisational research. They see the field as being impacted by three major trends which are identified as:

- widening boundaries,
- a multiparadigmatic profile, and
- methodological inventiveness.

These trends are impacting on organisational research as it is a field where many disciplines meet. Organisational research includes such disciplines as human resources; economics; social psychology; public policy; finance; marketing just to name a few. Management science researchers need to keep abreast of these trends as do management educators. Buchanan & Bryman (2007: 486) sum this up when they say:

'The paradigm wars of the 1980s have thus turned to paradigm soup, and organisational research today reflects the paradigm diversity of the social sciences in general. It is not surprising that this epistemological eclecticism has involved the development of novel terminology; innovative research methods; non traditional forms of evidence; and fresh approaches to conceptualization, analysis, and theory building.'

The metaphor of the phoenix has been used in this paper to illustrate the emergence of the third methodological movement that has arisen from the ashes of the paradigm wars. Mingers (2004) refers to the ceasefire of the paradigm wars being announced whilst Johnson and Onwuegbuzie (2004: 14) state very clearly 'Mixed methods research: A research paradigm whose time has come'. Nonetheless, it is a developing and evolving field and recent studies of the use of mixed methods in the field of information systems (Mingers 2003), counselling (Hanson, Creswell, Clark, Petska & Creswell 2005) and qualitative research conducted in Switzerland (Eberle & Elliker 2005) is providing empirical evidence of the extent of utilisation of mixed methods in contemporary research.

Closely linked to the idea of mixing both qualitative and quantitative methods is the notion of triangulation. This paper will discuss the relationship between the notion of triangulation and mixed methods research design.

Triangulation

Denzin (1978) used the term triangulation to argue the use of a combination of methodologies in research and initially saw triangulation as a validation strategy (Flick 2004: 179). The term is borrowed from military and navigation strategies and is used to explore a viewpoint from multiple perspectives (Neuman 2006: 149). Denzin (1978) named four differing types of triangulation as a means for validation:

- triangulation of data
- investigator triangulation
- triangulation of theories
- methodological triangulation.

Data triangulation involves using a variety of data sources in research whilst investigator triangulation is similar in that it uses a variety of investigators or evaluators. Theory triangulation involves the use of multiple perspectives to interpret a data set and methodological triangulation is the use of mixed methods in a single study (Denzin and Lincoln 2003: 66-7).

Cohen and Manion (1989: 272) add three additional types of triangulation to the mix:

- time triangulation
- space triangulation and
- combined levels triangulation.

Time triangulation involves using both longitudinal and cross sectional designs and combined levels triangulation incorporates more than one level of analysis: individual level, interactive group level and at the organisational level. Space triangulation attempts to address mono culture or subcultural studies by using cross-cultural studies (Cohen and Manion 1989: 272).

The concept of triangulation has not been without its critics and such critiques have in some cases led to expanding the notion and its uses. Flick (2004: 183) expands on the work of Denzin and advocates for three modes of application of triangulation. Triangulation as a validation strategy, an approach to generalisation of discoveries and as a pathway to additional knowledge whilst Green et al. (1989) advance four other purposes for combining methods including triangulation. These include complimentary purposes so that overlapping and differing facets of a study can emerge. Developmental purposes which enable methods to be used in sequence so that they can inform the second method and purposes around initiation which allow for

contradictions and new perspectives to emerge. And lastly, for expansion purposes whereby utilising mixed methods adds breadth and depth to the study. Cox and Hassard (2005: 109) advocate for a re-presentation of triangulation in organisational research which rethinks the lines and angles of enquiry. This involves shifting from the traditional stance of 'triangulation of distance' to one which views the researcher in a more reflexive stance.

Triangulation as a validation strategy has contributed to the rise of mixed methods research designs as it has advocated for triangulation of data and methodological triangulation within the social science research community. The notion of triangulation has recently been expanded and re-framed to further enhance this relationship. Tashakkori and Teddlie (2003: 674) go so far as to ponder whether triangulation has become so overused that it has lost meaning. However they do acknowledge triangulation as an almost "magical" word with "near -talismanic" meaning. They conclude that only time will tell if its use and meaning remain an important part of research. Perhaps the mixed methods phoenix will soar above and beyond the one dimensional notion of triangulation!

Mixed Method Typologies

Mixed methods research designs use both quantitative and qualitative approaches in a single research project to gather or analyse data and several mixed method theorists have developed mixed method typologies (Miles & Huberman 1994; Greene & Caracelli 1997; Morgan 1998; Creswell 2003; Morse 2003; Tashakkori & Teddlie 2003; Mertens 2005).

Typologies are the study or systematic classification of types that have characteristics or traits in common and form part of models and theories. Neuman (2006: 55) defines typologies as a way to classify theoretical concepts which is created by 'cross-classifying or combining two or more simple concepts to form a set of interrelated sub-types.' Typologies are used by theorists to assist them in organising abstract and complex concepts.

Creswell (1994) advances three design models for combining qualitative and quantitative research designs. The two-phase model, which is characterised by two phases in which one phase contains qualitative research and the other quantitative research. The second model is the dominant-less dominant model which one paradigm dominates and a lesser paradigm is used. The third model is referred to as the mixed-methodology design. This design combines the both qualitative and quantitative approaches throughout all stages of a study.

Greene and Caracelli (1997) developed a typology of mixed methods designs which include three component designs and four integrated designs. Table 1 depicts these in tabular form.

Table 1 Designs for Mixed Methods Research

Component Designs	Integrated Designs
<p>Triangulation</p> <p>Different methods are used to assess the same phenomenon toward convergence and increased validity.</p>	<p>Iterative</p> <p>Dynamic and ongoing interplay over time between the different methodologies associated with different paradigms. Spiral type design.</p>
<p>Complementary</p> <p>One dominant method type are enhanced or clarified by results from another method type.</p>	<p>Embedded/nested</p> <p>One methodology located within another, interlocking inquiry characteristics in a framework of creative tension.</p>
<p>Expansion</p> <p>Inquiry paradigms frame different methods that are used fro distinct inquiry components. The results being presented side-by-side.</p>	<p>Holistic</p> <p>Highlight the necessary interdependence of different methodologies for understanding complex phenomena fully.</p>
	<p>Transformative</p> <p>Give primacy to the value-based and action-orientated dimensions of different inquiry traditions. Mix the value commitments of different traditions for better representation of multiple interests.</p>

Source: (Caracelli & Greene 1997: 23)

Mertens (2005) has mapped the definitions and characteristics of mixed methods and mixed models designs. Both utilise both qualitative and quantitative features. However, Mertens (2005: 292) distinguishes between mixed method design which uses both methods to answer a research question in a single study as compared to mixed model designs which are studies which are part of a larger research program and are designed as complimentary and inform several of the research questions. Each having a different methodological approach. In addition to this distinction Mertens (2005: 292) adds parallel and sequential data collection forms and defines these as:

Parallel Form: *Concurrent mixed-methods/-model designs in which two types of data are collected and analysed.*

Sequential Form: *One type of data provides a basis for collection of another type of data.*

Tashakkori & Teddlie (2003) have developed a very comprehensive typology of mixed methods which results in six types of multistrand mixed designs. Mixed method designs involve the mixing of the quantitative and qualitative approaches only in the methods stage of a study. Whilst mixed model designs involve the mixing of the quantitative and qualitative approaches in several stages of a study. This results in six types of multistrand mixed designs as depicted in Table 2. The authors of this typology assert that it is the multistrand mixed methods designs which are the most innovative and widely used mixed method designs (Tashakkori and Teddlie 2003: 685). Multistrand designs use more than one methodology and are characterised by three dimensions. They have single or multiple approaches. They use two methods to answer either exploratory or confirmatory research enquires. Another dimension is the stages of integration or the incorporation of both qualitative and quantitative data sets. The third dimension is the procedures for linking the strands either sequentially or concurrently (Tashakkori and Teddlie 2003: 686). These dimensions create six types of multistrand research designs to which the sequential mixed model design has been applied to this research. The methodologists also note the parallels between this particular type and Creswell’s (2002) explanatory and exploratory mixed method designs (Tashakkori and Teddlie 2003: 688).

Table 2 The Two-Dimensional framework for Conceptualizing Multistrand Mixed Designs

Procedure	Mixed Method	Mixed Model Study
Concurrent	Concurrent mixed method design	Concurrent mixed model design
Sequential	Sequential mixed method design	Sequential mixed model design
Conversion	Conversion mixed method design	Conversion mixed model design

Source: (Tashakkori & Teddlie, 2003: 687)

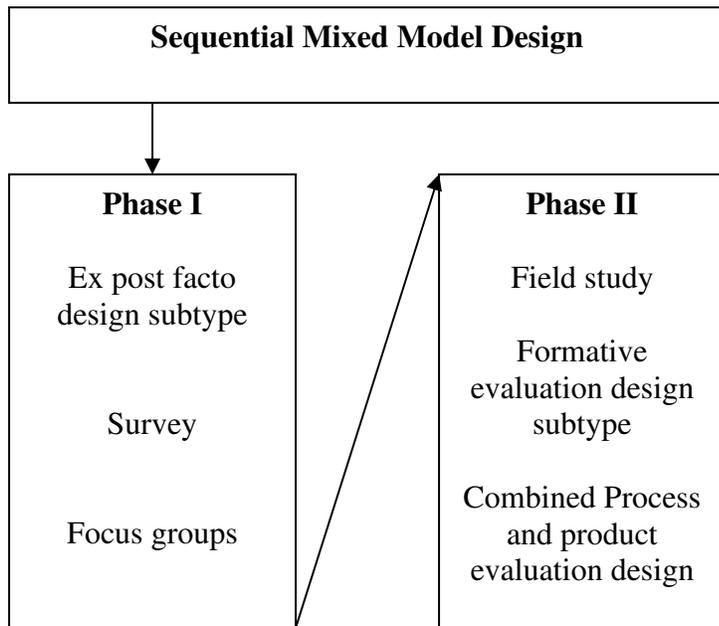
Mixed methods typologies and research designs are not without critics and McMillan and Schumacher (2006: 401) draw attention to both the advantages and disadvantages of using mixed methods. They list three disadvantages. The first being the need of the researcher to be proficient and competent in both qualitative and quantitative methods. The second disadvantage is the extensive data collection and resources need to undertake a mixed method study. The last refers to a tendency to use mixed methods label liberally to studies which only superficially mix methods. Tashakkori & Teddlie (2003), Bazeley (2003) and Earley (200&) have both attempted to address these issues through advocating for research education that explicitly covers mixed methods in the syllabus.

Having now outlined the emergence of mixed methods research designs and reviewed the typologies, this paper will now describe a research study which utilised the sequential mixed model research design from the Tashakkori & Teddlie typology.

A Case Study of Mixed Methods Research Design

Recently completed PhD research in the broader field of HRM/HRD will be presented here as an example of the utilisation of mixed methods research design. The research focused on the learning experiences of those disadvantaged in the labour market and was essentially a qualitative exploratory study. The research design is based on a sequential mixed model research design which has two phases and research design subtypes within each phase. Phase I includes an ex post facto design (retrospective design) subtype whilst Phase II utilises a combined process and product evaluation design subtype. In Phase I of the research a quantitative Learning Survey and qualitative focus groups were conducted. The Learning Survey was administered to approximately 250 labour market program participants and was followed by a seminar which presented preliminary data to representatives of the participating organisations. During this seminar focus groups were conducted. Phase I of the research resulted in the development of a model to assist those in career and learning transitions. Phase II of the research encompasses the development and formative evaluation of the model in the field and utilised a combination of both qualitative and quantitative data collection methods. This research process was non linear and emergent which enabled the most appropriate method for progressing the research to be chosen. Figure 1 depicts the overall research design and design subtypes of the research.

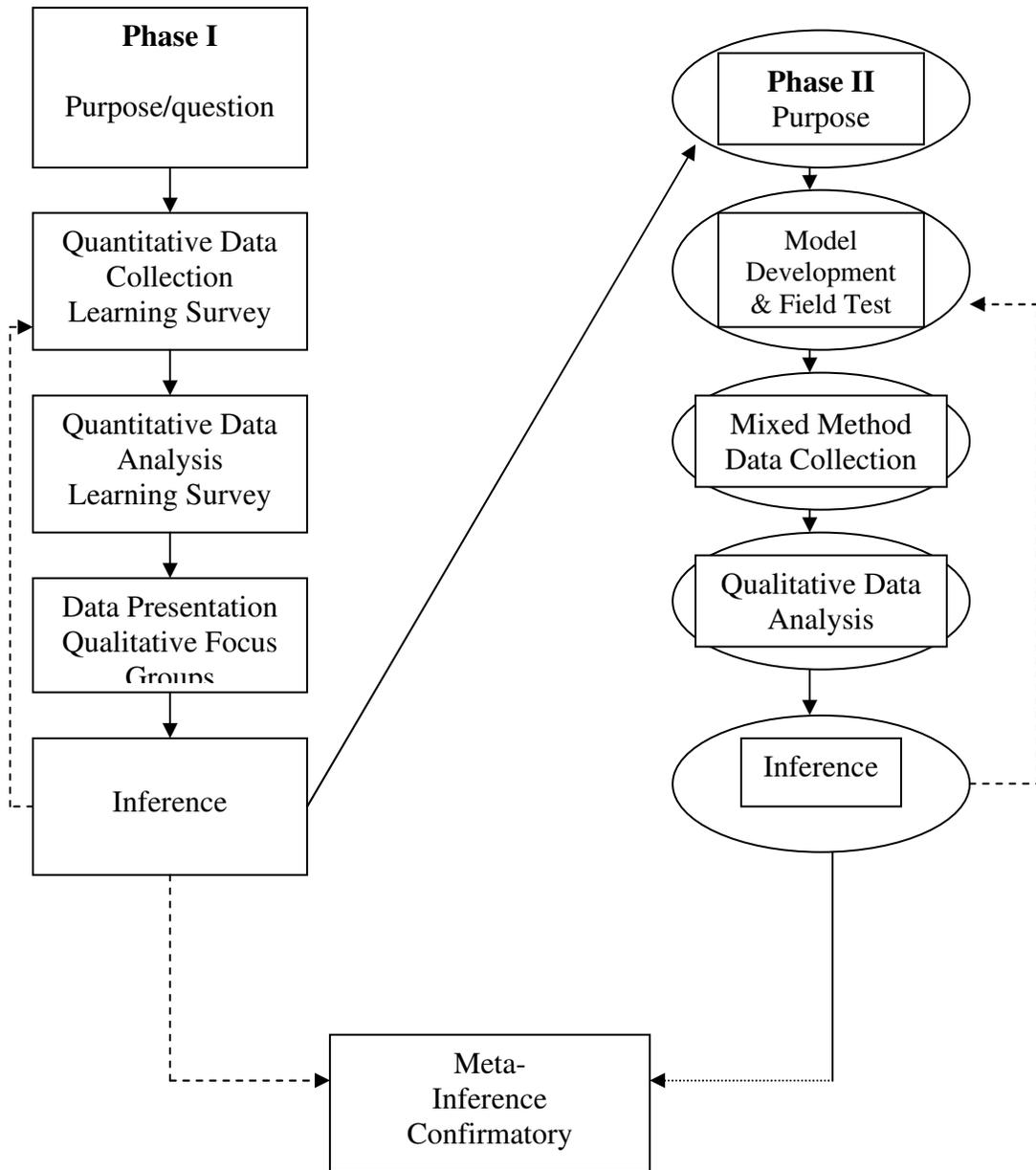
Figure 1 Research design



Source: (Cameron 2007)

The sequential mixed model design utilised in the research is adapted from Tashakkori and Teddlies' (2003) typology of multistrand mixed method research. Figure 2 represents the application of this design to the research described in this case study.

Figure 2 Sequential Mixed Method Design



Source: (Adapted from Tashakkori and Teddlie (2003: 688))

The mixed model design allows for the research questions for the second strand (phase) of research to emerge from the inferences of the first strand (phase) (Tashakkori and Teddlie 2003: 687). The first strand is usually exploratory and data collection, analysis and inferences are in one approach, as was the case with the Learning Survey in Phase I of the research which took a quantitative approach. The second strand (phase) is often confirmatory and the new data, its analysis and inferences are in the other approach, as was the case with the qualitative approach undertaken in the model development, its testing in the field and formative evaluation in Phase II of this research. The resulting final meta-inferences are made as either confirmatory or disconfirmatory of the inferences made at the end of the two strands (phases) (Tashakkori and Teddlie 2003: 688).

In the case of this research the meta-inferences were confirmatory and resulted in a conceptual framework that consists of a continuum of models of Recognition of Prior Learning (RPL), a hierarchy of recognition and a model to assist those in career and learning transitions.

Conclusion

This paper has mapped the emergence of mixed methods research as a third methodological movement which has resulted from the tensions of the paradigm wars and is related to the philosophy of pragmatism and the notion of triangulation. The phoenix metaphor was used to describe how the movement grew out of the ashes of the paradigmatic wars and how the popularity and use of mixed methods research designs is growing. Several authorities in the area are becoming prominent commentators in the field and an emerging literature base is developing. Recently completed PhD research that utilised a sequential mixed model design was then described.

Further research is planned to examine and categorise the research designs employed by Doctor of Business Administration (DBA) candidates from the International Centre for Professional Doctorates at Southern Cross University from 1995-2007. This further research will add to the growing body of knowledge concerning mixed methods research designs in the management sciences.

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