Article

Disambiguating the Role of Paradigms in Mixed Methods Research

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Abstract

In the mixed methods research (MMR) literature, the term paradigm is used in a number of ways to support very different accounts. This article aims to contribute to the ongoing dialogue about the relationship between MMR and paradigms by analyzing two main claims discussed in the literature: (a) MMR is a new paradigm and (b) MMR mixes different paradigms. Focusing on the notion of paradigms used to support each claim, it clarifies why MMR can be considered a new paradigm and discusses conditions under which it is possible to mix two or more paradigms within a single study. This clarification promotes a more clear-cut use of concepts such as paradigms and worldviews in the literature.

Keywords

mixed methods, paradigms, epistemological pluralism, ontological pluralism

The combination of quantitative and qualitative methods within a single study is not new in the social sciences (Maxwell, 2016), and some of the earlier mixed methods research (MMR) studies, such as the Lynds' Middletown studies (Lynd & Lynd, 1929, 1937) and the Hawthorne Studies (Mayo, 1993; Roethlisberger & Dickson, 1964) are still considered prominent MMR examples (Biddle & Schafft, 2015; Denscombe, 2008; Hunter & Brewer, 2003). Despite this long tradition, however, it was only in the last few decades that social scientists began to consider MMR as a distinct research approach. Indeed, MMR proponents claim that the combination of quantitative methods (such as surveys and questionnaires) and qualitative methods (such as interviews and ethnographical studies) should be understood as a distinct research methodology, and carefully examine the practicability of such a combination in relation to some philosophical debates about scientific paradigms and pragmatism.

The main tenor in this literature is that MMR not only constitutes an interesting and promising new technique but also raises some questions about its status as a research paradigm. According to some, the mixture of quantitative and qualitative methods entails a novel approach that should be understood as a *new research paradigm*. According to others, the novelty of MMR is the possibility to *combine* different paradigms within the same study.

How to explain such conflicting positions? The answer has been already suggested in the MMR community (Bergman, 2010; Denscombe, 2008; Freshwater & Cahill, 2013): the term

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''paradigm'' is used in a number of different ways. Notably, in a commentary on Joseph Maxwell's article on paradigms, Johnson recognized 24 different uses of the concept ''paradigm'' in the social and behavioral sciences literature (Johnson, 2011, p. 32). This is not surprising: even the philosopher who popularized the concept of ''paradigms'' in science, Thomas Kuhn, used the concept in more than 20 different ways (Masterman, 1970).

If we consider the MMR literature, scholars appear to use two main notions of paradigm: some identify the notion of paradigm with the Kuhnian concept of ''exemplars shared by a communities'', understood as an intellectual framework and a set of concrete puzzle-solutions shared within a scientific community (Denscombe, 2008; Hemmings, Beckett, Kennerly, & Yap, 2013; Morgan, 2007); others adopt the idea of paradigms as ''worldviews'', according to which a paradigm is a framework that reflects researchers' assumptions about reality, methodology, and epistemology (Creswell & Plano Clark, 2011; Guba & Lincoln, 1994).

Although this distinction helps clarify some of the claims concerning the use of paradigms in MMR, it does not solve the conflict between the idea that MMR entails a new paradigm and the position according to which MMR can mix paradigms. On the one hand, even when the concept of paradigms is used in a single way, scholars tend to discuss both claims. For instance, when scholars endorse the notion of paradigms as worldviews, they either articulate a clear connection between a specific worldview and MMR (like in the cases of the transformative framework and pragmatism) or recognize that what distinguishes MMR from other approaches is the mixture of different worldviews (see, for instance, Johnson, 2012; Mertens, 2003; Morgan, 2007; Tashakkori & Teddlie, 2003; Uprichard & Dawney, 2016). On the other hand, even the association between these claims and some specific notions of paradigm would not answer, per se, the question concerning the truth of such statements: can we really define MMR as a new paradigm? Is the mixture of worldviews possible? To complicate matters even further, claims concerning the possibility of mixing paradigms are often discussed in the light of the incommensurability thesis à la Guba and Lincoln (1994), according to which diverse paradigms are incompatible and, therefore, cannot be mixed.

In this article, I focus on three conceptual questions, namely, (a) if MMR can be considered a new paradigm, (b) whether it is possible to mix paradigms within a single study and (c) how MMR scholars should tackle the dilemma of the incommensurability thesis.

To facilitate the reading of the article, let me provide a quick preview of the answers I will promote in the next sections. First, in the second section I will argue that the MMR approach entails a new paradigm in one of the Kuhnian senses, as it is possible to find a set of exemplars shared by some scholars who see themselves as members of a ''MMR community''. Second, in the third section I will suggest that MMR can mix paradigms only if we understand paradigms as worldviews based on ontological, epistemological, and methodological assumptions. Third, in the fourth section I shall defend the view that the incommensurability thesis should not be interpreted as the impossibility of combining paradigms (a claim that Kuhn never made). Finally, in the fifth section I will use two examples to show how different worldviews can be mixed within a single study.

"MMR Is a New Paradigm"

On many occasions, the claim that MMR is a new paradigm has been justified and examined in Kuhnian terms. Kuhn's philosophy and his several definitions of paradigms, indeed, allowed social scientists considerable room for maneuver (Freshwater & Cahill, 2013). At an early stage of development, the differences between quantitative, qualitative, and MMR were classified on epistemological, ontological, and axiological grounds, by following in part the Kuhnian notion of paradigms as disciplinary matrices (Silverman, 2013; Tashakkori & Teddlie, 1998).

However, on closer inspection, scholars recognized that epistemological, ontological, and axiological assumptions can change within the quantitative, qualitative, and MMR communities.

This consideration led them to relax their idea of paradigms, adopting a more general Kuhnian version of paradigms (Kuhn, 1970). According to this view, members of a specific scientific community come to an agreement over a system of principles and rules about theory, application, and instrumentation when good illustrations show how the system works. A set of good illustrations, also called ''exemplars'', shared by a well-defined community, can be understood as a paradigm.

This notion of paradigms as exemplars shared within a community has been endorsed by a growing number of scholars. Notably, Johnson and Onwuegbuzie (2004), in one of the most cited papers on MMR, spelled out this notion of paradigms in terms of ''research culture'', in which members of a community share the same position about the nature and conduct of research. Three years later, Morgan (2007) recognized the importance of shaping the debate on paradigms in the social sciences through the idea of communities sharing research beliefs. It is the discussion concerning *how* to do research, according to Morgan, that helps clarify why we can claim that MMR is a new paradigm. Around the same time, Denscombe (2008) agreed with this perspective and took it one step further, suggesting that the notion of paradigms as scientific communities sharing exemplars (what he called ''communities of practice'') was the only notion sufficiently flexible to accommodate the internal variations and inconsistencies characterizing research paradigms in the social sciences.

The idea that MMR proponents see themselves as members of a new scientific community that shares exemplars is also supported by various considerations. MMR scholars can now choose between different ways to disseminate their research findings, among which specific MMR peer-reviewed journals and MMR conferences, that reinforce the idea of being members of a new MMR scientific community (this idea has been proposed also in several research articles; see, for instance, Denscombe, 2008; Morgan, 2007; Tashakkori & Teddlie, 2010).

The transition from infancy to maturity in MMR, furthermore, was marked by greater clarity as to what exemplars were to be considered within the community. Recently, Maxwell (2016) observed that, despite the systematic combinations of qualitative and quantitative approaches, previously no one started a discussion about the different typologies of combinations, or about the way of conceptualizing such a mixture. Similarly, by examining the interviews conducted with 20 social scientists in 2004, Bryman made clear that almost all interviewees struggled to nominate an exemplary MMR study (Bryman, 2007). Over the past 10 years, however, the MMR community's intention to identify such specimens has constantly increased. In two editorials, Creswell and Tashakkori (2007, 2008) started to categorize some good examples of MMR studies. In parallel, the use of exemplary MMR studies as illustrative examples became common in descriptions of research designs (Creswell, Plano Clark, Gutmann, & Hanson, 2003; Morgan, 2007).

Moreover, discussing the social sciences' situation, Johnson considered that, in general, scholars identify themselves as ''quantitative'', ''qualitative'', or ''mixed methods'' researchers, as if they were part of one of these research communities, rather than talking about their identities in terms of worldviews such as postpositivism, constructivism, or pragmatism (Johnson, 2011, p. 33). This consideration helps me to raise another issue: the so-called ''quantitative'', ''qualitative'', and ''MMR'' communities are far from being coherent and unified systems of thought. Members of the same community share some key ideas about how research should be conducted and recognize that they belong to the same community. However, there can be often deep divisions among members regarding the ontological, epistemological, and axiological assumptions guiding research. It is exactly for this reason, I argue, that it is important to distinguish between exemplars shared within communities and worldviews. On the one hand, it is possible to claim that the MMR approach *entails* a new paradigm because there is a new set of exemplars (the

paradigm) shared and discussed within the MMR community. On the other hand, the distinction between the numerous worldviews that populate the social sciences helps recognize both that MMR studies can mix them, and that these worldviews can coexist within the MMR community (i.e., members of the MMR community can adopt different worldviews).

"MMR Combines Different Paradigms"

MMR is based on the mixture of quantitative and qualitative approaches within a single study. While, as described above, some have suggested that this approach should be understood as a new paradigm, other scholars have observed that MMR does not imply only the combination of different methods but also the mixture of different research paradigms. This claim has been justified by observing that, although in some cases MMR studies mix just methods (such as interviews and questionnaires) or methodologies (as in the case of a MMR study based on the mixture of ethnographical works and survey research), there are more complex situations where MMR studies are characterized by a mixture of different (and not always explicit) ontological or epistemological assumptions.

The idea that MMR combines paradigms emerged in several debates on MMR. To begin with, this assumption is evident in some technical discussions about the dominant/less-dominant and the equal status designs. According to these accounts, the dominance of one method in MMR can be reflected in the presence of a dominant paradigm in the study. Such discussions, however, are possible only if social scientists accept the possibility of combining different paradigms within the same study. The dominant/less-dominant design is described as the situation in which, while conducting MMR studies, social scientists rely on a single dominant paradigm, and only small components are drawn from alternative paradigms. On the contrary, the MMR equal status design is referred to the situations where more paradigms are equally relevant to a study (Creswell, 1994; Tashakkori & Teddlie, 2003). In addition, many authors have recognized the crucial role played by the mixture of different paradigms and have discussed the purpose of this combination (in general, identified either in complementarity or in a dialectical aim, where the interaction between different paradigms allows researchers to explore and hold different points of view about a subject). Greene (2006) considered the mixture of paradigms as the main difference between mixed methods and multimethod studies, and she encouraged researchers to incorporate different perspectives and stances in MMR studies. It is through divergence and dissonance, Greene claimed, that MMR scholars can examine taken-for-granted understandings. Uprichard and Dawney (2016) took a similar position, arguing for a ''diffractive'' approach in MMR, where research questions can be studied through different (ontological and epistemological) pathways, and diffraction not only allows for such a multiplicity but also emphasizes it. Similarly, Johnson (2012) advocated what he called ''dialectical pluralism'', a metaparadigm whose dialectical approach requires to appropriately listen to each research question and purpose, enabling hence researchers to combine ideas from competing paradigms.

Although not always explicit, the underlying assumption behind such claims seems to be that MMR can mix different *ontological* and *epistemological* stances. The term ''paradigms'' is here used to denote something very similar to the ''worldviews'' often described in the social sciences. Bryman's interviews with MMR scholars (Bryman, 2007) clarified this point. One of the social scientists who took part in the interview considered the difficulties associated with the combination of objectivist and subjectivist accounts, especially when the MMR study is based on what can be defined as a social construct. The epistemological problem in such cases is how to combine an account according to which the phenomenon under study is real, with a constructivist account that either problematizes the phenomenon or denies its reality.

Table 1. A List of Worldviews Discussed and Used in the MMR Literature.

Pragmatism	Feilzer (2010); Morgan (2007); Teddlie and Tashakkori (2009)
Transformativism	Mertens (2003); Mertens and Hesse-Biber (2013)
Critical realism	Maxwell and Mittapalli (2010); Zachariadis, Scott, and Barrett (2013)
Postpositivism	Phillips and Burbules (2000)
Constructivism	Creswell and Plano Clark (2011)
Realism	Haig and Evers (2016); Maxwell (2016); Maxwell and Mittapalli (2010); Pawson (2013)
Feminism	Crasnow (2015); Hesse-Biber (2012); Leckenby and Hesse-Biber (2007)

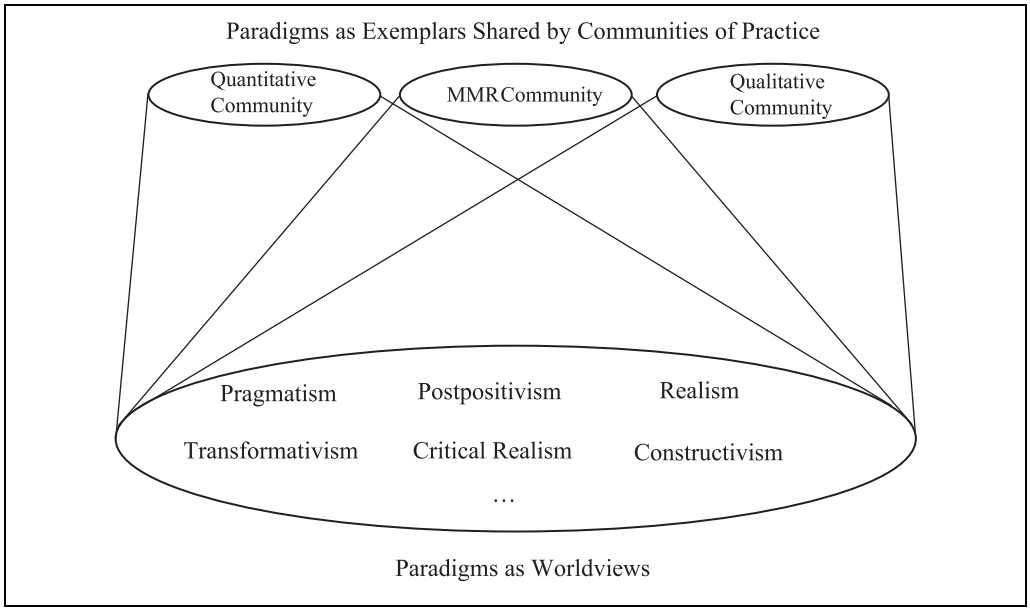

Figure 1. The pluralistic debate in MMR can be clarified by considering the use of the notion of paradigms in the literature. On the one hand, the term 'paradigms' has been used to denote the sets of exemplars shared by the MMR, the quantitative and the qualitative communities. On the other hand, the term 'paradigms' has been used to describe systems of ontological, epistemological and methodological assumptions that in the social sciences are known by the name of 'worldviews'. The second meaning of the term 'paradigms' is used when researchers argue that MMR can mix different paradigms.

It is the mixture of ontological and epistemological assumptions, according to these claims, that characterizes MMR. Paradigms are not understood in terms of exemplars shared by communities but as philosophical worldviews based on ontological, epistemological, and methodological assumptions. Table 1 shows a few examples of the use of worldviews in the MMR literature, while Figure 1 illustrates the difference between paradigms as sets of exemplars shared by communities and paradigms as worldviews. As illustrated, the quantitative, qualitative, and MMR communities are not associated only with specific worldviews and can employ several of them to conduct their studies. Of course, a community can prefer the use of a subset of worldviews (for instance, the qualitative community is often linked to the use of realism and constructivism), but this should not lead to the claim that there is a one-to-one relationship between a

specific community and a subset of worldviews (a similar point has been proposed by Maxwell, 2016). Furthermore, the mixture of worldviews is not necessary for all MMR studies: there might be cases where scholars mix quantitative and qualitative methods while adopting one unique worldview.

There is an important caveat to this argument. The mixture of philosophical standpoints might not lead to a clear integration: assumptions could be too different to be fully merged. This does not mean, however, that MMR cannot mix paradigms, or that researchers should avoid doing it. Most of the scholars who argued for this combination clarify that one of the goals is to give voice to paradigmatic dissonances. Differences are real and characterize the MMR community; therefore, MMR should welcome the emergence of diversions and should focus on problematizing the research object and its study (Johnson, 2012; Uprichard & Dawney, 2016).

Are Paradigms Incommensurable?

The combination of quantitative and qualitative methods has often been discussed in relation to the so-called ''incommensurability thesis''. There are two distinct forms of incommensurability. The first form is taken from mathematics, where incommensurability denotes ''lack of common measure''. Irrational numbers, for instance, can be described as incommensurable in relation to rational numbers, given that there is no common measure in which to express both rational and irrational numbers. In this sense, incommensurability is associated with the idea that there are no common standards of scientific theory appraisal, and consequently it is impossible to find a standard according to which researchers can univocally compare and evaluate competing theories coming from competing paradigms. The second form entails that approaches based on different philosophical assumptions are incompatible and cannot legitimately be combined. In this sense, paradigms are claimed to be incommensurable.

Evaluative Incommensurability

The former type of incommensurability was described by Kuhn in his book *The Structure of Scientific Revolutions* (1970) and has been one of the most controversial and extensively discussed Kuhnian concepts. Kuhn took incommensurability to be associated with his notion of paradigms as disciplinary matrices, made of symbolic generalizations, metaphysical assumptions, values, and exemplars. He described incommensurability as the lack of common evaluative standard between rival theories, and claimed that this was due to the fact that such theories cannot be phrased in a common system of linguistic terms:

> Two men who perceive the same situation differently but nevertheless employ the same vocabulary in its discussion must be using words differently. They speak, that is, from what I have called incommensurable viewpoints. (Kuhn, 1970, p. 200)

For instance, according to this interpretation, Newton and Einstein belonged to two different paradigms given that they thought that the universe was populated by distinct fundamental entities. It follows that if one understands the term ''mass'' in Einstein's sense, he takes the term to mean something different from Newton's idea of ''mass'', and cannot derive Newton's laws (Bird, 2000). In other words, when scientists from different paradigms observe a phenomenon, they use a set of terms to describe and study it. Some of these terms might be used by scientists from different paradigms, who nevertheless ''attach'' the terms to the world differently. Consequently, any communication between such scientists can only be partial, and it is impossible to prove the superiority of one theory over another. It should be noted that Kuhn did not

claim that there is a total communication breakdown between proponents of rival paradigms. In his view, incommensurability is local, and even though total translation might be difficult, partial communication, based on not fully reconcilable standpoints, is very likely (Sharrock & Read, 2002).

Having said that, what does it mean for MMR? The impossibility of a complete communication and of a shared standard of evaluation, I suggest, does not have important consequences for the discussion on MMR, as it does not lead to the claim that different paradigms cannot be mixed. As mentioned above, many authors have argued for a dialectical approach based on the acceptance of the difficulties related to the communication and comparison of those results coming from different worldviews (Greene, 2006; Johnson, 2012; Uprichard & Dawney, 2016). When different worldviews lead to contrasting results, it is often impossible to obtain a unity of perspective: how to evaluate and to reconcile them, indeed, is far from being trivial. Kuhn's discussion on incommensurability sheds a new light on these difficulties without justifying the rejection of MMR.

One last point should be discussed. If we accept Kuhn's idea of incommensurability, there is one consideration that needs to be tackled: the coexistence of paradigms. Indeed, incommensurability was described by Kuhn in relation to the occurrence of a scientific revolution, when the old and new paradigms cannot be completely compared (Bird, 2000; Kuhn, 1970). In MMR, however, we are talking about many coexisting paradigms with their own ontological and epistemological assumptions, and this appears in contrast to Kuhn's account unless we can recognize the possibility of an imminent scientific revolution. This point was discussed many years ago by Lakatos, who then proposed the idea of competing scientific research programs: the Kuhnian idea of normal science, where a paradigm obtains the monopoly, is something rare in reality given that science is in general characterized by competing paradigms (Lakatos, 1968). MMR can hence be interpreted as an illustrating example of what Lakatos called ''competing pluralism'', where competing research programmes coexist (Lakatos, 1970, p. 155).

Incommensurable Worldviews

As for the latter form of incommensurability, according to which worldviews are incompatible and cannot legitimately be combined, Guba and Lincoln proposed this idea in their debate on qualitative research a few decades ago. While in their chapter in the *Handbook of Qualitative Research*, they argued for the existence of incommensurable philosophical assumptions between different worldviews (Guba & Lincoln, 1994), 10 years later they recognized some commensurability between distinct naturalistic paradigms, and strict incommensurability between two broad metaparadigms (Guba & Lincoln, 2005).

According to this form of incommensurability, one cannot embrace two or more systems of philosophical assumptions within one study: worldviews are different and in contrast to each other. This kind of divergence came to be known as the paradigm wars (Denzin & Lincoln, 2011) and reinvigorated a complex set of arguments known by the name of the purist thesis and the incompatibility thesis (Denzin, 2010). The contrast between incommensurable worldviews was exacerbated: worldviews were associated with specific methods, with the consequence that different methods became incompatible.

Although many have already highlighted the misunderstanding behind the supposed one-to-one correspondence between worldviews and methods (Denzin & Lincoln, 2011; Donmoyer, 2006; Teddlie & Tashakkori, 2003), it remains to understand whether it is really impossible to mix contrasting worldviews. The section ''Combining Paradigms'' will describe in detail some cases in which worldviews have been successfully mixed, but for the moment I consider again one issue mentioned above: if the same phenomenon is explored through a constructivist and a

realist approach, it is questionable how to combine the discussions based on these two contrasting worldviews (Bryman, 2007). As an example, the study of mental illness as a mere social construct appears in contrast with the realist approach according to which mental illness is a ''real'' condition.

My suggestion is that there are at least some situations in which this contrast does not prevent the combination of such paradigms. Hacking (2001) provided some examples wherein realism and constructivism can be combined despite the tension between them. Let us consider his discussion about the idea of ''women refugees'': what is socially constructed in this case is not the individual persons, the women refugees. It is a reality, indeed, that some women are threatened, driven out of their homes by force, or feel so much fear that they are forced to flee. Realists can claim, hence, that women refugees are real women experiencing specific, real situations. Nonetheless, what can be understood as a social construct is the classification of ''woman refugee''. Hacking recalled Moussa (1992) and explained that the idea of women refugees is embedded in a system of complex of institutions, advocates, newspaper articles, court decisions, and immigration proceedings. In other words, the social construction refers to the woman refugee as a kind of person, a classification that is always associated with a system within which it works.

In the case of women refugees, realism and constructivism, even though based on contrasting assumptions, provide compatible observations: while women refugees are real persons, and being a woman refugee is a real condition, the idea of ''women refugees'' is a social construct. What is more, combining these worldviews helps develop a more holistic understanding of the social condition of women refugees, given that the idea resulting from the social construction can have an impact on the real person who is escaping from her home. The classification of ''women refugees'' can exert an effect on how women feel about themselves and behave. Hence, indirectly, the classification affects the real people and their actions.

The discussion above shows that, in some circumstances, worldviews based on contrasting ontological and epistemological assumptions can be used within a single study. There might be cases in which worldviews are really incommensurable, but this should not be generalized in a claim against the possibility of mixing paradigms. The feasibility of this combination, furthermore, can lead to complex forms of ontological and epistemological pluralism, as I shall explore in the next section.

Combining Paradigms

While the new ''trilogy'' of major research paradigms entails the Kuhnian idea that paradigms are sets of exemplars shared by scientific communities; in section ''MMR Combines Different Paradigms'' I have argued that the consideration that MMR can combine different paradigms is based on another concept of paradigms, according to which paradigms are worldviews with specific ontological, epistemological, and methodological assumptions. Mixing paradigms, hence, means combining different assumptions. In this section, I offer two examples of how such a combination can be carried out.

Epistemological Pluralism: Assessing and Evaluating the Eat Right! Be Fit! Program

The quantitative/qualitative distinction, often described with the expression ''paradigm war'', descends largely from the difference between the epistemological questions at the heart of quantitative and qualitative studies. Most of the quantitative studies are underpinned by a specific account of what should be accepted as warrantable knowledge: scientists should conduct studies in which the distance between the observer and the observed is preserved with the aim

to maintain objectivity. On the contrary, numerous qualitative researchers are in general committed to observing the world from the point of view of the actor rather than maintaining any distance. Observers should be close enough to the object of study to gain a contextual understanding of the phenomenon, and objectivity is ruled out due to this proximity and to the fact that any knowledge is gained within a social context.

It follows that, when quantitative and qualitative approaches are combined, multiple epistemological frameworks can be embodied within a single study: in other words, mixed methods studies might be characterized by epistemological pluralism.

To clarify how epistemological pluralism can be achieved in mixed methods studies, let us consider one case that has been discussed over the last few years: the MMR assessment and evaluation of the program Eat Right! Be Fit! recently developed by some researchers at a Midwestern university. As described by Greene (2015), for the evaluation of the program researchers have decided that they will employ both postpositivism and constructivism. In accordance with the postpositivism strand, aspiring on generalizable result based on structured quantitative evidence, researchers will develop a quasi-experiment; with respect to the constructivist worldview, based on the assumption that meaningful understanding should be contextual, they will conduct mini-case studies informed by unstructured ethnographic observations. Both methods (and worldviews) will be employed to assess the implementation of the program and evaluate its effects.

Epistemologically, the quasi-experiment can assess the implementation of Eat Right! Be Fit! through the objective documentation of the nature and extent of activities done in the classrooms: each classroom schedule will be analyzed, and the time spent doing physical activities will be systematically reported. Furthermore, researchers will collect data about how many children walk or bike to school, and the kinds of food eaten by them. The mini-case studies, instead, will aim at understanding whether and how the program has an impact on the classroom rhythms and learning by means of contextual explorations into the daily life of children (Greene, 2015).

The postpositivist approach, hence, will assess the quality of the program by considering only the program implementation, without taking into account the context in which the program is offered and the reality perceived by the children involved in the program. On the contrary, these aspects will be at the center of the constructivist approach, whose goal will be to capture how children perceive the program and its purposes.

Similar epistemological discrepancies between postpositivism and constructivism can be observed also regarding the decisions about the evaluation process. On the one hand, the quasi-experiment study will collect standardized health measures such as the body mass index, which will be then compared with measures about the same children collected in the past, and measures about children from the same area not involved in the program. The success of the program, in this sense, is associated with the percentage of children obtaining specific values in some standard indicators of child health. The aim of the constructivist approach, on the other hand, will not be to capture the bodily changes obtained through the program but to explore how children are engaged with it. To do so, researchers will interview children, teachers, and parents to obtain insights about the way in which the program has an impact on the children's life (Greene, 2015).

The epistemological assumptions behind these evaluation processes show substantial differences: the postpositivist aim is to collect objective and generalizable evidence of the success of the program; the constructivist goal is to develop an intersubjective understanding taking into account multiple realities such as those lived by the children and the teachers. Such differences could lead to divergent results: the constructivist approach might indeed evaluate the program as successful, while the postpositivist might show the absence of bodily changes in the classrooms involved.

As described in section ''MMR Combines Different Paradigms'', however, the idea that MMR should intentionally allow for disharmony to reach unforeseen insights is now shared

and supported by many MMR proponents. This, furthermore, appears in line with one of the main purposes of MMR: initiation, a type of research whose goal is to find out paradoxes and conflicts that lead to a reframing of the research question and of the study. This goal is often described using Rossman and Wilson's words (1985, p. 633): ''Rather than seeking confirmatory evidence, this [initiation] design searches for the provocative''. Epistemological pluralism is likely to promote this particular aim of MMR.

Ontological Pluralism: Explaining Insurgent Collective Action in El Salvador

Let us imagine we have a certain phenomenon we want to address through a mixed methods study: probably, we will use a qualitative approach to gain an in-depth understanding of the causal process that has led to the phenomenon, while we will use a quantitative approach to verify whether the correlation between our putative causal factors and the effect is present in the context of study and, perhaps, even in a broader context. In other words, our qualitative approach would enable us to claim that a single, complex, instance of causation exists, while our quantitative approach would help us understand how a causal phenomenon operates generally. Although this might be seen just as a mixture of methods, what has become increasingly clear is that these methods can be focused on causal relationships at different levels of abstraction. Ontologically, hence, the MMR study would adopt a pluralistic view.

At the ontological level, indeed, a similar study entails two different assumptions. On the one hand, we are assuming that a single instance of a causal relation is real, and it might be a unique causal event. We can call this assumption singular causation. On the other hand, we are assuming that there are more general casual relationships that can be found at the population level. We can call this assumption general causation (for more discussions on this, see Johnson, Russo, & Schoonenboom, 2017).

In many cases, even though such assumptions are not discussed when the mixed methods studies are conducted, their presence is tangible. Let us consider Wood's (2003) study aimed at understanding why peasants in El Salvador decided to join rebel movements. To answer such a question, the main approach used by Wood was qualitative ethnographic interviews both with peasants and some members of the elite opposed to the peasants (i.e., landlords, military officers, government officials). The interviews were aimed at obtaining a contextual understanding of the phenomenon through the personal and community histories of the individuals involved. The causal relationship explored in this way, hence, was completely embedded into a personal, social, political, and historical system: as argued in the book, the decision to give a contribution to the insurgency was determined by specific personal and political circumstances that led the peasants from different cultural backgrounds to fight for social justice. It was not a mere class conflict, and the civilian supporters were offered very few benefits during the insurgency (Wood, 2003). Those who decided to join rebel movements were often motivated by the history of violence against family members and neighbors, by the brutality of the actions perpetrated by the government, and by personal, moral, and affective benefits they received through participation (Wood, 2003). The concept of causation addressed through the case studies corresponded to a complex phenomenon existing at the local level: as argued by Wood, indeed, the causal processes identified through her analysis were all *local* and interacted in intricate ways during the period of the civil war (Wood, 2003).

This view of causation as a local, multifaceted relationship was combined with another idea of causation as an abstract and generalizable phenomenon. Wood (2003) established a dialogue with scholars of collective action and social movements, whose aim is to develop general causal explanations of social phenomena. Thanks to the evidence collected, she cast light on the relevant role that pleasure of agency could play in similar situations:

> [. . .] long-subordinate social actors grant to the exercise of agency per se. To act in defiance of unjust authority, to claim recognition as equal subjects whose personhood needs be respected, to act effectively for the realization of essential interests, and to publicly assert the power of collective efficacy may be important reasons for the emergence of insurgent collective action elsewhere as well as in El Salvador. (Wood, 2003, p. 253)

To support her generalization, Wood (2003) also analyzed a rural household survey carried out at the end of the war, elections data, and some databases documenting the changes in agrarian property rights during and after the insurgence. Furthermore, she illustrated the generalizable claim through a formal quantitative model based on the dynamics of a coordination (assurance) game.

The combination of qualitative and quantitative approaches enabled Wood to achieve two distinct purposes: on the one hand, she developed a causal narrative of the complex interactions of personal, historical, and political factors that have generated the specific phenomenon under study; on the other hand, she provided a causal explanation of the general phenomenon whereby repression and a sense of agency can foster mobilization.

As suggested at the beginning of this section, these two outcomes, although linked, can be interpreted as different with respect to the ontological assumptions guiding Wood's (2003) examination. The narrative describing the reasons why those particular peasants decided to join rebel movements was based on the expectation that such a single, complex, causal phenomenon existed locally. On the contrary, the development of a general hypothesis linking, in different contexts, repression, agency, and mobilization, entailed the assumption that the causal phenomenon under investigation could operate generally, and that its analysis might be used to explain and predict other phenomena caused by the same causal link.

In these terms, ontological pluralism could be perfectly consistent with one of the MMR's purposes: expansion. Indeed, expansion occurs when the findings from the two approaches expand insights into the phenomenon of interest by addressing different aspects of such a phenomenon. Given that, in MMR studies, qualitative findings can help answer the question concerning the occurrence of that particular causal phenomenon in a specific context, whereas quantitative findings can be used to address the question about the generality of such a causal link, the mixture of different ontological assumptions would allow for the achievement of this goal.

Conclusion

In this article, I have thoroughly examined three conceptual questions: (a) whether the MMR approach can be considered a new paradigm, (b) whether it is possible to mix paradigms within a single study, and (c) how MMR scholars should tackle the dilemma of the incommensurability thesis.

Despite the apparent contrast, I have argued that it is possible to support both the claim the MMR approach *entails* a new paradigm and the claim that MMR *combines* different paradigms. To begin with, if we associate the first claim with the Kuhnian concept of paradigms as exemplars shared within a community, it is possible to see how both the discussions about MMR exemplars and the presence of a strong MMR community support the idea the MMR is a new paradigm. If we consider how different worldviews (such as pragmatism, realism, constructivism, postpositivism, etc.) are used in MMR, furthermore, it is possible to find at least some cases in which the aim of MMR is to combine them within a single study. This idea, moreover,

seems consistent with some recent discussions on the dialectical aim of MMR (Greene, 2006; Johnson, 2012; Uprichard & Dawney, 2016).

As concerns the incommensurability thesis, I have clarified that there are two distinct forms of incommensurability: in the first form, incommensurability is associated with the idea that there are no common standards of evaluation in science, and that it is impossible to compare different paradigms due to communication breakdowns; the second form entails that approaches based on different philosophical assumptions are incompatible and cannot legitimately be combined. I have argued that the first form of incommensurability does not have important consequences for MMR because it does not lead to the claim that different paradigms cannot be mixed. Furthermore, I have shown that some MMR proponents have already discussed and accepted the difficulties related to the communication and comparison of the results coming from different worldviews. As for the second form of incommensurability, I have claimed that there are at least some situations in which the contrast between worldviews does not prevent the combination of such paradigms, and I have described the mixture of worldviews in Hacking's (2001) work. Next, I have discussed two examples that show how different assumptions can be used in a single MMR study: the first study was characterized by epistemological pluralism; the second study illustrated how to combine ontological assumptions.

These considerations clarify not only the importance of the discussions about paradigms in MMR but also the need for a more clear-cut use of concepts such as paradigms, worldviews, and pluralism in the literature. I hope this article will provide fertile ground for further exploring how MMR scholars identify their exemplars and what will be the future directions of MMR as a scientific community.

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