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Article Title: Mixed Methods Research: An Airplane Without a Blackbox

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Abstract

The purpose of this paper is twofold, first is to support the argument that, Mixed Methods Research (MMR) has no clear philosophy and finally, to expose other gaps that exist within MMR. Philosophy is important for any movement to succeed and key questions are always asked about MMR; what is the philosophy of MMR? Is pragmatism philosophy related MMR philosophy? Is MMR hiding behind pragmatism philosophy? The paper examined two schools of thought about MMR philosophy, first school of thought views pragmatism as closely related to MMR philosophy and the second school of thought is of the view that, MMR has freedom to select any philosophy. The confusion on MMR philosophy from the two schools of thoughts is an indication that MMR has no clear philosophy. Majority of researchers are always finding it difficult to avoid MMR and recent literature has shown the inevitable entry of MMR to the field of research. Basing on the questions raised above, this paper tried to expose and support the view that MMR has no philosophy and that a lot of gaps still exist within MMR. The gaps should be addressed in order for MMR to get smooth entry in research arena.

Key Words: Mixed Methods Research, Pragmatism, Positivism, Quantitative, Qualitative, Constructionist & Research

War within MMR

All is not well among the MMR scholars because of a lot of gaps that exist within it. Johnson & Onwuebuozie (2004) wrote an article supporting the position that, MMR and pragmatism philosophy are complementary to each other. According to Johnson & Onwuebuozie (2004), pragmatism philosophy is a bridge between quantitative and qualitative paradigms and were convinced that time is ripe for MMR to be considered as a third wave.

During the British Educational Research Association Annual conference of September 3-6, 2009, Symonds and Gorard shocked the MMR supporters by predicting the death of MMR while presenting a paper titled; 'The Death of Mixed Methods: Research Labels and their Casualties' Their point of view was that, MMR is not an empirical reality but a philosophical one. They argued that, '*.....a mixed method is in danger of acting against its own aims by prescriptively inhibiting new growth in research*'. They called for the abandonment of MMR and start rebuilding research.

In 2007, Johnson & Onwuebuozie together with Turner wrote another article on MMR titled 'Toward a Definition of Mixed Method Research'. This time, their tone was too low (compared to their 2004 article that was strongly supporting the idea that, time has come for MMR as a third force) and they tried to define MMR by getting responses from 19 leading research leaders via emails and responses were summarized into five themes. Upon concluding their paper, they opened a Pandora box by exposing a lot of gaps in MMR.

It is very interesting to note that, despite the fact that, Johnson & Onwuebuozie (2004) were up bit arguing that, time for MMR has come however, in 2007 with Turner on board, they accepted that, serious gaps exist in MMR and were urging MMR researchers to address the gaps in order for MMR to grow. Quite amazing to note is that, they concentrated on carrying out a research study of defining MMR which is not controversial at all. They could have focused on core problems of MMR rather than on peripheral problems like the definition of MMR.

Ngulube, Mokwatlo & Ndwandwe (2009) did a study on the utilization and prevalence of MMR in library and information research in South Africa. They studied 613 articles published in 6 peer reviewed journals in South Africa and out of 613 articles, 32 of them used MMR designs and the research revealed that MMR designs are not popular in library and information research work. On the other hand, a number of 32 MMR designs used is giving a signal that, MMR entrance into research as a third wave is inevitable and there is therefore need for MMR to come up with a universally acceptable philosophy because the strengths of any movement is in its philosophy.

The Philosophy of MMR

Evidence on the ground is pointing to the fact that, MMR has no clear philosophy. The following are some of the scholars who support the use of any philosophy and methodology in MMR; Tashakkori & Teddlie (1998), Reichardt & Rallies (1994), Patton (1988), Reichardt & Cook (1994). What does that mean? It means that, MMR has no clear philosophy. MMR mixes research questions, hypotheses, methodology, designs etc and now some MMR scholars feel that philosophy can be also mixed. Mixing is not a problem in MMR but is a concern when philosophies are mixed.

Mingers as cited by Cameron (2011) identified four barriers of MMR namely, philosophical, cultural, psychological and practical. It is interesting to note that, philosophy is still identified a serious problem in MMR. Philosophy is at the heart of any movement and by mixing philosophies, MMR may face a danger of validity and trustworthiness.

Both quantitative and qualitative paradigms have clear philosophies and the opposite is true for MMR. The table 1 below shows the quantitative philosophy basing on ontology, epistemology, axiology, methodology and rhetoric.

Table 1 Summary of Quantitative Philosophy

Philosophy	Anthology (Nature of Reality)	Epistemology (Knowledge)	Axiology (Values)	Methodology (Methods)	Rhetoric (Language and Reporting)
Positivism (Quantitative Philosophy)	There is only one reality waiting to be observed	Knowledge is objective, there researcher should keep a distance from the researched in order to avoid biases. Knowledge is created through scientific research (research & statistics)	Researcher's biases need to be controlled and should not interfere with the study	Quantitative methods are used for data collection. Deductive approach is used in research (From known to unknown)	Formal language is used in reporting and the researcher shouldn't expose his/her feelings in the report

Quantitative research is known through the characteristics mentioned in table 1 above and it is clear that, quantitative research has a philosophy unlike the MMR. There is minimum confusion among the quantitative purists because their philosophy is clear and can guide quantitative researchers. The MMR researchers have no guide (in form of philosophy) and that is why confusion and misunderstanding is the order of the day.

Table 2 shows a summary of qualitative research philosophy and the summary is based on the following characteristics; ontology, epistemology, axiology, methodology and rhetoric. Just like quantitative paradigm, qualitative paradigm has a clear philosophy to guide the qualitative researchers.

Table 2 Summary of Qualitative Philosophy

Philosophy	Anthology (Nature of Reality)	Epistemology (Knowledge)	Axiology (Values)	Methodology (Methods)	Rhetoric (Language and Reporting)
Constructionist (Qualitative Philosophy)	The reality in research is multiple and there is no single reality. Therefore research findings should not be generalized to larger populations	Knowledge is subjective and is created between the researcher and the researched. Therefore the distance between the researcher and the researched should be narrowed (researcher and the researched are inseparable)	Individual values have to be respected and it is not the bigger sample that works but individual opinions. Ethics to protect individuals should be considered.	Qualitative methods are used in data collection. Inductive approaches are used as well (from unknown to known).	Informal language is used in report writing and the researcher's feelings are exposed in the report. The report often shows a personal voice.

Pragmatism Philosophy vs. MMR

Table 3, below shows the ontology, epistemology, axiology, methodology and rhetoric characteristics of pragmatism but the problem is on assuming that pragmatism philosophy is similar to MMR philosophy.

Table 3 Summary of Pragmatism Philosophy

Philosophy	Ontology (Nature of Reality)	Epistemology (Knowledge)	Axiology (Values)	Methodology (Methods)	Rhetoric (Language and Reporting)
Pragmatism (Claimed to be the philosophy behind MMR)	Reality is what “works” and that which is practical. There is a single reality but individuals have unique way of interpreting that reality.	Knowledge is generated through scientific research and researchers may not or may interact with researched depending with the necessity.	Researchers are concerned with values that are good for research and only discuss values that work.	Any methodology (quantitative/ qualitative can be used provided they bring valid and reliable results. The research can be conducted deductively or inductively.	Both informal and formal languages can be used provided it works and objective and subjective ways of reporting are considered.

Pragmatism is considered to be the bridge between qualitative and quantitative paradigms. Johnson & Onwuebuozie (2004), Bazeley (2003), Green & Caracelli (2003), Maxcy (2003), Tashakkori & Tuddlie (2003) are supporting the view that, pragmatism philosophy and MMR are related. However, they did not specify whether MMR should adopt pragmatism as its philosophy or not. The fact that pragmatism is related to MMR is not a guarantee for MMR to adopt pragmatism philosophy. They suggested pragmatism and/or ‘philosophy of free choice’ for MMR researchers to use when conducting research.

Pragmatism originated in USA and its major contributors were; Charles Sanders (1839-1914), William James (1842-1910) and John Dewey (1859-1952). Johnson & Onwuebuozie (2004) summarized the following as some of the key characteristics of pragmatism; pragmatism rejected dualism like realism vs. anti realism, empiricism vs.

rationalism and accepted the existence of fallibilism, pluralism, eclecticism and empiricism.

A team of research experts in public health, medicine, mental health, psychology, sociology, anthropology, social work, education and anthropology was tasked to come up with the best practices for MMR in health sciences. The team was led by Creswell J.W., Klassen A.C., Clark V.L.P. and Smith K.C. and came up with a detailed report in April 2012. On page 5 of the report they stated that, *'Mixed Methods Researchers use and often make explicit diverse philosophical positions.'* They are of the view that MMR has a freedom of adopting multiple philosophies, which is a not a good practice. The report also supported the positive link between pragmatism and MMR. Questions still remain to be answered, why can't MMR develop their own philosophy? Is it a best practice to combine philosophies? If these philosophies are going to be merged, how are their differences going to be reconciled?

Cameron (2011) came up with what he called 5 Ps of Mixed Methods research. The five Ps are; Paradigms, Pragmatism, Praxis, Proficiency and Publishing. It is interesting to note that, Cameron isolated pragmatism a key component of MMR and supported the popular view that pragmatism is a bridge between qualitative and quantitative paradigms. A key question can be asked; can one become a pragmatist while only carrying out a pure quantitative research? The answer is YES, a pragmatist can conduct a study using one approach (quantitative or qualitative). Feilzer (2010) argued in support of the raised question. One can conduct a pragmatism study in qualitative alone or quantitative alone and that is a serious difference between pragmatism and MMR.

A Collective Summary of Positivist, Constructionist & Pragmatist Philosophies

Philosophy	Positivism (Quantitative)	Constructionism (Qualitative)	Pragmatism (Claimed to be for MMR)
Ontology <i>What is the nature of reality?</i>	There is only one objective reality.	There are multiple realities that are subjective	Reality is that which works and is practical
Implications for Practice	Generalizations to larger populations is acceptable	Quotes and themes are used to present words of participants	Anything that works can be used to present views of participants

<p>Epistemology</p> <p><i>What is the relationship between the researcher and the researched?</i></p> <p>Implications to Practice</p>	<p>There is a distance between the researcher and the researched?</p> <p>Researcher do not spend time with subjects in the field</p>	<p>There is a zero or no distance between the researcher and the researched</p> <p>Researcher spend time with subjects in the field</p>	<p>There may be distance or no distance between the researcher and the researched and only what works is followed</p> <p>Researcher interacts with subjects in the field</p>
<p>Axiology</p> <p><i>What is the role of values?</i></p> <p>Implications to Practice</p>	<p>Researchers are not concerned with individual values, ethics and there is no biases</p> <p>The researcher discusses larger samples and populations</p>	<p>Researcher is concerned with individual values, ethics and biases</p> <p>Researcher discusses individual values that shape narratives and her own interpretation</p>	<p>Researcher concerned with any value that works</p> <p>Researcher only discusses values that works</p>
<p>Rhetoric</p> <p><i>What is the language of research?</i></p> <p>Implication to Practice</p>	<p>Formal language is used</p> <p>They do not expose researcher's feelings in the report</p>	<p>Informal language is used</p> <p>Use of qualitative research language and first person pronoun</p>	<p>Both formal and informal languages can be used</p> <p>Use both objective and subjective way of reporting.</p>
<p>Methodology</p> <p><i>What is the process of</i></p>	<p>Deductive</p>	<p>Inductive</p>	<p>Both deductive and</p>

<i>research?</i>			inductive
<i>Implications to Practice</i>	Use quantitative methods (questionnaires, scales, tests & checklists)	Use qualitative methods (interviews, focus group discussion, observation)	Use mixed methods of data collection

Way forward on MMR Philosophy

The discussions above give an impression that, MMR has no clear and universally accepted philosophy and in as much as MMR scholars are allowed to mix designs, questions, methodologies etc, mixing of philosophies should be highly discouraged. Philosophy is at the heart of any movement and should be clear in order to make MMR findings credible and valid. MMR supporters should come together and coin their philosophy. There are three major philosophies behind MMR namely; quantitative philosophy, qualitative philosophy and pragmatism philosophy. A mechanism should be developed in order for MMR philosophy to be drawn from the three philosophies.

It is also a misnomer to hold to a view that pragmatism and MMR are the same because each and every movement should be known by its uniqueness. Pragmatism studies can be done using one approach only. There are similarities between qualitative and quantitative but this should not compromise the philosophy of each paradigm and the same applies to pragmatism and MMR, they have their similarities and differences but that should not compromise their philosophies. Pragmatic study is different from MMR studies. The idea that, pragmatism is the bridge between quantitative and qualitative shouldn't be trusted all. The core philosophical assumption of pragmatism is on the use of 'anything that works' and that core philosophy cannot harmonize quantitative and qualitative there has to be some kind of order and not to involve everything.

Other Key Unanswered Questions in MMR

There are a lot of gaps in MMR which have the potential of delaying this inevitable movement to be recognized and the MMR scholars should come together and address these challenges. Apart from the problem of MMR philosophy, there are many other challenges. Johnson, Onwuegubuzie & Turner (2007) exposed the following questions about MMR which should be addressed;

- At which stage should mixing begins?
- What could be the best philosophical position for MMR?
- Are equal status designs possible?

- Are MMR credible, trustworthy or valid?
- How can we differentiate between qualitative dominant, quantitative dominant and or equal status?

These are some of the key questions posed by Burke, Onwuegubuzie & Turner (2007). These questions are relevant and critical and I therefore wonder why the three scholars decided to tackle the definition of MMR which is not controversial at all. Symonds & Gorard (2009) in their paper presented during the annual conference of British Educational Research Association questioned the construct and content validity of MMR and they were advocating for the removal of MMR. They proved that, the construct and content validity of MMR are questionable. Therefore there is need to check whether MMR is valid or trustworthy.

Creswell (2009) tried to address different types of MMR designs like quantitative dominant (QUAN+qual) and qualitative dominant (QUAL+quan) as well as equal status (QUAN+QUAL), but the question is, are these designs real or psychological? How can one measure the quantitative or qualitative dominant? Is there a formula that can be used to measure the quantity of the mixture of these designs? That is why I am arguing that, these designs are psychological rather than being real. There has to be some kind of quantitative measurement to prove these designs and there is need for MMR scholars to consider coming up with quantitative measures for these designs. Procedures and guidelines of measuring the rate of QUAN in a QUAL or rate of (qual in a QUAN) should be put in place. It appears measurement is done in the mind of the researcher (psychological) rather than being practical.

At which level should mixing begins? This is another area where there is confusion because mixing is happening everywhere from the philosophy to report writing. I may not have problems with mixing at all level but my concern is on mixing philosophies and it may be better to come up with one philosophical position after consolidating positivist, social constructionist, post positivist and pragmatism philosophies, there has to be some kind of agreement within the MMR movement. Order is needed in order for MMR movement to prosper and current evidence on the ground has shown confusion and disorder within MMR.

The other question to ask is that, should we therefore generalize the results of MMR? The answer is controversial because of the conflicting views of positivists and constructionists on this matter. Should we adopt the pragmatism view which is more aligned to constructionist view or we harmonize qualitative and qualitative philosophies. However, there is need for MMR scholars to reach a common agreement on the question of generalizability.

Conclusion

It is true that MMR entrance into research is inevitable but there is a problem of philosophy. One school of thought for MMR argue for the use of pragmatism philosophy when conducting MMR study, another school of thought is of the view that MMR has a freedom of choice on philosophy and there is no harm if any philosophy can be used provided it works. This is a clear indication that, MMR is an airplane without a 'blackbox' (philosophy) and in as much as mixing is allowed at any levels in MMR studies, mixing research philosophies may pose a threat to the validity and credibility of results. Time has come for MMR scholar to craft their philosophy and bring order to MMR because it sounds as if any researcher has unlimited freedom when conducting research. Basing on the way MMR is currently conducted I want to MMR define MMR as a type of research with unlimited freedom to researchers where anything which work may be employed to answer research questions.

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