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**MIXED METHOD RESEARCH DESIGNS: A CASE STUDY OF THEIR
ADOPTION IN A DOCTOR OF BUSINESS ADMINISTRATION PROGRAM**

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ABSTRACT

The paper presents empirical data concerning the utilisation of mixed method research in Doctor of Business Administration (DBA) research projects (theses). The Southern Cross University, Australia, DBA program was established in 1996 as a research degree and has successfully graduated over 250 graduates from a diverse range of countries across the globe. It is the largest DBA program in the Australasia. The research will present prevalence rates of mixed methods research utilised by doctoral candidates, data will be presented on the most frequently used data collection methods and research approaches within the field of business and management, with empirical data from a number of countries including Australia, Thailand, Malaysia, Singapore, and Indonesia. Emergent issues with regard to the use of mixed methods research in business and management research and the teaching of mixed methods are discussed.

Key words: mixed method, doctoral research, research design

INTRODUCTION

There is relatively less research, literature and commentary on the utilisation of mixed method research designs in applied business than there is in the fields of the social and behavioural sciences, health and education where mixed method research have gained acceptance and has been used extensively. Traditionally, most business discipline research has been undertaken within the quantitative paradigm, with an emerging utilisation of qualitative research for several decades. More recently however, mixed method research designs are becoming part of the fabric of business research and are increasingly playing a significant role in doctoral level business research (Miller and Marchant, 2009). The aim of this paper is to analyse the research approaches adopted by doctoral research candidates undertaking a business and management doctorate program, specifically focusing on the prevalence rates of mixed method research.

The Southern Cross University Doctor of Business Administration (DBA) program was established in 1996 and was one of the first business-related professional doctorate research programs offered in Australia. The program has expanded internationally and is delivered in several countries including Australia, Malaysia, Singapore, Hong Kong and New Zealand by way of educational collaborative partnership. Unlike most of the other DBA programs offered in Australia, the program is classified by the Australian Government Department of Education, Employment and Workplace Relations (DEEWR) as a research higher degree, i.e. as having a research component of at least two-thirds of the course. As an accepted research degree program, the program is regularly compared with other doctoral research degrees (e.g. the PhD) and has been independently ranked over several years in the top three research programs in Australia for overall satisfaction (Graduate Careers Australia, 2010).

Most of the candidates entering the program do not have research training (for example an honours or research masters qualification), and therefore the candidates are provided with compulsory qualitative and quantitative research design and methods training on entry to the program. The research training is currently delivered as two separate coursework subjects.

Doctoral theses produced from the program are examined by academics from all over the globe and anecdotal evidence collected from the examination reports was suggesting that many of the research projects in the program were adopting a mixed method approach, utilising both quantitative and qualitative aspects in the research design. In some studies, the two approaches were utilised with similar weighting while in other studies; one approach was dominant, with the other supporting.

As a reaction to the anecdotal evidence, structured and formal mixed methods research training was included in the Qualitative Research Unit for the program from 2008 in response to the noted increasing trend for candidates to include mixed method designs in their projects. The teaching of mixed methods as a formal component in the research training subjects has been welcomed by both the candidates and their supervisors. In addition, from 2007 a formal presentation on conducting mixed method research has been a regular feature of the DBA Doctoral symposia conducted biannually when candidates come to campus to discuss and report upon their research projects.

In order to understand the apparent trend towards mixed method research in the program, this research project was undertaken to investigate the emergence of mixed method research in the program. The following research questions were posited to guide the research:

RQ1: What is the extent to which business and management doctoral students in the program utilise a mixed method research design in the research project?

RQ2: Were the emerging research designs being utilised by candidates multi-method approaches or mixed method approaches?

RQ3: Are the researchers framing the mixed method research in their projects around established typologies from various authorities in the field?

There is a growing body of mixed methods theoretical frameworks, literature and designs. A major challenge for researchers in the business disciplines wishing to use mixed methods and those who build research capacity, relates to the need to introduce novice researchers to this body of literature and to encourage greater engagement with

the theoretical foundations of mixed methodology. This will enable full advantage of what these foundations can offer in terms of maximising their application to mixed methods research.

This paper will review the literature relevant on the prevalence rates of mixed method research designs in certain discipline areas of business and management before presenting the empirical data from the research. A discussion on the implications of the findings of the research for the teaching of mixed methods in this particular postgraduate program concludes the paper.

LITERATURE REVIEW

Mixed method research (MMR) is a growing area of methodological choice for many academics and researchers from across a variety of discipline areas. An oft used quotation by Creswell and Plano Clark (2007: 5) provides a comprehensive definition of mixed methods as follows:

Mixed methods research is a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone.

Teddlie and Tashakkori (2010: 5) define the methodology of mixed methods as:

The broad inquiry logic that guides the selection of specific methods and that is informed by conceptual positions common to mixed methods practitioners (e.g., the rejection of “either-or” choices at all levels of the research process). For us, this definition of methodology

distinguishes the MMR approach to conducting research from that practiced in either the QUAN or QUAL approach.

It is important to note the difference between mixed methods and multiple methods. The distinction between these is described by Leech et al. (2008) as follows:

mixed methodologies is distinguished from multiple methodologies, wherein mixed methodologies refers to approaches in which quantitative and qualitative research techniques are integrated into a single study, whereas multiple methodologies refer to approaches in which more than one research method or data collection and analysis technique (including two or more methods within the same paradigm) is used to address research questions.

Mixed methods research designs are gaining in usage and influence and this has accelerated over the last 10 years. Creswell and Plano Clark (2007) have mapped a brief history of mixed methods research and its evolution to date and have posited four, often overlapping, time periods in the evolution of mixed methods. These four time periods are the; Formative period (1950s - 1980s); Paradigm debate period (1970s - late 1990s); Procedural development period (late 1980s – 2000); and the Advocacy as a separate design period (2000+). Recent literature emerging from the MMR community confirms this advocacy period and is evidenced by the prominence of several authorities in the field (Bazeley 2003; Bergman 2008; Bryman 2008; Creswell 2003; Greene and Caracelli 1997; Mertens 2005; Mingers and Gill 1997; Creswell & Plano Clark 2007; Tashakkori and Teddlie 2003, 2010), the publication of research texts on mixed methods (Andrews and Halcomb 2009; Bergman 2008; Creswell & Plano Clark 2007; Greene 2007; Morse & Niehaus 2009; Nagy Hesse-Biber 2010; Teddlie & Tashakkori 2008; Todd, Nerlich, McKeown & Clarke 2004) and chapters on mixed methods in research methods texts (McMillan & Schumacher 2006; Sheperis, Young & Daniels 2010). The most comprehensive publication of mixed methods to date has been the edited *Handbook of Mixed Methods in Social and*

Behavioural Research, currently in its second edition (Tashakkori & Teddlie 2003, 2010).

This Advocacy period has also witnessed the establishment of several journals devoted to methodological discussions pertaining to MMR and empirical MMR studies. In January 2007 the first issue of the *Journal of Mixed Methods Research* was published and this was followed by the first issue of the *International Journal of Multiple Research Approaches* in October 2007. The latter journal published several Special Issues on MMR for novices, teaching MMR and the use of MMR in specific disciplines such as: law and psychology and health and nursing. In 2011 a new online journal, *The International Journal of Mixed Methods in Applied Business and Policy Research* will publish its first issue. In addition to these, *Quality and Quantity* and *Field Methods* have also published literature and research pertaining to MMR. Discipline based conferences and Special Interest Groups (SIG) on MMR research are emerging across disciplines. For example the American Educational Research Association has had a MMR SIG for the past 4 years. The Australian and New Zealand Academy of Management (ANZAM) will launch a new MMR SIG at its annual conference in 2011 and the European Conference Research Methodology (ECRM) has had a conference track for mixed methods for the last two years (2009 and 2010) and has acknowledged mixed methods in conferences previous to this. The European Academy of Management (EURAM) 2010 Conference had a track and special interest group for Research Methods and Research Practice. The call for papers for this track is inclusive of papers that address new applications of mixed methods. The Australian Consortium for Social and Political Research, Inc. (ACSPRI) conference for 2010 had a track on MMR and the 2009 Australian and New Zealand Academy of Management (ANZAM) conference had a MMR workshop. The Mixed Methods conference will celebrate its 7th year in 2011 and is being hosted by Leeds University in the UK.

A growing body of prevalence rate studies has emerged across broad field categories as well as in specific disciplines. Alise and Teddlie (2010) refer to the prevalence rates literature as a line of inquiry into research methods within mixed methods research that studies the adoption and utilisation of mixed methods across published literature from a broad discipline or sub-discipline area. Recent discipline specific

prevalence rates studies of the use of mixed methods in the fields of counselling (Hanson, et al. 2005); qualitative research conducted in Switzerland (Eberle & Elliker 2005); social and human sciences (Bryman 2008; Plano Clark 2005); social and behavioral science (Alise & Teddlie 2010); evaluation research (Greene, Caracelli & Graham 1989); education (Cameron 2010a; Hart et al. 2009; Hutchinson & Lovell 2004; Niglas 2004); and career development (Cameron 2010b).

Attention to the use of MMR in business and management fields has also been slowly increasing with several prevalence rates studies emerging (Bazeley 2008; Cameron 2011; Hanson and Grimmer 2005; Hurmerinta and Nummela 2006; Grimmer and Hanson 2009; Molina-Azorin 2008, 2009; Molina-Azorin & Lopez 2009; Rocco, Bliss, Gallagher and Perez-Prado 2003). These studies provide an emerging empirical picture of the extent of the utilisation of mixed methods in contemporary business and management research.

Bazeley (2008) reviewed 16 research articles in *Administrative Science Quarterly* (ASQ: June 2005-March 2006) and 19 from the *Academy of Management Journal* (AMJ: February and April, 2006). Of these 35 articles, six utilized a pure qualitative approach and eight of the 35 used mixed methods (23%). The Cameron (2011) study involved the methodological scan of conference papers from the 2007 conference of the Australian and New Zealand Academy of Management (ANZAM) (n=281). Quantitative papers represented just under one third of the papers (32%), followed by conceptual papers (30%). Qualitative papers represented 28% of the papers and mixed methods represented 10%. Papers were categorised as either conceptual or empirical (qualitative, quantitative and mixed methods). This process identified a total of 197 papers with an empirical research design. Of these empirical studies 28 (14%) utilised a mixed method. The study found those utilising mixed methods approaches were not acknowledging the MMR literature, theoretical frameworks and research designs. ‘The issue of quality in mixed methods studies is a concern. The lack of explicit rationales for using a combination of methods and the lack of acknowledgement of mixed methods literature and its theoretical and methodological foundations’ was noted (Cameron 2011: 263).

Hanson and Grimmer (2005) undertook a content analysis of 1,195 journal articles from three prominent marketing journals from 1993-2002 (*Journal of Marketing; European Journal of Management; Journal of Services Marketing*). The purpose of this study was to determine the mix of qualitative and quantitative research published in the field of marketing. Of the 1,195 articles 734 were coded as empirical (quantitative, qualitative, mixed methods). Quantitative articles represented 46% of empirical articles (n=553), qualitative articles represented 6.5% of empirical articles (n=76) and mixed methods represented 9% of empirical articles (n=105). Grimmer and Hanson (2009) undertook a similar study to their 2005 study and analysed 1,195 journal articles from the *International Journal of Human Resource Management* from 1998-2007. Of the 828 articles reviewed theory/opinion (conceptual) articles represented 24%, quantitative articles represented 49%, qualitative articles represented 16% and mixed methods represented 11% of all articles. This study also analysed the country of origin of the lead author and found the existence of two camps in IHRM research: 'a USA/Canada/China camp and a UK/Australia camp' (Hanson & Grimmer 2009: 11). The USA/Canada/China camp with high prevalence rates of quantitative research whilst the UK/Australia camp demonstrating a mix of approaches including quantitative, qualitative and mixed methods.

The Hurmerinta and Nummela (2006) study focused on articles within the following four international business journals between 2000 to 2003:

1) *International Business Review* (IBR), 2) *Journal of International Business Studies* (JIBS), 3) *Journal of World Business* (JWB), 4) *Management International Review* (MIR). The articles were classified under four main categories: conceptual articles; qualitative studies; quantitative studies; and mixed method studies. The researchers screened 484 articles and found 394 articles contained empirical research designs (qualitative, quantitative and mixed method). Quantitative studies represented 68% of empirical articles (n=269) and qualitative studies represented 15% of empirical studies (n=57). The study found that 68 (17 %) of the 394 empirical studies utilised a mixed method. The study concluded that there was insufficient attention and description of research designs in the empirical articles reviewed 'it appears from our findings that the most severe problem was the fact that the research design and processes were not always fully reported' (Hurmerinta and Nummela 2006: 453).

They also found that mixed methods tended to be utilised in the latter stages of the research process but their use was very superficial.

Molina-Azorin (2008) reviewed three journals: *Journal of Operations Management*; *Entrepreneurship Theory and Practice* and the *Journal of Business Venturing* (combined) from 2003-2007. The results of the findings for the latter two were combined to represent the field of entrepreneurship. In the field of operations management, of the 227 articles 187 (82%) were coded as empirical (quantitative, qualitative, mixed methods). Quantitative articles represented 78% of empirical articles (n=146), qualitative articles represented 12% of empirical articles (n=23) and mixed methods represented 10% of empirical articles (n=18). In the field of entrepreneurship, taking into account the two journals, of the 338 articles published, 235 (70%) were empirical studies (quantitative, qualitative, mixed methods). Specifically, quantitative articles represented 76% of empirical articles (n=178), qualitative articles represented 16% of empirical articles (n=37) and mixed methods represented 8% of empirical articles (n=20).

Molina-Azorin (2009) studied the use of mixed methods in strategy research as represented in articles from all issues of the *Strategic Management Journal* from 1997 to 2006. A total of 676 journal articles were reviewed and of these 570 (84%) were categorized as empirical. Of these empirical articles over three quarters were quantitative 77% (n= 441), 17% (n=99) of articles were mixed methods and 5% (n=30) were qualitative. In this study none of the 99 articles examined referred to the research representing a mixed methods study or used the term 'mixed methods'. The content analysis undertaken determined whether each of the studies were in fact mixed methods studies. 'By not framing their studies in this way, strategic management researchers are not likely maximizing the extent to which they are using this approach' (Molina-Azorin 2009: 54).

The study conducted by Rocco et al. (2003) reviewed sixteen online articles from 1999 to 2001 in the *Information Technology, Learning and Performance Journal*. The authors screened the abstracts, methods and findings sections of the articles and found that no authors explicitly stated the use of mixed methods in the abstracts. However, three articles were identified as using mixed methods through closer

examination of the methods section of the articles. Nonetheless these authors ‘did not explicitly state their commitment to using mixed methods’(Rocco et al. 2003: 24) but took a pragmatic approach justifying the use as an issue of suitability their particular study.

The results of these studies points to significant prevalence rates of mixed methods across the fields studied ranging from 8% to 25%. However, the lack of acknowledgement of the growing body of mixed methods theoretical frameworks, literature and designs is of concern. A major challenge for researchers in the business disciplines wishing to use mixed methods and those who build research capacity, relates to the need to introduce novice researchers to this body of literature and to encourage greater engagement with the theoretical foundations of mixed methodology. This will enable full advantage of what these foundations can offer in terms of maximising their application to mixed methods research. It is anticipated this in turn will lead to less superficial claims of mixed methods and greater levels of integration between qualitative and quantitative methods in the future.

There is also a small but slowly growing body of literature on teaching mixed methods. The most notable are Bazeley (2003); Creswell, Tashakkori, Jenson and Shapley (2003) and; Early (2007). Collins, Onwuegbuzie, and Sutton (2006) compiled thirteen steps of the mixed research process which could be very useful in designing a mixed methods curriculum. Collins and O’Cathain (2009) developed ten points about mixed methods research for novice researchers to consider and Halcomb and Andrew (2009) have addressed the practical considerations for higher degree students undertaking mixed methods projects. Ivankova (2007) has developed a set of learning outcomes for a course in mixed methods offered through the School of Education at the University of Alabama Birmingham. This course in mixed methods is one of seven mixed methods courses listed on the Bridges web site (Mixed Methods Network for Behavioral, Social and Health Sciences, Florida International University). The mixed methods courses listed include courses for the discipline fields of nursing, education, educational psychology, sociology and an institute for social research. Six of the universities are based in the USA and one is a Norwegian university. Creswell (2010: 62) makes note of two international online courses in MMR offered in the United States at the University of Nebraska-Lincoln and the

University of Alabama-Birmingham. The mixed methods research community is paying attention to the pedagogy of teaching mixed methods and this growing body of literature on the teaching of mixed methods and the emergence of mixed methods research courses across universities is testament to this. Those business and management faculty tasked with the roles of teaching research and building research capacity can draw from this.

Plano Clark Plano Clark (2010) undertook a search of Dissertation Abstract databases and identified an exponential increase in mixed methods dissertations between 1997 and 2008.

In summary, mixed method research is a growing area of methodological choice for many academics and researchers especially in business disciplines where it appears that its adoption is somewhat delayed when compared to other social science disciplines. Creswell and Plano Clark have concluded that ‘today, we see cross-cultural international interest, interdisciplinary interest, publication possibilities, and public and private funding opportunities for mixed methods research’ (2007: 18).

RESEARCH DESIGN AND METHODS

This study employed an exploratory approach which involved a systematic content analysis of secondary data sources. The sample included available completed DBA theses (n= 186) published between 1996 and 2007. The study focused on investigating the research design and methodologies utilised by DBA candidates at SCU. The DBA theses were analysed and coded into the following categories:

Pure Quantitative; Pure Qualitative; Mixed but predominantly Qualitative; Mixed but predominantly Quantitative; Mixed with a balance between Quantitative and Qualitative.

The categories were chosen so as to reflect the general consensus within the MMR community about the importance in research design implementation of timing (concurrently or sequentially) and dominance or equivalence of one method in relation to the other. This is often reflected in the MMR community’s use of MMR

notation systems when visually depicting MMR designs (Creswell and Plano Clark 2007). The Pure Quantitative category could utilise more than one quantitative data collection and analysis method and the same applies to the Pure Qualitative category. The main distinction being that only qualitative or quantitative methods are used. The remaining three categories all use a combination of qualitative and quantitative methods however the defining feature of each of these categories related to the dimension of importance of each method in relation to the other. If one method is dominant or more important in the research than the other then the categories of Mixed but predominantly Qualitative or Mixed but predominantly Quantitative are assigned. If the methods are of equal importance or equivalence then the last category is applied, Mixed with a balance between Quantitative and Qualitative.

Data was also sought on whether the doctoral graduates explicitly articulated a mixed method research design within the theses and referred to an established typology from authorities in the field. Demographic data was also collected (gender, ethnicity and culture) as well as other relevant information (Culture & Ethnic group codes; Australian Field of Education codes; Research Fields, Courses & Discipline Classification codes; Socio-Economic Objective Classification codes). Data was also collected on supervisors, research design, references to triangulation and research methods employed.

DBA theses are published and housed within the university library and more recent theses are publically available online. Ethics clearance was sought and granted by the SCU Ethics Committee and a coding sheet was developed. Two coders were involved in the coding and in efforts to achieve inter coder reliability the first 20 theses were jointly coded and issues discussed in relation to the coding process. Codes were then entered into SPSS 17.0 software for data cleaning and analysis. Data analysis techniques utilised included basic descriptive statistics (frequencies, multiple response and cross tabulations).

The sample was made up of 42 females (22.6%) and 144 males (77.4%). Graph 1 provides a visual depiction of the sample in terms of the country of origin of the candidate.

[Insert Graph 1 here]

The majority of candidates were from Australia (41%), followed by Malaysia (17%), Thailand (16%), Singapore (7%) and Indonesia (6%).

In addition, historical records from research-in-progress presentations by candidates were analysed over the period to determine the emergent research designs. Doctoral symposia are held twice each year both in Australia and at each of the overseas partner institutions twice a year. Candidates are required to present a research-in-progress presentation that gives a brief overview of their research project. A one page summary of the presentation is also required and is filed.

RESEARCH RESULTS

Graph 2 below provides frequencies for the overall research paradigms employed in this sample.

[Insert Graph 2 here]

As illustrated in the graph above, the theses that adopted a pure quantitative approach represented 31.7%. The theses that adopted a pure qualitative approach represented 28.7% and a total of 39.6% used a mixture of both quantitative and qualitative research paradigms. The 39.6% figure is the total of three categories (Mixed with predominantly qualitative [15.6%]; Mixed with predominantly quantitative [10.2%]; and Mixed with a balance between the use of both qualitative and quantitative [13.8%]). The coding of these three categories is somewhat subjective and therefore open to interpretation and issues of inter rater reliability had to be addressed during the study.

The DBA theses were also coded for specific research design and methodologies utilised. The coding of the methods used involved multiple response coding, as many of the research studies used more than one research method. Table 1 depicts the findings from the data analysis on the frequencies of specific research design types and the three highest scoring methodologies for each specific research design type.

[Insert Table 1 here]

As Table 1 above illustrates, exploratory research designs, case study and descriptive research design types were the most popular in DBA research projects with the most frequently used research methods being: survey; interviews and case study. However, overall the projects were methodologically diverse with some projects utilising grounded theory, action research, ethnography and post-structuralism as specific research designs. Of the theses included in the sample, only one thesis had explicitly articulated a mixed method research design. Many theses only included details of the methodologies employed in the thesis and there was no articulation of the overall research design used. It is thought that, as there is a long period of over a year between candidates undertaking research training during which they learn of mixed methods designs, and the time when they develop and write their research design and methodology section of their thesis, this lag may be the reason why only one candidate had formally articulated a mixed method design as shown in Table 1. It is expected as more recent data is collected, there would be a significant increase in the articulation of mixed method designs.

Data was also collected on whether the candidate explicitly articulated the concept of ‘triangulation of method’ in the research design and methodology section of the thesis. According to Neuman (2006), triangulation means to look at a phenomenon from several different angles. Of the 186 theses, 21 explicitly articulated the use of triangulation. This represents 11.3 % of all DBA theses in this study. Examination of the frequency distribution of 19 of these 21 theses across the overall research approach results in the data shown in Table 2 below. Note two of those theses which articulated triangulation were not coded for specifying overall methodological approach:

[Insert Table 2 here]

As was the case mentioned above for the articulation of mixed method designs, it is thought the same time lag might explain the relatively low articulation of triangulation. As with the articulation of mixed method designs, it is expected as more

recent data is collected, there would be a significant increase in the articulation of triangulation in the theses.

In terms of country of origin the data was cross tabulated with the data on methodological approach and this is presented in Table 3 for the five most frequent locations of candidates: Australia; Thailand; Malaysia; Singapore and; Indonesia.

[Insert Table 3 here]

As can be seen from Table 3 mixed methods is the most frequent approach at 40% with pure quantitative and pure qualitative at 30% each. Mixed methods are the most frequent approach for Malaysian candidates and second most frequent approach for Australian candidates. Quantitative approaches are the most frequent for candidates from Thailand, Singapore and Indonesia. Australian candidates having qualitative approaches as the most frequent.

Data on the methodological approaches across the sample has been analysed and presented in Graph 3.

[Insert Graph 3 here]

Graph 3 illustrates a developing long term upwards trend in the use of mixed method research designs, peaking between 2001 and 2003 but maintaining a long term upward trend over the period under study. It is also interesting to note the relative stability of the use of qualitative research designs and the upwards trend of purely quantitative designs.

Possible explanations for the developing upward trend in the use of mixed method research designs might include a greater acceptance from business academics of qualitative methods over the last decade, allowing doctoral candidates to feel more confident submitting a mixed method research design in their thesis. Most of the candidates also come from industry backgrounds where mixed method research designs have been in use for market and other business research for decades.

To gauge the use of mixed method research designs in current doctoral research studies (where the candidates have not yet submitted for examination) a content analysis of 2 years of Doctoral symposium programs was conducted. The aim of the content analysis was to gauge the number of mixed method research studies that are currently in progress for those candidates attending the symposia. Some candidates present their research-in-progress at more than one symposium. This has been accounted for in the content analysis and is referred to as 'repeats'. Table 4 below presents the frequencies of categories of research methods presented at the Doctoral symposia.

[Insert Table 4 here]

The findings displayed in Table 4 suggest similar findings to the analysis of DBA completed theses that showed mixed method research designs are often utilised by DBA candidates. The data shows there is a relatively even spread across the three main research design categories of Quantitative (n=18), Qualitative (n=14) and Mixed Methods (n=15). The 'Other' category included Case Study, Action Research, Survey, Meta Analysis and Grounded Theory.

The relatively higher number of 'Other' category for year 1- May (n=15) as compared to later symposia may suggest that a renewed emphasis to candidates projected throughout the symposia, that the research design undertaken for a doctoral project needs to be explicitly articulated in doctoral theses, is having a positive effect.

The articulation of the research design in completed doctoral thesis in the business discipline is known to be problematic. For example, Cameron and Miller (2010) noted that doctoral examiners were expressing concerns over recent years that, while business doctoral candidates from many universities were attempting to utilise a mixed method approach in their theses, in the main to achieve a triangulated approach to their data collection, many candidates did not properly articulate a mixed method design in their thesis or even appreciated that their study fitted into established typologies from the various authorities in the field. Many business theses were shown to discuss the methodologies employed but not discuss the overall research design.

Discussion

In this section, each of the research questions is addressed. In the next section, challenges to the teaching of mixed methods and emergent issues are raised.

Research question 1. *What is the extent to which business and management doctoral students in the program utilise a mixed method research design in the research project?*

The results from the study indicate that mixed method research designs are being utilised by researchers in the business and management discipline. Mixed methods theses represented 39.6% of the sample.

The data demonstrates that mixed method projects are increasing in frequency and that doctoral candidates are mixing research methods in their research. However, many candidates are not explicitly articulating this in the research design chapter in the thesis. It is evident from the Doctoral symposia data that current candidates are showing an appreciation and understanding of the conceptual frameworks underpinning mixed method research designs and are articulating these frameworks at symposia presentations. It is anticipated that this trend will continue due to the inclusion of mixed method research training within the curriculum of the program.

Research question 2. *Were the emerging research designs being utilised by candidates multi-method approaches or mixed method approaches?*

The data analysed from the study demonstrates that exploratory, case study and descriptive research design types are the most popular designs in DBA research, with the most frequently used methods being: survey; interviews and; case study. The results are consistent with what might have been expected intuitively as these research projects are usually aimed at the exploration of business phenomena or to describe and explain business activity. However, many of the projects are characterised as using triangulation of methods and multi-method approaches rather than accepted mixed method approaches. Triangulation and multiple method approaches include

research designs that include two or more methods within the same paradigm. Mixed methods approaches use quantitative and qualitative research techniques that are integrated into the study (Tashakkori and Teddlie, 2008).

Research question 3. *Are the researchers framing the mixed method research in their projects around established typologies from various authorities in the field?*

Only 11.3 % of the theses in the study explicitly articulated the concept of mixed methods through the concept of triangulation of method. This might be viewed as a disappointing result for those concerned with methodological issues in doctoral theses and in particular, for those interested in the importance of articulated research design in doctoral theses generally. Only one thesis in the sample of completed theses had an explicitly stated research design drawing on a mixed method typology from an authority in the field. Such a result while perhaps disappointing is not unexpected as mixed method typologies are a relatively new addition to the literature and it takes some time to infuse a curriculum at this level with innovations in the field.

The data demonstrates a distinct progression in the candidates to a deeper understanding of the methodological issues involved in attempting to ‘triangulate’ their data to increase validity. The emergent research designs of the current candidates demonstrate a more sophisticated research design based on a mixed methods approach.

The results of the study indicate that increasingly, business research is being conducted using mixed method research designs. If the trend continues, mixed method designs may become the dominant form of research design for doctoral research projects in business disciplines into the future.

Challenges and emergent issues

The empirical evidence presented suggests that there is a mixed methods ‘transitional creep’ within business disciplines. ‘Transitional creep’ is perceived as a periodic reflection of the evolution of mixed methods as a third methodological movement. The mixed methods movement has not reached full maturity and the teaching of mixed methods has yet to enter the mainstream of research training within the

university sector. Nonetheless, it has a growing presence in business and management research. What has been presented as empirical evidence in this paper may well reflect this notion of a transitional stage in the adoption of fully integrated mixed methods research designs in business and management research.

As demonstrated in this research study, contemporary business research at the doctoral level appears to be evolving from attempts at basic triangulation of method and of data, to the conscious use of multiple methodologies and is arriving at the sophisticated use of integrated mixed method research designs.

Further qualitative analysis of the data presented needs to be undertaken to confirm this evolution. The findings from such research could further inform future pedagogic approaches to teaching mixed methods within applied business research. It may be that the teaching of research methods for doctoral candidates in the traditional form of teaching quantitative and qualitative methods subjects separately needs to be re-examined. It may also be that the attempt made by the university in this study to introduce mixed methodologies as a component of the research training units, might also be re-examined.

Currall and Towler (2003) in their discussion on the integration of qualitative and quantitative techniques in management and organisational research call for increasing the breadth of graduate research methods training. The authors note that many doctoral programs are dominated by coursework and are relatively light on research design and methods training. They suggest a curriculum made up of a five course methods sequence: two courses on qualitative techniques; one on measurement and psychometrics and; two on data analysis (statistics). While such an approach is certainly comprehensive, it is unlikely to be accepted or implemented in the preparation phase for research degrees.

Doctoral candidates need to be well prepared methodologically and this preparation must be broad enough to encompass all research methods. For candidates in the business genre, where professional doctorates as opposed to PhD programs for academics are the tradition, such preparation also has to reflect the pragmatic context of business research and the paradigmatic preferences of the researcher.

Accordingly, it is more likely that the artificial separation of qualitative and quantitative teaching units will be replaced with the teaching of qualitative, quantitative and mixed methods simultaneously.

Perhaps the way forward is to reframe the teaching of research design and methodology courses for research students generally. It may well be that the suggestion of Onwuegbuzie and Leech (2005) to cease the teaching of quantitative and qualitative methodology courses as separate courses and to teach research design and methodology within a mixed methodological framework is the appropriate approach for the future.

Conclusion

The introduction of mixed methods literature and training for doctoral research candidates is only the first step to ensuring that candidates are properly trained in the rigours of research design and research methodology. While teaching mixed methods as a part of qualitative or quantitative research training is supported, there is now sufficient literature, techniques and tools to justify teaching mixed methods as a stand-alone unit or as the overall framework for the teaching of research design and methodologies at Universities to ensure quality and rigour. However, there is a need to be cautious that mixed methods does not be seen as a compulsory approach to be adopted by researchers in business and Universities need to promote a general philosophy that there are many ways that a research problem might be investigated, each with its own strengths and weaknesses and that no one particular paradigm, is superior to another.

Academics that are involved in the teaching and supervision of the DBA program seem to be very open to mixed methods research designs, if not still unsure about certain contentious issues that remain. Nonetheless, there are also those who hold to the view that pure approaches, especially pure quantitative approaches are more rigorous.

The research problem, context and question/s in combination with the researcher/s paradigmatic preferences and research skills will ultimately determine the appropriate

research approach. The authors anticipate major shifts in the approaches to building research capacity in applied business research in the future. This may include a combined approach that involves both observing developments in those discipline areas taking the lead in venturing towards more inclusive approaches to teaching mixed methods, along with testing and exploring more innovative approaches to teaching research methods that goes beyond the traditional qualitative, quantitative divide.

Future research is planned to map the use of mixed methods across a broader range of business disciplines and preliminary research has found that for certain discipline areas the frequency of published research utilising mixed methods is highest for doctoral theses, as opposed to journal articles. Creswell (2009: 106) in an editorial for the *Journal of Mixed Methods* noted: ‘We will look back in several years and see that it was the graduate students who promoted mixed methods research and who taught their faculty the importance of this approach to inquiry and the value of not adhering strictly to either quantitative or qualitative approaches’. A research question for the future may well be:

Is the main impetus for mixed methods in business research coming from the doctoral candidates themselves?

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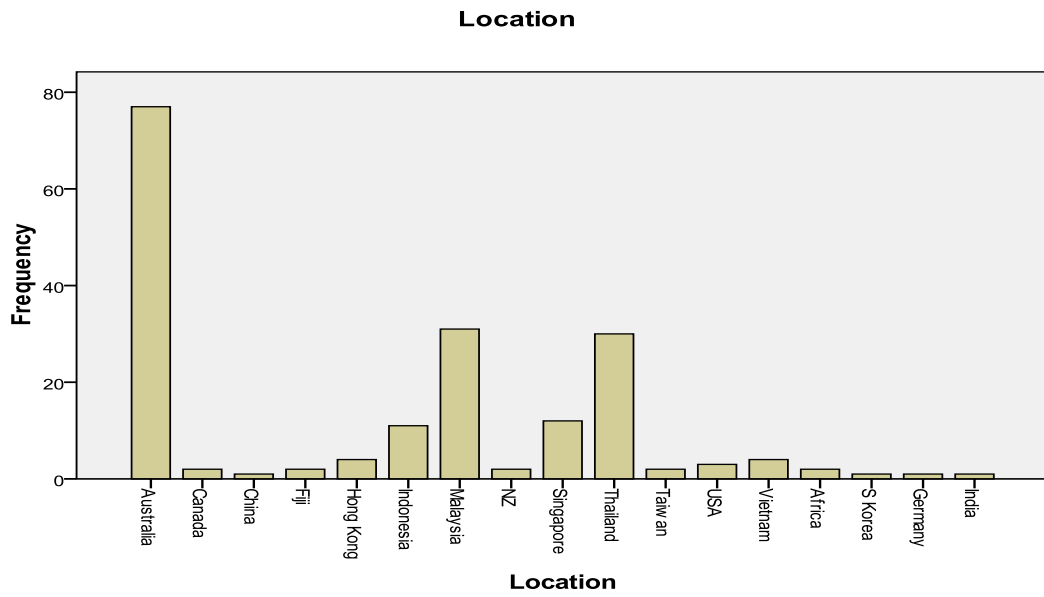
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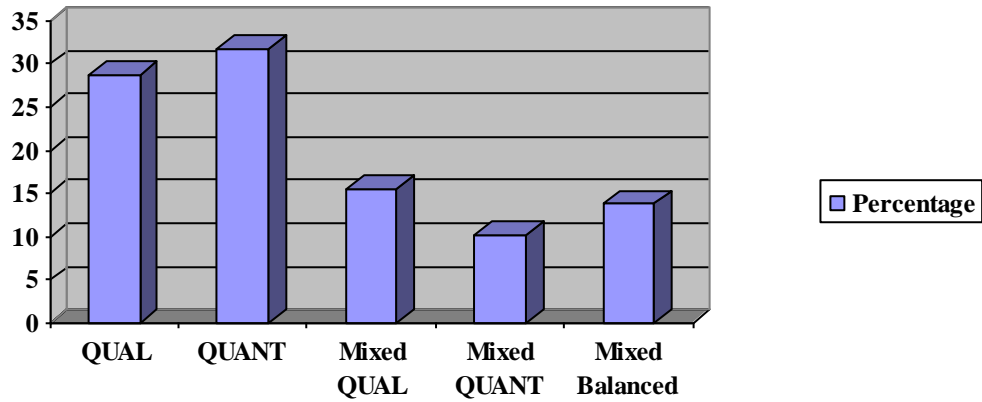
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Graph 1 Sample distribution



Graph 2 Overall research paradigms employed



Source: Adapted from Cameron and Miller, 2010

Graph 3 Methodological approaches across the time span of the sample

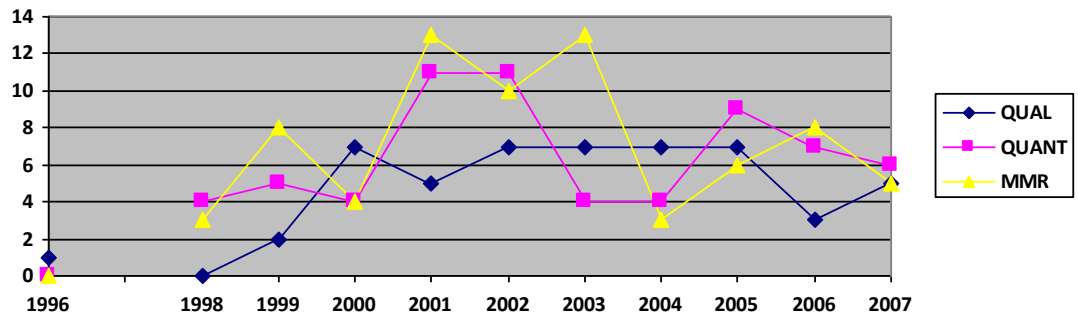


Table 1 Specific research design and methods used

Specific Research Design Type	Three highest scoring methods used (multiple response coding)			TOTAL Research Design Types
	Highest reported method	Second highest reported method	Third highest reported method	
Exploratory	Survey <i>57</i>	Interviews <i>55</i>	Case Study <i>30</i>	82
Case Study	Case Study <i>55</i>	Interviews <i>54</i>	Survey <i>33</i>	68
Descriptive	Survey <i>33</i>	Interviews <i>19</i>	Case Study <i>9</i>	39
Explanatory	Survey <i>9</i>	Interviews <i>7</i>	Case Study <i>5</i>	13
Action Research	Action Research <i>6</i>	Interviews <i>5</i>	Observation <i>3</i>	11
Experimental	Survey <i>6</i>	Experimental; Observation <i>4 each</i>	Interviews <i>3</i>	7
Grounded Theory	Interviews <i>6</i>	Case Study <i>3</i>	Survey; Grounded Thy; Focus Groups <i>2 each</i>	6
Longitudinal	Survey; Case Study <i>2 each</i>	Interview; Content analysis <i>1 each</i>		3
Quasi Experimental	Survey <i>1</i>			1
Mixed Methods				1

Source: Adapted from Cameron and Miller, 2010

Table 2 Articulation of triangulation in theses

Research design type	Articulation by the research of the attempt to triangulate
Pure quantitative	Nil
Pure qualitative	8
Mixed methods	11

Table 3 Methodological approach for top five locations of candidates

Methodology	Australia	Thailand	Malaysia	Singapore	Indonesia	Total
QUAL	31	9	4	1	2	47 30%
QUANT	19	13	2	6	7	47 30%
MMR	24	8	23	5	2	62 40%
Total	74	30	29	12	11	156 100%

Table 4 Categories of research methods presented at doctoral symposia at Southern Cross University

SYMPOSIUM	QUANT	QUAL	MIXED METHODS	NOT STATED	OTHER
Year 1 May	5	2	3	2	15
November	8	6	4	3	7
Year 2 May	6	5	6	1	6
November	8	4	5	3	6
TOTAL	27	16	18	9	34
TOTAL minus repeat presentations	18	14	15	8	26

Source: Adapted from Cameron and Miller, 2010