Philosophical Foundations of Mixed Methods Research

Abstract

This paper provides a critical review of the debate over philosophical foundations of mixed methods research and examines the notion of philosophical foundations. It distinguishes axiology-oriented from ontology-oriented philosophical foundations. It also identifies three different senses of philosophical foundations of mixed methods research. The weak sense of philosophical foundations (e.g. pragmatism) merely allows the possibility of the integration of both quantitative and qualitative methods/data/designs. The moderate sense of philosophical foundations (e.g. transformativism) provide a good reason to use mixed methods in (at least some) social scientific research. The strong sense of philosophical foundations (e.g. dialectical pluralism) justifies a normative thesis that mixed methods research should be encouraged in (at least some) social scientific research.

Key Words

Mixed methods research; pragmatism; dialecticalism; dialectical pluralism; transformativism; critical realism; philosophical foundations

1. Introduction

Since the last decade of the 20th century, mixed methods research has rapidly become more and more popular in the social sciences, especially in educational research, family studies, and anthropology. There has been a sharp increase of the number of publications mentioning mixed methods in the title or abstract over the past twenty years (Creswell 2012; Timans, Wouters, and Heilbron 2019). This has been accompanied by the production of textbooks and handbooks and the founding of journals (e.g. *Journal of Mixed Methods Research* and *International Journal of Multiple Research Approaches*).

However, some basic issues of mixed methods research are still under debate. Although mixed methods research is roughly construed as a methodology, or a methodological orientation employing both qualitative and quantitative elements (e.g. methods, data, and designs), there is still no consensus on its definition (Tashakkori and Teddlie 1998; Johnson, Onwuegbuzie, and Turner 2007; Creswell and Plano Clark 2018). In addition, there is no consensus on how to mix or combine qualitative and quantitative elements in research. There are at least seven 'levels of research' that can be mixed or combined: data, methods, design, epistemology, ontology, purposes of research, and practical roles of research (Biesta 2010). And there are various ways of mixing or combining these 'levels' (Creswell et al. 2003; Teddlie and Tashakkori 2009; e.g. Creswell and Plano Clark 2018; Grootel et al. 2020).

What is more, there is no consensus on the philosophical foundations of mixed methods research: how to motivate and justify the use of mixed methods from a philosophical point of view is still controversial. There are a variety of positions that are employed to provide philosophical foundations of mixed methods research. A popular position is the pragmatist position (e.g. Johnson and Onwuegbuzie 2004; Morgan 2007; Teddlie and Tashakkori 2009; Feilzer 2010; Johnson et al. 2017; Creswell and Plano Clark 2018). Other popular positions include the dialectical position (Greene, Caracelli, and Graham 1989; Greene 2006; Greene and Hall 2010), the dialectical pluralist position (Johnson 2017), the transformative position (Mertens 2003; 2007; 2010), and the critical realist position (Maxwell and Mittapalli 2010).[1]

In this paper, I provide a critical examination of the philosophical foundations of mixed methods research. The paper is structured as follows. Section 2 reviews the context of the origins of mixed methods research. Section 3 reviews the main accounts of the philosophical foundations of mixed methods research. Section 4 disambiguates the notion of philosophical foundations and provides a critical analysis of these philosophical positions accordingly.

2. The Context of the Origins of Mixed Methods Research

In the twentieth century social sciences, there were two popular approaches (or, methodologies): the quantitative research approach and the qualitative research approach.[2] The quantitative research approach relies on the collection of quantitative data, obtained by the methods like experiments, quasi-experiments, surveys, and longitudinal studies, while the qualitative research approach relies on the collection of qualitative data, obtained by the methods such as narrative research, phenomenological research, ethnography, and case study. Traditionally, these two approaches were parallel, or even mutually alien, to each other in practice (Kelle 2015). For example, in sociology, there has been a division between social theorists and quantitative researchers. Quantitative researchers focus on statistical models and analyses and usually neglect the need to 'develop sociological models mirroring conceptions of mechanisms of social processes' (Sørensen 1998, 239). In contrast, social theorists are 'often so concerned with their concepts and theoretical frameworks that they pay little attention to the significance of quantitative findings' (Mahoney 2001, 582). In political science, there has also been a methodological divide between the quantitative research approach and qualitative research approach. As Peter John (2010, 267) indicates, "Many researchers still tend to use one approach, but not the other." Such a methodological division in the social sciences reflects the underlying philosophical disagreement. Many social scientists view methodology and its underlying philosophy as two important and intrinsically related issues when they design and conduct their research (e.g. Pole and Lampard 2002, 6–8; Maxwell and Mittapalli 2010, 147; Tebes 2012, 14; Johnson and Gray 2010, 88; Creswell and Creswell 2018, 4–5). As Martina Yvonne Feilzer (2010, 7) puts it, 'The choice of social sciences research questions and methods […] is a reflection of researchers' [philosophical] understanding of the world, even if it is not articulated or made explicit.'

The quantitative research approach was originally rooted in positivism (e.g. Comte 1830; Quetelet 1835; Pearson 1900) and is now typically associated with the postpositivist position (e.g. Garrison 1986; Phillips 1990; Phillips and Burbules 2000), while the qualitative research approach has been generally coupled with the constructivist/interpretivist position (e.g. Dilthey 1883; Weber 1904; Berger and Luckmann 1966; Geertz 1973; Lincoln and Guba 1985).[3] The postpositivist position and constructivist/interpretivist position mainly differ in three basic issues: 'ontology', 'epistemology', and 'axiology'.[4] 'Ontologically', the postpositivist position assumes that there is a single, mind-independent reality, though it can be only understood imperfectly (e.g. Campbell 1974, 448–49; Cook and Campbell 1979, 29), while the constructivist/interpretivist position assumes that there are multiple, socially constructed, and holistic realities (e.g. Guba and Lincoln 1989; Guba 1990; Guba and Lincoln 2005). 'Epistemologically', the postpositivist position assumes that social scientific research is to a great extent objective in the sense that the relationship of the researcher to the object of the research should be independent (Smith 1983), whereas the constructivist/interpretivist position assumes that social scientific research is subjective in the sense that the relationship of the researcher to the object of the research is interactive (e.g. Lincoln and Guba 1985; Guba and Lincoln 1989; 2005).[5] 'Axiologically', the postpositivist position assumes that social scientific research is value-laden, but the influence of values can be well controlled (e.g. Cook and Campbell 1979; Shadish, Cook, and Campbell 2002), while the

constructivist/interpretivist position assumes that social scientific research is essentially value-sensitive (e.g. Guba and Lincoln 2005; Teddlie and Tashakkori 2009). Accordingly, the postpositivist position assumes that the aim of social scientific research is to describe, explain, predict, and intervene social phenomena (Fay 1975; e.g. Black 1999; Phillips and Burbules 2000), whereas the constructivist/interpretivist position assumes that the main purpose of social scientific research is to interpret and understand social phenomena (e.g. Guba and Lincoln 2005).

The methodological debate over the quantitative research approach and the qualitative research approach was intertwined with a persistent philosophical confrontation between the postpositivist position and constructivist/interpretivist position, which is known as the paradigm wars (or, the paradigm debate). Advocates of the quantitative research approach contend that research should be centred around quantitative methods in order to develop a nomothetic body of knowledge of the mind-independent reality, while supporters of the qualitative research maintain that research should be undertaken mainly by qualitative methods in order to develop an ideographic body of knowledge of the socially constructed realities. The contenders in the debate believe that their disagreement over methodology is a result of their disagreement over philosophy (i.e. 'ontology', 'epistemology', and 'axiology'). As Charles Teddlie and Abbas Tashakkori (2009, 20) indicate, the paradigm wars is basically 'the conflict between the competing scientific worldviews of positivism (and variants, such as post-positivism) and constructivism (and variants, such as interpretivism) on philosophical and methodological issues'.

3. Mixed Methods Research and its Philosophical Foundations

Mixed methods research was formally introduced in the heyday of the paradigm wars. In the late 1980s, it quickly developed as an methodological alternative to the quantitative research approach and qualitative research approach in order to 'overcome the speechlessness between both traditions' (Kelle 2015, 603). However, there was an immediate difficulty. As I have shown in section 2, the quantitative research approach is often associated with the postpositivist position, while the qualitative research approach is usually coupled with the constructive/interpretivist position. Thus, it seems to many that an integration of quantitative and qualitative methods is impossible due to the incompatibility of their underlying philosophical positions. Thus, it has been an important task for the advocates of mixed methods research to develop its distinctive philosophical foundations, which needs to motivate and justify the use of both quantitative and qualitative methods/data/designs.[6]

The most popular position as the philosophical foundations of mixed methods research is the pragmatist position. Pragmatist position is rooted in American pragmatism, especially the works of John Dewey, Charles Saunders Peirce, and Richard Rorty (Johnson and Onwuegbuzie 2004; Feilzer 2010; Tebes 2012; e.g. Cherryholmes 1992). It assumes that knowledge, as a product of person-environment interaction, is both constructed and based on the mind-independent reality and highlights the instrumental feature of theories in inquiry (Johnson and Onwuegbuzie 2004; e.g. Johnson and Gray 2010; Morgan 2014). According to the pragmatist position, both the mind-independent physical world and the constructed social and psychological world exist, and the reality is complex and multiple (Johnson and Onwuegbuzie 2004, 18; Johnson and Gray 2010, 88; Creswell and Creswell 2018, 10–11); social scientific research is value-oriented (Johnson and Onwuegbuzie 2004, 16–18; Teddlie and Tashakkori 2009, 74); and the aim of social scientific research is to solve problems (Johnson and Onwuegbuzie 2004, 18; Teddlie and Tashakkori 2010, 17–18). Thus, social scientists do not have to make an either-or choice between the postpositivist position and the

constructivist/interpretivist position (e.g. Johnson and Onwuegbuzie 2004; Teddlie and Tashakkori 2009; Creswell and Plano Clark 2018). They are free to choose the methods, data, and procedures of research that best meet their needs and purposes and can employ both quantitative and qualitative methods/data when designing and conducting research (e.g. Johnson and Onwuegbuzie 2004; Greene 2006; Teddlie and Tashakkori 2009; Creswell and Creswell 2018).[7]

An alternative position is the dialectical position (e.g. Greene, Caracelli, and Graham 1989; Greene 2007; Greene and Hall 2010). Like the pragmatist position, the dialectical position maintains that social scientists do not have to make a choice between the postpositivist position and constructive/interpretivist position. Unlike the pragmatist position, the dialectical position recognises and accepts the legitimacy of all other philosophical positions (e.g. the postpositivist position and the constructive/interpretivist position). The dialectical position maintains that different philosophical positions importantly guide and direct different inquiry decisions. Therefore, different positions are encouraged to be employed in order to motivate the use of mixed methods for the purpose of a better understanding of the phenomena being studied. In short, the dialectical position 'actively welcomes more than one philosophical position, along with more than one methodology and type of method, into the same inquiry space and engages them in respectful dialogue one with the other throughout the inquiry' (Greene and Hall 2010, 124).

Recently, based on the pragmatist position and dialectical position, Burke Johnson (2017) develops a refined position, 'dialectical pluralism'. According to the dialectical pluralist position, reality is multiple and there are multiple ways of conceptualising reality; knowledge in the social sciences is fallible and contextual; and social scientific research is value-laden. Therefore, social scientists 'should dialectically listen and consider multiple methodological concepts, issues, inquiry logics, and particular research methods and construct the appropriate mix for each research study' (Johnson 2017, 167). Johnson argues that dialectical pluralist position complements and extends the dialectical position by articulating its philosophical assumptions.[8]

Another influential position is the transformative position, mainly developed by Donna Mertens (2003; 2007; 2010). The transformative position assumes that there are multiple realities that are socially constructed and defined by social, political, cultural, economic, ethnic, racial, gender, age, and disability values; the nature of the relationship between researchers and participants is characterised by close collaboration between them with specific attention given to issues of communication and power within a complex context; an important aim of social scientific research is to 'serve the ends of creating a more just and democratic society' (Mertens 2003, 159). Mertens argues that a careful mixed use of quantitative and qualitative methods provides an avenue to obtaining data that represent a variety of perspectives, including those have been traditionally overlooked. In other words, good mixed methods research can help to achieve an increase in social justice. Therefore, according to the transformative approach, social scientists should prefer mixed methods 'for working toward increased social justice' (Mertens 2007, 224).

In addition, Joseph Maxwell and Kavita Mittapalli (2010) develop a critical realist position to motivating mixed methods research. This critical realist position assumes that there is a mind-independent physical world and 'there can be more than one scientifically correct way of understanding reality in terms of conceptual schemes with different objects and categories of objects' (Lakoff 1987, 265). Maxwell and Mittapalli argue that these critical realist assumptions imply a mechanistic account of causality, a realist account of mental phenomena, a realist

concept of validity, and a realist account of diversity. Accordingly, they argue that these 'realist assumptions' justify a process-based qualitative approach to causality, a critical approach to qualitative research, a mixed methods approach to validity, and overcome the neglect of methodological diversity in practice. In these ways, Maxwell and Mittapalli claim that mixed methods research can be justified from a critical realist perspective.

Most of these positions can be classified into two types: monistic positions and pluralistic positions. In a nutshell, a monistic position tries to motivate and justify use of mixed methods in the social scientific research based on a particular set of philosophical assumptions.[9] The pragmatist position and transformative position are good examples of monistic positions. The pragmatist position assumes a pragmatist framework, which encompasses a set of philosophical assumptions. And these assumptions are argued to be partner with the use of mixed methods in social scientific research. The transformative position also endorses a set of philosophical assumptions, which provides a basis for the application of mixed methods in practice.

By contrast, a pluralistic position motivates and justifies the use of mixed methods by different sets of philosophical assumptions.[10] Advocates of the pluralistic position contend that different set of philosophical assumptions can be employed to motivate and justify the use of mixed methods. As Maxwell (2011, 29) argues, "I do not think it is generally appropriate or useful to attempt to synthesize different philosophical approaches or assumptions into a single, logically consistent paradigm for mixed methods research. Different situations and research problems may require different sets of assumptions and models, as well as different combinations of methods." The dialectical position and dialectical pluralist position are typical cases of pluralistic positions. Both maintain that different philosophical assumptions importantly guide and direct different inquiry decision.

It is worth noting that the critical realist position is neither a monistic nor a pluralistic position. On the one hand, Maxwell and Mittapalli (2010, 147) are explicit on the point that they are sceptical of 'the entire concept of unified paradigms in research, a concept that has dominated the discussion of the relationship between philosophical assumptions and research methods'. In other words, their critical realist position is not a monistic position. On the other hand, Maxwell and Mittapalli argue that their critical realist position provides merely good motivations of the use of mixed methods in some cases rather than a general framework to justify the universal use of mixed methods in the social sciences. Therefore, it is more appropriate to regard Maxwell and Mittapalli's critical realist position as a set of realist assumptions within a pluralistic position.

4. A Critical Analysis: Problems and Prospects

In order to make a critical analysis, I find it necessary to revisit the concept 'philosophical foundation': what does 'philosophical foundations of mixed methods research' exactly mean? What are philosophical foundations expected to provide?

4.1 'Ontology-oriented' Vs. 'Axiology-oriented' Philosophical Foundations

The debate over the philosophical foundations of mixed methods research emerged from and has been framed by the paradigm debate. Most philosophical positions for mixed methods research try to provide a set of assumptions about 'ontology', 'epistemology', and 'axiology' just like those for quantitative research and qualitative research. However, there is a crucial difference.

Both the postpositivist position and constructive/interpretivist position provide, what I shall

call, 'ontology-oriented' philosophical foundations.[11] For example, the postpositivist position consists of a set of 'ontological', 'epistemological', 'axiological' assumptions, in which 'ontological' assumptions are privileged over other assumptions. As illustrated in Figure 1, the quantitative research approach is justified by the postpositivist 'axiological' assumptions, which are constrained by the postpositivist 'epistemological' assumptions that are ultimately by the postpositivist 'ontological' assumptions. In a similar vein, the constructive/interpretivist 'ontological' assumptions play a central role in the philosophical foundations of the qualitative research approach. Such a kind of philosophical foundations, as Morgan (2007, 67) indicates, 'had a strong tendency not only to privilege epistemology over methods but also to emphasize ontological issues above all others'.

The Postpositivist Position

Ontology — There is a single, mind-independent reality, though it can be only understood imperfectly.

Epistemology — Social scientific research is to a great extent objective in the sense that the relationship of the researcher to the object of the research should be independent.

Axiology — The aim of social scientific research is to describe, explain, predict, and intervene social phenomena

Social scientific research should be centred around quantitative methods in order to develop a nomothetic body of knowledge of the mind-independent reality
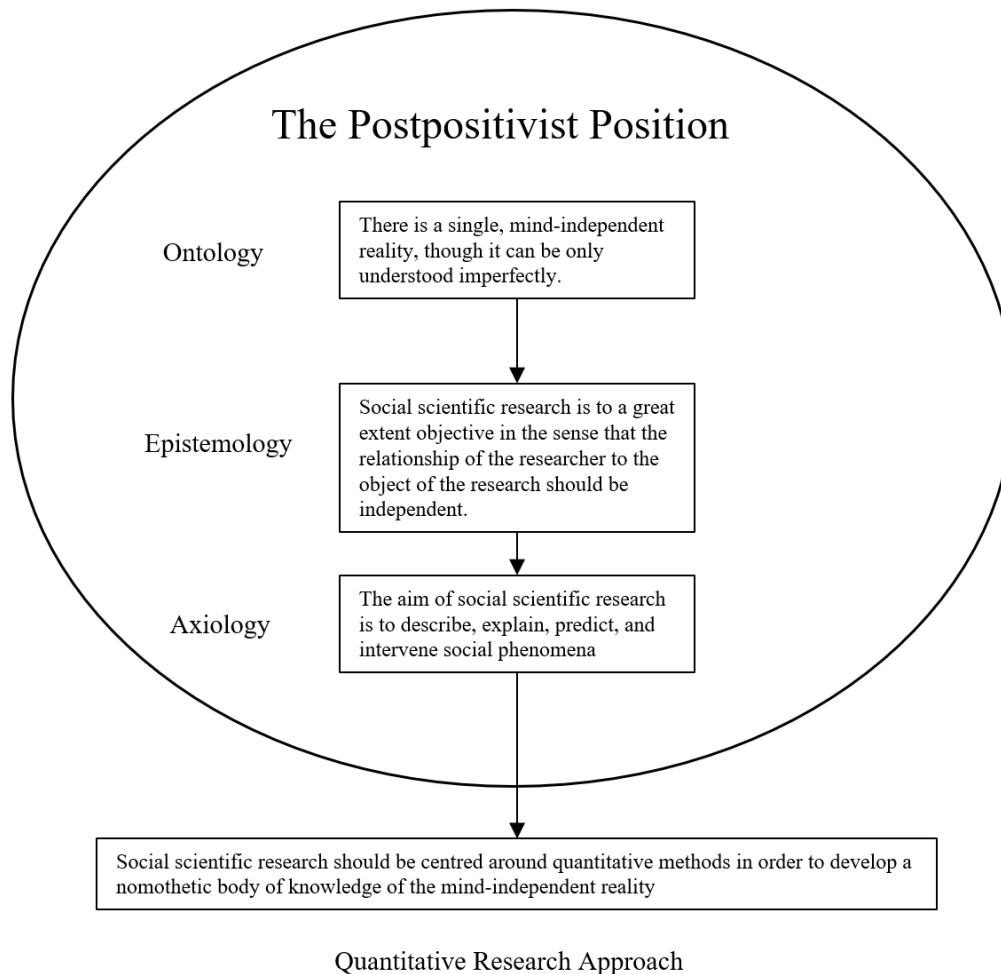
Quantitative Research Approach

Figure 1

By contrast, the pragmatist position, the dialectical position, the dialectical pluralist position, and the transformative position provide, what I shall call, 'axiology-oriented' philosophical foundations. For example, the transformative position consists of a set of 'ontological', 'epistemological', 'axiological' assumptions, in which 'axiological' assumptions are privileged over other assumptions. As illustrated in Figure 2, the transformative 'axiological' assumptions lead to the transformative 'ontological' assumptions, and both the transformative 'axiological' and 'ontological' assumptions lead to the transformative 'epistemological' assumptions. The transformative methodological assumptions that reflect all these assumptions eventually lead to support for mixed methods research (Mertens et al. 2010, 199). As Mertens (2010, 470) puts it, 'The axiological belief is of primary importance in the

transformative paradigm and drives the formulation of the three other belief systems (ontology, epistemology, and methodology).' In a similar vein, the 'axiological' assumptions play a central role in all of the pragmatist position, the dialectical position, and the dialectical pluralist position.[12]

The Transformative Position

Ontology

There are multiple realities that are socially constructed and defined by social, political, cultural, economic, ethnic, racial, gender, age, and disability values.

Epistemology

The nature of the relationship between researchers and participants is characterised by close collaboration between them with specific attention given to issues of communication and power.

An important aim of social scientific research is to create a more just and democratic society.

Axiology

Social scientists should prefer mixed methods for working toward increased social justice.
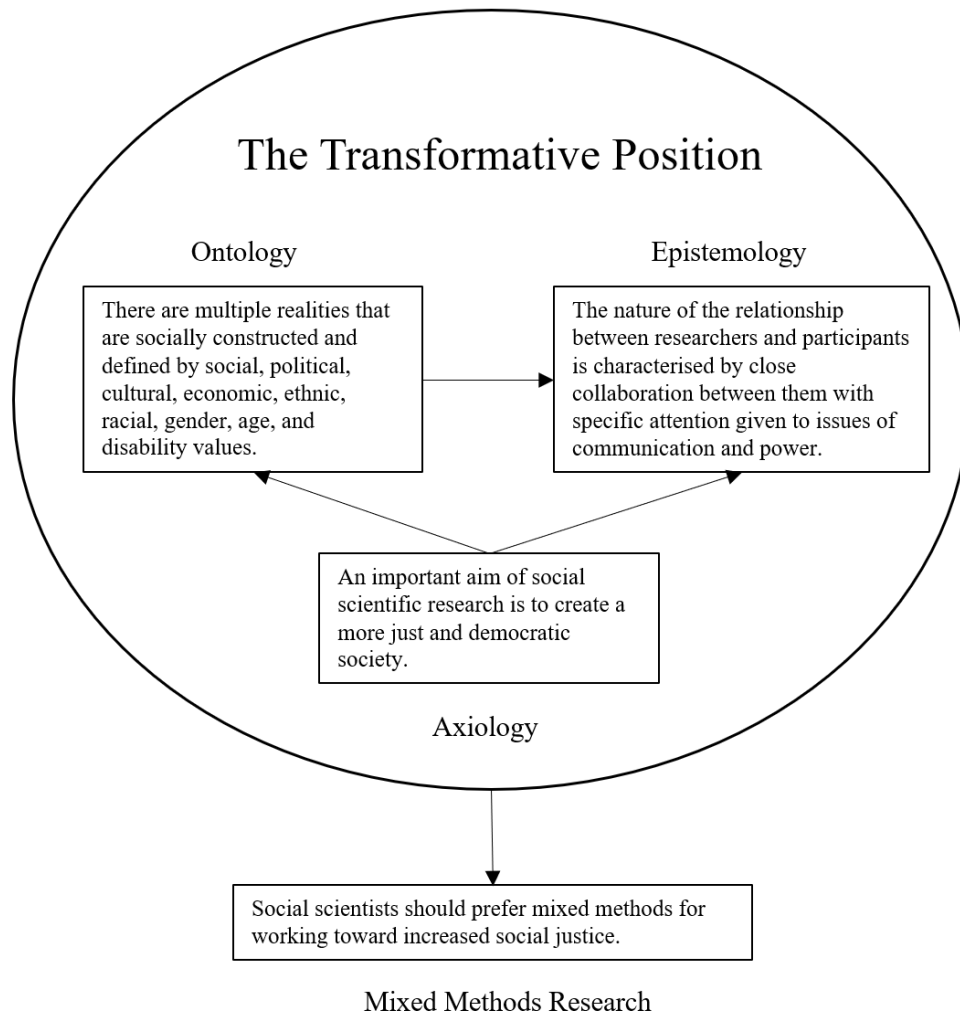
Mixed Methods Research

Figure 2

4.2 Three Senses of Philosophical Foundations

As I have mentioned in section 3, mixed methods research was initially introduced as a methodological alternative to the quantitative research approach and the qualitative research approach in the heyday of the paradigm debate. A good account of philosophical foundations of mixed methods research is assumed to motivate and justify the mixed use of quantitative and qualitative methods/data/designs in practice. More precisely speaking, it is necessary to show the practicality of the use of both quantitative and qualitative methods/data, which are viewed to assume inconsistent philosophical positions by the contenders of the paradigm debate. I propose that there are three different senses of philosophical foundations of mixed methods research in the literature.

    a. Weak sense: Philosophical foundations$_A$ allow the possibility of the integration of both quantitative and qualitative methods/data/designs.

    b. Moderate sense: Philosophical foundations$_B$ provide a good reason to use mixed methods in (at least some) social scientific research.

    c. Strong sense: Philosophical foundations$_C$ justify a normative thesis that mixed methods research should be encouraged in (at least some) social scientific research.

It is clear that philosophical foundations$_A$ is weaker than philosophical foundations$_B$, while philosophical foundations$_B$ is weaker than philosophical foundations$_C$. Showing that the integration of both quantitative and qualitative methods/data/designs is possible does not necessarily provide a good reason to integrate or mix quantitative and qualitative methods/data/designs, while having a good reason to integrate or mix quantitative and qualitative methods/data/designs does not imply that the integration of both quantitative and qualitative methods/data/designs should be encouraged universally.

The pragmatist position provides philosophical foundations$_A$. It justifies that mixed methods research is possible. As Jennifer Greene and Jori Hall (2010, 138) perfectly summarise, 'Whatever works; whatever can best engage and usefully inform the important practical problem at hand' is the best methodology, according to the pragmatist position. It makes a perfect sense for social scientists to use mixed methods when necessary. Thus, the pragmatist position does not constrain the use of both quantitative and qualitative methods, data, and designs. However, from a logical point of view, there are situations in which the quantitative research approach or the qualitative research approach might be the best methodology. In other words, the pragmatist position does not provide a good reason to prefer mixed methods research to the quantitative research approach or the qualitative research approach. It is not clear in what situation or context one should be encouraged to use both quantitative and qualitative methods/data/designs. According to the pragmatist position, the choice of methods completely depends on whether they contribute to solve the problems. As Tashakkori and Teddlie (1998, 24) summarise, 'Decisions regarding the use of either qualitative or quantitative methods (or both) depend upon the research question.' In short, the pragmatist position merely justifies a possibility of the integration of quantitative and qualitative methods rather than a normative thesis that the integration of quantitative and qualitative methods should be encouraged. Therefore, the pragmatist position at best, as Johnson and Onwuegbuzie (2004, 14) put it, provides 'an attractive philosophical partner for mixed methods research'.

The transformative position provides philosophical foundations$_B$. Given that the aim of research is to increase social justice and there are multiple realities that are socially constructed and defined by social, political, cultural, economic, ethnic, racial, gender, age, there is a good reason to use a variety of quantitative and qualitative methods/data/designs in (at least some) social scientific research. That said, as Mertens *et al* (2010, 196) indicate, 'Researchers who situate themselves within the transformative worldview do not necessarily use mixed methods.' Mixed methods research is just 'reflective of' the transformative position. Thus, the transformative position does not justify the normative claim that the integration of quantitative and qualitative methods/data/designs should be encouraged where possible.

Both the dialectical position and dialectical pluralist position provide philosophical foundations$_C$. According to the dialectical position, any position (e.g. the postpositivist position) provides but one perspective, inevitably partial, on human phenomena. Given that social phenomena are complex, 'better understanding of this complexity can be attained with

the use of more than one perspective' (Greene and Hall 2010, 124). Therefore, the integration of both quantitative and qualitative methods/data is not only possible but also beneficial. This is also why Greene and Hall (2010, 139) argue that the dialectical position and mixed methods research are 'often the best match'. Similarly, the dialectical pluralistic position encourages the integration of quantitative and qualitative methods/data/designs.

4.3 Problems and Prospects

There is more work to be done for advocates of these positions. As I have argued, the pragmatist position provides the weakest sense of philosophical foundations: the pragmatist position just shows that it is compatible with mixed methods research. According to the pragmatist position, the best methodology is '[w]hatever works; whatever can best engage and usefully inform the important practical problem at hand'. However, the pragmatist position provides little guidance on what counts as "best engage and usefully inform the important practical problem at hand'. In order to make the pragmatist position to provide a stronger sense of philosophical foundations, one needs to explicate what philosophical assumptions are employed in what context to motivate and justify the use of mixed methods. The transformative position provides a good reason to use mixed methods in some social scientific research, whose purpose is to increase social justice. However, there are other purposes of social scientific research (e.g. the search for an explanation of a social phenomenon). The transformative position is insufficient to provide a good reason for using mixed methods in these cases. Advocates of the transformativist position can either defend it as a particular set of philosophical assumptions within a pluralistic position or explore what motivates and justifies the mixed methods in other contexts. The dialectical position faces a problem of scope. It is not very clear how widely mixed methods research should be encouraged. Nor is it clear what position motivates the mixed use of methods/data in different contexts. The critical realist position, if understood as a philosophical foundation, is most problematic and least philosophically sophisticated. Maxwell and Mittapalli's central argument is that the critical realist position implies a mechanistic account of causality, a realist account of mental phenomena, and a realist concept of validity, which in turn justify a process-based qualitative approach to causality, a critical approach to qualitative research, a mixed methods approach to validity respectively. However, the arguments are highly problematic. For example, it is not clear why the regularity account of causality is not a realist account. Nor is it clear why only the process-based qualitative approach is the only approach to causality. To sum up, if we need a philosophical foundation$_C$ rather than a philosophical partner of mixed methods research, we have to do more.

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[1] Other recent approaches include the feminist approach (Hesse-Biber 2015) and the performative approach (Schoonenboom 2019). Unfortunately I lack the space here to examine them.

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[2] The quantitative research approach and the qualitative research approach are also called 'the quantitative research paradigm' and 'the qualitative research paradigm' (e.g. Johnson and Onwuegbuzie 2004; Feilzer 2010; Agerfalk 2013). However, given the notorious ambiguity of the concept of paradigm in the social sciences (Biesta 2010), I adopt a less controversial term 'approach' in this paper.

[3] Social scientists' characterisations of philosophical positions are quite different from philosophers'. In order to avoid confusion, I would refer 'the X-ist position' to social scientists' accounts and refer 'X-ism' to philosophers' accounts for a philosophical position X-ism. For example, the pragmatist position refers to social scientists' accounts of pragmatism, while pragmatism refers to philosophers' accounts.

[4] It should be noted that in this context social scientists use the terms 'ontology' and 'epistemology' in a distinctive way, where ontology is concerned with the nature of reality and epistemology is about the relationship between the knower and the known (see Lincoln and Guba 1985, 37–38).

[5] According to the postpositivist position, the researcher and the object of the research in the social sciences should be independent of each other, just as those in the natural sciences. In other words, it is possible and mandatory for a researcher to exteriorise the phenomenon studied, keeping detached and distant from it. However, this is not possible, according to the constructivist/interpretivist position: the researcher and the object of the research are humans. It is impossible to separate them and eliminate the mutual interaction. The result of the research is created by the interaction between the researcher and the object of the research (Guba and Lincoln 1989, 88).

[6] Social scientists often talk of philosophical foundations in terms of 'paradigms' (e.g. Teddlie and Tashakkori 2009). Sometimes 'stances' (e.g. Greene, Caracelli, and Graham 1989; Maxwell and Mittapalli 2010) and 'worldviews' (e.g. Creswell and Plano Clark 2018) are used. In order to avoid confusion, I will use 'position' instead in this paper.

[7] It is worth noting that there are different versions of the pragmatist position, from 'dialectical pragmatism' (Teddlie and Johnson 2009; Johnson and Christensen 2014; Johnson and Gray 2010), which offers a wholesale justification of mixed methods research, to Gert Biesta's 'Deweyan pragmatism' (2010), which only '[helps] us to have a more precise discussion about the strengths and weaknesses of mixed methods approaches'. And the pragmatist position is sometimes associated with the perspectivist position (Tebes 2012) and the pluralist position (Johnson and Onwuegbuzie 2004; Johnson 2017).

[8] It is worth noting that Johnson (2017, 159–60) regards the dialectical pluralist position as a 'metaparadigm', which operates beyond the philosophical positions (e.g. the pragmatist position) to argue for how multiple sets of philosophical assumptions can be in dialogue with one another in a study.

[9] This is similar to what Charles Teddlie and Abbas Tashakkori (2010) call "the single paradigm stance", or what John Creswell and Vicki Plano Clark (2018) call "one 'best' worldview for mixed methods."

[10] This is similar to what Charles Teddlie and Abbas Tashakkori (2010) call "the multiple paradigms stance", or what John Creswell and Vicki Plano Clark (2018) call "multiple worldviews for mixed methods."

[11] Morgan (2007, 62) makes a similar point. He regards the positivist position, postpositivist position, and constructivist position as 'top-down, ontology-driven metaphysical paradigms'.

[12] Note that the critical realist position provides the only 'ontology-oriented' foundations of mixed methods research, in which the 'ontological' assumptions still play a driving role.