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# THE QUEST FOR INTEGRATION IN MIXED METHODS INQUIRY

A Research Synthesis on Mixed Methods Studies  
in Social Sciences

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## Abstract

Nel campo dei mixed methods nella ricerca sociale, l'integrazione può seguire due possibili logiche generali: una prospettiva di complementarità, secondo cui combinare strategie qualitative e quantitative sarebbe un tentativo di arricchimento informativo – per ottenere una comprensione più completa di un determinato fenomeno sociale – e una di convergenza, che pone l'attenzione sulla possibilità di superare il bias legato a singoli metodi, attraverso l'integrazione. Mentre il primo punto di vista sembra piuttosto approblematico, sia da un punto di vista teorico che nell'implementazione empirica, la convergenza sembra porre maggiori sfide metodologiche, soprattutto nell'elicitazione di "meta-inferenze". Questa tesi di dottorato propone una sintesi di ricerca metodologica di studi che utilizzano un approccio mixed methods alla ricerca sociale. Le domande di ricerca sono relative alla concezione, implementazione e legittimazione epistemologica della questione dell'integrazione all'interno della comunità accademica degli studiosi che si avvalgono di mixed methods nella ricerca sociale. Varie strategie di analisi sono state utilizzate per rispondere agli obiettivi di ricerca: l'analisi automatica del contenuto di articoli pubblicati in riviste accademiche; l'analisi delle reti citazionali degli stessi paper; alcune interviste semistrutturate a esperti nel campo e la relativa analisi tematica, nell'ottica di un'esplorazione più approfondita del punto di vista delle/gli autrici/ori sull'integrazione, nonché come modalità di indagine delle tematiche legate all'epistemologia.

Mixed methods studies in social inquiry may follow two main perspectives on integration: on the one hand, complementarity seeks an information enrichment, a fuller and more comprehensive picture on a social phenomenon; on the other hand, convergence focuses on the chance of overcoming single methods' bias through mixing. While the first approach results rather unproblematic – both theoretically and empirically – convergence seems to pose additional challenges, especially in the elicitation of "meta-inferences". This dissertation presents a methodological research synthesis of mixed methods studies in social inquiry. Research questions are related to understandings, implementation and epistemological legitimization of integration within the academic community of scholars applying mixed methods in social sciences. Diverse research strategies were implemented, in order to answer to research objectives: automated content analysis was performed on articles published in academic journals; citation network analysis was applied on references lists of the same papers; semi-structured interviews with experts and the related thematic analysis were helpful to address scholars' points of view on integration, as well as a modality to explore paradigms and epistemological issues.



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A PhD is a singular moment in academic life, often made of difficult days and even distress, and it was more bearable thanks to my colleagues, who I shared my experience with. I want to thank them for the conversations, the shared feelings, the laughs – and sometimes even the tears – the drinks, and all the time spent together. Other people around me have been supportive to me and crucial in my life: my friends – old and new – sometimes there to remind me there is a life outside academia, and my family. My parents always believe in me and Chiara, my sister supports me in so many ways. I am grateful for all the people who are a part of my life and this work is dedicated to them.



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# Introduction

I initially met mixed methods under the realization that I have never fully understood the divisions – made in the social sciences – between qualitative and quantitative strategies of inquiry. I chose to study in a sociology program, both as an undergraduate and as a graduate student, and I have taken various courses about methodology that presented the two modalities of research as separated, sometimes even putting explicit efforts in the drawing of clear lines between the two. I started appreciating qualitative research for the attempts to value people’s experiences and perspectives, as a main aspect. Nevertheless, I valued the efforts made in quantitative inquiry, in order to grasp the larger picture of social phenomena and to describe general trends about social changes. Honestly, I could not decide to sympathize for one over the other and I did not even understand why this seems to be a necessary choice, in the eventuality of an academic career – as if you wanted to do research on social issues you would need to take sides, from a methods perspective. I heard many times the question “Are you a quantitative or a qualitative person?” and I feared the time when the same question would hit me too, knowing that I did not have – and did not want to have – a clear answer. Thus, I began this journey that brought me to write a dissertation about mixed methods: I wanted indeed to understand whether *other*, alternative, ways of thinking about methods in social sciences were possible.

However, I first approached mixed methods full of doubts. Although I immediately appreciated an endeavor that was trying to overcome the qualitative / quantitative divide – after years of being trained in an environment heavily engaging with “paradigm wars” – I still needed to be convinced about the feasibility and efficacy of mixed strategies of inquiry. Therefore, on the one hand the qualitative / quantitative wars were the reason I felt the need to better understand what was going on in the mixed methods field; on the other hand, the same qualitative / quantitative divide – that I was trained to take for granted – was also the origin of my critical approach to mixed methods. I founded, indeed, this field to be rather fast-growing, but still with some confusion about definitions and research praxis. Then, while going even more in depth in the area of mixed methods in social inquiry, I discovered how discussions seemed to predominantly revolve around the specific topic of designs, while space to other aspects resulted limited. Thus, examples I found of mapping the field largely reported the different designs that can be identified, but there seemed to be a lack of more “reflexive” overviews on mixed methods practices.

Therefore, this work was intended to offer a focused outline on the field of mixed methods, having interest both for the – practical – methodological issues and for more reflexive facets related to the uses of paradigms, but also to how the field is growing and which scholars have an influence on it. The title of the dissertation – “The Quest for Integration in Mixed Methods Inquiry” – aims, then, to look at integration both from the perspective of methodological approaches to reach an integration goal and from the point of view of legitimation strategies put in place by mixed methods scholars. The subtitle – “A Research Synthesis on Mixed Methods Studies in Social Sciences” – anticipates instead the modality through which I will explore the topic of interest for this dissertation.

During the three years of work that ended in this doctoral thesis, I had the chance to spend a visiting period of nine months at University of Illinois at Urbana-Champaign, under the supervision of Professor Jennifer C. Greene. I largely benefited from working with Professor Greene and from this academic experience, without which this work would not have been the same.

I will start the discussion by presenting – in the first part of the dissertation (*Chapter 1*) – some epistemological and methodological issues, of interest within the field of mixed methods. Specifically, I will endorse a first exploration of mixed methods: I will notice the possibility to overcome the qualitative / quantitative divide as a first thing; then I will present a broad overview on mixed methods designs; furthermore, I will engage in conversations about dimensions of integration, purposes of mixing, and quality in mixed methods studies; I will then introduce a discussion on *triangulation*, which is a concept largely exploited in the mixed methods field, considering in particular the origins of the term, the conception of *multiple triangulation* introduced by Norman Denzin, and noticing how the word might be used with different meanings, introducing possible misleading aspects. I will then engage in dialogues about epistemology – in social sciences and in mixed methods – by presenting some selected concerns: I will take advantage of theoretical instruments offered by sociology of scientific knowledge to present issues related to the normative and political structure of science; I will then present some examples of alternatives to the mainstream, normative, Western science; furthermore, I will explore the same issues within the specific academic community of interest for this elaborate, i.e. that of mixed methods in social inquiry. This theoretical discussion will be necessary to locate the aspects that will be explored empirically in this study.

In the second part of the dissertation, I will focus on phases of the empirical research, starting with research questions and the research design (*Chapter 2*). The research questions I conceived are related to integration in mixed methods and ways of legitimizing it, within the academic community of mixed methods scholars. Specifically, I wanted to distinguish between two main and broadly defined approaches to integration: from the one hand *complementarity*, that is related to an intent of information enrichment, with different methods focusing on the understanding of diverse aspects of a phenomenon; from the other hand, *convergence*, that originates

from the belief that single methods have specific bias that might be overcome thanks to mixing, in a logic of increasing validity. While *complementarity* seems rather unproblematic – both theoretically and in research praxis – *convergence* might pose some challenges in the empirical implementation phase and especially in the elicitation of so-called “meta-inferences”. Therefore, the other objective was to differentiate between what is merely declared at a more theoretical level and what is more concretely implemented in the empirical phases. In order to meet these aims, I performed a research synthesis on mixed methods studies. A first task towards this direction was an automated text analysis on papers published – in English – in academic journals (*Chapter 3*). Then, a second set of research objectives has more to do with the identification of different schools of thought among mixed methods scholars and the understanding of eventual relationships among them. In order to explore these issues, I carried out a citation network analysis, on the reference lists in the same papers that underwent to the automated text analysis (*Chapter 4*). Moreover, through semi-structured interviews with experts – and thematic analysis of transcripts – I had the chance to further investigate all these matters, as well as exploring concerns in terms of legitimation and paradigms in mixed methods (*Chapter 5*). Finally, I tried to *better understand* the matter of integration in papers that I identified as NAs during the phase of handcoding for the automated text analysis. In order to achieve this goal, I re-analyzed the papers, taking advantage of the themes emerged from interviews. Then, in the conclusive section of this elaborate I will try to offer answers to my research questions, based on results of this work. Moreover, in the same section, I will provide for some possible insights for future developments of this study.



# PART I



## Chapter 1

# Theoretical, Epistemological and Methodological Challenges

In this first part of the dissertation, I will introduce issues of methodology and epistemology connected to mixed methods in social inquiry. The initial exploration of mixed methods will be helpful in order to have a first description of the field of inquiry, but it will also raise issues and challenges that are among the reasons for the relevance of this work. The focus will then shift on matters related to sociology of science and epistemology. The section will open with a discussion on ethos of science and of where processes of scientific knowledge creation fail from an ethical perspective. Finally, I will specifically focus on epistemology to legitimize the use of mixed methods in social sciences, posing some doubts about current conceptions of paradigms.

### 1.1 Mixed Methods in Social Inquiry

In this first section of the chapter I will provide a general exploration of the field of mixed methods in social inquiry. The entire work presented here will focus on the broad field of social sciences, in a logic of transdisciplinarity, that is, in a nutshell, an overtaking of the traditional disciplinary boundaries, for the benefit of the problem that is intended to be solved through research, recognizing the complexity of reality (Nicolescu, 2002). The intent is to avoid the delineation of fixed and defined boundaries among disciplines. Fixed boundaries between qualitative and quantitative methods will be refused as well, noticing the lack of clear delineation that gives space to the formulation of mixed methods (Bazeley, 2017). The first paper in which the term “mixed methods” appears is that by Parkhurst et al. (1972) and the term indicating this specific combined modality to conduct research is with no doubt receiving increasing attention in social sciences from the at least the 1980s. Nonetheless, identifying a clear origin of mixed methods as a straightforward process would be unreasonable. Since the beginning of social inquiry, methods have been intertwined when conducting empirical research and the typical division between qualitative and quantitative methods arrived only later and can be considered as the result of a process of social construction (Denzin, 2010). Combining different

methods is indeed nothing new in the field of social sciences (Maxwell, 2016; Pelto, 2015). With Pearce's words, «the idea that an empirical research endeavor could capitalize on the use of both qualitative and quantitative data, and benefit from the integration of a varied set of methods has held currency in sociology for decades» (2012, p. 829). During at least the first half of the 20<sup>th</sup> century, “mixed research” was largely conducted by social scientists – especially sociologists and anthropologists – without utilizing the mixed method label but still essentially combining what today are called quantitative and qualitative approaches (Johnson, Onwuegbuzie, and Turner, 2007; Maxwell, 2016; Pelto, 2015), as I will discuss later (*Paragraph 1.1.1*). Thus, in this first section I will not focus on the birth and development of mixed methods, but I would rather notice here some specific issues that appear to be crucial and worth of reflection in the field.

First of all, how can mixed methods be defined? And why does it seem so important to embark in a similar quest? In order to answer these questions, it might be beneficial to reflect on the ways mixed methods are utilized within social sciences. It will be relevant in this first section to point at some general elements. There is still much confusion in social inquiry on what mixed methods actually are and how the methodology can develop. Attributing an accurate definition to the term would represent a complex operation and I choose here to attain to what other scholars have already written about it. We should bear in mind that we are moving within a highly scattered context and a large number of definitions and speculations lie in the constellation of mixed methods literature. Johnson, Onwuegbuzie, and Turner (2007) tried to understand the basic dimensions underpinning various attempts to define the term, looking for some aspects in common and generating a new definition that was able to take into consideration all the aspects noticed. Different themes arose from this exploration:

1. The combination of aspects typical of the quantitative and qualitative approach;
2. The stage at which mixing is suppose to occur: it is indeed imaginable a mixing procedure at the level of data collection, at that of data analysis or at all the stages of the research process;
3. The breadth, or amount of mixing, which can pertain a continuum from mixing only in data collection, to mixing at all stages, to mixing also methodological perspectives and languages;
4. Why mixed strategies take place, that is legitimation, which may regard breadth – in terms of enhancing description and understanding, getting a fuller picture and a deeper knowledge – or corroboration – and falsification – but it may concern also the specific aim of the research, or it may even have to do with greater objectives of social justice;
5. Orientation of mixed methods, that may follow a “bottom-up” or a “top-down” process – considered not as a dichotomy, but rather on a continuum. Whereas



in the first case the research question is what drives the affiliation with the mixed methods approach within a study, the second term regards the challenge for the investigator to run a research that follows some participatory and ethical principles.

Unifying and synthesizing all the questions emerged, the authors were then able to develop their definition of mixed methods, as follows:

«Mixed methods research is an intellectual and practical synthesis based on qualitative and quantitative research; it is the third methodological or research paradigm (along with qualitative and quantitative research). It recognizes the importance of traditional quantitative and qualitative research but also offers a powerful third paradigm choice that often will provide the most informative, complete, balanced, and useful research results. Mixed methods research is the research paradigm that (a) partners with the philosophy of pragmatism in one of its forms (left, right, middle); (b) follows the logic of mixed methods research (including the logic of the fundamental principle and any other useful logics imported from qualitative or quantitative research that are helpful for producing defensible and usable research findings); (c) relies on qualitative and quantitative viewpoints, data collection, analysis, and inference techniques combined according to the logic of mixed methods research to address one's research question(s); and (d) is cognizant, appreciative, and inclusive of local and broader sociopolitical realities, resources, and needs. Furthermore, the mixed methods research paradigm offers an important approach for generating important research questions and providing warranted answers to those questions. This type of research should be used when the nexus of contingencies in a situation, in relation to one's research question(s), suggests that mixed methods research is likely to provide superior research findings and outcomes» (ibid., p. 129).

We can also find in literature various definitions of mixed methods that are much broader, leaving more space for different possibilities and creativity in social inquiry. One of those is from Bazeley (2017), who connotes mixed methods as follows:

«a generic term to include any research that involves multiple sources and types of data and/or multiple approaches to analysis of those data, in which integration of data and analyses occurs prior to drawing final conclusions about the topic of the investigation» (ibid., p. 7).

Ultimately, then, we may consider at least one basic foundation and a common core that every mixed method researcher could not overlook: the combined usage of elements from the so-called quantitative approach and of aspects typical of the qualitative perspective (Amaturo and Punziano, 2016; Denzin, 2010; Johnson, Onwuegbuzie, and Turner, 2007). In respect to this, integration is often accounted as one of the main – or probably *the main* – principles that guide the mixed methods approach (e.g. Plano Clark and Ivankova, 2016). For this reason, a large space will

be dedicated to integration in this elaborate, trying to cover and better understand what integration means to scholars in the field and how it is implemented in empirical praxis. Patricia Bazeley (2017), who dedicates a large space to integration in her text, describes it as «in terms of the relationship between methods in reaching a common theoretical or research goal», specifically calling for a sort of integration in mixed methods that «occurs prior to drawing final conclusions about the topic of investigation» (ibid., p. 7).

The tour on mixed methods suggested in this chapter will start with a brief description of the distinction between qualitative and quantitative methods, often challenged by mixed methods. I will then present different typologies of mixed methods designs, focusing on general characteristics identified by various scholars. The tour will then bring us to the different possible levels of integration, noticing how the researcher is facing relevant decisions about what to mix at the different stages of the research process. And not only *what* to mix is of importance, but also *why* mixing, as I will discuss, covering the purposes identified by scholars for mixing methods. Another aspect that will be examined, because of relevance in this exploration, will be the assessment of quality in mixed methods studies. Later, the discussion will be focus on the rather popular concept of “triangulation”, which is often related to the development of the entire field of mixed methods – sometimes, mistakenly, even considering the two terms as synonyms. For this reason, in an attempt to bring some clarity about the term, particular attention will be paid in this chapter to the research strategy called *triangulation*. After a brief introduction on the first uses of the term in social sciences, I will introduce the Denzin’s idea of *multiple triangulation*. I will finally discuss how the word “triangulation” may assume different meanings, posing some questions that are still unanswered.

### 1.1.1 Deconstructing Barriers between the Qualitative and the Quantitative

Considering that mixed methods are often suggested as a *third* methodological strand – as shown in the definition offered by Johnson, Onwuegbuzie, and Turner (2007) – it is important here to look at dynamics of separation of the two generally recognized methods for social inquiry: qualitative and quantitative methods. Within the area of social sciences, qualitative and quantitative research have been indeed traditionally – at least from the second half of the last century<sup>1</sup> – developed and perceived by scholars in two different and divergent directions.

It is often reported in social sciences literature how each modality for the study of social phenomena has affirmed itself in opposition to the other (see, for example, Lincoln and Guba, 1985). On the one side, we find quantitative research, based

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<sup>1</sup>However some authors (e.g. Hammersley, 1992) attribute the qualitative/quantitative dispute to the mid-nineteenth century, with the emergence of the so-called *Methodenstreit* – or “dispute over methods” – a debate related to the best method of inquiry to be used in social sciences.

mainly on the (post)positivist paradigm, that claims to be an objective way of studying social aspects of reality, primarily through a supposedly systematic and nomothetic approach – based on processes of numbers assignment – and aiming at generality of results. On the contrary, qualitative research, anchored as a principal paradigm to the constructionist and interpretative approach, prefers to focus on the definition of the situation, shared symbols and practices of power/resistance building a stronger connection with the context studied. The distinction between the investigator and the (social) “object” being investigated becomes less relevant, giving value to subjectivity in research<sup>2</sup> (Hanson, 2008). Or at least, this is the way things were depicted starting from the ’70s – for example, Lincoln and Guba (1985) largely discussed on this alleged separation between the two approaches, and many other scholars reproduced the same discourses on the so-called quantitative/qualitative debate, promoting the separation and a binary perception of the methods. Thus, the two modalities of conducting social research not only advanced separately – starting at least after the so-called “qualitative revolution” in social sciences (Denzin and Lincoln, 2008) – but supporters of one or the other approach also ended up with “declaring war” one each other (Bergman, 2008b; Bryman, 1988; Denzin, 2010; Harrits, 2011), as I will describe better later when the reflection on paradigms will be introduced (*Paragraph 1.2.2*).

However, it is not completely correct to associate this division to the early years of the development of sociology and social sciences. There are indeed numerous examples of studies in social inquiry at its beginning, adopting a combination of quantitative and qualitative methods. Maxwell (2016), for example, shows various studies from this early phase of the discipline<sup>3</sup> combining methods and data coming from the qualitative and quantitative approaches, whether those terms are explicitly mentioned as labels in the research or not. Among these studies, DuBois’s research is from 1899, while different examples are from the first half of the twentieth century, such as the “Hawthorne studies” by Roethlisberger and Dickson, begun in 1924, “Middletown” by the Lynds (1937), and “Marienthal” (Jahoda, Lazarsfeld, and Zeisel, 1933).

Nevertheless, it is possible to say that the divergence of beliefs reached its zenith in the early ’80s, when the qualitative approach advocated its own legitimacy, to contrast the quantitative inquiry that affirmed as the dominant way of conducting social research at the time (Bergman, 2008b). I will discuss later (*Paragraph 1.2.2*) about the role played by paradigms for research within these “wars”. An aspect that I would like to anticipate here, however, has to do with the fact that these debates

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<sup>2</sup>The distinction between qualitative/quantitative features depicted here might seem short and superficial. It is indeed intentionally so. Much has been written about those differentiations and divergences and it is not one of the aims of this dissertation to add to similar discourses, perpetrating them. However, there is plenty of examples on similar divisions in social sciences literature that can be consulted (for discussions on the topic, see for example: Bergman, 2008b; Bryman, 1988; Hammersley, 1992).

<sup>3</sup>Although the focus of Maxwell’s article (2016) is on social sciences, early and contemporary natural sciences, medicine and epidemiology and linguistics are also covered in it.

«were substantially created by the specific intellectual and social context in which they occurred, and are not intrinsic to the integration of qualitative and quantitative approaches» (Maxwell, 2016, p. 20), in a process of social construction (Denzin, 2010).

Reichardt and Cook (1979) argued that the qualitative/quantitative debate created a polarized picture, wherein the choice can only be between two extremes. An analogy can be drawn with the concept of gender, if we consider defining different facets of qualitative and quantitative research and delineating specific characteristics for females and males individuals (Bazeley, 2017).

«The characteristics of data and the research process override distinctions between qualitative and quantitative much as that which makes us human overrides the distinctions between male and female. Nevertheless we do draw multiple distinctions between quantitative and qualitative, just as we draw multiple distinctions between being male or female. And similarly to studies identified as using quantitative or qualitative methods, each person demonstrates more or less the various qualities that are associated with masculinity or femininity, although any one person can usually be identified as one or the other» (ibid., p. 9).<sup>4</sup>

But in both cases, I would argue, we are facing largely social constructed distinctions, that can be placed on a continuum (Creamer, 2017). And gender-queer, gender-fluid, non-binary individuals are there to constantly remind us this fact – applied to the concept of gender – just as mixed-methods when it comes to social inquiry methodology.

By the same token, Hanson (2008), discussing the separation between quantitative and qualitative methods, writes:

«The differences between qualitative and quantitative methods in sociological research are more apparent than real. Separations that have often been articulated do not separate at the theoretical level. This suggests that the debate is political rather than theoretical or philosophical. Most of the arguments for one side or the other are based on assumptions about what one side thinks the other side is doing, rather than what the other side is doing. This has been analogous to the process of social construction of “other”, something based on what it is not rather than what it is, and with greater homogeneity that actually exists within the “other”» (p. 97).

The author, in the same paper, considers four dimensions widely recognized as assuming diverse facets when it comes to the two different methods: subjectivity versus objectivity, systematization, quantification and generalization, as briefly described earlier in this discussion. She notice, however, how qualitative and quantitative methods are separated on basis that are not grounded in research practices and

<sup>4</sup>Patricia Bazeley’s reflection only considers to genders, but I would like to acknowledge the presence of other genders that people identify in, that might either be a combination of feminine / masculine elements or a complete denial of both sides of the spectrum.

possibly neither in theory, promoting a counterproductive way of thinking about social inquiry.

### 1.1.2 Many Ways to Mix Methods: On Designs

With the term “signature” Teddlie and Tashakkori (2012) refer to: «*a set of basic research designs and analytical processes, which are acknowledged and referenced by most mixed methods scholars*» (p. 782). I mentioned this quote to express the extent covered by designs in mixed methods debates, to a point that they are mentioned as “signature”. The discussion about designs, indeed, can be found in every single mixed methods textbook, in the majority of articles and chapters covering mixed methods, so that it looks impossible not to at least acknowledge the issue in this dissertation. Creamer (2017) defines the term “design” as «*thoughtfully constructed link between the purposes of a research study and the strategies used to implement it*» (p.59), reminding us that these issues that may seem to some extent technicalities are indeed rather relevant to ensure continuity among components in a study, according to the general purpose of the research. Nonetheless, the existing panorama is extremely fragmented, with a considerable profusion of designs and a lack of agreement on what makes a design *truly* mixed and on basic dimensions that would allow the structuring of a steady and shared typology. On the contrary, in mixed methods literature, various existing typologies shed light on different aspects of mixed research designs<sup>5</sup>. A step back is here needed, in order to address the questions: “What a mixed design is?”. According to Plano Clark and Ivankova (2016), a mixed research design serves as a framework to make order to the manners of how qualitative and quantitative components of the inquiry are enabled during the diverse steps of the research process. Categorizations – i.e. typologies – may seem helpful to systematize the various design attempts, on the basis of specific elements considered when designing a research. I found it, then, necessary to present some basic elements to allow an orientation within this unsystematic area.

Different designs are built on the basis of various possible ways to combine elements that are associated with qualitative or quantitative research, considering primarily which of the methods is dominant or whether there is equal status of importance in the research, and also the timing of implementation of the components (either concurrent – or parallel – designs or sequential, with a certain method coming first). Some authors also pay attention to purposes for mixing, that I will introduce later in this chapter (*Paragraph 1.1.2*), or to independence or interactivity of methods.

A comprehensive and yet synthetic review of the most mixed methods design typologies is presented in the work of Plano Clark and Ivankova (*ibid.*), which is

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<sup>5</sup>Opposite to these speculations, withal, it can be accounted a conception that states the impossibility for categorizations to catch the great diversity and variability of the mixed methods studies (Maxwell and Loomis, 2003).

a suggested reference for an overview on the theme<sup>6</sup>. The two authors then devise their own three-elements categorization, based on mixed methods design logics, that is a combination of decisions that the researcher has to set when designing a mixed research, and they were accounted<sup>7</sup>:

1. *Concurrent Quan + Qual Design*, for those designs wherein quantitative and qualitative strands are implemented simultaneously, aiming at validated and more complete conclusion, through the comparison or the merging of the two kinds of results;
2. *Sequential Quan → Qual Design*, in those cases of a need to go more deeply into quantitative results, through qualitative inquiry. The priority may both be QUAN → qual or quan → QUAL;
3. *Sequential Qual → Quan Design*, wherein quantitative data perform as follow-up, with the aim to generalize, test or confirm the forth gained qualitative results. Also in this case priority may be on one strand or the other (QUAL → quan or qual → QUAN).

This represents just an example of typology, but some basic characteristics of mixed methods designs already emerged, such as the afore mentioned timing of implementation and the eventual dominance of a method over the other. Nonetheless, the same logic – but extended – is reported by Leech and Onwuegbuzie (2009), in a three-dimensional typology of mixed methods designs, wherein the dimensions considered are the following. The first one is the level of mixing, according to which *fully* mixed methods designs and *partially* mixed methods designs are distinct: whereas fully mixed designs see the mixing of both quantitative and qualitative phases within or across one or more components of the research process – (a.) research objective, (b.) type of data and operations, (c.) type of analysis and (d.) type of inference<sup>8</sup> – for what concerns partially mixed designs the qualitative and quantitative phases are not mixed within or across stages. Secondly, time orientation play a key role and it may follow two different paths: a *concurrent* or a *sequential* one. Lastly, we have emphasis of approaches, since the strands may be considered as *equal* or one of the two may assume a *dominant* status. Therefore, the outcome of this framework would fit a  $2 \times 2 \times 2$  matrix, as demonstrated by the figure below (Figure 1.1). The types of designs, based on all the possible combinations, are:

<sup>6</sup>However, the review in Plano Clark and Ivankova (2016) does not take into account for some typologies, such as the main one presented in this chapter (Leech and Onwuegbuzie, 2009) and the work of Johnson and Onwuegbuzie (2004).

<sup>7</sup>The notation system introduced by Morse (1991) is here utilized. It is largely adopted by the mixed methods scholars, wherein “qual” is an abbreviation for qualitative and “quan” for quantitative. It intuitively points at the concurrent/parallel (+) or sequential (→) aspects of a design, as well as at the eventual dominance (uppercase letters, e.g. QUAL) or subordination status (lowercase letters, e.g. quan).

<sup>8</sup>In the case of mixed methods, the term “meta-inference” is often preferred, referring to «inferences that link, compare, contrast, or modify inferences generated by the qualitative and quantitative strands» (Teddle and Tashakkori, 2009, p. 300).

1. *Partially mixed concurrent equal status design* (P1), that using Morse's notation system (1991) would be Quan + Qual;
2. *Partially mixed concurrent dominant status design* (P2), that is (a.) QUAN + qual or (b.) QUAL + quan;
3. *Partially mixed sequential equal status design* (p3), for which we have two possibilities: (a.) Quan → Qual or (b.) Qual → Quan;
4. *Partially mixed sequential dominant status* (P4), which embodies four different outcomes: (a.) QUAN → qual, (b.) quan → QUAL, (c.) QUAL → quan and (d.) qual → QUAN;
5. *Fully mixed concurrent equal status design* (F1), for expression in Morse's notation system (1991), see the correspondent partially mixed design (P1);
6. *Fully mixed concurrent dominant status design* (F2), same notation as P2;
7. *Fully mixed sequential equal status design* (F3), same notation as P3;
8. *Fully mixed sequential dominant status* (F4), same notation as P4.

The structure here described seems, thus, to be a more exhaustive framework in comparison to the model of Plano Clark and Ivankova (2016). Moreover the aim of the authors was to provide not a too simplistic nor an avoidably complex systematization, but rather a consistent one (Leech and Onwuegbuzie, 2009).

Another possibility, when it comes to ways to classify mixed designs, is to identify dimensions of difference, as suggested by Greene, Caracelli, and Graham (1989). The selected dimensions, in this case, are: 1) *paradigms* – considering «the degree to which the different method types are implemented within the same or different paradigms» (Greene, 2007, p. 118); 2) *phenomena* – with a focus on whether one or multiple phenomena are addressed; 3) *methods* – referring to «the degree to which the qualitative and quantitative methods selected for a given study are similar or different from one another in form, assumptions, strengths, and limitations or biases» (ibid., p. 118); 4) *status* – acknowledging the chance of either equality or unbalance in the role played by each method in the study; 5) *implementation: independence* – considering whether methods are «conceptualized, designed, and implemented interactively or independently» (ibid., p. 119); 6) *implementation: timing* – focusing of whether methods are sequentially or concurrently implemented; 7) *study* – noticing if the empirical research include only one study or more studies. Based on the potential degrees of these dimensions, Caracelli and Greene (1997) distinguish between *component* and *integrated* mixed methods designs. While in component designs methods are implemented as disconnected elements, integrated ones promote a more mingled combination, integrating aspects of different paradigms. Among the component category, two main designs can be located (Greene, 2007):

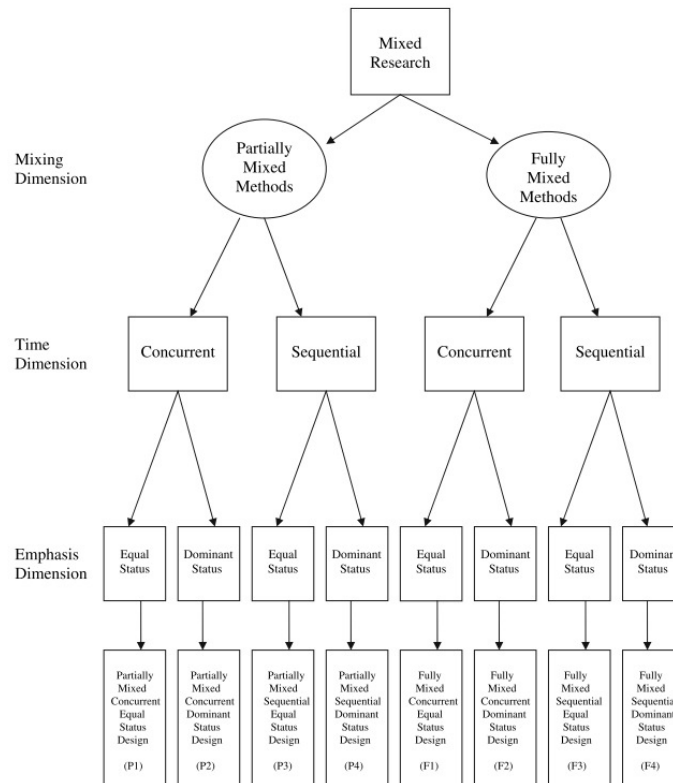


FIGURE 1.1: Three-dimensional typology of mixed methods designs, in Leech and Onwuegbuzie (2009, p. 269)

1. *Convergence*, in which two or more methods are meant to measure the same phenomenon independently;
2. *Extension*, where different methods are utilized in order to address different phenomena.

For what concerns integrated designs, instead, we can distinguish among (Greene, 2007):

1. *Iteration*, in which one method is used to inform and develop the other;
2. *Blending*, where two or more methods are meant to capture different aspects of the same phenomenon;
3. *Nesting or embedding*, presents one primary method and a secondary one nested in the main methodology of the study;
4. *Mixing for reasons of substance or values*, wherein the ideological framework of the study plays a rather relevant role (see also *transformative* mixed method design: Mertens, 2003, 2007).

The ones presented here are only few of the many design typologies that can be found in mixed methods literature. There is clearly an abundance of typologies,



with various authors focusing on different facets of mixing and combining methods. A similar attention to design, however, may result in less consideration of other – potentially relevant – aspects of the research process, such as paradigms that guide our inquiry (see *Chapter 1.2.2*), or purposes of mixing (see *Paragraph 1.1.2*).

### The Different Dimensions of Integration

We've seen how different designs could be implemented when conducting a mixed methods study, possibly shaping the study in very different ways. But we could still ask: what is exactly being mixed? Greene (2015) argues that «considerations regarding what levels will be mixed in a mixed methods inquiry study is a key design decision» (p. 607). Moreover, since the beginning of the discourses on combining methods, mixing was conceptualized as happening at all the levels: methods, methodologies and paradigms (*ibid.*). Building on these different dimensions, Fetters and Molina-Azorin (2017) describe a model that they call “Mixed Methods Research Integration Trilogy”, as described in the table (*Figure 1.2 and 1.3*).

I would like to comment on each single dimension, noticing particularly relevant aspects, as well as challenging and problematic ones. Regarding the *political dimension* the authors mention philosophical assumptions, implying that the different standpoints involve a larger view of social research and academic knowledge. However, while some of these positions might not necessary encompass a larger perspective on society itself, others are clearly making a statement not only on how social inquiry should be, but also on how society should evolve. This is particularly true in the case of the transformative paradigm (Mertens, 2003), described as «a framework of belief systems that directly engages members of culturally diverse groups with a focus on increased social justice» (Mertens, 2010, p. 470).

About the *theoretical dimension*, to incorporate elements of different theories can be beneficial to the entire research. Especially, integrating aspects from broad frameworks with those from middle-range theories, as suggested by the authors, seems a rather significant strategy that goes in the direction of taking into consideration multilevel features of social phenomena.

Both the *researcher dimension* and the *team dimension* have to do with the individuals conducting the research, considering their openness to mixed methods and their ability to work with researchers coming from various backgrounds and appreciating a methodological tradition different from the specific one that they are familiar with. These two dimensions appear as a prerequisite for a sound mixed methods study, beside creating spaces when integration can occur.

Coming to the *literature review dimension*, more will be said later in the discussion – see *Paragraph 1.1.2*, where Creamer's “Mixed Methods Evaluation Rubric” (2017) is introduced. When seeking integration, it is possible both to have a “mixed” literature review, considering studies from the different methodological traditions.

On the *rationale dimension*, I would argue that there is no real mixed methods inquiry, with a lack of a rationale that explicitly calls for the need of mixing methods in

Integration dimensions	Mixed methods researchers integrate by . . .
Philosophical dimension	Orienting the research based on philosophical assumptions (e.g., pragmatism, participatory/transformativ, dialectical pluralism, critical realism, postmodernism).
Theoretical dimension	Incorporating theory from broad frameworks (e.g., feminist theory, theory of justice) and/or middle-range theories (e.g., health beliefs model, social cognitive theory, ecological theory, etc.).
Researcher dimension	Leveraging personal and professional experiences that lend one to consider and hold valuable qualitative, quantitative, and mixed methods procedures for making sense of the world.
Team dimension	Creating and orchestrating mixed methods teams (e.g., content experts including individuals of different disciplinary backgrounds, qualitative, quantitative, and mixed methods researchers) and optimizing team contributions to produce best quality mixed methods research.
Literature review dimension	Reviewing thoroughly existing literature and illustrating the need to conduct both qualitative research (e.g., need for in-depth description, or to understand the “how” or “why” about a phenomenon) and quantitative research (e.g., trends in a population, associations, causality, etc., relative to a phenomenon of interest) to produce new knowledge about the substantive topic.
Rationale dimension	Citing a rationale for conducting an integrated mixed methods research study (e.g., offsetting strengths and weaknesses, comparing, complementing or expanding, developing or building, and promoting social justice).
Study purpose, aims, and research questions dimension	Composing an overarching mixed methods research purpose and stating qualitative, quantitative, and mixed methods aims or multiple mixed methods aims with quantitative aims and qualitative questions.
Research design dimension	Scaffolding the work in core (e.g., convergent, exploratory sequential, explanatory sequential), advanced (e.g., intervention, case study, evaluation, participatory), or emergent designs.
Sampling dimension	Sampling through the type, through the relationship of the sources of the qualitative and quantitative data (e.g., identical sample, nested sample, separate samples, multilevel samples) and through timing (e.g., same or different periods for collection of the qualitative and quantitative data).
Data collection dimension	Collecting both types of data with an <i>intent</i> relative to the mixed methods research procedures (e.g., comparing, matching, diffracting, expanding, constructing a case, connecting, building, generating and validating a model, or embedding).
Data analysis dimension	Analyzing both types of data using: intramethod analytics (e.g., analyzing each type of data within the respective qualitative and quantitative methods, core integration analytics) (e.g. by following a thread, spiraling, back-and-forth exchanges) and/or employing advanced mixed methods analysis (e.g., qualitative to quantitative data transformation, quantitative to qualitative data transformation, creating joint displays, social network analysis, qualitative comparative analysis, repertory grid/other scale development techniques, geographic information systems mapping techniques, and iterative and longitudinal queries of the data).
Interpretation dimension	Interpreting the meaning of mixed findings (e.g., where there are related data, drawing meta-inferences or conclusions based on interpreting the qualitative and quantitative findings) and examining for the fit of the two types of data (e.g., confirmation, complementarity, expansion, or discordance. When the results conflict with each other, using procedures for handling the latter including reconciliation, initiation, bracketing, and exclusion.

(continued)

FIGURE 1.2: Dimensions of the Mixed Methods Research Integration Trilogy – part I; from Fetters and Molina-Azorin (2017, p. 294)

Integration dimensions	Mixed methods researchers integrate by . . .
Rhetorical dimension	Creating or adapting terminology intentionally and thoughtfully to reflect the mixed methods paradigm, writing with an integrated structure to illustrate the mixed methods dimension, structuring the findings narrative using contiguous or weaving presentations, using metaphors to write about integration, composing integrated prose to effectively illustrate the added value of mixed methods findings.
Dissemination dimension	Disseminating by intrapublication (e.g., publishing mixed methods findings within a single publication or multiple papers featuring the mixed methods findings) and interpublication through more than one publication venue; the latter can include any combination of multiple publications, for example, qualitative, quantitative, mixed methods, and methodological papers while always utilizing extensive cross-referencing to the related papers.
Research integrity dimension	Ensuring research integrity throughout the quantitative methods (e.g., validity and reliability), throughout the qualitative methods (e.g., trustworthiness), and throughout the mixed methods (e.g., validity, legitimation, research integrity).

FIGURE 1.3: Dimensions of the Mixed Methods Research Integration Trilogy – part II; from Fetters and Molina-Azorin (2017, p. 295)

that specific study. Just as with the *study purpose, aims, and research questions dimension*. About purposes for mixing, more will be said in the next paragraph (Paragraph 1.1.2).

The *research design dimension* focuses on the designs specifically related to mixed methods discourses. However I would like to open here a reflection about possibilities of mixed designs. Rather than creating crystallization around those designs largely recognized in mixed methods literature, there could be open space for creativity in new ways to bring together what is traditionally considered as qualitative and quantitative methods.

Then, the *sampling dimension* seems as a crucial one, when it comes to integration, especially when two levels of the same phenomenon are considered – for example, and typically, using quantitative methods to address the macro level and qualitative strategies for the micro one. Moreover, the authors thoughtfully mention three different subdimensions of sampling – type, relationship of the sources of qualitative and quantitative data, and timing – and they all should be acknowledge in the process of creating integrated samples.

About the *data collection dimension*, the *intent* is considered as central by the authors, and I would add to that, noticing that this represent a compelling decision to be made by the researcher during the configuration of the research design. As much as with the *data analysis dimension*, with the possibility to implement *advanced mixed methods analysis*, using one of the many techniques that can be found in mixed methods literature or, once again, having space for eventual creative solutions.

For what concerns the *interpretative dimension*, the two authors remind us that the two types of data do not necessarily end up fitting with each other. Strategies to “handle” eventual discrepancies are mentioned. However, a lack of convergence

seems to assume negative connotations, while we could also consider how this situation might potentially introduce beneficial re-discussions.

The *rhetorical dimension* is then related to the use of specific terminology. However, many aspects are taken for granted in this context, creating possible space for misunderstanding, as in the case of the term “triangulation” that I will discuss later in this chapter (*Paragraph 1.1.3*). It remains nevertheless relevant to pay attention not only to what it is said but also on modalities to say it, when we are reflecting about integration. This is true also for the *dissemination dimension*, not only identifying “mixed methods friendly” journals, but also pushing for a language that is appropriate for mixed methods when publishing in not explicitly mixed methods journals.

Finally the *research integrity dimension* has to do with ways to define and assess quality in mixed methods. I will discuss this issue more in detail later in this chapter (*Paragraph 1.1.2*).

Other recent discussions (e.g. see Bazeley, 2017 and Creamer, 2017) specifically encompass integration throughout the whole process of research for mixed methods studies, focusing also on the analytical level. This last aspect did not use to see a lot of space in publications on mixed methods until few years ago. The increasing attention payed to integrated analyses, however, shows an effort in the field to promote a substantial implementation of the concepts that are presented in methodological debates on how research should be conceived, that are not suppose to exist only on a theoretical level.

Thus, considering how integration can possibly happen within different dimensions, we can notice how the researcher is facing multiple decisions during the research process, shaping research questions, design, analyses, findings and representation of those. In regards to this aspect of decision making, however, the purpose of the whole study play a relevant role itself, together with the purpose of mixing, as we will see in the next paragraph.

### Why Mixing?

Building on the review of mixed methods studies by Greene, Caracelli, and Graham (1989), five distinct purposes for mixing methods can be identified:

1. *Triangulation* is traditionally meant to «increase the validity of construct and inquiry inferences by using methods with offsetting biases, thereby counteracting irrelevant sources of variation and misinformation or error. In a mixed methods study with a triangulation intent, different methods are used to measure the *same phenomenon*. If the results provide consistent or convergent information, then confidence in inquiry inferences is increased» (Greene, 2007, p. 100). This represents the classic idea of triangulation; however, I will discuss more in detail later (*Paragraph 1.1.3*) other developments and eventual misuses of the term.

2. *Complementarity* is based on the idea that social phenomena are complex and different facets of a certain phenomenon can be captured by distinct methods. Thus, various methods can be combined and considered as complementary one to each other, in the attempt of obtaining a “fuller” – more comprehensive – picture of the studied object.
3. *Development* is also intended to get a more comprehensive understanding of the phenomenon of the study. Nevertheless, the purpose of development specifically aims to utilize results from one method in order to inform – or develop – the other method, that maintains the status of principal method in the study. Moreover «the basic idea of development – of using the results of one method to inform the development of another – is not unique to mixed methods social inquiry, nor it is an innovative idea. Social scientists in many fields quite routinely use some form of qualitative method to learn more about a context – salient events, relational norms, linguistic idiosyncrasies – in order to develop or adapt a questionnaire that is well suited to that context» (ibid., p. 102).
4. *Expansion* was found to be the most common approach to mixing in empirical studies, by Greene, Caracelli, and Graham (1989). The aim is to extend a study, by adding a perspective on another – related – phenomenon, that is captured using a method different from the one originally implemented in the specific study.
5. *Initiation*, finally, shows the generative potential of mixing methods, seeking for divergent information – rather than convergence, as for the triangulation purpose. By investigating possible paradox and contradictions in findings coming from different sources and kinds of analysis, as well as from eventually diverse perspectives and worldviews, it is indeed possible to revise findings but also questions of the study, in order to inform future studies.

Although these purposes are described as deliberate aims for mixing methods in a study, more often they are rather unforeseen outcomes, emerging only *after* a study is been conducted (Maxwell and Loomis, 2003; Maxwell, Chmiel, and Rogers, 2015).

Moreover, Creamer (2017) adds to this framework a purpose of *evaluation / intervention*, for all those cases in which research is intended to enhance or improve a program or intervention.

Nevertheless, I pointed out how the focus of this discussion will be specifically on integrated uses of mixed methods and two of the purposes listed above are directly related to those: *complementarity* and *convergence* (or *triangulation*) (Erzberger and Prein, 1997; Greene, Caracelli, and Graham, 1989). Starting from *complementarity*, the reference is to the prospect of an informative enrichment on the inquired phenomenon, reaching a more comprehensive interpretation with a “interpretative” or “reflexive” fashion (Tulelli, 2007/8, in Rossi, 2015, Decataldo, 2014). Whereas

separate methods necessarily detect only partial elements of the phenomenon of interest, the combining of diverse strategies is considered to encompass a fuller and deeper structure (Jick, 1979). With regards to *convergence*, instead, the assumption is that of an inevitable distortion inherent every instrument, which can be reduced with the integration of different kinds of methods. This enacts the objective to which triangulation was meant to response originally (Campbell and Fiske, 1959): that of an increasing of data quality, on the basis of a compensation of diverse techniques biases, obtaining hence more valid conclusions about a phenomenon<sup>9</sup>.

A complementary approach does not seem to pose particular challenges as a concept, nor it is problematic to apply it to the empirical level<sup>10</sup>. Notwithstanding, when it comes to a convergence approach, with the explicit aim to increase the quality of data and inferences, the risk is to have an outcome that it is only promised theoretically: this approach might indeed encounter many obstacles when enhanced at the empirical level. One possibility, largely recognized in mixed methods literature is that findings coming from a study design with a purpose of convergence end up to be discordant. However, it can be argued that a similar outcome does not necessarily invalidates the overall quality of the study itself, presenting an “empirical puzzle” (Cook, 1985), opening to possibilities for creativity in future, as described in the initiation purpose.

### How is Quality Defined and Assessed in Mixed Methods?

The last point covered in the previous paragraph opens the discussion on what constitutes a good mixed method study. When it comes to quality in mixed methods, there are at least two levels to consider: quality of method (and data) and quality of inferences (Greene, 2007). Regarding the first one, the criteria to follow to warrant quality are those set by the tradition that the method adheres to. For what concerns the latter, Teddlie and Tashakkori (2003) introduced the idea of inference quality, considering the value of the researcher’s interpretations of findings. To this extent, they suggest three general criteria that should be pursued in a mixed study: *conceptual consistency*, the «degree to which the inferences are consistent with each other and with the known state of knowledge and theory» (*ibidem*, p. 40); *interpretative agreement*, considering a set of shared understanding of results, among both scholars and people from the context that is addressed in the study; *interpretative distinctiveness*, which refers to the praxis of checking inferences against other possible interpretations of the phenomenon that can be found in the literature.

<sup>9</sup>Validity indeed, whilst being often associated with quantitative research, «is a term used in both qualitative and quantitative research to refer to strategies that are used during data collection and analysis that confirm the credibility, confirmability, and justifiability of the findings and inferences drawn at the conclusion of a study» (Creamer, 2017, p. 24). Thus, it is possible to think about a common framework for validity that can be shared both by quantitative and qualitative research approaches (Adcock, 2001).

<sup>10</sup>I am referring here to challenges specifically related to *complementarity* in mixed methods. However, social inquiry is undoubtedly impregnated with challenges, especially when it comes to mixing.

Elaborating on this framework, and in an effort of honoring both traditions on which mixed methods are built, Greene (2007) offers a “multiplistic stance” for warranting the quality of inferences in mixed methods, that:

«(1) focuses on the available data support for the inferences, using data of multiple and diverse kinds; (2) could include criteria or stances from different methodological traditions; (3) considers warrants for inquiry inferences a matter of persuasive argument, in addition to a matter of fulfilling established criteria; and (4) attends to the nature and extent of the better understanding that is reached with mixed methods designs, as that is the overall aim of mixed methods inquiry» (ibid., p. 169).

The need to identify legitimation concerns specific to mixed methods, rather than merely criteria borrowed from both the qualitative and the quantitative traditions of research – is pointed out also by Onwuegbuzie and Johnson (2006), who suggest a set of legitimation types:

1. *Sample integration legitimation* is helpful when the research aims for statistical generalizations from the selected sample to a larger population. When both qualitative and quantitative sampling designs are implemented, the quality of meta-inferences is influenced.
2. *Inside-outside legitimation* has to do with the balance between the insider’s point of view (meaning the perspectives of people directly involved in the phenomenon and in the context of the study) and the observer’s interpretation.
3. *Weakness minimization legitimation* considers the compensation of biases that is possibly enhanced by mixing methods with different strengths.
4. *Sequential legitimation* is typical of sequential mixed methods designs, wherein the sequentiality of methods implementation may influence meta-inferences.
5. *Conversion legitimation* refers to processes of qualitizing data (and findings) coming from a quantitative method and/or quantitizing data (and findings) coming from a qualitative method. These procedures may indeed pose consequences for meta-inferences.
6. *Paradigmatic mixing legitimation* is related to «times when a researcher should evaluate the extent to which her or his epistemological, ontological, axiological, methodological, and rhetorical beliefs that underlie the quantitative and qualitative approaches are treated as separate *but* complementary or are used in less extreme forms and treated as being compatible. Legitimation comes from the researcher making the use of paradigm assumptions explicit and conducting research that fits with the stated assumptions» (ibid., p. 59).

7. *Commensurability legitimation* refers to how meta-inferences reflect *mental models*<sup>11</sup> that are in line with flexibility to the approaches to research and integration between them.
8. *Multiple validities legitimation* «refers to the extent to which all relevant research strategies are utilized and the research can be considered high on the multiple relevant “validities”» (Onwuegbuzie and Johnson, 2006, p. 59).
9. *Political legitimation* has to do with (ideologically based) tensions between quantitative and qualitative research and the potential to overcome them through mixed methods inquiry.

Then, it seems relevant to mention the rubric<sup>12</sup> developed by Creamer (2017), called “Mixed Methods Evaluation Rubric” (MMER), follows these same trends of outlining standards to address quality that is specific for mixed methods. The main criteria included in this model are:

1. *Transparency*, including the following quality definitions: a. no reason for using mixed methods is implicitly or explicitly stated; b. speaks about the value of mixed methods generally but not specifically for this study; c. implicitly suggests a reason(s) for using mixed methods; d. explicitly states one or more reasons why mixed methods were used in this study or about what was gained from using mixed methods.
2. *Amount of mixing during the design, data collection or sampling, analytical, and/or interpretative phases*, including the following quality definitions: a. no mixing occurs in the study; b. mixing occurs in one phase; c. mixing occurs in two phases; d. mixing occurs in three phases; e. mixing occurs in four phases.
3. *Interpretative comprehensiveness*, including the following quality definitions: a. no indication is given that multiple explanations were considered; b. inconsistencies between the qualitative and quantitative data are identified but not explained; c. the qualitative and quantitative phases are not integrated into a meaningful meta-inference; d. negative or extreme case analysis is utilized; e. inconsistencies between the qualitative and quantitative data are identified and explained; f. alternative explanations are weighed to explain inferences drawn from the analysis; g. inconsistencies between the results and previous literature are identified and explained.
4. *Methodological foundation*, including the following quality definitions: a. no references are given to any methodological literature; b. two or more methodological references are identified but only one of the methods used (qualitative,

<sup>11</sup>I will describe further the concept of “mental models” later, but it is helpful to define it here as a «set of assumptions, understandings, predispositions, and values and beliefs with which a social inquirer approaches his or her work» (Greene, 2007, p. 53).

<sup>12</sup>While frameworks do not present precise benchmarks, «criterion in a rubric need to be mutually exclusive and to address the most important aspects of quality in mixed methods publications» (Creamer, 2017, p. 150).



quantitative, or mixed); c. two or more methodological references are supplied for at least two of the methods used (qualitative, quantitative); d. three or more methodological references are supplied and they cover all three methods (qualitative, quantitative); e. three or more references are made to the mixed methods literature.

Thus, we've seen how diverse conceptualizations on different aspects in mixed methods, such as quality, but also designs (*Paragraph 1.1.2*) and purposes (*Paragraph 1.1.2*), may assume rather different features, depending on the author's mental model and worldview about social phenomena. Both mental models and worldviews shape indeed our perspectives as researcher, influencing the elements we focus on and the ways we decide to describe them. Partially, there is also another process that arises, having to do with mixed methods being a relatively new field in social inquiry, that still has to settle on shared and fixed meaning. This last aspect is not necessarily problematic, if we think about how a certain lack of established culture may unfold opportunities for creativity in the way we build and develop social research. However, not sharing the same meanings for various words might also result in misinterpretations, introducing a further element of complication in the field. The next paragraphs will be dedicated to *triangulation*, a concept that is particularly intertwined with the entire development of mixed methods, noticing the strength points and the issues that relate to the term.

### 1.1.3 On Triangulation: A Word Loved by Everybody

The word "triangulation" was introduced earlier in this chapter (*Paragraph 1.1.2*) as one of the possible purposes of mixing methods (Greene, 2007; Greene, Caracelli, and Graham, 1989). However, this term also results to be used as a synonym for mixed methods, or at least it used to be so in the phase of early development of mixed methods with the first discussions on this way to conduct research. This term, indeed, represents a metaphor that can be referred to mixing methods in general, while the first idea of it in social sciences has to do with the increase of construct validity (Campbell and Fiske, 1959; Webb et al., 1966). Only later it assumed a meaning related also to broaden and enrich the understanding of a certain phenomenon by combining different methods (Denzin, 1978; Jick, 1979). Thus, there is not a single way to consider this term in literature, and different scholars might refer to diverse conceptualizations of it, without being clear about what they mean (and potentially without being aware of the issues that come with the word). Since the focus of this work is integration, and considered that triangulation has been for a long time an issue in discourses on integrating methods, I could not ignore it. Moreover, triangulation is often used as a synonym of *convergence*, creating some confusion that I will try to address in this section.

### The Origins of Triangulation

The term “triangulation”, borrowed from geometry, is largely used in topography (or geodesy), as an instrument to draw geodetic networks, through the measurement of angles and of some spare distances, allowing the specific location of a point on a plot of land (Plano Clark and Ivankova, 2016; Rossi, 2015). In social – and behavioral – research the first contribution in this direction is that of Campbell and Fiske (1959), with their multiple operationism and the use of a multitrait-multimethod matrix<sup>13</sup>. This specific correlation matrix is meant to assess construct validity<sup>14</sup>, distinguishing between two components: convergent and discriminant validity<sup>15</sup>. To this extent, the basic assumption behind triangulation is that of an inevitable distortion inherent to any instrument, which can be reduced with the integration of different kinds of methods (Erzberger and Prein, 1997). This assumption endorses one of the primary objectives of triangulation in its earliest conception: that of an increasing of data quality, on the basis of a compensation of diverse techniques biases, obtaining hence more valid conclusions about a phenomenon.

Nevertheless, the depicted framework only attains to a specific use of triangulation, while discussions on the theme pertains also at least another main goal of the research strategy. I am referring here to the prospect of an informative enrichment on the inquired phenomenon, reaching a more comprehensive interpretation: whereas separate methods necessarily detect only partial elements of the reality of interest, combining diverse strategies is considered to encompass a fuller and deeper structure (Jick, 1979). To this end, it can be used the term “interpretative” triangulation (Tullelli, 2007/8, in Rossi, 2015) to describe this specific triangulation objective, that has to do with a better understanding of the phenomenon in terms of richer information.

### Denzin’s *Multiple Triangulation*

It seems fundamental to the intent of this discussion to present the contribution of Norman Denzin (1978), a scholar who considered different possibilities to implement triangulation. Embracing this particular idea – called “multiple triangulation” – as a multi-level process and analysis, a study might see the application of multiple theoretical perspectives, observers, methodologies and data sources. Hence, the author distinguishes among:

<sup>13</sup>Campbell and Fiske (1959) however, did not explicitly use the term “triangulation”. The first appearance of the word in the social sciences sphere was in Webb et al. (1966), in the context of a discussion on validity of theoretical propositions and purely in quantitative research.

<sup>14</sup>Construct validity regards the relationship between research operations and the higher order constructs. It is defined as «the degree to which inferences are warranted from the observed persons, settings and cause and effect operations included in a study to the constructs that these instances might represent» (Shadish, Cook, and Campbell, 2002, p. 38).

<sup>15</sup>While convergent validity refers to correlation of the same “traits” measured with different methods, discriminant validity is addressed through correlation of distinct dimensions measured with the same method. The first one is then expected to be higher than the latter.

1. *Theoretical triangulation*, located at the initial step of the research process, meaning the application of plural theoretical frameworks. I mentioned earlier (*Paragraph 1.1.2*), while discussing Fetter and Molina-Azorin's dimensions of integration (2017), how incorporating elements of different theories might be valuable. Nonetheless, within the specific logic of theoretical triangulation, we might also imagine two distinct theories converging into a third, broader, one;
2. *Investigator triangulation*, that is an integration among various researchers' viewpoints. Collaboration of researchers who may have different backgrounds – in terms of theory, ontology, epistemology, methodology and axiology – not only represents a possible cause for either conflict or a productive division of labor (Flick, 2017), but it can also eventually become a space for dialog among these diverse backgrounds;
3. *Methodological triangulation*, i.e. the conjoint use of diverse methods (*between-methods triangulation*) – the most relevant one from a mixed perspective and also the one considered by Denzin to lead to more valid and comprehensive conclusions in a study – or the investigation of the same conceptual dimension through diverse strategies, referring to the same methodological frame (*within-method triangulation*);
4. *Data triangulation*, which pertains a more operative phase of the research process. Different examples of “triangulation in research practice” can be found in social inquiry literature, e.g. Erzberger and Kelle (2003).

A single study may see the presence of one or more of these kinds of triangulation, or different kinds might be implemented in multiple studies on the same topic.

### **One Word, Many Meanings**

It should be clear by now that the term “triangulation” does not refer exclusively to one, shared, concept, but it rather describes different meanings – largely depending on the author who is using it (Rossi, 2015). Among the scholars who suggest an idea of “interpretative” triangulation as a strategy to capture a more exhaustive picture of the phenomenon we are studying (e.g. Silverman, 1985 and Fielding and Fielding, 1986), Flick (1992) emerges for his critique to the limited role of triangulation as it is traditionally considered in mixed methods. The author's critique refers primarily to the uses of this particular strategy that aim to check the findings coming from one method with the findings originated by the other method. The contribute of Denzin, presented in the previous paragraph, has been particularly fruitful in the mixed methods, especially in opening to new possibilities for triangulation beyond its use as a strategy to test the results of one method against findings coming from

another method, in a quest for increasing validity<sup>16</sup>. Triangulation might indeed also be meant to help the investigator to reach more complete and extensive meta-inferences.

In one of his later discussions about the concept of triangulation, Denzin notices how:

«Over the past four decades, each decade has taken up triangulation and redefined it to meet perceived needs. And so it is with the current generation. But the very term triangulation is unsettling, and unruly. It disrupts and threatens the belief that reality in its complexities can never be fully captured» (Denzin, 2010, p. 423).

Thus, even if it is possible to recognize the effort of redefinition of the term in the last decades, various conceptions of triangulation remained – and still do – in use during the same period of time, maintaining complexity and confusion over its meanings.

To the same extent, Flick (2011) distinguishes between a *weak* and a *strong program* of triangulation, meaning the seek for increased validity with the first one and the latter being related more with what we called here an *interpretative* perspective of triangulation (*Paragraph 1.1.3*). Building on Denzin's original *multiple triangulation*, Flick (2017) then developed a concept of *comprehensive triangulation*:

«Instead of seeing investigator, theoretical, methodological, and data triangulation as alternative forms, we can integrate them in a more comprehensive way as steps building on each other. If the issue in question requires more than one approach, it may be necessary to include more than one researcher (IT) who should bring different conceptual perspectives into the study (theory triangulation). This should provide the basis for applying different methodological approaches (methodological triangulation) either within one method or using different independent methods (between-methods) and then lead to data on different levels and with different qualities (data triangulation). For making this a fruitful strategy, we should ensure that truly different perspectives are pursued in these approaches» (ibid., pp. 8-9).

Although this last concept assumes a rather exhaustive perspective and the author advocates for its affirmation as a framework for “doing mixed methods research more reflectively”, the issue of having different possible interpretations of the term “triangulation” within mixed methods literature is still not solved. Particularly problematic are those cases in which “triangulation” is used as a synonym of “mixed methods”.

<sup>16</sup>Even though the original *multiple triangulation* by Denzin was initially criticized (by the already mentioned authors: Fielding and Fielding, 1986; Flick, 1992; Silverman, 1985), the author then reformulated the concept in his later writings, seeing triangulation «as a strategy on the road to a deeper understanding of an issue under study and thus as a step to more knowledge and less toward validity and objectivity in interpretation» (Flick, 2017, p. 8).

Some scholars (e.g. Bazeley, 2017) notice how the word is abused in the field. Whenever the term refers to a strategy for seeking more valid results, we should take some time to think about what “valid results” mean in social inquiry. Then, we should question the assumption behind a use of triangulation that aims to convergence: are the different methods’ strengths definitely complementary to each other? And by utilizing different methods with diverse biases and advantages are we truly increasing the overall quality of the study? To this extent, Bazeley writes:

«When methodological triangulation is being employed specifically to test convergence of results in order to corroborate or validate conclusions, ideally both data gathering and initial analyses for each of at least two methods are conducted separately, but close enough in time (usually concurrently) that the phenomenon being studied does not change. [...] In more complex studies, this ideal of complete separation [...] and at least some of the different data sources are likely to reveal different aspects of the phenomenon being studied, rather than confirmation of the same phenomenon» (ibid., pp. 108-109).

Then, as noticed earlier in this paragraph, looking for convergence of results is not the only possible aim of triangulation. In its more *interpretative* or *comprehensive* connotation, triangulation might be used in a logic of complementarity, mixing methods to gain fuller, more complete and deep, conclusions, taking advantage of the ability of different methods to grasp diverse aspects of the same phenomenon. This strategy, however, might be called – with less confusion – just complementarity, without tormenting with a word that evokes exact ways of measuring and that could possibly result as misleading.

Again, the problem with the various meanings of triangulation is not solved, so I would like to conclude this chapter posing a question: is the concept of triangulation still of use to the field of mixed methods in social inquiry? And if the answer to that first question is “yes”, then how do we define the term adopting an unambiguous meaning that is co-created and shared within the entire academic community of mixed methods?

I presented here the case of triangulation, a rather relevant metaphor and concept in mixed methods, with the intent to show how the field of mixed methods is – still? – an open one, over which social inquirers may find a space for re-negotiation and eventually creativity in social research methodology. This potential for creativity, however, can only be observed and eventually generate concrete consequences only in cases in which the possible initial confusion is given a chance to be overcome. In the following section I will take a step back and introduce the lens of sociology of scientific knowledge to look at mixed methods from the point of view of the scholars endorsing them, as a specific academic community. I will then explore some crucial issues of epistemology and paradigms related to mixed methods in social inquiry.

## 1.2 Selected Issues of Epistemology in Social Sciences and in Mixed Methods Inquiry

The aim of this section is to provide a broader picture about where this work is situated in the social sciences and what are the drives that initiated it. The object of the study is indeed a specific academic community – that of mixed methods scholars and researchers in social sciences – and the general interests are the ways through which knowledge is produced, re-produced, communicated. Thus, it seems crucial to present some of the issues discussed in the field of sociology of (scientific) knowledge<sup>17</sup>. Moreover, within this particular academic community of mixed methods researchers, specific discourses on epistemology and paradigms are being addressed. It is rather fundamental to explore some of these issues and concerns in this dissertation, considering that, although the focus remains at the methodological level, different elements come into play when methods are being mixed and it is not viable to address integration without pointing also at the philosophical level.

### 1.2.1 Concerns from Sociology of Scientific Knowledge

The field of sociology of science or of scientific knowledge encompasses several elements that were crucial in shaping the lens under which the phenomenon of interest of this dissertation is conceived. I am indeed looking at a particular community – that of mixed methods scholars and researchers in social sciences – which is producing a specific kind of knowledge within the larger system of the contemporary academia. Thus, looking at the specific community of mixed methods scholars as situated, at least other two dimensions cannot be excluded from the reflection; 1) the larger social sciences academic community; 2) the structured and legitimized ways to construct and produce knowledge within the academia in general. I will explore these levels with the following sections, from a perspective of sociology of scientific knowledge and of social sciences' epistemology. Specifically, I will start from Merton's perspective on ethos of science, providing a sort of *gold standard* about how things should ideally be in academia. Later, however, I will notice how the imperatives are not always met, in social sciences and mixed methods inquiry, as well as in academia in general. Although most of the discourses that I will explore in the following sections are mainly addressed to natural sciences, the same arguments may be valid for social sciences.

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<sup>17</sup>I will use multiple times the words "science" and "scientific" in this section. I am not interested, however, in entering in a discussion about what science is and what it is not. I am focusing instead on a specific kind of knowledge that is the academic one, which is often related to "science", even though the two domains are not exactly overlapping. Thus, with the term "science" I will refer to «any organized form of knowledge creation» (Bartling and Friesike, 2014, p. 5)

### The Normative and Political Structure of Science

Considering academic science as governed by a specific ethos and focusing on the functional aspects of production of scientific knowledge processes (Kalleberg, 2010), Merton described the “normative structure of science” as guided by four imperatives (Merton, 1942):

1. *Universalism*, considered as criteria to evaluate scientific findings should be impersonal. «The acceptance or rejection of claims entering the list of science is not to depend on the personal or social attributes of their protagonist; his race, nationality, religion, class, and personal qualities are as such irrelevant» (Merton, 1979, p. 270).
2. *Communalism*, focusing on the fact that «results and discoveries are not the property of the individual researcher concerned, but belong to the scientific community and society at large. This imperative is based on the assumption that knowledge is the product of a collective and cumulative effort by the scientific community. The scientist does not obtain recognition for his/her activity if s/he does not publicize it and thus make it accessible to others» (Bucchi, 2004, p. 17).
3. *Disinterestedness*, so that «every researcher pursues the primary goal of the advancement of knowledge, indirectly gaining personal recognition» (Bucchi, 2015, p. 235).
4. *Organized skepticism*, considering how «it is both a methodological and an institutional mandate. The temporary suspension of judgment and the detached scrutiny of beliefs in terms of empirical and logical criteria have periodically involved science in conflict with other institutions» (Merton, 1979, p. 277).

The four imperatives, however, represent a prescription – with ethos and normativity in science being Merton’s focus – rather than a description of concrete behavior of scientists and of the dynamics among them, having an influence on the practices of knowledge creation. Other scholars tried instead to depict *counternorms* based on observations of scientists’ conduct. Mitroff (1974) outlined a set of counternorms in direct contrast with Merton’s imperatives, as follows:

1. *Particularism*, noticing that social categories to which the scientist belong are relevant factors that influence how the work will be judged by the scientific community;
2. *Solitariness*, highlighting that «property rights are expanded to include protective control over the disposition of one’s discoveries; thus becomes a necessary secrecy moral act» (ibid., p. 592);
3. *Interestedness*, focusing on dynamics among scholars of expectations – for themselves and colleagues – about work satisfaction and prestige;

TABLE 1.1: Comparison among conceptualizations of principles guiding science: Merton, Mitroff and Ziman

<i>Merton, 1942</i>	<i>Mitroff, 1974</i>	<i>Ziman, 1996</i>
<b>Imperatives:</b>	<b>Counternorms:</b>	<b>Postacademic science Principles:</b>
Universalism	Particularism	Local
Communalism	Solitariness	Proprietary
Disinterestedness	Interestedness	Authoritarian
Organized skepticism	Organized dogmatism	Commissioned & Expert
Ethos in science, with a normative and functionalist approach.	Concrete behavior of scientists. Focus on ambivalence (irrationality in academia).	Evolution of science towards the postindustrial. Knowledge as socially constructed (skeptical attitude toward claims).

4. *Organized dogmatism*, addressing that «the scientist must believe in his own findings with utter conviction while doubting those of others with all his worth» (Mitroff, 1974, p. 592).

These counternorms show the personal character of science – which is indeed not impersonal as it is often claimed – with scientists being emotionally committed to their beliefs and ideas. Mitroff (*ibid.*), however, does not deny the presence of an ethos of science, with specific norms, but rather norms and counternorms coexist, although being in tension, from a perspective of social ambivalence.

More recently, Ziman (1996) reasoned on principles guiding scientific knowledge production, in the context of what he calls “postacademic science”. Both industrial and postindustrial science are: 1. proprietary; 2. local; 3. authoritarian; 4. commissioned; and 5. expert (the author uses the acronym “PLACE”). Processes of cognitive development – such as “financialization” – but also of technological development, as well as changes in economic conditions are some of the factors facilitating a development from industrial to postindustrial science, although still being dominated by PLACE principles.

In *Table 1.1*, I tried to synthetically display differences among the approaches on possible principles guiding Western science that I described so far. Nevertheless, the idea of introducing “counternorms” represents just one possibility to critically address Merton’s imperatives – and normativity in science, in general. In this section I want to suggest some reflections that are raised within (the Western) academia. What Merton calls “communalism”, for example, is highly challenged by the increasingly dominant role of intellectual property (IP) applied to the outcomes of academic research (David, 2004; Franzoni, 2007; Owen-Smith, 2006). The dynamics of IP appropriation in research might be not exactly widespread in social sciences, as they are in other academic fields that are more involved with private companies, but some other processes that represent a challenge to *communalism* concern social sciences closely. A discernible example has to do with the processes of knowledge



communication in academia, usually related to practices of publishing. Academic journals can be recognized as the main space for scientific knowledge dissemination and communication to other members of the academic community. Nevertheless, journals are not immediately accessible. It is certainly not so outside the academia “gates”, but even within it, access to journals still relies on subscriptions of the single universities and institutions. When a subscription is not available within a certain institution, access to that specific knowledge is denied to individuals who are part of that institution, creating potential mechanisms of social exclusion. This dynamic reinforces the so-called “halo effect”, that is a perpetuated advantage for scholars enrolled in already favorable positions and/or institutions (Bucchi, 2004).

Taking a step back, we might look at processes of knowledge creation in academia from the perspective suggested by the *New Political Sociology of Science* (NPSS) (Frickel and Moore, 2006), which focuses at least on the following issues that are relevant for this work:

1. The unequal distribution of power and resources;
2. Rules and processes of rule making;
3. The dynamics of organizations;
4. Methodological considerations.

I will comment these points, starting from the last one. Methodological considerations are indeed the focus of this whole work, thus they are particularly pertinent to this discussion. Methodology undoubtedly has a crucial role in the processes of the production of knowledge coming from research and it cannot be ignored as a key feature that shapes the research process, with an inevitable influence on the research outcomes. Moreover, dynamics of control on methodology by the academic community are means to validate, consolidate or challenge claims by scientists in a specific field. Thus, focusing on methodological considerations enables a reflection on academic communities dynamics to approve a certain knowledge as scientific. However, methodology is not neutral (see, for example, Tuhiwai Smith, 2013).

About rules and processes of rule making, we can notice here a different approach from the one suggested by Merton earlier in this section. While Merton may focus on rules, but in a prescriptive logic, without questioning the development of these rules, NPSS brings attention also to the processes of construction of those, questioning how rules are created and who is the creator, thus also bringing attention to the context in which knowledge is produced. This aspects are also related to dynamics internal to the organizations as well as to those among them, which is the third point highlighted in the NPSS program.

As for the first one, the unequal distribution of power and resources, I already briefly made the example of academic journals not being accessible, facilitating mechanisms of exclusion. I also mentioned earlier in this section the advantage created

for individuals working within prestigious institutions, with a “halo effect”. However, this case represents only a small example and many other possible processes might generate perverse effects that have to do with inequality in academia. Already in Merton’s conceptualization it is possible to find some reflections about issues of exclusion in science. For example, the “Matthew effect”<sup>18</sup> creates a cumulative advantage for those scientists who are already in a visible position, so that reputation and personal recognition end up to be incremental features for few individuals only (Franzoni, 2007). Numerous examples of studies on these matters can be found in the sociology of science literature since the ’60s. More recently, attention started to be paid also on the even more marked discrimination that it is created by these mechanisms in science against women. The term “Matilda effect” is used to point at the exclusion of women from scientific activity – or at the heavier influence of previously mentioned effects on women. The term refers to Matilda Gage, «the nineteenth century writer and feminist activist, who authored an essay in which she claimed that the cotton gin was invented by a woman» (Bucchi, 2004, p. 22).

These last points about *perverse* effects in science, related to the unequal distribution of power and resources are openly in contrast with the imperative of *universalism*. We might indeed question who is science actually universal for. If we look at the historical – and sometimes current – composition of workers in fields related to scientific knowledge, specific social categories largely emerge: certainly that of men. When thinking about Western science it cannot be denied that the dominant idea is that of a white, able-bodied, Western-centered – other areas of the world are often neglected to be even entitled of producing scientific knowledge – and male science (Rishani, 2016). In the following section, however, I will explore some forms of resistance to this hegemonic view on science in contemporary academia.

### Alternative Ways for Science

We’ve seen in the previous section how the scientific structure may fail in terms of universalism, turning out to be a rather unequal system, constituted of privileged and oppressed individuals. However, within academia there can be found also groups that resist these power dynamics, intentionally trying to prompt alternative ways of knowledge creation. I will here explore two of these examples of resistance: the open movement, striving for an open science and the feminist standpoint theory that facilitated a view on feminist science.

I have already noticed in the previous section (*Paragraph 1.2.1*) how intellectual property (IP) is increasingly influencing processes of scientific knowledge production and how academic journals may facilitate processes of exclusion in academia,

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<sup>18</sup>The term comes from Matthew’s Gospel: «For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath» (Matthew 25:29). It is possible hence to draw a parallelism between the development of Western modern science and those values typical of the Protestantism, as well as of capitalism (Bucchi, 2015).

such as the ones enacted by the “halo effect”. Moreover, as Cribb and Hartomo (2010) remark, writing about contemporary scientific knowledge:

«A vast gap has opened between the creation and the sharing of knowledge. Because of this, a significant part of the world scientific effort is effectively stillborn, or fails to achieve its potential. The intellectual effort, time, money and human genius that is invested in research is lost because of a failure to effectively transit the fruits of science to the people and places where it is most needed. Scientific knowledge, with the capacity to benefit billions, improve sustainability and protect environments, is often buried in [specialised] journals, electronic repositories, inaccessible language, IP and legal constraints, or is withheld by privileged elites. Deliberately or unintentionally, barriers have arisen between science and use by the people» (ibid., pp. 1-2).

These are some of the arguments made by advocates for open science. When it comes to scientific knowledge, processes related to its dissemination cannot be ignored, to the point that production of knowledge and dissemination are two sides of the same coin (Merton and Eco, 1993). And open science is all about dissemination, since it «refers to a scientific culture that is characterized by its openness. Scientists share results almost immediately and with a very wide audience» (Bartling and Friesike, 2014, p. 10). To this extent, open science largely benefits from the Internet and Web 2.0. However, open science must not be confused with science 2.0<sup>19</sup>.

Nevertheless, we should consider open science as prompted by a real movement, with specific values of openness and a concrete mission, marked by milestones like, for example, the “Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities”<sup>20</sup> (2003). The movement, moreover, is facilitated by groups like the Open Knowledge Foundation (OKF)<sup>21</sup>.

At this point, the fact that open science encompasses a wide number of features should be more than clear. I would like to stress this element, noticing how open science can be considered as an umbrella term. By the same token, in a literature review Fecher and Friesike (2014) identify five different schools of thought on open science, each related to different aspects:

1. *Public school*. The focus is on the need for science to be accessible for a wider audience, from two points of view: accessibility and transparency of the research process and accessibility and comprehensibility of results.

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<sup>19</sup>A possible definition of science 2.0 is: «all scientific culture, including scientific communication, which employs features enabled by Web 2.0 and the Internet» (Bartling and Friesike, 2014, p. 10).

<sup>20</sup>The declaration was signed by leading scientific organizations and it is considered as one of the main references for claims about access and sharing of scientific results in the digital age. It can be consulted online at: <https://openaccess.mpg.de/Berlin-Declaration>.

<sup>21</sup>The Foundation, based on a strong open philosophy, actively works to promote and enact values of the open culture. Looking at the OKF webpage, it appears clear the transformatory approach: «around the world, we want to see societies where everyone has access to key information and the ability to use it to understand and shape their lives. We want to see powerful institutions made comprehensible and accountable. We want to see vital research information which can help us tackle challenges such as poverty and climate change available to all as open information» (<https://okfn.org/>).

2. *Democratic school*. The aspect of access to knowledge is a key concept within this school as well, although stressing «the principal access to the products of research», including, for example, «research publications and scientific data, but also source materials, digital representations of pictorial and graphical materials, or multimedia material» (Fecher and Friesike, 2014, p. 25). The issue of open data is thus a central one for this school, considering how access to data should be for everyone, with uses that could be either foreseen or unforeseen by the original creator. Moreover, a further concern of this school is open access publication. This dynamic would indeed guarantee publication on the internet of papers that could be read by anyone. Nevertheless, most of the prestigious academic journals that are transitioning toward the open access modality require the author to pay a fee – or eventually the institution – to cover mainly the editing costs. This mechanism, however, might once again facilitate forms of exclusion of unprivileged members of the academic community. Finally, at a more philosophical level, this school relates to the concepts of *democratization of science* (Cribb and Hartomo, 2010) and *knowledge society* (Stehr, 2012). I will not go more in detail into those notions, just briefly, Cribb and Hartomo (2010) notice that «[democratisation] of science is not merely desirable from a societal viewpoint, but also from a scientific one. The community can bring to science many ideas and perspectives that will result in the science being more widely accepted, rapidly adopted or [commercialised], and of greater value to more people than would otherwise be the case. Society can be a partner in the process instead of an unformed, and occasionally reluctant and resentful, recipient» (ibid., p. 13).
3. *Pragmatic school*. The concerns here are more related to efficiency of research and knowledge dissemination, that might benefit from a collaborative approach. This is true both for the phases of knowledge production – with a collaborative research process that is facilitated by the Internet and by Web 2.0 – and that of knowledge circulation – that could take advantage of forms of recognizing intellectual property, different from the traditional copyright. Thus, Creative Commons<sup>22</sup> are considered as tools for the distribution of open science.
4. *Infrastructure school*. The important matter for this school is «the technical infrastructure that enables emerging research practices on the Internet, for the most part software tools and applications, as well as computing networks» (Fecher and Friesike, 2014, p. 36). Examples of technical applications might be distributed computing – that might also be related to open source, where

<sup>22</sup>From the creative commons webpage: «Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation. Our vision is nothing less than realizing the full potential of the Internet — universal access to research and education, full participation in culture — to drive a new era of development, growth, and productivity» (<https://creativecommons.org/about/mission-and-vision/>).

coding is available to anyone and it can be modified and shared – and social and collaboration networks.

5. *Measurement school*. Here the focus is «alternative standards to ascertain scientific impact» (ibid., p. 40). More specifically, the explicit intent is to consider standards that are different from the Impact Factor. This measure is indeed the most popular way to address quality of academic journals. One company, however, Thomson Scientific, has the monopoly for the calculation of impact factors (Binswanger, 2014). Thus, finding new ways to define and measure quality in the academic community seems a rather relevant challenge for open science.

After this exploratory discussion on open science and its potentials in overcoming some of the limitations of traditional scientific systems, I want to point out that not all exclusionary processes are considered in theorization about open science. What is still missing, indeed, is democratization of science on the side of knowledge creation, as in democratic access by anyone who would want to collaborate to the production of knowledge. This last aspect, nonetheless, is taken heavily into consideration by theorists of feminist science.

Feminist epistemology pays attention not only to the role of “women” in science, but also to all the unprivileged groups in society, through a process of analysis of the context (from a social, political and ideological perspective) wherein science is pursued (Rishani, 2016). Feminist standpoint theory (Haraway, 1988; Harding, 1986, 2004), as a specific form of feminist epistemology, is constituted in particular of the following points, as summarized by Rishani (2016):

1. «Knowledge is socially situated.
2. Marginalized groups are socially situated in ways that make it more possible for them to be aware of things and ask questions than it is for the nonmarginalized.
3. Research, particularly that focuses on power relations, should begin with the lives of the marginalized» (ibid., p. 175).

As it can be seen already from these three points, feminist standpoint theory results to be both descriptive, since dynamics of power relation in science are exposed, and normative, prescribing an agenda for scholars. By the same token, in their paper about slow feminist scholarship, Mountz et al. (2015) discuss on «alternatives to the fast-paced, metric-oriented neoliberal university through a slow-moving conversation on ways to slow down and claim time for slow scholarship and collective action informed by feminist politics» (ibid., p. 1236). And they do so by drawing a list of ten concrete strategies that might serve as tools for resistance against the regimes of temporal compression in the neoliberal university (and society).

### The Academic Community of Mixed Methods

The previous section was intended to be a detour on alternatives ways of creating scientific knowledge, after having noticed that science can be *dysfunctional* in terms of access, inclusion / exclusion and openness. In this section I will consider the issues with scientific knowledge creation mentioned earlier and I will start again from Merton's imperatives in science to discuss the perspective of the academic community of mixed methods scholars and researchers. Although I will list the imperatives one by one and comment on them, it is necessary to notice that the issues that are implied are often intertwined, making it difficult to clearly distinguish one norm – with its related issues – from the other.

Starting with *universalism*, it is possible to notice how single communities may apply specific rules – or follow certain beliefs – about ways to validate truth claims. When a field is still emerging – as the mixed methods one is considered by some – criteria to validate truth claims might be unclear and an area of studies could see processes of rules definition (or negotiation). However, if mixed methods is – still – undergoing to some processes to define norms for the field, this also leaves space to creativity about possible ways to build knowledge based on social research. Moreover, the mixed methods community is not disconnected by the larger environment of academia and, as such, it might be interested by processes of social exclusions discussed earlier.

Similarly, about *communalism*, the mixed methods community is not spared from the dynamics involved in academic publishing, highlighted in the previous sections. *Journal of Mixed Methods Research* is the main arena for mixed methods discourses, potentially creating a closed space for topics on mixed methods, rather than *opening* the discussion to the whole social sciences. Nonetheless, having a specific space also ensure the possibility of being published to the mixed methods community that could eventually be left out from “traditional” journals in social sciences that are sometimes still based on the qualitative/quantitative divide.

When it comes to *disinterestedness*, the academic community of mixed methods scholars seems to be dealing with at least two issues. A first one has to do with claims that are not empirically validated, using them as arguments for the goodness of mixed methods. For example, it is rather common in mixed methods literature to find statements about convergence as a strategy to increase validity (Erzberger and Prein, 1997). However, it is not so banal, especially if we try and look for studies collecting empirical evidence on the matter<sup>23</sup>.

<sup>23</sup>One possible exception is the work by Rossi (2015), which is focused on methodological triangulation. However, the focus in this example is not specifically on mixed methods, since all the data sources utilized might qualify as quantitative. One of the main aims of this work is strictly related with this point. With the text analysis of mixed methods paper, indeed, I will investigate the uses of the two principal approaches to integration: *complementarity* and *convergence* (see Paragraph 1.1.2). While the first approach does not seem to pose particular challenges at the empirical level – other than the ones usually associated with social inquiry – *convergence*, albeit making sense from a theoretical perspective, appears more problematic when it comes to the empirical praxis. Thus, the study that will be presented later in this dissertation will introduce – among other objectives – the attempt to distinguish

Another example of challenging *disinterestedness* might come to mind if we think about the already mentioned Matthew's effect. Scholars – and institutions – operating from prestigious and visible standpoints, will also have to put less efforts in accessing further resources – such as funding or publishing – and privileged positions. By this same token, we should bear in mind that social inquiry within academia – and the mixed methods community is part of it as well – is not excluded from processes of career building that are typical of any other field in the contemporary world. Some scholars might find particularly profitable being part of the mixed methods discourses in academia, attracting different kind of resources and taking advantage – not necessarily consciously – of the Matthew's effect. The empirical part of the work presented here will also attempt to expose some aspects of these dynamics, thanks to a network analysis of citations in mixed methods academic articles (see *Paragraph 2.2* in *Chapter 2*).

Finally, considering *organized skepticism* in the mixed methods community, we could think about the idea of going beyond the qualitative/quantitative divide. I already highlighted earlier in the discussion, in *Paragraph 1.1.1*, how among mixed methods scholars the “traditional” categories of *qualitative* and *quantitative* are not mutually exclusive, in an attempt of overcoming the so-called *paradigm wars*, that will be introduced in the following section.

## 1.2.2 Paradigms and Paradigm Wars in Social Sciences

With this section I aim to reflect on the philosophical level of paradigms, while thinking about methodological consequences of more abstract standpoints. Is it possible to adopt a label-free *mental model* that goes *beyond paradigms* in social inquiry? If so, how can researchers still be thoughtful about assumptions on social reality, on what constitutes knowledge and how to reach this knowledge? And how can we acknowledge those assumptions, without making them the main story in our research process, but rather keeping them in the background? These and other questions will be raised in the discussion, as the main intent of this section is to critically speculate on paradigmatic standpoints and philosophical assumptions while adopting mixed methods in social inquiry.

### What is a Paradigm?

Sociology is often considered as a multiparadigmatic field of inquiry, wherein we can identify at least two alleged paradigms<sup>24</sup>. I am referring here to what many still

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between *complementarity* and *convergence* in mixed methods empirical papers, trying to discern also among what is only theoretically declared and what is actually implemented in the research instead (see *Paragraph 2.1* in *Chapter 2*).

<sup>24</sup>From Kuhn's perspective (1962) a particular science may undergo two different phases: the normal and the revolutionary one. A scientific discipline is placed within the normal phase when there is only one paradigm that guides a scientific community conducting research. After this paradigm is threaten by new discovers that challenge it a new paradigm may arise, bringing the science to the revolutionary phase. In the history of sociology we cannot find phases in which the community of

call “qualitative” and “quantitative” paradigms. This is still a simplification because many theories<sup>25</sup> are traceable in the social sciences. However, the “qualitative” and “quantitative” approaches to social inquiry are considered by many as the dominant “paradigms” in social sciences, as well as the basis that gave birth to mixed methods. In Western academia, these approaches are most commonly associated with Constructivism and Post-Positivism, respectively.

In the tradition of educational research, the work by Denis Phillips (2005) was particularly beneficial to the understanding of what a paradigm is and how it is enhanced in research. A paradigm is described as a set of assumptions on different levels, guiding research practices. A first level is *ontology*, underlining assumptions of what reality is. *Epistemology*, the second level in this framework, is of particular interest for this dissertation, pointing at stances on the nature of knowledge and assumptions on what we may consider as warranted knowledge. Then, *methodology* is the level related to assumptions on the ways we think we can adopt to reach knowledge in research. Finally values in the inquiry, such as the purpose it covers in society, represent the level of *axiology*. Nonetheless, different meanings and uses of the term paradigm are found within the social sciences and Morgan (2007) identifies four main connotations<sup>26</sup>:

1. *Paradigms as worldviews* may function as «all-encompassing ways of experiencing and thinking about the world» (p.50). From this perspective, pointing at the ontological assumptions, the terms “quantitative” and “qualitative” may refer to different ways to think about what a social phenomenon is, i.e. different ontologies, shaping the whole process of inquiry.
2. *Paradigms as epistemological stances* help us to recognize the influence of a specific epistemological viewpoint on which questions are asked and on modalities to find answers to them. Within this connotation, that values more epistemological assumptions, we can see “quantitative” and “qualitative” strands as paradigms associated with divergent epistemological stances that guide research practices.
3. *Paradigms as shared beliefs among members of a specialty area* are enhanced whenever communities of researchers may share «consensus about which questions are the most meaningful to ask and which procedures are most appropriate for answering those questions» (p.53). Thus, advocating the epistemological stances of paradigms, the qualitative and the quantitative approaches seem to

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sociologists has shared both a common and unique paradigm, but rather there have been multiple paradigms all existing at the same time.

<sup>25</sup>Many scholars tried to classify the various sociological theories. For instance, Randall Collins (1983) identified four main sociological traditions: Emile Durkheim’s theory, conflict theory, rational utilitarian theory and micro interactionist theory. Other classification may indicate theory of systems, micro sociological theory, critical theory of society, historical sociology etc. (for example see Giddens and Sutton, 2017; Smelser, 1994).

<sup>26</sup>Nevertheless, Masterman (1970) claimed to have located more than 20 ways that Kuhn used the term paradigm in his book *The Structure of Scientific Revolutions*.



translate in some forms of research routines and researchers may choose to – or find themselves belonging to – a certain community, sharing beliefs within a specialty area which is, in this case, defined by the common use of a specific methodology.

4. *Paradigms as model examples for research* emerge from those «“paradigmatic examples” that show newcomers how a field addresses its central issues» (p.53). Similarly to the previous connotation, scholars within the qualitative or quantitative community may define broader principles, but also prescribed practices, as rules for newcomers to enter and participate in that community.

Notwithstanding, I will focus here on paradigms as sets of the ontological, epistemological and methodological levels of assumptions that stand behind a research<sup>27</sup>.

### **Paradigms in Social Sciences: the Wars between (post)Positivism and Constructivism**

Positivism and Constructivism present a different idea of what constitutes knowledge. Positivism emphasizes the fact that knowledge should be gained through observable and measurable facts (this is also referred to as Empiricism). Hence, Positivism advocates an epistemological stance in which sensory information counts as true knowledge, that can be considered as the triumph of natural sciences. This triumph leads to a social sciences that questions whether it is possible to adopt a model as similar as possible to the natural sciences or whether the specificity of the object of study should lead to conceive social sciences as inevitably distinct from natural sciences. The first solution is a monistic one: science is unique, therefore social and human science must conform to the natural sciences, both in their objectives and in their methods (starting from Durkheim, 1895). The main objective of the natural sciences can be considered the explanation and investigation of the *causes* social phenomena, which means to determine their causes. Moreover, both in the positivist and in the post-positivist traditions, the world *out there* – where the phenomena we are interested in studying are placed – is real, regardless our knowledge of it<sup>28</sup>.

On the contrary, the second solution – with the specificity of the object bringing to distinct modalities of conceiving science – is dualistic: social sciences and natural sciences concern two separate universes of discourse. Indeed, social sciences seem to not be interested just in the facts, but rather in their *meanings*. Constructivism states that reality is socially constructed, a subjective creation (Berger and Luckmann, 1967). As human beings, we all create our view of the world on the basis of our individual perception. This is legitimately true also for concepts such

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<sup>27</sup>Many scholars (e.g. Lincoln and Guba, 1985) also acknowledge the axiological level – the values we are willing to engage with our research praxis – as part of paradigms. However, in order to avoid further complications in the discussion, I will not enter the issue of axiology in detail.

<sup>28</sup>Realism and its critical connotation will be further explored later. For an example of discussion of this issue, see Campbell (1984).

as gender, culture, race and all social constructs. For instance, the concept of gender does not refer to the biological difference between males and females. It is a social construction: the allocation of specific duties to women and expectations of the female as a delicate, dependent creature is a social construction (Decataldo and Ruspini, 2016). In these terms, Constructivism points out that the reality is subjective and built through consensus. Therefore, the social constructed reality could be known by *Verstehen* (understanding, Weber, 1922). These two paradigms, thus, may appear different at the ontological, epistemological, and axiological levels (Lincoln and Guba, 1985). These differences have also consequences at the methodological level: traditionally, Positivism prefers a quantitative approach to research, while Constructivism favors a qualitative approach. This divergence of beliefs was particularly promoted in the early '80s, when the qualitative approach advocated its own legitimacy, to contrast the dominant quantitative inquiry (Bergman, 2008b). Nevertheless, the situation here presented represents a specific position on paradigms in social research, the *purist* one (perpetuated, for example, by Lincoln and Guba, 1985); we will also discuss later different perspectives on this question.

The long term dispute between two allegedly opposite paradigms – the so-called *paradigm wars* – endowed the incommensurability thesis (Bryman, 1988; Tashakkori and Teddlie, 1998). According to it, differences between qualitative and quantitative standpoints are incompatible, referring to diverse ontological perspectives – trivializing, reality as an (objective) fact, from one side, and reality as a social construction, from the other. The effort made by Lincoln and Guba (1985) of separating the two asserted paradigms at the ontological, epistemological, methodological, and axiological levels is a particularly suitable example of what was happening at the *zenith* of debates about the differences between qualitative and quantitative research. With respect to this position, hence, mixed methods inquiry, when aims to combine supposedly divergent paradigms, should not even exist (for discussions on this theme see: Bergman, 2008a; Bryman, 2006; Johnson and Onwuegbuzie, 2004; Mingers, 2003; Plowright, 2011).

Nonetheless, with further developments in positivist thinking, things started to intertwine. Whereas traditional ontological realism (stance of Positivism) affirmed the existence of the world, independently of our perceptions, theories, and constructions, the refined version (Post-Positivism) adds to this definition of reality a dose of hesitation. Indeed, social phenomena are real, but we may know them just in an imperfect way – mainly through probabilistic laws – and with a certain degree of uncertainty (Harrits, 2011). With the sprouting of critical realism, even more complexity was added to the picture. Authors may indeed combine a critical realist ontology with a constructivist epistemology, considering the existence of a social world *out there*, that we can know and understand only through perspectives of people living in this world (Campbell, 1984; Maxwell and Mittapalli, 2010; Reichardt and Cook, 1979). Although the ontology of realism has its fitting methodological

stance within quantitative research, diverse examples of application of critical realism to qualitative inquiry may be found (e.g. Clark, 2008; Maxwell, 1992). Thus, we may consider how different sets of assumptions on different levels – e.g. ontology and epistemology – may be combined, questioning the consistency of paradigms at large. Researchers may favor indeed assumptions typically associated with various paradigms and still making them relevant for their research.

To this extent, Abbott (2004) suggested a different framework, wherein ontological, epistemological and axiological standpoints are considered more as heuristics among specific communities of scholars. Hence, we could use assumptions as set of conceptual tools that shape research problems as well as ways to look for possible answers. By the same token, Maxwell (2011) questioned the assumption that what keeps an academic community united is shared beliefs and values. The author also challenges the widespread idea that paradigms are coherent and consistent systems of logical assertions, noticing the «decomposability of paradigms into separate conceptual tools that can be used somewhat independently of any larger paradigmatic framework» (ibid., p. 28).

Finally, the process of opening to the formerly rival “paradigm” has seen its apex with the configuration of the compatibility thesis (Sale, Lohfeld, and Brazil, 2002), starting from the work of an alleged quantitative researcher such as Lazarsfeld (1944). The compatibility thesis – mostly supported by either the pragmatic or an alleged aparadigmatic approach – states the feasibility of – and frequently the need for – integration of features coming from qualitative and quantitative research, regardless the paradigmatic framework in terms of ontological and epistemological stances. Thus, from this viewpoint the debate on mixed methods arose and it is acquiring increasing space within the social research sphere (Johnson and Onwuegbuzie, 2004; Plowright, 2011).

### **A Third Way? Pragmatism**

In general, a philosophical approach which is commonly related to mixed methods is Pragmatism, in particular in the version of Dewey’s instrumentalism (1925; 1929; 1929; 1938). Pragmatism is a distinctively American movement that originated with Charles Sanders Peirce (1878) and came to fruition in the early twentieth-century thoughts of William James (1907) and the already mentioned John Dewey. Peirce conceived Pragmatism as a methodology to clarify the meaning of concepts; James considered Pragmatism particularly as a theory of truth, and Dewey further developed Pragmatism as a theory of inquiry. In this way, Dewey (1929a) dismissed traditional conceptual divisions such as those between subject-object, fact-value, theory-practice, and attempted to see the entire social sciences’ activity as practical instruments for solving research problems.

Pragmatists disagreed with the view that beliefs must represent reality to be true, and argued that beliefs are dispositions which qualify as true or false depending on how helpful they prove to be in inquiry and in praxis. Theories acquired meaning

only in the struggle of men and women to deal with the surrounding environment, and only became true when they were successful in this struggle. Dewey characterized truthfulness – or *warranted assertibility* – as a specie of the good: to state that something is true means that it is trustworthy or reliable and will remain so in every conceivable situation.

However, Pragmatism, when applied to the mixed methods field, advocates two different logics. Following a first rationale<sup>29</sup>, the epistemological stances related to the pragmatic philosophical tradition may allow to develop methodological standards and guidelines for researchers, helping the construction of a “third paradigm”. From this connotation, the ontological vision of the world is mostly that of an “experiential reality”, recognizing a conjoint presence of an external reality (the world *out there*), as well as what evolves from the personal experience of that reality (Dewey, 1929a; Feilzer, 2010). Then, coming to methodological implications, we may notice two main concepts that have been developed by many mixed methods scholars: methodological eclecticism and paradigm pluralism. Regarding the first one, it can be stated that «we are free to combine methods and that we do so by choosing what we believe to be the best tools for answering our questions» (Tashakkori and Teddlie, 2010, p. 9). Usually, the decision about which method is the best to embrace in a study is subsequent with respect to the goal the researcher wants to achieve, making a statement for centrality of the research questions. Paradigm pluralism, instead, is the «belief that a variety of paradigms may serve as the underlying philosophy for the use of mixed methods»(ibid., p. 9). Although this last sentence may apparently deny the supremacy of Pragmatism, it actually ends to affirm it. Choosing which is the best paradigm for a study, starting from its purpose, means to apply, the *pragmatic maxim*, privileging *ends* over *means*<sup>30</sup>. At last, Pragmatism is still the criterion used at the highest level of decision, presenting itself as a *meta-paradigm* (Johnson, 2012).

Evidently within the field of mixed methods an effort to affirm the approach as a *third way* for social sciences can be identified (e.g. Denscombe, 2008; Johnson and Onwuegbuzie, 2004; Tashakkori, 2009; Teddlie and Tashakkori, 2012), but the success of this endeavor is still questionable on different levels.

It is acknowledged that both qualitative and quantitative approaches are traditionally supported by epistemological paradigms that are well defined and distinct one from the other – typically, Post-Positivism and Constructivism, as explored above, although those are not the only two paradigms with a role of guide for social inquiry. The necessity to establish an epistemological foundation to mixed methods comes on scene, in order to allow the mixed perspective to confirm itself as an alternative to other social inquiry traditions. This quest for affirming mixed methods as a *third way* is understandable, given the evolution on other traditions in social

<sup>29</sup>The second logic, called “everyday Pragmatism” will be introduced later in this discussion.

<sup>30</sup>When it comes to mixed methods inquiry, the pragmatic maxim introduced by Charles Sanders Peirce (1932) can be translated as «choose the combination or mixture of methods and procedures that work best for answering your research questions» (Johnson and Onwuegbuzie, 2004, p. 17).

sciences, but we may question whether it is truly demanded, as well as whether it is significant to endorse mixed methods as a paradigm and there is no agreement on this point yet (Harrits, 2011).

Clearly, to advocate for a third paradigm implies the existence of other two paradigms: what many still “qualitative” and “quantitative” *paradigms*. The mixed methods academic community largely discussed on the so-called “paradigm wars” (Howe, 1988) – as explored earlier (*Paragraph 1.2.2*) – presenting the supposed *third movement* as a way to overcome those debates. However, are mixed methods really beneficial in this effort or they just sum up as a new actor that comes into play in those *wars*? Can we thoroughly say that Pragmatism resolves paradigm wars? Or is it just another part that comes into play? In order to truly represent a resolution between two sides, Pragmatism should embody some sort of synthesis. Despite some authors’ attempt to show how Pragmatism incorporates elements from qualitative and quantitative inquiry (e.g. Maxcy, 2003 and Morgan, 2007), we believe that it rather constitutes a philosophical tradition by itself, with its own specific stances (Greene and Hall, 2010). Thus, we cannot affirm that the advent of Pragmatism terminates paradigm wars.

Another way to think about the issues of diverse paradigms in the mixed methods field is that proposed by Greene and Hall (*ibid.*), imagining a continuum. A first pole is that of a *purist* position – mentioned above – wherein assumptions from different traditions cannot inform the same study. Other midway viewpoints cover a perspective of *complementary strengths*, which may make use of different philosophical assumption, but still maintaining methodological and epistemological integrity, and a *dialectic* perspective, advocating dialogs between different standpoints. In this framework, Pragmatism is not part of the continuum and the authors consider it as an alternative paradigm, with its own dignity. At the other end of the continuum, instead, an *aparadigmatic* approach<sup>31</sup> is located. The latter however could be either acknowledged or by some means unconscious. This second case is enlisted whenever the perspective is the one of a “everyday Pragmatism”.

Approaching Pragmatism from an “everyday” perspective (Biesta, 2010; Feilzer, 2010) means to assume an argument which fully appeals to the utility of research means for research ends, thereby embracing a logic that moves *beyond paradigms*. The risk that emerges from this connotation of Pragmatism discloses whenever the purported paradigm is merely declared by researchers, without recognizing the actual philosophical tradition behind it. In this last application of Pragmatism, the term ends to be treated as a label to be assigned to a mixed methods study, only because this is what is largely accepted in the community, encompassing a dominant role in this methodological field.

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<sup>31</sup>However, we should keep in mind that researchers will always necessarily have assumptions on what they are studying and on what it is considered knowledge. Hence, it is not possible to approach research without engaging some kind of *mental models*, which inevitably influence practical choices in inquiry (Greene, 2007).

Notwithstanding, we may remark a beneficial element: research questions are what matters the most, as well as ways to find reasonable answers, rather than the philosophical assumptions that a researcher inevitably engages with. It is not attainable to embark any kind of research without having some kinds of assumptions about what the world is and what constitutes knowledge. However, paradigms are not assumptions, whilst including them in their sets of stances<sup>32</sup>. Thus, a researcher may prefer to adopt a label-free mindset – or *mental model* – and still clearly state assumptions standing behind a study. To some extent adopting a similar approach may even lead to a more thoughtful consideration of assumptions by a researcher: not committing to a paradigm, indeed, also means not assuming a whole set of stances, giving the opportunity to independently think about them, eventually mixing assumptions coming from different paradigms or findings other creative solutions to improve the research work.

At this point, I would like to question which are the methodological consequences of this “practical” choice of the most adequate method referring to the contingent situation. In social inquiry, epistemology is considered to have a certain influence on methodology, when not clearly stating guidelines from research practices. Are there any direct consequences on methodology when embracing an “everyday Pragmatism” perspective? Definitely we can say that making the research questions the center of inquiry must have consequences on ways a researcher thinks about methods and on the modalities they are implemented in research praxis. Indeed, it can be affirmed that concrete research problems and the purposes of inquiry are the crucial features to determine which methods a study should adopt, rather than philosophical assumptions, taken as whole sets. Making queries for a definite problem valuable, mixed methods are useful to remind researchers what is essential. Hence, we may even ask: are paradigms helpful at all in order to guide research or do they rather act as *cages* for social researchers who engage them? I will reason further on these and other questions in the following section.

### A Label-Free Way?

In *Table 1.2* I compared the more “aware” version of Pragmatism and “everyday Pragmatism”. The last row introduces perspectives on paradigms, noticing how Pragmatism advocates for paradigm pluralism, while the “everyday” viewpoint would mean moving *beyond* paradigms, although without recognizing it. While current debates largely focus on the methodological level, juxtaposing qualitative and quantitative ways to do research, the real struggle often happens at the ontological and epistemological stages of inquiry. We may find indeed different ideas on what

<sup>32</sup>To this extent, we may look at one of the main advantages in adopting a certain paradigm, which is that usually philosophical assumptions – about ontology, epistemology and axiology of social phenomena – are, when not considerably clear, at least acknowledged within a certain inquiry tradition. This means that a researcher is more likely to acknowledge assumptions when moving within a certain paradigmatic framework, rather than if she or he is not explicitly embracing any specific paradigm tradition.

TABLE 1.2: Pragmatism and “everyday Pragmatism” in comparison

Pragmatism	“Everyday Pragmatism”	Differences between the two
<p>Warranted assertibility: beliefs as qualifying as true or false depending on how helpful they are in inquiry.</p> <p>Methodological eclecticism: the methods to be used for a study depend on the research questions, rather than on researcher’s preferences.</p>	<p>Utility of research means for research ends, with no further philosophical sophistication.</p>	<p>Both Pragmatism and “Everyday Pragmatism” are concerned with what is useful for research. However, while Pragmatism finds legitimate bases in its philosophical tradition, an “Everyday” application does not consider in depth the philosophical concepts related to inquiry. “Everyday Pragmatism” represents a tautological way to legitimize the use of mixed methods in a study.</p>
<p><i>Implications for research</i></p>	<p>Move <i>beyond</i> paradigms: paradigms are no longer seen as necessary to inquiry, while the label of “Pragmatism” is merely applied to legitimize the research.</p>	<p>Pragmatism advocates for an application of the pragmatic maxim, while choosing a paradigm to approach a phenomenon. An “Everyday Pragmatism” perspective, instead, applies the label of “Pragmatism”, without thoughtfully considering the implications of Pragmatism for inquiry.</p>
<p><i>Perspective on paradigms</i></p>	<p>Paradigm pluralism: any paradigm might be valid, as long as that specific paradigm offers helpful lens to understand the phenomenon of interest.</p>	

constitutes phenomena in social sciences literature. If only one ontology for social phenomena is stated, integration of different approaches – which share the same ontological viewpoint – is feasible and in some cases – depending on the research question – even desirable. From this perspective, it can be affirmed that qualitative or quantitative methods are more likely styles of research, or methodological movements – having shaped debates on method over the last decades in social sciences – rather than distinct paradigms<sup>33</sup>. Thus, neither qualitative nor quantitative research is superior to the other, while a researcher is only facing a phenomenon and the methodological challenges that are related to the process of knowing and understanding it. To adopt this last position would mean to embrace a label-free viewpoint, moving, once again, *beyond paradigms* as conceived so far. Notwithstanding, this may represent a challenge for epistemology in social sciences at large. If methodological choices are considered as primary, how can we still claim the importance of stating assumptions behind inquiry? Would reflections on how assumptions influence research still be valuable? Moreover, if paradigms are out of the picture, what would guide the decisions we make throughout the research process? Since we are necessarily assuming what is important to study and what is the nature of warranted knowledge in our mindsets, on the basis of what we proceed? And would our specific and personal label-free *mental models* represent legitimate ways to build “scientific” knowledge?

We can identify a risk emerging from speculation about paradigms and philosophical assumptions when endeavoring a mixed research. A scholar may indeed find himself/herself trapped in contemplation of philosophical matters, which may act as a distraction from the real problems of inquiry. To this extent, we can reasonably believe that thinking less about philosophical standpoints and paradigms in the social sciences could as a matter of fact contribute to a form of inquiry that is not constrained by those (old) debates. However we, as researchers, are demanded to find effective ways to still reason on assumptions, which are necessarily in our minds, keeping them in the background. I want to emphasize here the relevance of some criteria of *philosophical clarity*<sup>34</sup> (Collins, Onwuegbuzie, and Johnson, 2012). Nevertheless, a possible challenge to this goal emerge when we think about publication. Due to publishing length limitations, researchers may overlook the relevance of stating assumptions in their studies. The *main story* in a study yet should be the inquiry itself, valuing our research problems, ways we find to search for some answers and findings that emerged from the process. So, how can we be thoughtful

<sup>33</sup>Whenever there are no clear assumptions involved, but merely an attitude of following a mainstream in a specific field, qualitative and quantitative may be considered more as some sort of *proxy* of paradigms.

<sup>34</sup>*Philosophical clarity* is defined by Collins, Onwuegbuzie, and Johnson (2012) as «the degree that the researcher is aware of and articulates her/his philosophical proclivities in terms of philosophical assumptions and stances in relation to all components, claims, actions, and uses in a mixed research study» (p. 855). The concept is part of a larger set of criteria to evaluate the quality of mixed methods research (called by the authors *Holistic and Synergistic Legitimation Research Process*), but I only borrow this specific idea, which I found to be particularly powerful to show research the relevance of pointing out philosophical assumptions in social inquiry.



about assumptions on social world and knowledge, without making them taking over, but at least acknowledging them in our research and in our presentations of a study? The power of assuming a mixed methods approach to social inquiry is exactly that research questions likely cover a central position. This is particularly beneficial, regardless the paradigmatic positions we decide to embrace and can help us not feeling trapped in paradigms or in reflections about philosophical assumptions and beliefs. Philosophy, indeed, should serve as an aid to research word and should not function as the main driver for it instead.

The intention of this last section of the first chapter was to investigate current debates on different stances and standpoints for what concerns epistemological and ontological assumptions behind mixed methods inquiry. While I mentioned axiology different times in this section, I did not exactly introduce the topic in mixed methods. Adding a reflection on axiological assumption would indeed complicate the matter, going way beyond the intent of this discussion. However, I am well aware of the significance of axiological considerations in social inquiry. I then explored the possibilities for mixed methods to represent a *third paradigm* in social sciences, questioning the necessity of a similar effort. The latter seems to be driven by the adoption of Pragmatism and I asked whether this epistemological approach could serve as a resolution to the well-known “paradigm wars”. Pragmatism does not represent a proper synthesis between qualitative and quantitative stances, but rather another set of assumptions, with its own dignity. While examining “paradigm wars” I reasoned about consistency of assumptions within a paradigm and the relevance of paradigms at large. We have seen that epistemological and ontological assumptions coming from different traditions may be applied to the same research, considering them almost as *tools*. This offered an occasion to think about the benefits of paradigms at large. Thus, I questioned whether paradigms as sets of assumptions are still useful to social inquiry or whether we should mainly value assumptions from an label-free point of view. The latter was analyzed starting from a logic of “everyday Pragmatism”, which is applied whenever the term Pragmatism is not adopted in a way that fully recognize this philosophical tradition. It is likely that this last connotation of Pragmatism would encourage scholars to move *beyond paradigms*, considering qualitative, quantitative and mixed methods more as styles of research rather than paradigms. However, adopting a similar standpoint inevitably poses some challenges from an epistemological perspectives. While utility of paradigms may be questioned, it cannot be stated that a researcher can approach social inquiry without having any kind of assumption on what the world is, what it should look like and how we can reach some knowledge of this world and we can question where would our assumptions about what we are studying and about warranted knowledge enter into the research process. Hence, how can we, as researchers, acknowledge and value our assumptions in research practices and in presentation of our studies, without making these be our *main story*? I finally noticed the methodological implication of this approach to social inquiry and centrality of research questions

in mixed methods emerged. The latter seems to represent a real benefit of mixed methods, reminding a researcher what matter the most in social inquiry.

Although this first chapter in this discussion about mixed methods results rather theoretical and it could leave a feeling of disconnection from the actual praxis of social inquiry, with the second part of this dissertation I will introduce the empirical work on the academic community of mixed methods, having the chance to unravel some of the points touched in this exploratory discussion.

## **PART II**



## Chapter 2

# Research Questions and Research Design

In the previous part of this dissertation, I explored several selected discourses on mixed methods and on scientific knowledge and epistemology. I started with an exploration of the mixed methods field and reporting the debates on the qualitative / quantitative divide. Then I entered more into modalities of conducting mixed methods, starting from the design, going through dimensions of integration – the main theme of this dissertation – but also talking about purposes for mixing and ways to address quality in mixed methods research. I focused then on triangulation – a concept that is strictly related to integration of methods – noticing its origins and developments and discussing the ambiguity of the term. About scientific knowledge, I have presented Merton’s imperatives in science as a way to set an ideal ethos for academia, noticing then cases in which norms are not met in social sciences and mixed methods, as well as in academia in general. Finally, I discussed paradigms in social sciences and “wars” between them, considering in particular pragmatism – as a paradigm often associated with mixed methods – and I then explored further possibilities of going *beyond* paradigms. These conversations in social sciences were necessary to state where this work is coming from and where it is situated in academia. With this second part, indeed, I will have the chance to empirically investigate some of the issues mentioned above.

Before fully entering into the research design, however, I need to better focus on the topic of integration. Although I already discussed the concept (*Paragraph 1.1.2*) and I mentioned several times how this is the central theme in the dissertation, some clarification is still needed. I will not focus on one or more of the dimensions identified, but I will rather consider integration as an umbrella term. Thus, cases in which it is possible to recognize elements typical of qualitative and quantitative methods – at any possible level or dimension – being pursued together, will classify as examples of integration.

Given this idea of integration and concerns previously presented, the first research question in this study is: 1.a “how is the issue of integration addressed within the mixed methods inquiry field in social sciences?”, considering the two mentioned strands – *complementarity* and *convergence* (see *Paragraph 1.1.2* in *Chapter 1*). Even

though *complementary* and *convergent* approaches might not be necessarily well delineated in studies, I will keep the two categories as separated, in order to maintain clarity and to reduce complexity on the issue of integration. Then, I considered to be fruitful to this study to ask the question 1.b “how is integration implemented empirically in studies?” with the intention to discern among possible differences between the empirical level and the theoretical one. The expectation is that the approach of *complementarity* may show some consistency in respect to the two level of theory and praxis, considering that the idea behind – that of information enrichment – implies the only claim to let the best – or the more useful in respect to the research questions – aspects of the different methods speak. On the contrary, it is likely that *convergence* poses differences in ways it is theoretically considered and modalities it is implemented empirically. This approach, indeed, claims to increase validity, checking the results of one method through results of another – or others – method. While the idea of overcoming single methods’ bias through integration makes sense on a theoretical level, ways to pursue this concept empirically have to deal with methodological challenges and need to be accurately thought and performed.

Moreover, I am interested in understanding how the community of mixed methods in social inquiry reasons about integration. Thus, I question: 2.a “are there groups of scholars adopting different approaches on integration?”, expecting to see different “schools of thought”. And, eventually: 2.b “how the different groups interact with each other?”, considering authors who may act as connectors among schools and possible power dynamics (in terms of recognition processes and privileged positions in academia, as I discussed in *Chapter 1*).

Additionally, within this research project it is asked: 3. “how is integration philosophically legitimized?”, posing the issue of epistemology for mixed methods research. The following sections, thus, will describe the research design phases needed to answer to these questions.

## 2.1 Mixed Methods Research Synthesis

In the process of looking for answers to the questions presented here, it seemed essential to conduct a research synthesis of existing mixed methods studies<sup>1</sup>, starting with a systematic review of relevant issues as a first step (Card, 2012; Cooper, Hedges, and Valentine, 2009; Gough, Oliver, and Thomas, 2012; Hopp and Rittenmeyer, 2015). A necessary preliminary operation was the arrangement of an exhaustive and appropriated set of articles published in academic journals. In particular,

<sup>1</sup>I use the term “research synthesis” partially referring to the so-called “mixed methods research synthesis” (MMRS), which is «a systematic review applying the principles of mixed methods» (Heyvaert, Hannes, Maes, et al., 2013, p. 662). Still, this study is only considering mixed researches from a methodological point of view and it is not intended to synthesize findings from mixed, qualitative and quantitative researches (Heyvaert, Hannes, and Onghena, 2016; Sandelowski et al., 2012). To this extent, I am not using the term “meta-analysis” on purpose, given that this specific approach is more focused on outcomes of existing studies, in an attempt of synthesis of results in order to draw conclusions, often through statistical analyses of effect sizes (Card, 2012).

the examination regarded international journals with articles published in English. This language is indeed the most used in scientific publications, playing a hegemonic role: thus, focusing on papers in English allowed me to reach the widest audience for academic journals. Moreover, the choice was for English publications only, also in order to simplify the phases of text analysis, processing texts according to one language only. The retrieval regarded articles published from 2003 up to early 2017 (at the day when retrieval was done, on January 19<sup>th</sup>). Albeit in social sciences examples of diverse methods used conjointly can be found since the birth of this field of study, it is difficult to find researches that declare to use a mixed methods approach before 2003, year when the “Handbook of Mixed Methods in Social & Behavioral Research” was published (Tashakkori and Teddlie, 2003). With the aim of a research synthesis in mind, it was necessary to consider relevant citation-based or citation-enhanced databases, encompassing academic journals that are significant in the social sciences for the mixed methods area (Jacso, 2005; Reed and Baxter, 2009). Specifically, initially the focus was meant to be on *Web of Science* (WoS) and on *Scopus*<sup>2</sup>. While the first one is based on the Journal Citation Reports, taking into consideration the impact factor<sup>3</sup> of journals, Scopus is built on the SCImago Journal and Country Rank (Levine-Clark and Gil, 2009), in order to rely on two different citation indexes. I chose to focus on citation indexes – rather than merely taking sociological journals reference databases – with the intent of collecting also data on rankings of the journals, in order to facilitate the phase of citation analysis, that will be presented later in the discussion.

Aiming to target all the articles appropriate to answer the research questions, I decided to build an exhaustive strategy that was applied to the sampling strategy for the retrieval of papers. The purpose was also a limitation of the so-called publication bias<sup>4</sup>. Notwithstanding, a set of criteria for the process of article selection was necessary. Thus, I identified basic criteria for the inclusion of a determined article in the dataset:

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<sup>2</sup>However, it was not possible to have access to WoS data and the dataset is built on Scopus data only. While Elsevier, the company behind Scopus, makes possible to access the dataset through APIs, Thomson Reuter, the company that owns WoS, did not allowed me to extract all the information I needed for free. As a deliberate choice, I did not try to obtain funding for this task, considering I would not want the company to make further, unnecessary, profit from academic research.

<sup>3</sup>«The impact factor is a ratio between the number of citations in a given year and the number of articles published in that journal over the past two years, and is designed to show the relative importance of a journal to its discipline» (Levine-Clark and Gil, 2009, p. 986).

<sup>4</sup>«Publication bias is the generally accepted term for what occurs when the research that appears in the published literature (or is otherwise readily available) is systematically unrepresentative of the population of completed studies» (Rothstein and Hopewell, 2009, p. 105). In particular, processes of exclusions are endorsed towards research coming from non-Western countries (especially considering that this work is based on articles published in English, representing a barrier for non-English speakers who are using mixed methods in their studies). A possibility to keep the publication bias under control could be to look for the so-called “grey literature”, i.e. research produced at different levels, such as government, academic, business and industry, not published in academic journals (Card, 2012). Withal, to retrieve this kind of literature resulted particularly problematic in this study.

1. To take part to the social sciences area of study<sup>5</sup>;
2. To declare the use of a mixed approach;
3. To be a primary-level empirical study<sup>6</sup>;
4. To be available in digital format<sup>7</sup>.

After a first operation of retrieval of articles based on the mentioned criteria<sup>8</sup>, some cleaning operation and preliminary exploration were considered as necessary. In general, during the procedure of construction of the dataset I was guided by an initial criterion of maximum inclusion and by a following screening. As a first phase, I examined titles and abstracts, and a second step was the elimination of duplicates. In order to ensure transparency, which is essential for the repeatability of the study, I needed to explicitly keep track of each choice and operation (e.g. number of papers retrieved initially, number of included/excluded at each screening step, number of retrieved further and so on) (Heyvaert, Hannes, and Onghena, 2016). Moreover, within a preliminary exploration phase a first analysis of titles and abstracts resulted helpful. The latter allowed me to envisage the aim of the studies, that I could compare in titles and abstracts. In this way it is also possible to understand the consistency of contents with the research objectives (see *Paragraph 3.1*).

In *Table 2.1* I summarized the research questions and the methods of data analysis that I will use to investigate them. In the next sections of this chapter I will explain more in detail the methods used in this doctoral work<sup>9</sup>.

### 2.1.1 Automated Text Analysis

For what concerns the phase of analysis of scientific journals articles, there were two main procedures involved: an automated content analysis and a bibliometric citation network analysis. Regarding the first one, I needed to take into consideration

<sup>5</sup>The boundaries around what is considered as social sciences were kept intentionally broad, including for example health studies, education and evaluation, in those cases where the use of social factors are determinant for the research.

<sup>6</sup>I am referring here to those empirical studies that are not meta-analysis or research synthesis themselves. «The term “primary analysis” refers» indeed «to what we typically think of as data analysis – when a researcher collects data [...] and then analyzes these data to provide answers to the research questions that motivated the study» (Card, 2012, p. 4).

<sup>7</sup>This particular point is not meant to be a strategy to overcome publication bias, but it is rather a modality to ensure the availability of texts in a digital format that would allow me to process and analyze them. Moreover, the use of an online database, as explained above, is necessary to provide a set of metadata linked to each article.

<sup>8</sup>The text for the query that I identified – after some testing – to met the criteria mentioned above was: «“mixed method\*” AND social AND NOT review». Please notice that the query contains both boolean operators (AND, AND NOT) and a wildcard character (\*), i.e. a character that can be substituted for zero or more characters in a string.

<sup>9</sup>I need to clarify that this work was conceived and carried out during the PhD in “Applied Sociology and Methodology of Social Sciences” at University of Milano - Bicocca. The program requires a three years long appointment. While the first year (2015-2016) was dedicated to education, with classes and a first definition of the research problem, second (2016-2017) and third (2017-2018) years are respectively directed to conduct the empirical research and write up the dissertation. Therefore time represented a constraint in the process of inquiry.



TABLE 2.1: Methods of data collection and analysis for each research question

<i>Research question</i>	<i>Methods</i>
1.a How is the issue of integration addressed within the mixed methods inquiry field in social sciences? 1.b How is integration implemented empirically in studies?	Automated text analysis on published academic papers.
2.a Are there groups of scholars adopting different approaches on integration? 2.b How the different groups interact with each other?	Citation network analysis on papers' reference lists.
3. How is integration philosophically legitimized?	Semi-structured interviews and thematic analysis of transcripts.

two different dimensions as a basis for the choice of the best technique to analyze my textual data: on the one hand, the expectation to face a considerably large dataset; on the other hand, I wanted to let the categories that I defined – that has to do with the two approaches of *convergence* and *complementarity* – emerge. For what concerns the fist of these two dimensions – the actual size of the dataset ended up to be: information retrieved on 4785 papers and 2985 full texts – full-human coding would be an unfeasible effort. Thus, even though hand coding is considered by many to be particularly accurate (e.g. Grimmer and Stewart, 2013), automated content methods were preferred. About the issue of having specific categories of interest that I wanted to emerge from the data, I needed to opt for what is called a *supervised* procedure, wherein a categorization scheme decided *ex ante* is applied to the data. Nevertheless, I also decided to use a *fully unsupervised* strategy<sup>10</sup> on abstract as an exploratory step. The method I selected was Structural Topic Model (STM – attainable through the R package `stm`), which follows the tradition of probabilistic topic models, «based upon the idea that documents are mixtures of topics, where a topic is a probability distribution over words»<sup>11</sup> (Steyvers and Griffiths, 2007, p. 2). However, in comparison with other probabilistic topic models, STM was chosen because of two reasons: 1) the possibility of an incorporation of selected metadata and 2) the opportunity to use the algorithm by Lee and Mimno (2014) in order to automatically set the best number of topics for a corpus. In this way, it was possible to extract topic from the abstracts corpus, in order to understand whether they were pertinent in relation to research questions.

<sup>10</sup>A *fully unsupervised* method does not imply the use of a defined set of categories: thanks to an algorithm, classification is assigned instead without the need for a definition by the researcher.

<sup>11</sup>Specifically, «a topic model is a generative model for documents: it specifies a simple probabilistic procedure by which documents can be generated» (Steyvers and Griffiths, 2007). Hence, «a topic is defined as a mixture over words where each word has a probability of belonging to a topic. And a document is a mixture over topics, meaning that a single document can be composed of multiple topics. As such, the sum of the topic proportions across all topics for a document is one, and the sum of the topic probabilities for a word, across all topics, is one» (Roberts et al., 2014, p. 2).

TABLE 2.2: Number of papers included in the analysis, for each phase of the automated text analysis. The row reporting the number of papers after the removal of duplicates refers to papers that are analyzed in their titles and abstract and of which reference lists were extracted for the citation network analysis. Full texts retrieved were those used in the HK method to get estimates, built on the handcoded papers.

<i>Phases</i>	<i>N°</i>
Initial retrieval	5004
After removal of duplicates	4785
Full texts retrieved	2985
Handcoded papers	336

Going back to the *supervised* strategy – the main one used to look for an answer to my research questions regarding approaches to integration – I used the method described by Hopkins and King (2010) (from now on, HK method), wherein the classification of the dataset is based on a categorization scheme that I defined, based on a preliminary literature analysis and that I successively had to test. The HK method, moreover, does not depend on individual documents classification. On the contrary, this procedure adopts a supervised learning method, with a small hand-coded subset and an algorithm that “learns” from the human operations of coding to apply categories to the larger set of documents<sup>12</sup>. In particular, I used a sample strategy stratified by year, with a final sample size of 336 papers.

The HK method has two main advantages compared to other approaches – e.g. *dictionary methods* that lean on relative frequency of words to measure the presence of each category in texts: from one side, categories in the supervised learning method are domain specific, avoiding problems of application of dictionaries outside their intended area of use<sup>13</sup>; from the other side, this procedure is considered to be rather easy to validate (Grimmer and Stewart, 2013).

The categorization scheme I developed – on the basis of a previous literature analysis – was tested to make sure that the established coded could be applied to the papers in my sample. After some redefining operations, the categorization scheme for coding was delineated, providing a clear description of each category, as follows:

1. **COMPLEMENTARITY:** The study applies (collection / analysis) methods coming both from the qual and quan traditions, with the aim of an information

<sup>12</sup>Essentially, three steps are implemented: 1) the formation of a training set: creating and executing a coding scheme and then sampling documents from the entire dataset, in order to carry on manual categorization of single documents; 2) the application of the supervised learning method, whereas it is learnt something about the relationship between documents’ characteristics and categories in the training set, inferring then labels in the test set. The assumption is the presence of some (unobserved) relationship between the words in a text and the labels and each algorithm attempts to learn this relationship. A particular method for inferring this relationship is to measure category proportions (Hopkins and King, 2010); 3) the validation of the model output and finally the classification of remaining documents.

<sup>13</sup>However, this means for the researcher to apply strict coding rules for the quantities of interest and to coherently define concepts.

enrichment. Integration may happen at the analysis and / or inference / interpretation level.

2. *CONVERGENCE*: The study applies (collection / analysis) methods coming both from the qual and quan traditions, with the aim of increasing data and / or inference quality. Integration may happen at the analysis and / or inference / interpretation level.
3. *COMPLEMENTARITY + convergence*: The paper (also) declares an aim of convergence (see category 2), but integration only happens with a complementarity aim (see category 1).
4. *COMPLEMENTARITY + CONVERGENCE*: The study applies (collection / analysis) methods coming both from the qual and quan traditions, both with a complementarity aim (category 1) and with a convergence one (category 2).
5. *complementarity + CONVERGENCE*: The paper (also) declares an aim of complementarity (see category 1), but integration only happens with a convergence aim (see category 2).
6. *complementarity + convergence*: The paper declares both an aim of complementarity (see category 1) and of convergence (see category 2), but integration is not pursued empirically (neither at the analysis or at the inference / interpretation level).
7. *complementarity*: The paper declares a complementarity (see category 1) aim, but integration is not pursued empirically (neither at the analysis or at the inference / interpretation level).
8. *convergence*: The paper declares a convergence (see category 2), but integration is not pursued empirically (neither at the analysis or at the inference / interpretation level).
9. *No integration*: Integration is neither declared or implemented. This category includes cases of collection / analysis techniques methods coming from one tradition used to inform collection / analysis techniques methods of another tradition.
10. *NA*: It is not possible to assign any of the other codes even if *there is* some kind of integration.
11. *Not social sciences*: The paper cannot be considered as part of social sciences.
12. *Not empirical study*: The paper does not report an empirical research. The category includes eventual meta-analyses or literature review / synthesis.
13. *Integration suggested only or still to be implemented*: The paper does not show integration at the empirical level, but it is merely suggested, or it still has to be implemented, or integration is reported elsewhere.

Furthermore, the initial research design included epistemological issues in the automated text analysis. However, during the phase of definition of the categorization scheme, I noticed that very few scholars mention their philosophical assumptions in their research papers. Hence, it would not have been possible to examine epistemological stances through this method. Nevertheless, I was able to explore the matter thanks to qualitative interviews, as I will explain later in this discussion *Chapter 5*.

## 2.2 Citation Network Analysis

Then, with the aim of looking at different groups of scholars in the field of interest, citation network analysis (CNA) seemed a rather helpful tool, bringing traditional social network analysis to the territory of bibliometrics (Otte and Rousseau, 2002). «Researchers from the same specialty» indeed «tend to cite each other in order to position their work in the field based on previous knowledge» and «scientific knowledge is assumed to increment over time following a “smooth path”, the papers that introduce important new insights are cited until new results modify or contradict them» (Calero-Medina and Noyons, 2008, p. 272). Thus, CNA seems an effective strategy for the exploration of the process of knowledge production and diffusion in a certain academic field (Lee and Sohn, 2015; Zhao and Strotmann, 2015).

More in general, social network approach (SNA) is often described as a inherently hybrid approach (Bazeley, 2017), bringing together aspects typical of quantitative research – using numeric measures to give information on networks – as well as elements that might be considered more qualitative – as it emerges in descriptions of the visual aspects of a network.

«The foundation of social network analysis (SNA) lies in mathematical graph theory on the one hand, and ethnographic studies of kinship and interpersonal relations on the other [...]. SNA allows complexity of extended social relations to be reduced and [summarised] in a way that both facilitates comprehension and offers a new vantage point on the social world» (ibid., p. 245).

The act of publishing papers in academic journals is part of the reward system in academia, with citations representing a way of granting recognition to the author(s) of the cited article. In addition to the identification of most cited authors and works in a specific area, I considered the method adopted here to be helpful in order to identify groups of related papers and scholars utilizing a similar approach to a topic – or similar understandings of methods, as in the case of this project – underlining the existing paths, structures and networks among citations in the mixed methods field (Otte and Rousseau, 2002; Sakata et al., 2013). Moreover, I adopted CNA with the intent to understand how clusters referring to a *convergence* or *complementarity*

approach interact and communicate each others, whether these two community are shown in the network.

A possible procedure to implement this analysis was identified, as follows: after the retrieving of the references lists from the previously selected articles, citation networks were constructed, treating authors as nodes and citations as links. I could then perform some basic analysis of the network(s), such as a *main path analysis* in order to identify a sort of backbone within the mixed methods tradition, the core articles that played a key role in the development of the methodological area (Calero-Medina and Noyons, 2008; Lee and Sohn, 2015), but also an analysis of *density* and *centrality*<sup>14</sup> (Otte and Rousseau, 2002). Therefore the subdivision in clusters – or cohesive subgroups – could be applied, evaluating which clustering method better fits the data (see, for example, the algorithm described by Newman, 2004, but also the method for cores decomposition of networks by Batagelj and Zaversnik, 2003). However, for the purpose of identifying *communities* within the network, I took advantage of measures of *modularity*, that divide a network in groups of closer relations. The more elevated this parameter is, the more defined are the communities in the network<sup>15</sup>. In particular, for this task, I relied on the algorithm implemented by Blondel et al. (2008).

Citation networks were visualized and major clusters were identified<sup>16</sup>, also taking advantage of the effort of coding made at the content analysis step. Moreover, visualizations of networks allowed me to have additional information on communities and sometimes more intuitive than numerical measures, e.g. information about sparsity or density of a network. Thanks to these strategies, it was possible to gain an overview of the development of the mixed methods field and the main authors and papers, but the expectations were also to distinguish among “families” of scholars and discussed issues.

## 2.3 Interviews with Experts

The main objective of experts interviews was to understand experts’ point of view about the issue of integration within mixed methods and to explore more in detail their epistemological positioning. Interviews were then an occasion to focus on two main aspects: on the one hand, authors’ specific and personal mindsets and self-perception were investigated; on the other hand, the ways scholars depict the mixed methods landscape was of particular interest. Thus, besides the recognition

<sup>14</sup>Density may be defined as an indicator for the general level of connectedness of a certain graph. Regarding centrality, it can be distinguished in different kinds: besides a measure of centrality of the whole network, *degree centrality* is the number of links that a node has; *closeness centrality* represents the total distance of one node from all other nodes; *betweenness centrality* is the number of shortest paths passing through an author (Otte and Rousseau, 2002).

<sup>15</sup>More specifically, a result of 0.4 or more is usually considered meaningful.

<sup>16</sup>Various softwares can be found to implement these operations. Two possibilities are `statnet` and `igraph`, both R packages. However, I used Gephi, an open-source application to visualize networks of data and perform analysis on them, which seemed a more user-friendly solution.

of an interpretation of the key issues discussed in this project among members of the academic community in question, through interviews it was possible to attempt an integration in terms of *complementarity* – enriching data and findings gained through the analysis of studies with the first hand information coming from those who conducted these studies, with their own perspectives on social research. It should be clear, hence, that the study here presented on the mixed methods field is itself an example of mixing methods<sup>17</sup>.

On the basis of knowledge of the field by the co-advisor of this work, Professor Jennifer Greene, I could select mixed methods expert scholars to conduct some semi-structured interviews<sup>18</sup>. The sample construction, then, followed a strategy of identifying key scholars – recognized to have some relevant role in the field – as well as criteria of maximizing the heterogeneity of interviewees – in order to have a picture as broader as possible – but also sustainability, especially considering issues of time constraint. I refer to heterogeneity of interviewees considering scholars having different perspectives on mixed methods. This attempt of acknowledging for different mindsets was possible thanks to a previous knowledge, coming both by the literature and by Professor Greene's familiarity with the field<sup>19</sup>. Hence, the number of interviews – seven, including a response in written form, three with women and four with men – depended on an optimum between these two aspects. I asked for permission to use interviewees' full names and I obtained it in the majority of cases, and I will grant anonymity for those scholars who required it<sup>20</sup>. However, heterogeneity was not seek for other characteristics of the interviewees. For example, almost all of the interviewed scholars are based in the United States<sup>21</sup>: this was an intentional choice. The aim was indeed to catch the mainstream perspectives in mixed methods inquiry. Therefore I considered that there is a high concentration of

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<sup>17</sup>One could be confused at this point, seeing that I did not clearly state from the beginning to adopt any specific mixed methods design (see *Paragraph 1.1.2 in Chapter 1*). I made, however, an intentional choice, since I did not wanted to be limited in this study, having to fit in one category or the other. I rather developed a design that was mixed based on the necessity to answer to the research questions. Moreover, I find it difficult to define what is qualitative and what is quantitative in this study, considering that the different procedures of data collection and of analysis very often encompass qualitative and quantitative aspects at once (see, for example, CNA as an hybrid, as I suggested in the previous section). Thus, I could not think of a way to apply standard mixed methods designs, that typically divide in phases and clear distinctive sources of data and analysis, according to one method or the other.

<sup>18</sup>I indeed spent a period of nine months as a Visiting PhD at University of Illinois at Urbana-Champaign, with the opportunity to conduct interviews in the different modalities that I will introduce later. Professor Jennifer Greene is a prominent scholar in the field of mixed methods (in addition to that of education research and evaluation). Therefore, access to the field was largely facilitated thanks to the collaboration with her.

<sup>19</sup>There was only one exception within this strategy. I indeed had the contact of one of the interviewees – Ted Lowe – after the conduction of another interview – that with Tom Weisner. Nevertheless, although the two scholars have been collaborating on mixed methods research projects, different elements emerged from the two interviews, with only marginal overlapping in themes and certainly not in larger perspectives on integration and epistemology.

<sup>20</sup>Please notice that at this phase, I have not received an answer on full name disclosure from all the interviewees. In case I will receive a consensual answer, I will show their full name in the last version of this elaborate. In the meanwhile, I will grant anonymity for these scholars.

<sup>21</sup>There is only person based elsewhere, who preferred anonymity.

mixed methods scholars who works from the United States and that they are located in a privileged power position<sup>22</sup> – compared to other world areas, especially when non-Western (Goonatilake, 1993) – in academia, possibly setting the trend for where the reflection on mixed methods is going worldwide<sup>23</sup>.

Another fundamental element to explore is that interviews followed the strategy of the semi-structured interview (Galletta, 2012), requiring a determined interview protocol, that can be found in the appendix of this elaborate (*Appendix A*). The protocol includes pre-interview operations, such as checking public information online on the interviewee – looking especially at mentioned research interests and highlighted publications – and looking at their presence / absence in my dataset and eventual coding applied to their papers. Then, about the interview itself, after my introduction and operations related to informed consent, I imagined a set of questions that present a general aim and eventual sub-questions in order to better explore the topic. I attempted to let the interviewee speak first, after the general question, while the sub-questions were intended to be asked only in case the respondent was not reacting to the first question in an extensive way. After a question for *icebreaking* – regarding generally their interests of research and their current position – I had questions exploring different topics: mixed methods in social inquiry in general, integration and paradigms. For each topic I imagined a small introduction and I then had one or a few questions in each topic. However, the modality of semi-structured interviews allowed me to have a general track to follow, but the priority for me was to let the scholars' point of view emerge. Thus, whenever the dialog was going towards an unforeseen direction, I did not put pressure on the conversation to be back on track, but I rather tried to value scholars' stories, going back to my questions only after the interviewee stopped her/his description. Moreover, the semi-structured strategy gave me also the chance to take eventual detours, whenever I wanted to know more on something the interviewee was telling me and that it was not imagined in the phase of building my protocol.

Face-to-face interviews were the preferred modality of conduction, replaced by online interviews in those cases in which personal meetings could not be possible (Jäckle, Lynn, and Burton, 2015), and by responses to questions in written form, whenever neither of the previous strategies was possible (*Appendix B*).

I mentioned how *paradigms* was one of the topic I explored with interviews. The issue of epistemology and paradigms adopted by mixed methods scholars was initially supposed to be investigated also through text analysis of papers. However, I found only a very small number of papers explicitly stating their epistemological paradigm. Thus, with interviews I had the chance to directly ask scholars about

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<sup>22</sup>We could think about the hegemonic role of the English language in academic processes of communication: on the global landscape, the most high-rated academic journals are publishing in English. Anglophone countries, thus, would have an advantage over non-English-speaking countries.

<sup>23</sup>This choice was part of a necessary process of limitation of the scope for this study. However, I am aware there could be different perspectives pursued within non-Western context. This could be an opportunity for further developments on this topic in the future.

paradigms and epistemology. Nevertheless, after the phase of literature review, I found the epistemological issues to be possibly addressed considering at least the following categories:

1. No epistemological approach declared;
2. Pragmatism, which can also be subdivided into “aware” Pragmatism and “only declared” Pragmatism – such as Pragmatism used from a “everyday” perspective (see *Paragraph 1.2.2 in Chapter 1*);
3. epistemological approaches that are typically associated with qualitative research (e.g. Constructionism);
4. epistemological approaches that are typically associated with quantitative research (e.g. Post-Positivism).

The categories enlisted here, however, were not necessarily considered during the analytical phase, when different *themes* were allowed to emerge, according to interviewees’ records of their experience. I performed, indeed, a thematic analysis, that was preferred to other kinds of analysis of qualitative materials specifically because I wanted both to let *themes* emerging from scholars’ reports but also to match the interests that developed from the literature. Thematic analysis is indeed:

«a process for encoding qualitative information. The encoding requires an explicit “code”. This may be a list of themes; a complex model with themes, indicators, and qualifications that are causally related; or something in between these two forms. A theme is a pattern found in the information that at minimum describes and organizes the possible observations and at a maximum interprets aspects of the phenomenon. A theme may be identified at the manifest level (directly observable in the information) or at the latent level (underlying the phenomenon). The themes may be initially generated inductively from the raw information or generated deductively from theory and prior research» (Boyatzis, 1998, p. 4).

Moreover, thematic analysis is not a process of explicitly counting words or phrases, but it rather attempts to identify and describe «both implicit and explicit ideas within the data, that is, themes» (Guest, MacQueen, and Namey, 2011, p. 10). Thus, I developed codes using an hermeneutic interpretative strategy, applying a code to a portion of text every time a theme – one that already emerged or a new one – was visible<sup>24</sup>. Then, once I started having some codes that were all related to a larger topic, I initiated a procedure of assembling codes into categories (e.g. the codes *integration: complementarity* and *integration: convergence* are both part of the larger category *integration*). Code categories, however, were not intended to be mutually exclusive: thus, a code might take part to different categories (e.g. I considered

<sup>24</sup>Therefore, there is a code associated to each theme.



the code *dialectical approach* to be part of the *epistemology/paradigm* category, but also of the category of *integration* and of the category *methodological aspects* as well).

Finally, interviews' transcripts<sup>25</sup> were analyzed taking advantage of computer-assisted procedures of coding (Galletta, 2012), using a CAQDAS (Computer-Assisted Qualitative Data Analysis Software). Specifically, I used RQDA, a package for R, and thus an open-source application. At this point it seemed beneficial to compare interviews results with outcomes of the text analyses, in order to discern whether the perception of authors is similar to previous findings or viewpoints are significantly discording. Moreover, I could further explore those papers that in my handcoding procedure were categorized as NA, in an attempt to understanding other perspectives on integration. Thus, I applied the coding emerging from interviews to those papers as well.

## 2.4 A Reflexive Discussion

At this point of the dissertation, before I will present the main results emerging from the analyses I conducted in my research, I feel the urge of introducing a reflexive discussion. Generally speaking, «ethical tensions are part of the everyday practice of doing research — all kinds of research» (Guillemin and Gillam, 2004, p. 261). Then, in particular, I have been investigating the academic community of mixed methods in social inquiry, while conducting myself a mixed methods work and while participating in the same community of interest for this study<sup>26</sup>, which makes a reflexive discussion especially needed. I was aware of my challenging position during the whole process, yet I tried to be critical when the reflections pursued were driving me in a more critical direction, while still appreciating the innovative way of thinking given by mixed methods to the field of social inquiry.

Reflexivity in social research can be defined as:

«a process whereby researchers place themselves and their practices under scrutiny, acknowledging the ethical dilemmas that permeate the research process and impinge on the creation of knowledge» (McGraw, Zvonkovic, and Walker, 2000, p. 68).

Although “reflexivity” is a term that is traditionally associated with qualitative research, I am adopting the concept here, in relation to a mixed methods study, under the belief that any research practice would benefit from some reflexive activity.

I borrow from feminist studies the idea of “situated knowledges” (Haraway, 1988). My work can be seen as related to situated knowlegdes on a twofold dimension: from the one hand, my attention is directed toward a set of knowledges that

<sup>25</sup>In order to transform interviews data from the audio – or video – format into text, they needed to be transcribed. In this phase I took advantage of the help of professional transcribers, thanks to funding provided by my Department.

<sup>26</sup>For example, I have been a part of this academic community by participating at conferences about mixed methods inquiry and submitting manuscripts to journals that are part of the mixed methods community references in the social sciences.

are situated themselves, as I tried to highlight in the first part of this dissertation; on the other hand, the study is necessarily influenced by my own “vision” (borrowing, once again, from feminist reflections; Haraway, 1988). For this reason, I need to express my *positionality* in the research process. First of all I am a young, early career, researcher. Being educated in a partially “post paradigm wars” academia, I could mature an idea of connection among methods in social inquiry. However, I have also been exposed to dynamics in academia that reflect some legacy with those paradigm wars, with the consequence of generating in me the impression that fights in the direction of abolishing distinct divisions between qualitative and quantitative are still relevant. Moreover, I identify as queer and close to intersectional trans-feminist stances: both aspects that necessarily influence my *vision*. I indeed tend to oppose to normative dichotomies – e.g. gender binarism – which could as well relate to my perspective on the qualitative / quantitative divide. To this extent, during the research work that was behind this dissertation, my reflections on mixed methods started to be critical even about the concept of mixed methods itself: the idea of keeping quantitative and qualitative strategies divided remains indeed within hidden – sometimes even explicit – assumptions behind the need for mixing. Therefore, similarly to my viewpoint on paradigms, I ultimately feel more inclined on a perspective that claims that the two elements are not necessarily and definitely separated, drawing a sort of “queer methodology”<sup>27</sup>.

Finally, there is a specific reason why I am referring here to feminist standpoints. During the process of literature review that brought me to write the first part of this elaborate I was determined to have an informed overview on philosophy of science and I have been reading the work of some classic authors. As I found myself investigating epistolary exchanges between two predominant names in the field reporting some misogynist comments, I started reflecting on my own work, and I noticed a large preponderance of white male authors. This was a main drive to assume a more critical approach in writing about sociology of scientific knowledge (see *Paragraph 1.2* in *Chapter 1*).

As an example of the effort in the direction of being accountable for the *vision* of this study, I intentionally did not state a clear distinction between qualitative and quantitative methods adopted in the diverse phases of the research, as I believe that each specific operation presents both qualitative and quantitative aspects. Moreover, the same idea is also showing during the process of writing up: I tried indeed to have a consistent style in the whole dissertation, that could not be identified either as strictly qualitative or quantitative. In particular while reporting thematic analysis,

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<sup>27</sup>I do not intend to here explore “queer methodologies” neither in terms of appropriate methods to approach queer identities / sexuality / genders or of adopting a queer perspective in the study of social phenomena (Browne and Nash, 2010). I rather want to suggest that lenses offered by queer theory might be useful to redefine the modalities in which social research methods are conceived and applied, through an anti-normative approach, that does not distinguish between qualitative and quantitative methods by default. However, this is only an invite to social researchers, and a similar approach to methodology in social sciences would need in-depth reflections and examples of application that would still pay respect to the long tradition of methodology in social inquiry.

I found writing to be still a part of the hermeneutic analytical process: the operation of writing allowed me to elaborate the identified themes, while I selected portions of texts and reflected on them. Finally, part of the reflexive activity is also to critically reflect upon eventual limits in the various steps of the study. I will return to this point in the conclusive chapter, where after a summary of the main takeouts of the dissertation, I will examine some restraints of this work, but also possible future developments in the analysis of mixed methods in social inquiry.

This chapter was meant to explore the research questions and the initial research design of this dissertation, but also my positionality towards the topics of interest for this study. In the next chapters I will introduce the analyses conducted and I will present the results of this research work.



## Chapter 3

# Mixed Methods Publications and the Issue of Integration

This chapter is dedicated to the understanding of integration in mixed methods, as emerges from papers published in academic journals (in Western academia). I will start by presenting a preliminary examination of titles and abstracts. I will then focus on the attempt of using topic modeling on abstracts, in order to see whether the dataset was consistent with my research objectives. However, I could not use an entirely unsupervised model, as I will better explain later, but I rather needed a supervised one, so that the categories of interest for me could emerge from the corpus of texts. As a supervised method, I decided to use the HK method and I will first present the process of hancoding and what emerged from it, and then I will discuss the estimated obtained by the algorithm.

### 3.1 Titles and Abstract

In this section I will present the outcomes from the first exploratory phases of the research. I described in the previous section how data for the papers was extracted from the *Scopus* database. Before proceeding with the exploratory phases of analysis, however, operations of reading<sup>1</sup>, cleaning and preprocessing need to be illustrated. It was indeed necessary to manage the corpus in order to analyze text as data (Grimmer and Stewart, 2013). Both for the titles and the abstracts corpora I created a document-term matrix (dtm), so that words contained by each document could be counted. Pre-processing operations, required to make the matrix less complex and including meaningful words only, encompassed the removal of numbers, punctuation and stop-words<sup>2</sup>, as well as the transformation of each letter of each word to

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<sup>1</sup>It is indeed fundamental that the machine, through the softwares, recognize the text given as a very first step, before analyzing it.

<sup>2</sup>Stop-words are as those terms which are particularly common in a language and do not add any substantial meaning to a discourse, such as articles and pronouns. Both the packages in `R` `tm` and `quanteda`, used to pre-process the corpora, provide for a list of stop-words for many languages, English (the language of extracted records) included. However, the list has been expanded manually, including further words not relevant for the analyses (such as those terms which has to do with copyright, shown within abstracts).

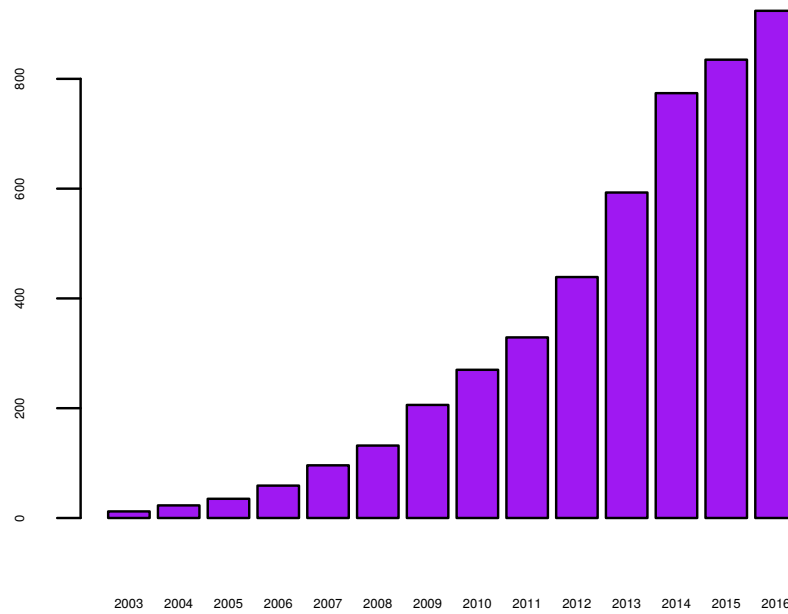


FIGURE 3.1: Distribution of extracted articles by year

lowercase and stemming<sup>3</sup>.

A first series of analyses I conducted had to do with the exploration of the dataset. To this extent, *Figure 3.1* shows the distribution of extracted records on articles by year<sup>4</sup>, reflecting the increasing relevance of mixed methods in social sciences along last years (or, at least, increasing in the publication of studies using this label for their methodological approach).

I could look then at most frequent words emerging from titles and abstracts. The main aim of these operations is to show the eventual consistency – or lack of it – between the extracted records and the research objectives. Given the nature of the extracted data, already part of a database and not collected with a research interrogative in mind, I considered this step as particularly useful. Looking at the graphs of most frequent terms emerging from titles (*Figure 3.2*) it can be noticed how the methodological aspects are of primary importance, with words such as “mixed-methods”, “study”, “research”, “approach” and “analysis”. What also emerges clearly from the graph is the prevalence of the use of mixed methods within at least two main fields of social research – health and education – and possibly a third – evaluation.

The last statement is particularly visible also in *Figure 3.3*, wherein words from the query that I used for the step of data retrieval are removed. In this case, the term “health” appears as especially prominent, followed by “care” and “community”.

<sup>3</sup>Stemming is a process which allows to reduce inflected or derived words to their root (word stem) (Porter, 2006). The operation is feasible within R packages of text analyses, such as `tm` or `quanteda`, both used in the phases of the research related to text processing.

<sup>4</sup>The year 2017 is excluded from the analysis, given that only data from the very beginning of the year were available.

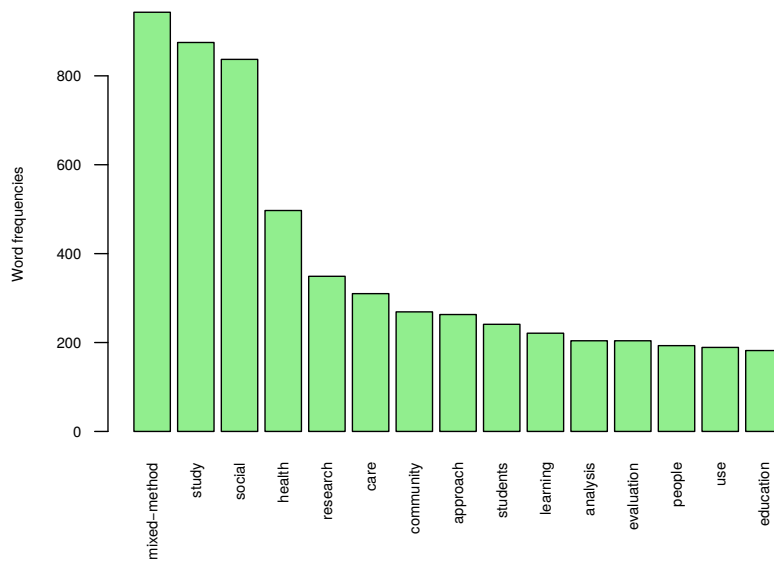


FIGURE 3.2: Most frequent words within titles

Moreover, words related to education, such as “students”, “learning” and “school”, and to evaluation emerge as well. Notwithstanding, even removing the terms used to build the query, the methodological theme still emerge.

Similar takeouts emerged when I focused on frequent words from abstract, as showed by *Figure 3.4*. Please, notice that displayed words are stemmed, in order to reduce the complexity of the corpus built from abstracts.

### 3.1.1 Topic Modeling of Abstracts

Within this exploratory phase that I have been describing, I decided to also perform an *unsupervised* strategy of analysis<sup>5</sup> on abstracts’ texts, in order to have a general picture of what my dataset encompasses, in terms of topics, noticing in particular the most frequent ones. The selected method to reach this objective was Structural Topic Model (STM), for the reasons I already mentioned in *Chapter 2, Paragraph 2.1.1*.

*Figure 3.5* was built after the STM was performed on abstracts’ texts – after necessary operations on text processing, as described in the previous section of this chapter – showing the extracted topics<sup>6</sup> in a ranking of proportions, going from the topic with the highest proportion in the text to the one with the lowest proportion<sup>7</sup>. After the code attributed to the topic by the model (which is a number), we can see the three words (stemmed in the phase on text processing) with the highest probability to be in that topic. Looking at extracted topics (*Figure 3.5*), we can notice

<sup>5</sup>As explained earlier (*Chapter 2, Paragraph 2.1.1*), the main analysis on full texts will adopt a *supervised* strategy, having the aim to investigate categories that I already decided. On the contrary, here the aim is still exploratory, in an attempt to generally describe the dataset. Therefore, an *unsupervised* method, wherein the algorithm extracts categories on the basis of words frequencies in texts seemed appropriated.

<sup>6</sup>Specifically, the algorithm found 86 topics.

<sup>7</sup>Proportions refers to probabilistic estimates based on the STM.

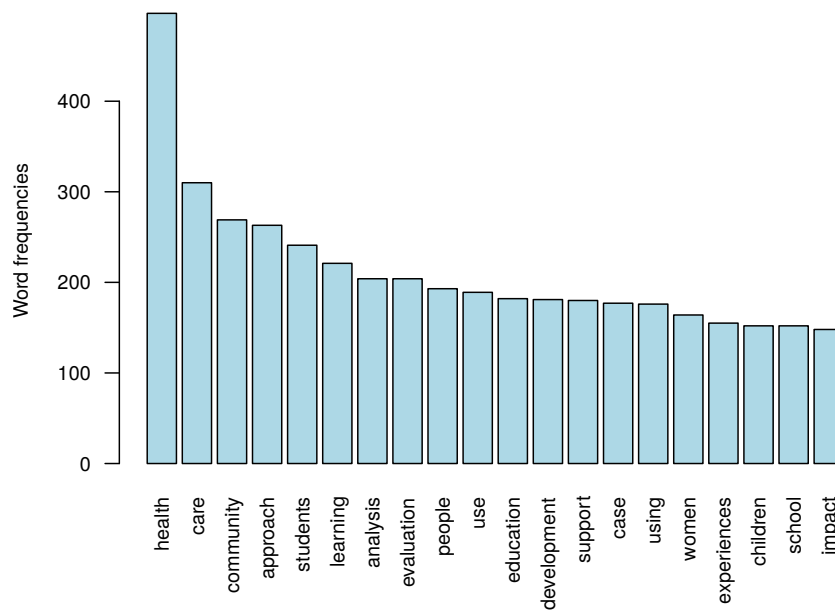


FIGURE 3.3: Most frequent words within titles, terms from query excluded

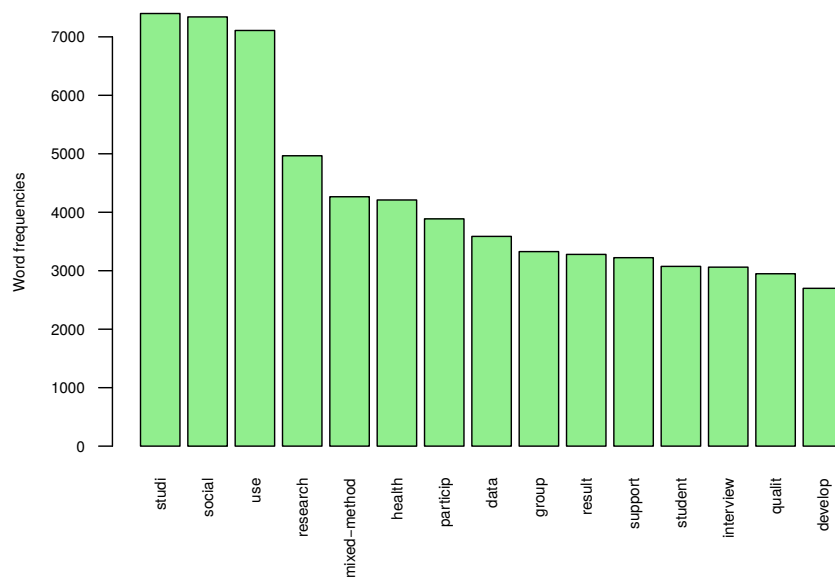


FIGURE 3.4: Most frequent words within abstracts



how the first two topics (54 and 27), which emerge with large proportions compared to other topics, refer both to the methodological semantic area, with most frequent stemmed words like “data”, “qualit”, and “quantit” for topic 54 and “research”, “mixed-methods”, and “methodolog” for topic 27. In particular, while topic 54 seems to refer more to the phase of analysis with combined data, topic 27 may refer to epistemological and paradigms issues<sup>8</sup>. All the other topics found with the STM seems to refer to disciplinary or thematic areas, remarking largely what emerged from the analysis of most frequent words in titles and abstracts. It is indeed possible to see topics that have to do with education (e.g. topic 73 includes the word “student”, topic 38 includes stems like “teacher”, “languag”, “studi”), evaluation (e.g. topic 6 and topic 45), and health and life quality (e.g. topic 82 shows words like “health”, “mental”, while topic 52 has “life”, “qualiti”, “well-b”).

Nonetheless, the fully-unsupervised method does not precisely meet the research objectives – as expected – in terms of the distinction between *complementarity* and *convergence* approaches. Hence, it was necessary to further analyze the dataset with some other methods. Relevant topics extracted through STM still represented a possible basis to build categories for the supervised analysis of full texts. Moreover, they are clearly in line with major discourses in the mixed methods community, as presented in *Chapter 1*. Thus, this procedure was among the first attempt for me to check the consistency of the information I extracted related to my focus of interest for the research.

## 3.2 Complementarity and/or Convergence?

Albeit the *unsupervised* method just described provided helpful information in order to have a first understanding of what the dataset would encompass, I needed a more appropriate method to answer to my first research questions, so I selected the HK method, as I explained in *Chapter 2, Paragraph 2.1.1*. The HK method develops from a subsample that is hand-coded on the basis of a categorization scheme (as described earlier in *Paragraph 2.1.1* in *Chapter 2*). In this section I will present the sampling operations and I will then explore results of the handcoding process. Finally, I will go into the results of the HK methods, to discuss the issue of integration in mixed methods inquiry.

The sampling strategy was a stratified one, based on the year variable. The dataset used presents indeed an uneven distribution of articles by year, with an increasing of articles in the last years. *Table 3.1* shows the distribution by year of

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<sup>8</sup>I could make such statements looking both at words with the highest probability to be part of a certain topic and at words with particularly high frequencies in a topic, compared with overall frequencies across all documents. Most frequent stemmed words in topic 27 are, indeed: “argument”, “represent”, “scientif”, “phenomena”.

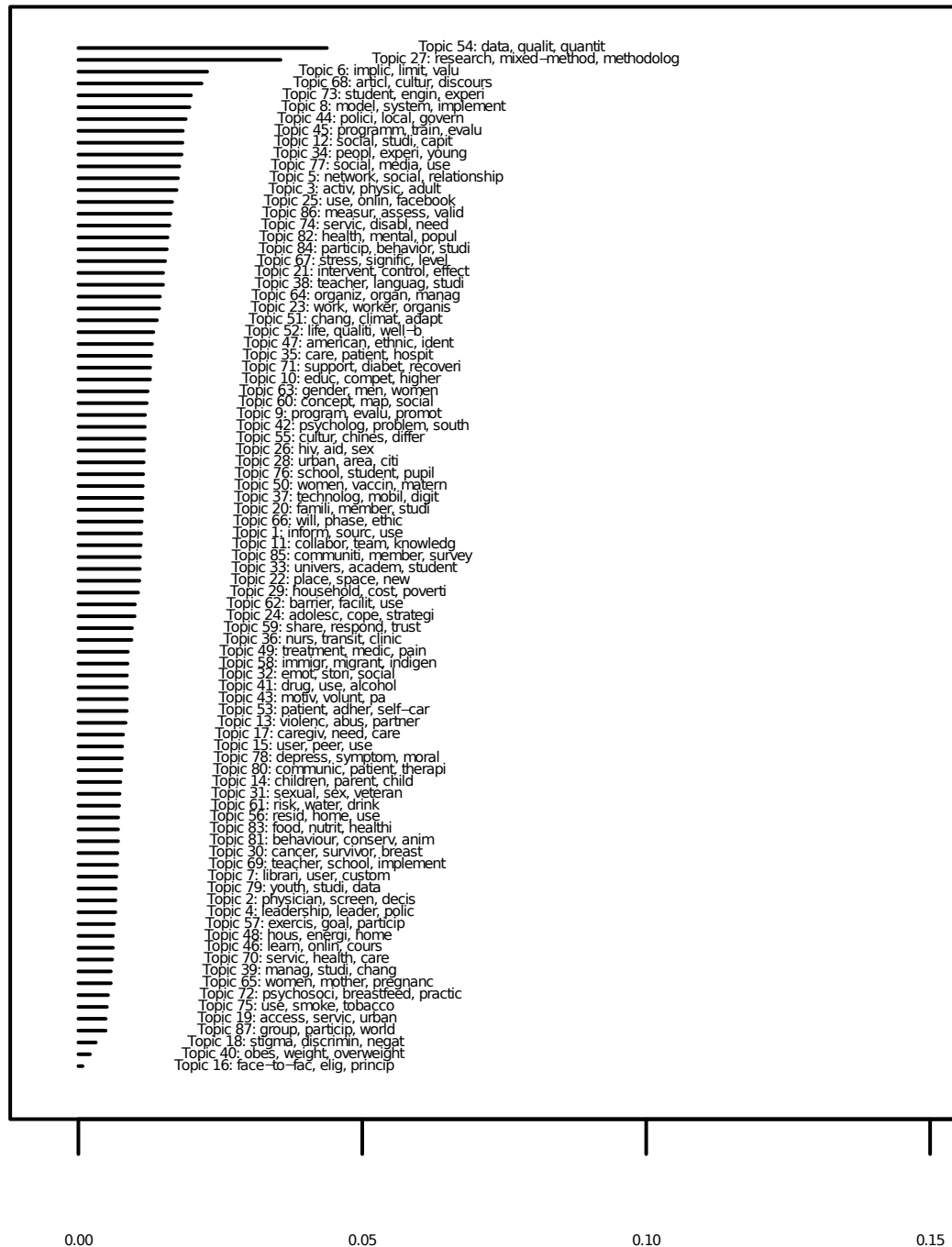


FIGURE 3.5: Topic proportions extracted from abstract – estimates from the STM

TABLE 3.1: Frequencies distribution by year and number of sampled papers

<i>Year</i>	<i>Frequency (%)</i>	<i>N° of sampled papers</i>
2003	0.2	1
2004	0.3	1
2005	0.6	2
2006	0.9	3
2007	1.7	6
2008	2.2	7
2009	4.0	13
2010	5.5	18
2011	6.7	22
2012	9.4	32
2013	12.1	41
2014	16.3	55
2015	18.7	63
2016	20.0	67
2017	1.4	5
Total	100	336

collected papers and the number of papers to include in the subsample for handcoding<sup>9</sup>.

### 3.2.1 The Handcoded Sub-sample

I will now present a first exploration of the subsample that I handcoded according to this categorization scheme. *Figure 3.6* shows the coding categories sorted by frequencies. As we can see from it, category 1 (CP) – declared and applied complementarity – is by far the approach that emerges the most from handcoded papers. The second most frequent category relates to code 3 (CP+cv) – complementarity implemented and convergence declared only – providing some evidence that goes in the direction of confirming the initial hypothesis. While complementarity might be easily pursued in social research, a convergent approach seems to be more challenging. The category of convergence (CV) shows indeed a low frequency, followed only by convergence and complementarity, both declared only (cp+cv) and complementarity declared only and convergence implemented (cp+CV).

When it comes to distinguishing years in each category (*Figure 3.7* and *3.8*), we can notice a peak of articles published in 2014 that are coded as CP – complementarity implemented. However, categories with higher frequency also show the larger diversity in publication years. Looking at proportions of categories in each year of publication, 2011 and 2009 are years in which category 1 (CP) – complementarity

<sup>9</sup>About sampling, I decided the sample size by look at the proportion of papers published before 2014 – year with the highest growth of papers published declaring the use of mixed methods – and the remaining proportion. I then found the number of papers to sample in strata by multiplying the frequency of total papers in each year by the sample size. Finally, random papers were extracted thanks to the R package `stratification`.

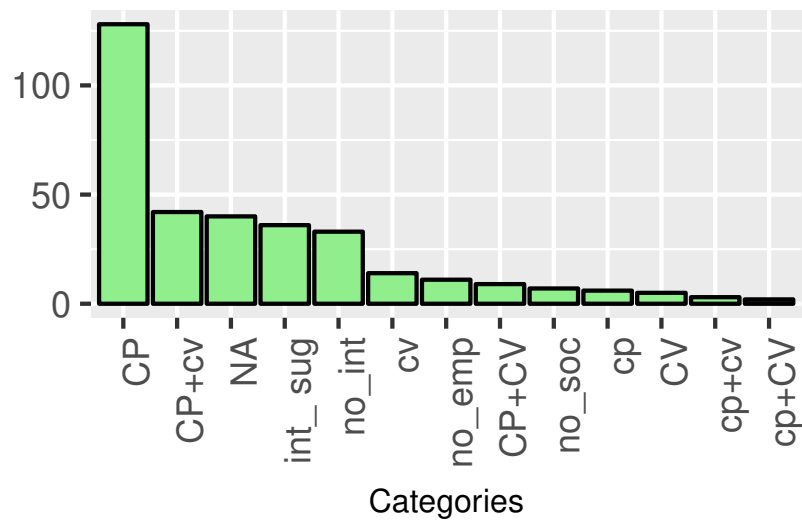


FIGURE 3.6: Categories count in the handcoded subsample, by frequency

implemented – is less predominant. 2014 and 2010 emerge as interesting years, considering that beside category 1 (CP) being prevalent, as already noticed for 2014, category 3 (CP+cv) – complementarity implemented and convergence declared only – shows a relative incidence. More in detail, *Figure 3.7* was built with categories on one axis and frequencies on the other one and each bar corresponds to the count of articles within a category for a specific year (represented by the different colors). *Figure 3.8*, instead, shows the distributions of categories within each year, that allows us to see how categories are more diversified in papers from 2012.

Nevertheless, I need to notice that I encountered various challenges in the process of handcoding. It was not always immediately clear which category would a paper be a part of. In the set of categories I defined (see *Paragraph 2.1.1* in *Chapter 2*) I included “NA” as a possibility for all those cases in which I could recognize some sort of integration, but that would not fit any of the other categories considered. I ended up applying the “NA” code to 40 papers, the 12% of my subsample for handcoding, a proportion that need to be further investigated. This does not surprise me, being the mixed methods field a possible space for creative ways to use methods (as I mentioned in *Chapter 1* numerous times, especially in *Paragraph 1.1.2*). However, I identified a possible strategy to better understand what is part of this category during the qualitative thematic analysis. Indeed, after the procedure of coding of interviews I could apply the same operation to these papers, eventually capitalizing on the same codes emerged from the interviews (I will further explore the matter later in the dissertation, in *Paragraph 5.5* of *Chapter 5*).

Moreover, the procedure of attributing codes was also a result of my personal *mental model* (see *Chapter 1*, in particular *Paragraph 1.1.2*) and worldview, as well as of my process of thinking about the topics of interest for this dissertation. However, these processes are also largely based on activities of investigation of the existing



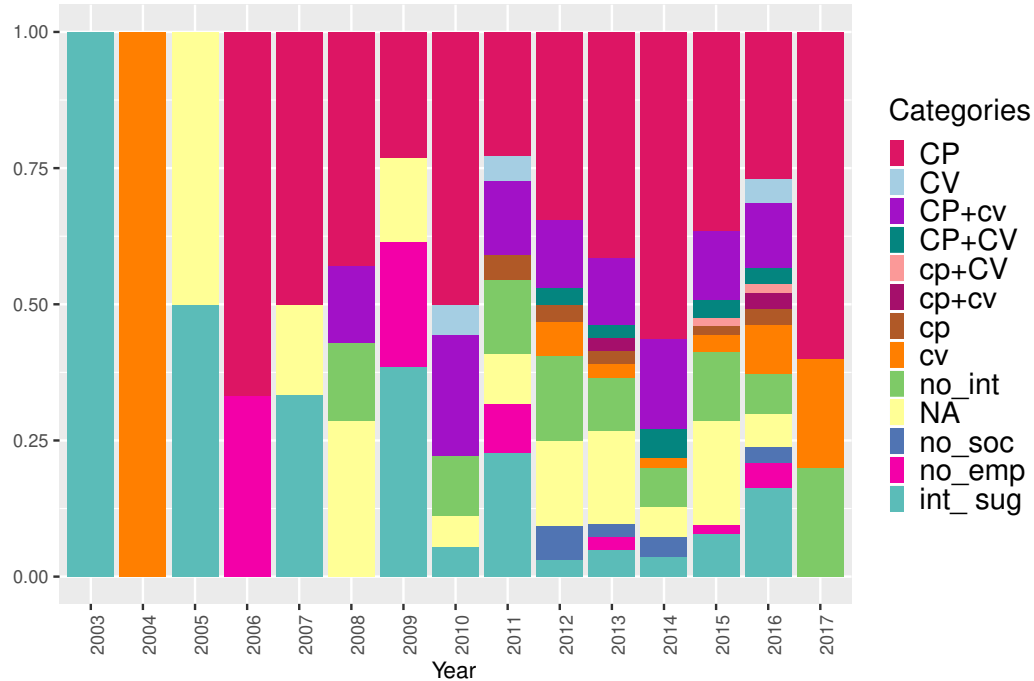


FIGURE 3.8: Proportions of the different categories in each year. Number of sampled papers by year: 1 for 2003, 1 for 2004, 2 for 2005, 3 for 2006, 6 for 2007, 7 for 2008, 13 for 2009, 18 for 2010, 22 for 2011, 32 for 2012, 41 for 2013, 55 for 2014, 63 for 2015, 67 for 2016, 5 for 2017.

literature on mixed methods, as well as on thorough confrontation both with my Supervisor and with my Co-Supervisor, allowing the process to benefit from some intersubjectivity. Nevertheless, I am aware that some measure to address intercoder reliability could still add value to this work.

### 3.2.2 Is Convergence more Challenging than Complementarity?

Table 3.2 shows results from the HK method, compared with the strategy of hand-coding: the first column is abbreviations of the defined codes; the second column reports the actual numbers of handcoded papers, while the third column shows them in percentages; the fourth column refers to proportions of codes estimated through the HK method; finally the last column is related to error (calculated by subtracting predicted values from the handcoded ones)<sup>10</sup>.

Looking at the results from the HK method, it is once again clear how complementarity (“CP”) is the most applied approach to integration in mixed methods studies and it is mostly pursued alone (instead of being combined to a convergence purpose for integration). This category, indeed, presents a proportion of 38% both in the papers I handcoded and in the estimates from the HK method. On the contrary,

<sup>10</sup>Moreover, the values for the root mean squared error (RMSE) and the mean absolute error (MAE) are reported in the table’s caption. While the last one measures the average degree of the errors in a set of predictions, without considering their direction, RMSE measures the error through quadratic scoring. They both can range from zero to infinite, with smaller values being associated with a smaller error.

the proportion of papers related to a complementary approach that is declared only and not implemented with the empirical research (“cp”) was estimated to be the 2% of the articles analyzed with the HK method.

The second most frequent category results to be complementarity implemented together with a declared only convergent approach (CP+cv), reinforcing the idea that there is some confusion about the purpose of convergence to integration. From the handcoding phase, what mostly emerged is that rather often researchers state in their article an intention of “triangulating” data coming from different sources, but then the way they use information in the analyses resembles more an aim of complementarity, in which relevant aspects emerging from one method are accompanied by elements grasped with another – or sometimes more than one – method. Moreover, I need to remark that the category includes at least two different scenarios, that would be difficult to distinguish: on the one hand, researchers might declare an intent oriented to convergence only, but the paper shows integration only in terms of complementarity; on the other hand, both complementarity and convergence might be acknowledged as aims, while complementarity ends up to be the only approach pursued on the empirical level.

Nevertheless, a smaller proportion of papers (2% estimated with the HK method) presents some combination of a complementary and a convergent approach to integration, both implemented together in the same paper (“CP+CV”).

Another category that appears rather relevant is the “NA” one, attributed to those papers that do not apply to other codes, but where I could still see some form of integration, as defined for the interests of this work. However, the most ambiguous category is the one related to the lack of integration in an article where mixed methods are declared to be used (“no\_int”). This code was indeed applied to 4% of the handcoded papers, but with the algorithm it reached a proportion of 9% of the identified full texts, with an error of 5%. Therefore, not only the category of convergence poses some issues, but also integration itself seems to be not clearly defined. Moreover, the definition of integration I applied to the subset for handcoding is a rather broad one (see *Chapter 2*), so that one possibility is a lack of specific word frequency profiles for this particular category.

Then, I find interesting also what is revealed by looking at the category of papers that merely suggest integration or that present only partial results while integration is reported in different publications (“int\_sug”), that reaches 11% of cases, both in the handcoded subset and in the whole set of papers analyzed with the HK method. This result, however, could be related to publishing issues, considering the limitation imposed by academic journals, as I had the chance to explore through the interviews (see *Paragraph 5.4.1*, in *Chapter 5*).

Coming back to convergence, that I already identified as a challenging approach, we can see how the approach is actually implemented (“CV”) only in 2% of the papers, according to the estimates from the HK method. However, when it comes to

the same approach only declared and not implemented (“cv”), the proportion estimated through the HK method reaches the 5%. Therefore, a convergent approach seems to be more often declared only rather than actually pursued on the empirical level. A similar result emerges looking at convergence when combined with complementarity: implemented convergence only reaches the 2% (summing the two codes “CP+CV” and “cp+CV”) while convergence merely declared when complementarity is pursued instead (“CP+cv”) has a proportion of 13%.

Finally, with the HK method I found rather low proportions both for papers not presenting empirical research (“no\_emp”, with an estimate of 3%) and for articles that could not be considered as part of social sciences (“no\_soc”, with an estimate of 2%). These two categories, indeed, are related to papers that were not supposed to be part of the sample in the first place. However, cleaning operations conducted in the phase preliminary to analyses are not ineluctable, thus a relatively small percentage of articles that should not have been included was still part of the analyzed sample.

TABLE 3.2: Comparison between the results from the handcoding strategy and the estimates from the HK automated method. Error is calculating subtracting the predicted values from the actual values. The RMSE is equal to 0.0045, the MAE is equal to 0.0031.

<i>Codes</i>	<i>Handcoding</i>	<i>Handcoding %</i>	<i>HK estimates %</i>	<i>Error</i>
CP	128	38	38	0.00
CV	5	1	2	0.01
CP+cv	42	12	13	0.01
CP+CV	9	3	2	0.01
cp+CV	2	1	0	0.01
cp+cv	3	1	1	0.00
cp	6	2	2	0.01
cv	14	4	5	0.01
no_int	33	4	9	0.05
NA	40	12	12	0.00
no_soc	7	2	2	0.00
no_emp	11	3	3	0.00
int_sug	36	11	11	0
N° Papers	336	336	2985	-



## Chapter 4

# Networks of Scholars in Mixed Methods and Beyond

I will present here results emerging from the citation network analysis<sup>1</sup>. This method implies a set of assumptions and – also necessarily – some limitations. The main assumptions have to do to with the influence of the cited work and the similarity on these two works:

«It is generally assumed that a citation represents the citing author’s use of the cited work, and indicates an influence of the cited work on the author’s new work, and as such a flow of knowledge from the cited to the citing works’ authors. Citations also indicate relatedness (e.g. similar subject matter or methodological approach) between these two works» (Zhao and Strotmann, 2015, p. 1).

For what concerns limitations, the largest issue I had to deal with was name ambiguity. More specifically, I was aware of the chance of possibly facing not unique names, that is inevitable within a dataset of 79646 nodes. Unfortunately, disambiguation was not always possible. During operations of cleaning and preprocessing of data I opted for keeping surnames and the first letter of the first name, but this was not always enough. Moreover, sometimes surnames resulted misspelled or letters from the first and middle name were not reported in the same order, but it is arduous to completely avoid these problems in citation network analysis (ibid.) and the only possible solution was to appeal to the law of large numbers, that could keep eventual bias to a minimum.

I extracted information about the reference lists of the papers of interested for this work from the database *Scopus*, thanks to Elsevier’s APIs tool . To conduct the analysis I used the software *Gephi*, an open source tool which allows to visualize networks and perform statistical analysis on them. The generated graphs could also be eventually imported in R as well. Nodes are here a representation of scholars either citing or being cited. Edges represent the action of citing (the weight of edges is given by the count of citations happening in the whole set of papers). In order

<sup>1</sup>The process that was behind this chapter largely benefited from the help by Giampiero D’Alessandro, who I want to thank here for the time and effort dedicated, as well as for the shared expertise.

to reduce complexity to what ended up to be a very large dataset, I considered first authors only, both for articles in the dataset and for referenced papers<sup>2</sup>. The overall network, including all the first authors in the papers from my dataset and the cited authors (first authors for each paper in the reference list) is composed by 79646 nodes – representing scholars – and 158165 edges – representing either the act of citing or that of being cited. Generally speaking, the overall network presents an average degree<sup>3</sup> of 1.986, while the weighted measure for the average degree<sup>4</sup> is 2.304. The average path length<sup>5</sup> of the entire network is 7.572.

## 4.1 Communities

In this section I will present communities highlighted in the larger and general network, taking advantage of a measure of modularity, following the algorithm by Blondel et al. (2008). All the graphs that I will here present are constructed taking advantage of the Yifan Hu’s attraction-repulsion layout model (2006). Through the measure of modularity, I can focus indeed on different *communities*, i.e. clusters in the network with closer relations. The diverse communities are identified in graphs through the use of various colors. Among all the communities emerging, one in particular – that I will refer to as “mixed methods community” – relates to scholars who explicitly write *about* mixed methods. However, before fully entering in the description of the mixed methods community, it will be crucial to offer a fuller picture of where this group is situated and what are the relations with the rest of the network. Therefore I will here explore the main communities emerging.

*Figure 4.1* represents a portion of the total network obtained by defining the parameter of k-core as 3, removing sparsity – with nodes that do not result as connected to others – and edge weights of at least 2 – ignoring in the graph those citations that only happened once. Moreover, the graph is built focusing on the four main communities obtained taking advantage of modularity. Then, looking at the main four communities emerging in the graph, we can clearly distinguish the mixed methods one (here in violet). The node and label size is defined by the degree. We can see the name “Creswell” largely emerging. However, the author in this case – I will present

<sup>2</sup>In citation analysis there are different modalities to deal with co-authorship. «First-author counting tends to identify researchers who have conducted highly influential studies and to emphasize a researcher’s unique areas of study and most influential contributions» (Zhao and Strotmann, 2015, p. 30), an outcome that is consistent with the aims of identifying and describing main contributors to the field and eventual power relationships.

<sup>3</sup>The *degree* of a node in a network is the number of connection attached to that node. *Indegree* relates to connections directed towards the node, while *outdegree* counts connection coming from the node. Specifically, in CNA indegree represents the count of citations that a node received, while outdegree looks at citations done by a node. *Average degree* of a network, then, is the average of all the nodes’ degrees in that network.

<sup>4</sup>*Weighted degree* of a node is counted considering weights of the edges of that node. Therefore, *average weighted degree* is simply the average of all the nodes’ degrees, weighted accordingly to edges’ weights.

<sup>5</sup>*Average path length* is a measure of the count – on average – of the “steps” needed to reach any node from any other node in the graph.



a different situation later – is not shown as part of what I will identify in this chapter as the mixed method community. In the mixed method community, names like “Onwuegbuzie”, “Greene”, “Johnson”, “Tashakkori”, “Bryman” – all rather known authors in the mixed method field – emerge. For a node in a network, having a large degree means to have a large influence in the connections made: the highest the degree the more connections a node has in a network. For citation networks, in particular, this means an author is either publishing intensively in the area – and period – of interest or she/he compares in references lists many time (or a combination of the two things). In the light blue community shown in *Figure 4.1*, Creswell – a name that would emerge as a prominent scholar from any literature review on the topic of mixed methods – is the main node and others doesn’t seem to emerge. The green one is dominated by Borgatti and other names emerge, like Daly, Putnam, Granovetter, Crossley, all authors that seem to refer to the tradition of social network analysis. The red community, the most sparse one, is dominated by Ajzen (who is a way smaller node compared to “leaders” of other communities). The measures of this specific network, defined as explained by removing a certain sparsity (k-core was set as 3), are: average degree: 5.302; average weighted degree: 6.4; average path length: 6.968.

In *Figure 4.2* the community where Creswell is showed is here isolated – setting the k-core parameter once again as 3 and selecting edges with a weight higher than 1 – to better analyze it. Other emerging – and recognizable – names in this network are Habermas and Sen, who are both well-known thinkers for issues relating to democracy and social justice.

## 4.2 The Mixed Methods Community

The expanded version of the mixed methods community seen above – with edge weights set to equal at least 2 and a k-core of 3, to remove sparsity – allows us to better see relationships among members (*Figure 4.3*). At the corner of the graph authors who are not immediately recognized as mixed methods scholars. In the center authors seem to be rather equally interconnected.

Then, when setting the edge weights to be at least 3 – excluding citations that have occurred two times or only once – our mixed methods community – this time in light blue – changes, seeing the dominant presence of Creswell (*Figure 4.4*). The k-core parameter is still of 3, but this time the node and label sizes reflect weighted degrees, with some slight changes. For example, in the green community, previously dominated by Borgatti, now Daly looks larger. Other communities are included, e.g. the yellow one, where Bourdieu – a well known author in sociology of culture and economic sociology – emerges now. Other emerging nodes can be spotted, like Seider – an author from the education field – in the red community on the right-bottom corner, and Baird – an author on health sciences who uses an interdisciplinary approach that encompasses multiple methods – in the purple community (top-left).



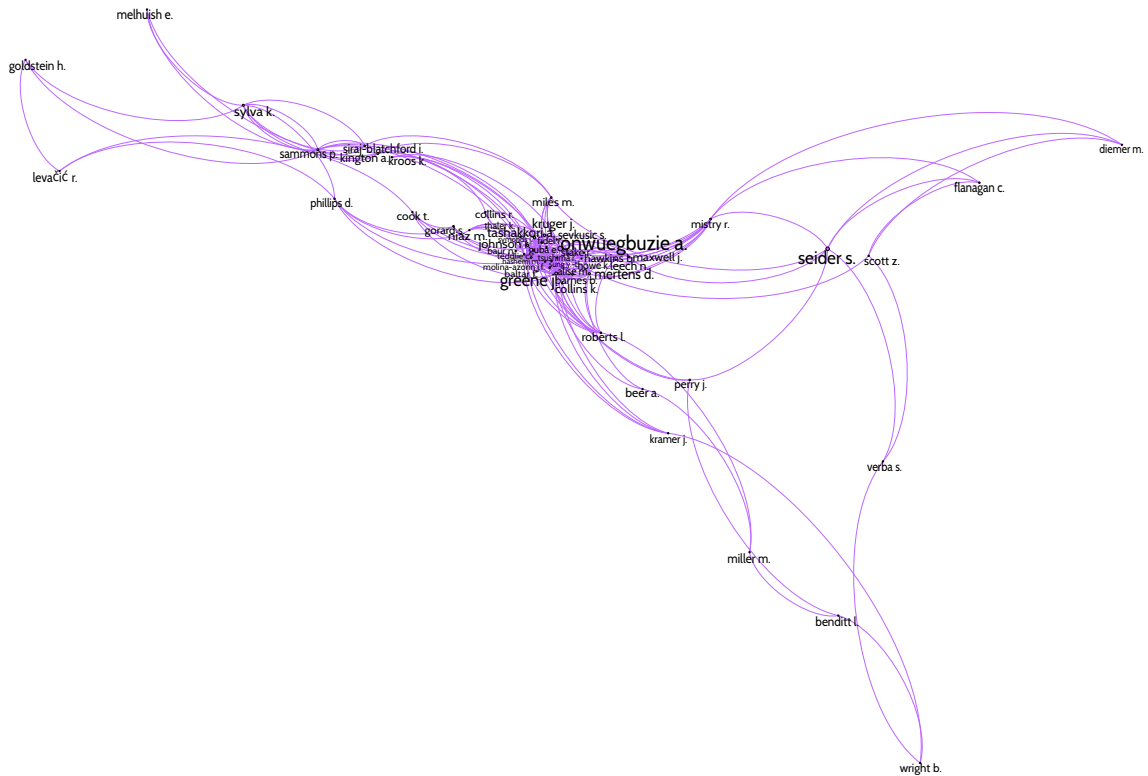


FIGURE 4.3: The mixed methods community isolated, sparsity removed (k-core equal to 3, edge weights of at least 2)

In *Figure 4.5* we can see another visualization of the circumstances just explored. The mixed methods community appears this time in violet. This time, I intentionally transposed the position of the node related to Creswell and that related to Onwuegbuzie – the two most influential nodes in the graph – in order to make the mixed methods community (in purple) more clear.

Focusing exclusively on the mixed methods community (with parameters of k-core equal to 3, and edge weights of at least 3), some relevant aspects can be noticed (*Figure 4.6*). Here the colors represent the measure of betweenness centrality – i.e. the number of shortest paths that pass through the vertex (darker colors being associated with a larger measure). The measures for the portion of network associated with the mixed methods community – with 1473 nodes and 4754 edges – are: average degree: 3.227; average weighted degree: 4.267; average path length: 3.854.

Considering the measure of indegree (*Figure 4.7*) – to point at edges directed towards the node (size and intensity of the color), Creswell still covers the most important role in the graph, followed by the cluster Tashakkori, Johnson, Greene.

However, the story slightly changes when we look at the outdegree – to point at edges that comes from the node (*Figure 4.8*). Onwuegbuzie becomes the most crucial one. In this graph the size represents the outdegree, while the color intensity represents the indegree measure.

Finally, to summarize, *Table 4.1* shows the main measures for selected nodes of the mixed methods community. I already provided – in the previous section and in











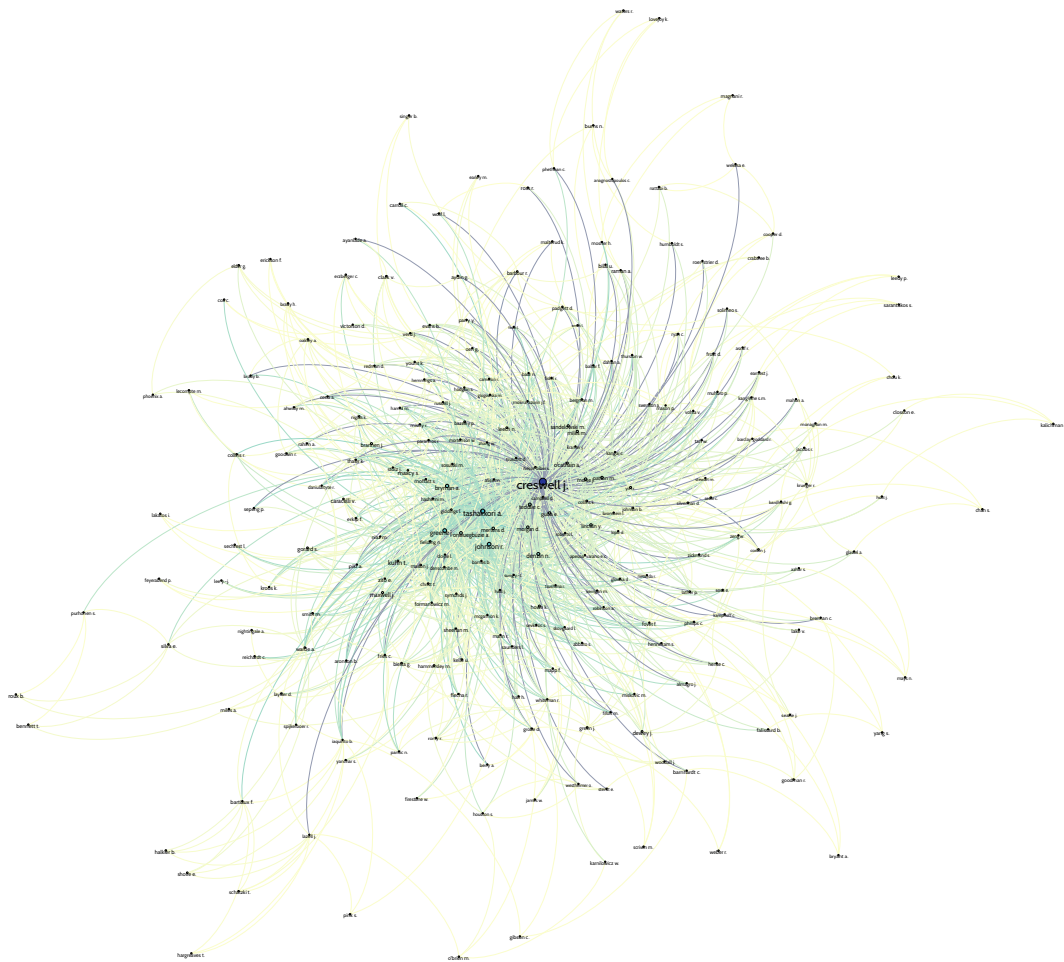


FIGURE 4.7: The mixed methods community, sparsity reduced (k-core of 3, edges with weight equal at least to 2): indegree

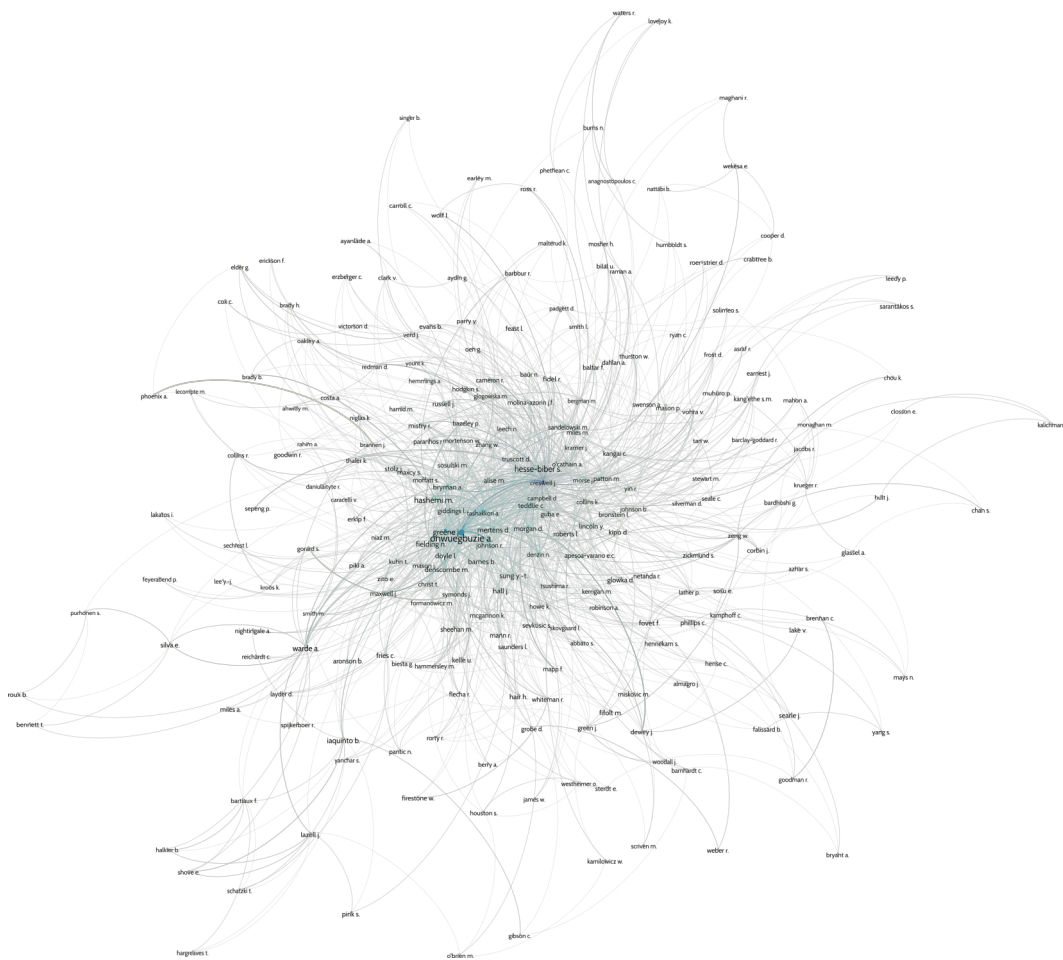


FIGURE 4.8: The mixed methods community, sparsity reduced (k-core of 3, edges with weight equal at least 2): outdegree

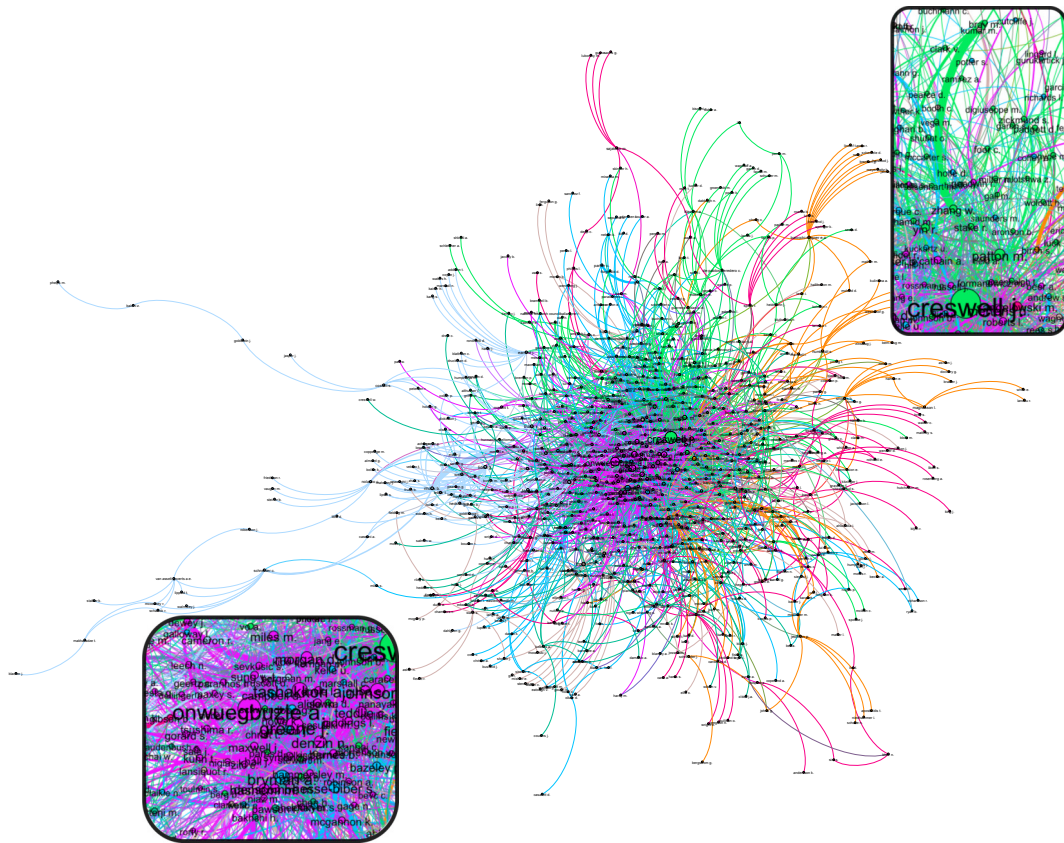


FIGURE 4.9: Mixed methods schools within the community

*Paragraph 2.2 in Chapter 2* – a definition of the measures seen in the table. We can notice how Creswell, a name that predominantly emerged from all the graphs, presents the highest degree and weighted degree. However, when it comes to weighted in-degree – pointing out how many times an author has been cited – the node referred to Tashakkori emerges. Then, the highest measure for weighted outdegree – referring to the count of how many other authors in the network are cited by a node – is that related to Greene. The same author shows also a rather high value or closeness centrality, followed by Weisner.

### 4.3 Mixed Methods Schools

Then, going more in detail within what I earlier identified as the mixed methods community, I wanted to see whether it was possible to distinguish among different schools of thought. *Figure 4.9* shows this attempt, identifying diverse groups – with different colors – within the larger mixed methods community. Also in this case, the size of the nodes – and the relative labels – is related to the measure of weighted degree. The “school” identified by the color blue appears as the most sparse.

*Figure 4.10* represents what I called a core of mixed methods authors, divided in different schools, identified by different colors. The “school” in green is – once again – dominated by the influence of Creswell. The pink community sees the presence



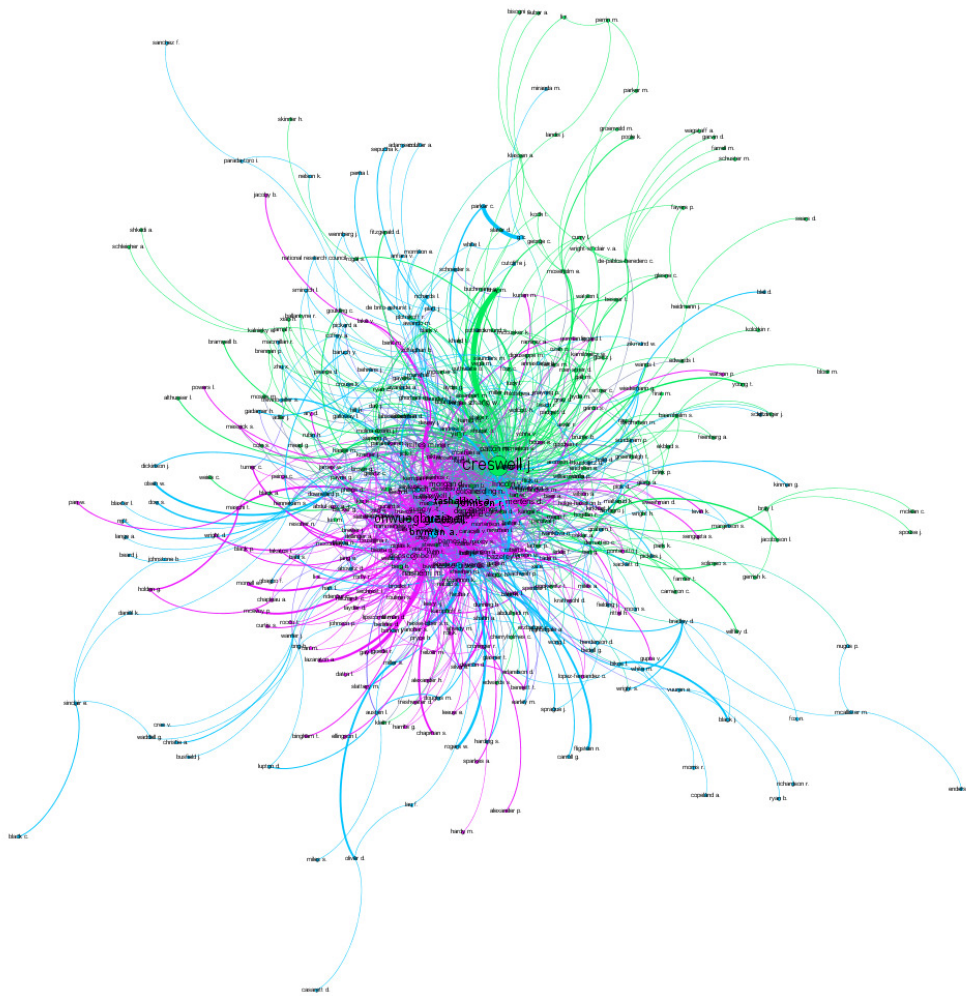


FIGURE 4.10: Core of mixed methods scholars in different schools

of authors like Onwuegbuzie and Tashakkori, while in the light blue one the name “Bryman” can be located.

I presented here the analysis of citation networks, trying to look at the diverse “communities”. In the next chapter I will focus on the thematic analysis of the interviews that I conducted with experts in the mixed methods field.

TABLE 4.1: Main measures (indegree, outdegree, degree, weighted indegree, weighted outdegree, weighted degree, closeness centrality and betweenness centrality) for the most recognizable authors in the mixed methods community and for those scholars I interviewed, ordered by the highest indegree

<i>Author ID</i>	<i>Indegree</i>	<i>Outdegree</i>	<i>Degree</i>	<i>W. Indegree</i>	<i>W. Outdegree</i>	<i>W. Degree</i>	<i>Closness Centr.</i>	<i>Betweenness Centr.</i>
creswell j.	894	32	926	169	33	1202	0.150	29116376
tashakkori a.	238	0	238	305	0	305	0	0
greene j.	167	88	255	228	108	336	0.166	20004911
bryman a.	166	24	190	213	28	241	0.146	2728239
teddlie c.	140	0	140	169	0	169	0	0
fetters m.	16	0	16	19	0	19	0	0
weisner t.	9	78	87	20	103	123	0.164	3633918
interviewee04	7	0	7	7	0	7	0	0
creamer e.	3	0	3	3	0	3	0	0
lowe e.	2	0	2	3	0	3	0	0
plano-clark v.	1	0	1	1	0	1	0	0
<i>Average in the overall network</i>	-	-	1.986	-	-	2.304	-	-





## Chapter 5

# The Mixed Methods Scholars' Take

I will present in this section results emerging from analyzing interviews through a focus on themes (see *Paragraph 2.3 in Chapter 2*). As I mentioned above, I took advantage of the application RQDA, an open source tool for qualitative data analysis, embedded in the software R, that I already used for the text analysis: managing both corpora with the same software could allow me some eventual sophistication in integrated analyses. Through an interpretative process, I assigned themes to portions of texts<sup>1</sup>, labeled with codes – with each code referring to a specific theme – both when the interviewee was explicitly talking about a theme and when the theme was more implicit. This analytical phase aimed to let themes emerge by scholars' reports, but also considering my own knowledge of the field and the research interests of this work. After having a set of themes referring to the same general topic, I started connecting codes in codes categories.

*Table 5.1* summarizes some information about interviews, the names of scholars interviewed – in those cases when they agree about full disclosure<sup>2</sup> – the date when the interview was conducted, the modality of interview – face-to-face, through web call or as a written response to my set of questions, and eventually where it was conducted – and the affiliation of the scholar to an institution, together with the role in that institution and eventually other relevant roles in the mixed methods community. Moreover, three of the interviewees are women (Elizabeth Creamer, Jennifer Greene, and Interviewee07), and the four remaining are men (Tom Weisner, Ted Lowe, Mike Fetters and Interviewee04). All the scholars interviewed are based in the United States, except for Interviewee04, who is based in Europe<sup>3</sup>. Finally, they were all chosen because of their prominent role in the field, trying to diversify as much as possible in terms of approach to mixed methods (I already explained the sampling procedure for interviews in *Paragraph 2.3 in Chapter 2*).

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<sup>1</sup>Please note that a portion of text would not necessarily refer to one theme only.

<sup>2</sup>In particular, I received consent to use full names by five of the seven interviewees, while one of them explicitly required anonymity and I did not receive an answer from the remaining scholar.

<sup>3</sup>I am aware that the interviews are not considering geographic diversities, but they are also not intended to be representative. I rather wanted to grasp a picture of a core of rather recognized authors in the field, with some difference in terms of perspectives on mixed methods. Therefore, I am intentionally focusing on mainstream perspectives on mixed methods inquiry, with a spotlight on Northern America, a geographic area where the field of mixed methods – with explicit uses of this label when addressing methodology in studies – emerged prominently.

TABLE 5.1: Information about the conduction of interviews. Please note that MMIRA stands for Mixed Methods International Research Association, while JMMR stands for Journal of Mixed Methods Research, and MMMP stands for Michigan Mixed Methods Program

<i>Interviewee</i>	<i>Date</i>	<i>Modality (@Where)</i>	<i>Affiliation – Relevant Role</i>
Tom Weisner	Oct 25, 2017	Face-to-face (@UCLA)	Professor of Anthropology, Emeritus, at UCLA in the Department of Anthropology and the Department of Psychiatry & Biobehavioral Sciences Associate Professor of Anthropology at Soka University of America
Ted Lowe	Oct 30, 2017	Face-to-face (@Soka University)	Professor Emerita, School of Teducation, Virginia Polytechnic Institute & State University
Elizabeth Creamer	Jan 4, 2018	Web call	– MMIRA President elected
Interviewee04	Feb 27, 2018	Written response	Information obscured to keep anonymity
Mike Fetters	Mar 3, 2018	Web call	Professor of Family Medicine at the University of Michigan
Jennifer Greene	Mar 15, 2018	Face-to-face (@Urbana-Champaign)	– MMMP Co-Director
Interviewee07	Apr 14, 2018	Face-to-face (@AERA meeting, New York)	Professor of Educational Psychology at the University of Illinois at Urbana-Champaign
			Information obscured to keep anonymity

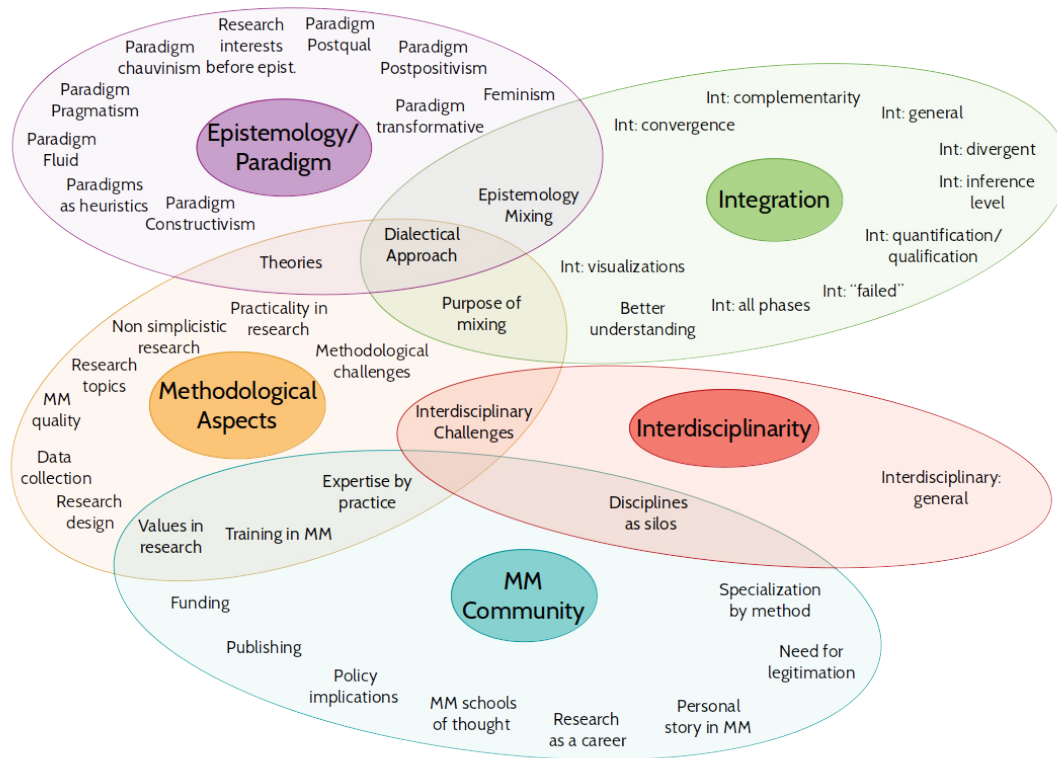


FIGURE 5.1: Themes emerging from the analysis of interviews, with respective categories

Within *Figure 5.1* I assembled all the themes emerging from analysis, dividing them in different categories, highlighting circumstances in which they semantically overlap. I wanted indeed to visualize the general scope of the interviews: themes developed from the analysis of the interviews were aggregated into macro-categories, in a cognitive effort to grasp a comprehensive representation of what emerged from interview. Nevertheless, not everything in the figure will be explored to the same extent in the discussion of results, depending on what is of interest for this discussion. I will start by briefly exploring interviewees' "initiation" to mixed methods, and I will then go more in depth to how integration is perceived by scholars. Later I will present the issue of legitimation in mixed methods, introducing epistemology and paradigms in mixed methods, noticing in particular discourses around the fact that research questions come before paradigms. I will then focus more on themes around the category of mixed methods scholars as a community and the relationship with other groups in academia.

## 5.1 Interviewees' Profile

The interviewees' first encounter with mixed methods and their personal story in the field might be of relevance as it opens up to some issues that I would like to cover. A first theme – emerging when scholars were asked about their early career in the

mixed methods area – is the openness to new ideas and modalities of conducting research that might originate in other fields or disciplines, as reported below:

*«One of the very first studies I did was a mixed methods study, but I didn't know it was a mixed methods study. I was doing work on a Fulbright experience in Japan. I was doing interviews and also a survey. From the beginning, it was natural for me to want to know how to measure things but also to understand people's stories. I think that's basically the way I've been wired. That's what's in my head. I like both. The other issue that came up really is that because I was an exchange student, I was living in a cross cultural environment. Cultural differences were very obvious to me, but also medicine is very measurement oriented. It was also natural for me that I was immersed in more qualitative kinds of issues around culture, but I was also in an environment that used very hard science and measurement» (from the interview with Mike Fetters).*

In this excerpt it is possible to notice how the scholar found relevant cultural differences even within a field such as family medicine. Thus, he tried to incorporate “people's stories” within the usual measurements in medicine.

By the same token, a theme that is rather recurrent in the reports is interdisciplinarity. Different fragments from interviews with various scholars highlight how the interest for an interdisciplinary approach coincided with the curiosity for mixed methods inquiry in their early career:

*«It actually first started I think in an unusual way. For about 13 years I worked in a centre for the study of interdisciplinarity. My first interest was in interdisciplinarity, interdisciplinary research, interdisciplinary scholarship, teaching. It was from that that I discovered Creswell's first book where he talked about turning the story and he wrote about five qualitative traditions. [...] It was from an interest in interdisciplinary and how that lives in the academic world that I first became interested in mixed methods. That is how I got into it» (From the interview with Elizabeth Creamer).*

*«So I was interested even as an undergraduate, for example in psychological anthropology, which it's kind of notable studies, you know. Going way back it had always have a mixed methods approach. Psychological anthropology as a discipline combined the kind of methodologies for interest among psychologists which have always been kind of a blended either clinical insights or quantitative measurement and trying to, in order to speak to these communities, this group of anthropologists also tended to bring in both quantitative and qualitative» (From the interview with Ted Lowe).*

This last excerpt presented also a reference to the fact that having qualitative and quantitative research within the same disciplinary area is not always so expected. The issue of specialization by method within disciplines or among groups of scholars is indeed rather recurrent as well.

*«So, let's just assume that the disciplines that, you know, are in that silos... You know, they're in their buildings, and then a few lucky people go and talk to each other and they are meeting somewhere in secret... They go across. But, you know, in the history of the social science this wasn't true. So, go back to the 1940s 1950s so, it wasn't true. Psychology... psychology was a mixed methods field, every historical figure of psychology, Piaget, everybody... they're all mixed methods. It's only later that it became in silos. Anthropology was the same thing. Anthropology was an interdisciplinary... it had a quantitative methods and qualitative methods, all of the major figures and then now it has become more known for ethnography, less so for quantitative. It wasn't true before. Sociology, same thing. Sociology historically wasn't a field that just did surveys or assessments, they had ethnography and social history and other things... So, after the 1960s those silos developed. The point, the point is... That there is no reason, because you're in a discipline, that you have to specialize in one method» (From the interview with Tom Weisner).*

The passage just presented pointed out at least two aspects. On the one hand, disciplines are in silos – that I will further explore later – and they use different ways to do research; on the other hand, the fact that this situation was not the same in the early development of the mentioned fields shows that the possibility of having some *mix* was considered and normally pursued. Below, another part selected from a different interview goes on about the moment when the separation occurred in social sciences:

*«I do remember the intellectual climate at the time. This was in the years directly following my graduate program, so that was the mid to late '70s. This was the qualitative revolution. My graduate program was very straight in "This is how you do research. These are the principles. These are the statistics. These are this." The qualitative revolution was a revolution. Literally in both politics, in intellect, in interpersonal things it was... I remember those conference sessions. Little Egon Guba [...] he'd be up there on the platform rallying the troops and... It really was. It felt revolutionary. That was a major, major influence for me. This notion of, hey, there's other ways to do research. There's other ways than those that I learned, which I always call the proper methods properly applied. I was a quick convert because this notion of looking for meaning and attending to context and not expecting information like, "On the average, how do students do?" The answer to that question is not very interesting and misses most of what's going on. That set the stage because that was a really challenging intellectual time and it was revolutionary. I was a child of the hippie revolution, so it was all good. [...] Then I did get an academic job working with some students to take a look at the evaluation literature – we were evaluators – and see what was going on. I don't remember exactly what prompted that, but certainly this qualitative revolution happened in between my graduate program and this burgeoning interest in why do we have to choose and why does this have to be a fight? We're lucky. We have multiple ways of thinking and knowing about social phenomena. Why don't we use all of them? That was the premise of this mixed methods study and that launched things» (From the interview with Jennifer Greene).*

In the last extract we can see reported the beginning of methods divisions within social sciences. The scholar, however, also mentioned her personal amusement of being exposed to a different way of doing research and the realization, very early in her academic career, that both are possible and equally valuable. In the following section I will go more into the topic of not only having two – or more – methods side-by-side, but also integrating them: this can be considered as the real core of mixed methods (see *Paragraph 1.1.2 in Chapter 1*).

## 5.2 This Is What Integration Looks Like

In my interview protocol I built specific questions on integration, to grasp scholars' point of view, starting from their personal experience and from empirical studies they conducted. In this section, I will report portions of answers that were particularly significant in order to understand the different perspectives on the topic. I will start with some quotes generally pointing at integration of methods:

*«We're intentionally using qualitative data and we're also using intentionally using quantitative data. The mixed methods part is that we are intentionally connecting the two, or we're linking the two. We're using both approaches together in order to conduct the research» (From the interview with Mike Fetters).*

This first quote on integration introduces the topic as a rather broad dimension, repeating the word “intentionally”, stressing how the act of integration can happen only when pursued. Similarly, the passage that follows, extracted from the written report by Interviewee04, coming from an example of empirical application, shows how integration needs to be planned:

*«We planned the integration as “connecting”, as it was a sequential mixed methods study. The findings/results of the first, qualitative phase help to develop and conduct the second, quantitative phase. It was clear we needed the first qualitative phase to conduct the second quantitative phase. We have no doubt that this quantitative phase was possible and better as consequence of the qualitative phase. I think the integration was successful due first to the planned purpose for mixing/integration the two parts; and second, to the good knowledge of the hotel industry that we achieved thanks to the qualitative phase. The important findings of this qualitative phase were key aspects to carry out the quantitative part of this study» (From the report by Interviewee04).*

The focus in this quote is on design and sequentiality, i.e. describing timing as a key aspect of mixing. However, integration seems to emerge as a rather general aspect. By the same token, the following excerpt adopts a broad definition of integration:

*«It's a big bucket for me. It is any way the two ways of thinking, the two ways of design, the two ways of data, of analysis are explicitly in conversation with each other. I use the term more broadly than, I think, some who may only use it during data analysis where it's really the analysis, which is super important and I don't mean to underestimate that. I also really see other ways that the thinking and the connecting is come together sometimes to set you up so you can even get to the point of analysis. That way of them being in conversation, being in connection with each other» (From the interview with Interviewee07).*

The fragment of interview just presented introduces also the idea of different “ways of thinking” and the possibilities that come from combining them. This particular element seems to open up space to new inventive ways in social inquiry, as highlighted also from the following passages:

*«I just think there's a creativity potential. You can't go out and get a book and say, "Here's one way to do it and here's another way to do it", because you've got to wait till you get your data. It is interesting. The creative researcher is finding ways and ignoring these ideas that qualitative and quantitative are so different. They're finding ways to sort their data based on the sort of combining of qualitative and quantitative data, like in my example of the eating disorders» (From the interview with Elizabeth Creamer).*

In this quote, thinking about ways to combine data, regardless of their sources, is indicated as an innovative strategy oriented to integration. Similarly, the following excerpt focuses on creativity in integration:

*«Some of this analytic back and forth I see as very creative and promising. It's on the way to getting conclusions and results. It's not "Okay, what did we learn from this?" It's on the way. This kind of rescaling a survey with the themes from the interview, that kind of thing. I love all those analyses but they're still stopping short of that integration. They're just steps along the way. I think the actual integration we do it inside our heads. We could use a lot more aids [...] and a lot more strategies and good ideas that people have done. Somehow getting the data in one place» (From the interview with Jennifer Greene).*

The vision on integration expressed in this last quote results slightly different from what we have seen so far. On the one hand, the focus seems to shift from design and analysis to another level, “inside our heads”, i.e. at the level of interpretation; on the other hand, the scholar recognize the value of a dialectical approach to analysis. By the same token, the following passage aims attention at the dialog between components that are being mixed:

*«So, you don't try and integrate so much as you engage them in a kind of dialog, a back and forth movement, to try and say that each allows a certain perspective on the phenomena, on the social issues or problems that you're trying to understand, you just need to understand with some sophistication what's happening, as you move between them» (From the interview with Ted Lowe)*

What was just described seems to coincide with the dialectical approach to integration. Moreover, other elements can be spot as well, such as the idea already mentioned earlier of having different “ways of thinking” being combined and somehow *complement* each other in the understanding of a phenomenon (however, I will introduce other scholars' perspectives on complementarity later, in *Paragraph 5.2.1*). So far, I presented general views on integration, but going more in detail into it, scholars have been reporting different aspects related to this general topic, as the level at which integration is happening. The following quotes, for example, focuses on design:

*«Some of the work I've published to date is really thinking about what it means to integrate more at the design level. Thinking about what embedding is. Conceptually what it means with thinking about the methods and the questions and the relationship to each other within the study. Also then at the other end, especially as the results come and we could never have anticipated all of the kinds of findings coming out of the qualitative data. Then thinking about all the different ways of bringing the qualitative information about individual peoples' experiences over time. Themes within those. Discourse kinds of aspects in relation to how they responded to and then outcomes from the intervention» (From the interview with Interviewee07).*

In particular, the excerpt just presented focuses on *embedded designs*<sup>4</sup>, as a specific strategy of integration. Two different levels seem to be of particular interest: on the one hand the planning phase of a study, putting methods and research questions in relation to each other and already thinking about mixing; on the other hand, integrating at the level of findings. Remaining on the data dimension, other extracts from dialogues with scholars highlight practices such as data transformation.

*«Another common and older technique which is well-recognized is data transformation. Qualitative data to quantitative is the most common, but also quantitative data basically developing into themes or categories and then using those data to integrate with qualitative data. Then there's a whole number of other advanced procedures, at least nine that I've been keeping track of» (From the interview with Mike Fetters).*

The quote just reported presents data transformation as a frequent operation in mixed methods, while other scholars highlight criticality and challenges of this procedure, as shown by the following passage:

*«I think data transformation, when you start counting qualitative data and trying to do regression with it and that kind of stuff, you are opening yourself to the criticism from quantitative people. A legit criticism that you're violating the expectations of those methods. The issue of sample and sample size, I guess I would*

<sup>4</sup>Embedded designs are those including a main phase of data collection, conducted under one method tradition – considered dominant in the study – while the other approach is *embedded*, with a role of support (Crewell and Plano Clark, 2007).



*say not violating the sort of quality standards that are associated with qualitative and quantitative. Not thinking, "I'm doing mixed methods and therefore it's okay that I have a sample size of three." No. A sample size of three isn't going to work for most qualitative traditions, much less for mixed methods. I think sometimes mixed methods . . . I'm on a team right now. I'm the evaluator. [...] They were doing a cluster analysis and it didn't work. It just didn't work. They were like, "Oh, well. We'll just call it mixed methods." No. That doesn't work» (From the interview with Elizabeth Creamer).*

Once again, this excerpt illustrated the importance of being intentional about integration and, more generally, of legitimizing operations that are being carried out in a study. Moreover, technical issues are introduced as possibly challenging aspects, mentioning, for example, sample size. Still remaining on a more operative level, another aspect of integration that was mentioned was that related to visualizations of data and / or findings.

*«Joint display has the qualitative data and the quantitative data together, but if you look on a paper you just see the finished product. I just did a presentation last week in Stanford. We actually illustrated how the building of the joint display was analysis. That's the theme of this paper. As you look at how the data are relating to each other in an organized way, you're finding out more about what the data have to say to each other. The joint display presentation I did I think I showed seven different joint displays that we used to best understand the data. The final product was not what we started with. Our understanding evolved as we were building. The joint display construction is an analysis process» (From the interview with Mike Fetters).*

However, this quote mentioned how joint display, one possible form of presenting data in an integrated way, does not merely concern technical and operational aspects. Joint display is rather introduced here as a potential way to integrate at the analytical phase of the research process, to better understand the data. Looking at a larger picture, joint display and graphic visualization are only one possibility in the big bucket of representations, as shown by the following passage.

*«You get both an R-square and a set of themes, or you get something that you're trying to make a portrait of somehow. A picture. I think graphics, spatialization is one aid. We try to put everything in some portrait, or picture, or story. I think aids us but I think ultimately, as with other analyses, the interpretation is cognitive. It's just that we don't have a standard way of representation, like themes or statistical analysis or something. We don't have a standard way or even a repertoire. [...] We have ideas and examples, exemplars, people who've done this well. [...] Again, some of those might be graphics, spatial. Some of those might be narratives. Some of those might be numbers or some kind of numerical order or some kind of order of quantity or quality. An ordered matrix of some kind. Matrices are often very helpful» (From the interview with Jennifer Greene).*

More in detail, the quote enumerates different representation strategies as “aids” to our activity as mixed methods researchers, but it is also pointed out that interpretation of results remains a cognitive activity – bringing back a concept by Jennifer Greene, already reported earlier, about integration happening “inside our heads”. This last point is related to another possible stage, at which we could find integration: that of inference. The following quote stresses the idea of integration ultimately developing not much at the analytical level, as rather in the phase of interpreting.

*«Then we have two piles of information. Then integration is what you're after. I don't think until very recently with some creative analysts out there, people doing very creative analytic work ... I think the integration was inside our heads. For the most part, in the past it was something we tried to make connections. There might be some analyses like grouping children according to either performance or their interest in the program or demographics. Then seeing if there were some common patterns to both the quantitative performance data and the qualitative “how did they make sense of it?” [...] it was mostly inside one's head. Just kind of a cognitive activity. [...] We need to do more than that. I have come to the thinking that ultimately it's a cognitive activity. Ultimately, it's some connections we make inside our heads. Not that they're unaided by analytic strategies and other things of doing, but it's ultimately an intellectual cognitive act that we do inside our heads. It's probably akin to any analysis. You do a statistical analysis and you get a significant R-square. You still have to interpret it. You still have to make cognitive sense of it. Yeah. I think the integration is a little messier than a regression analysis or analysis of variances or even a thematic qualitative analysis. You get your themes and then you label them and then you talk about them and find examples. That's all pretty straightforward. It's that interpretation. [...] I think the connection we're trying to make between two or more data sets happens inside your head. I just don't think there's any ... That's the same with all analyses. The sense making is a cognitive activity. With mixed methods it's just that what you're trying to make sense of is less clear. It's murkier a few steps back. The R-square or the set of themes ... okay, you've done it. Now you make sense»(From the interview with Jennifer Greene).*

This excerpt is however also considering other chances for integration in analysis, imagining it as something that still needs development, but that will possibly happen in the – next? – future. Even envisioning really integrated analysis as a possibility, in the quoted passage remains as dominant the idea of integration in inference only as a cognitive process. Other scholars, however, assume different perspectives on the issue, as we can see in the following passages.

*«I think the newer way is to think of mixing or integration as something that can occur at many phases of the research process. It's really, in my opinion, underutilizing mixed methods to leave it to the last phase. I really think you can mix as you write research questions, as you collect data, as you analyse data and as you draw conclusions. That's why my book is called “An Intro to Fully Integrated Research”. I think the fall-back is just wait till the end. Tashakkori and Teddlie think that way entirely. I think they do that because they*

*fundamentally do think that qual and quant are so different that they have to be kept separate. The traditional view, I think that's the rationale. I think it really reinforces the idea that they are so different that we'll keep them separate. We'll collect our data separately, we'll analyse it separately and then we'll bring it together at the end. I don't think that's good enough. I don't think that's good enough, to be honest with you. I think that's really underutilizing the potential that can come from integration at other phases of the project» (From the interview with Elizabeth Creamer).*

The quote just presented seems to be critical about seeing integration as something that happens merely at the end of a study, noticing how that viewpoint may reinforce the idea of keeping qualitative and quantitative aspects separated, as coming in different phases. Elizabeth Creamer rather suggests what she calls a “fully integrated” approach, which should cover every phase of the research process. Once again, the focus seems to be on *intentionality* in the act of integrating. By the same token, what is reported in the following excerpt resembles this idea of the need for thinking about integration during the whole research.

*«One thing I notice in a lot of projects, even people who intend to do integration they think that comes later. I think this is part of my ... It's throughout the process. If you wait till later it's too late in many studies for really good integration. You can set it up and do some very planned comparisons and that, which is sometimes very useful but that isn't really emerging. It doesn't really allow you to get into more nuanced kinds of conversations with the data» (From interview with Interviewee07).*

This perspective on integration as being pursued in all the different phases in a study seems to be rather recognized in the field, as shown in the quotations below:

*«In our editorial, which I was the lead on, I didn't actually count it. Someone else pointed this out to me, but I hadn't counted. We talk about 15 levels of integration. I didn't count them but someone else counted and they wrote in their paper that we said there are 15 levels of integration. That starts at the philosophical. There are now five philosophical due points about how to integrate and justification for doing mixed methods research. [...] There's integration at the theory level. There's integration at the rationale level. There's integration at the research question level, integration at the design level, integration through the sampling, integration through the intent of the data collection, integration through the analysis, integration through the presentation. I skipped one. Integration through the researcher at the researcher level. So, what does it mean to have one person who's very qualitatively oriented and one who's very quantitatively oriented? How do we integrate their viewpoints as a team? There's integration through the publication level. There is integration through consideration of research integrity. There's probably others that we haven't thought of yet. The number is in our editorial but there's, in my view, 15 levels of integration» (From the interview with Mike Fetters).*

I introduced the editorial here mentioned in the first part of this dissertation (Paragraph 1.1.2), commenting on the single dimensions. While some integrating studies might cover only one or some of the acknowledged elements, what I cited earlier as *fully integrated* approach would encompass every single one of these points<sup>5</sup>.

*«Methods aren't all about the actual procedure you use, like you do ethnography or questionnaires... It's everything! It's the conceptual framework, it's the literature you cite, It's the design of your study: "Do you have an experimental design? Do you have a random sample? Do you have a convenience sample? Do you have representative, diverse, a non-random sample?" It's the procedure that you use and what order you do it, it's the way you write up your results, it's where you publish, it's where you get funding, sources funding. [...] It's where you go to give your talks and what organizations you are a member of... Like do you go give a talk at the American Education Research Association or the American Psychological Association, or the American Anthropological Association... all of this. Who can you go and talk to and who would listen to you. So all those things are a part of a mixed methods program or career. So, I never just focus on the method like just doing ethnography, that's not the point. It's where are you publishing and who will you work with and where you get the money and who is going to listen to you. You know, there are researchers who are not quite so... So who's gonna read what you wrote? Mixed methods it's about believability. Who is going to believe what you did? What your finding are... Mixed methods makes research findings more believable» (From the interview with Tom Weisner).*

Also this last quote focuses on mixing – and integrating – at every single step of the process during a study, including those phases related to presentation of findings to an audience. It can be noticed, one more time, how researchers are supposed to take into consideration what they are doing during the activity of mixing. Therefore, intentionality about integration strongly emerged in all the interviews I conducted as a focal point. Although so far the investigation of themes arose from the interviews was largely related to a general perspective on integration, by then focusing on the levels at which it can happen, dialogues with scholars also covered the kind of approach to integration pursued in studies, as I will introduce in the following section.

### 5.2.1 Convergence and Complementarity as Seen by Scholars

At this point of the discussion, after having introduced more general discourses on integration, I will present viewpoints on the issue that specifically relates to the approaches at the center of this dissertation. To this extent, the first excerpt reported in

<sup>5</sup>However, it is not the scope of this discussion to establish whether a study that covers only some of the mentioned aspects should be called "integrated" or not. As I explained earlier in this elaborate, I do not want to limit my attention either on a few elements only or on those studies that qualify as *fully integrated*. I rather prefer to assume a perspective on integration as an umbrella term, especially in this section wherein the vision of scholars is the focal point.

this section explicitly refers to complementarity, without the need for a straightforward prompt in the direction of mentioning the approach<sup>6</sup>.

*«My point of view is complementarity, so if you ask these questions that I've been mentioning, African childcare, children with disabilities or poverty questions or other ones, you want to have several ways to try to understand that. So, understanding is a holistic interpretation of many different sources of information. Each source of information, if done well, is valid. So, complementarity is the goal. The more sources of information you have, up to a point, you can't go on forever, the more the likely you are to have a full understanding. [...] I'm not interested in methods wars, I'm interested in finding out what happens to families who have kids with disabilities. What is the answer to that question, how would we ever know that? And if you tell me the answer is "you take a questionnaire and you have them circle some numbers on a piece of paper", I'll tell you "that's incomplete". It's not that you learn nothing by doing that, you learn something, maybe, but it's not complete. So that's not a dialectical, that's a complementarity thing. I would say to that person "is that all you know?". You mean you handed out this piece of paper to the people and they circle some numbers, that's all you know? That's a weak study, very weak. Like, did you go and talk to anybody? Did you go in their house? It's like, did you visit them? Or a sample of people? Did you talk to their doctor? Do you know what the teachers say? And if they say no, no, no, no, that's a very weak study. A very strong study is if you did all those things. Now, that's a complementarity. Oh you talked to the teacher, and you got the test and you visited their homes and there you learned about their lives and you've talked to the mothers... you did it all and now, now you know something. Now I really want to listen to you, about what you learned, because you really... you really have a comprehensive, holistic picture. That's a better study. So, my scale is holistic complementary, complementarity, single measure, that's all. That's my scale. [...] So, complementarity is the goal. The more sources of information you have, up to a point, you can't go on forever, the more the likely you are to have a full understanding»*  
(From the interview with Tom Weisner).

The quotation extracted from the interview with Tom Weisner distinctly aims attention to a clear definition of complementarity, making the point that a single source of information results necessarily partial and needs some *integration* in order to reach a comprehensive picture of the phenomenon. Another element emerging from the passage is the interest for research questions as the predominant aspect in a study, while methods – and eventually paradigms – come into play later just as a consequence of the research question.

Moreover, although this work concentrates in particular on challenges posed by convergence in empirical applications, as mentioned several times at this point, complementarity does not need to be underestimated in possible issues emerging when pursuing this approach in empirical studies. For this purpose, I introduce here a passage from the written report by Interviewee04, where challenges about sequential studies are explored, suggesting strategies to avoid them.

<sup>6</sup>Specifically, in order to let the scholars' perspective emerge first of all as predominant, I avoided any explicit reference to the terms "complementarity" and "convergence", or even "triangulation".

*«In my opinion, key challenges and ideas for good integration in sequential studies are:*

- *Be sure that the two (or more) phases are needed. In our QUAL → QUAN mixed methods studies, we know that the first qualitative phase is needed, why it is important, and how the qualitative phase and findings will help to develop and conduct the quantitative phase.*
- *Be sure of the connections between the two phases (or among the three of more phases).*
- *Be sure there is any synergy due to integration. It is important that the whole, complete findings of the mixed methods study is higher than the simple sum of the two or more parts.*
- *Clearly describe these synergies and the need for integration early in the paper (of course, in the methods section, but even in the introduction section) (From the report by Interviewee04).*

While the first point regards the actual need for the two phases in the sequential design, and the second one is about having connections between the phases, the third and fourth points explicitly refer to integration. There is a need for synergy, following the rule stating that “1+1=3” (see the paper by Fetters and Freshwater, 2015), but there is also the necessity to be clear about these synergies. The next quote regards, instead, convergence. When I asked in this interview for further clarification about the meaning of integration, I received the following answer:

*«It's a form of triangulation, recognizing the limitations of the kind of knowing produced from a standpoint. So, what you're trying to do is to enhance your validity and your understanding of a phenomena by moving between them. So that's right, I mean that's the first point. But notice the challenges that, is that one needs to be trained to some extent, with some sophistication about exactly what is going on methodologically with each perspective. It's not enough to simply do it. You know, I'm gonna do a little ethnography, rich and dialogic and hermeneutic in some ways. I'm gonna shift over and do some standard survey methodology, with all the proper measures and all the rest of it. As if you wanna just follow mechanistically what's already been done and you try to write about that. Because... I think the integrated question, the triangular, the convergence point is that you need to really understand where exactly those weak points lie, why would you would be bringing in the other standpoint and what it's adding to the other» (From the interview with Ted Lowe).*

The word “triangulation” was spontaneously mentioned and some challenges to this approach were commented. The better understanding of a phenomenon through mixing is done, this time, with the aim of “enhancing your validity”. However, to do so, you need first of all to be trained about each methodological strategy, in order to have an in-depth knowledge of the research methods and to understand limitations of single method, which was indicated as a prerequisite for building a convergent approach to integration. The following excerpt will introduce a different perspective on convergence.

*«Yes, I did studies that did not converge and studies that did converge. Some of the Africans findings it did not converge, it did not prove that modernization theory, that was then and still is the main theory about urbanization, which produces more modern ways of parenting and thinking and improved health and better education. It wasn't true. And I have many of example of that. So, what I often would say in proposals or papers "is it going to converge or not?" That's a question, let's find out. So you have different methods and techniques, analysis plans that will see if it does or doesn't. [...] So did it converge or not? Usually what happens is that you get added value. Mixed methods it's all about added value, so I always say "did we have added value or not?" If the subsample just proves everything you thought from the start, then it was a waste of time. If you get added value, then it was worth it» (From the interview with Tom Weisner)*

This time, convergence was presented not much as a straightforward approach, but rather as a possibility, an hypothesis, something you would ask to your data at the beginning of your study and that you will see with analysis. But then, in this quote, it seems that there is something more relevant in mixed methods than proving convergence: added value, i.e. the ability of understanding something new through integration that you would not have been able to grasp with one method only. Therefore, we are back to complementarity – which is, in Tom Weisner's opinion, as I presented earlier, the main point of mixed methods. Another point emerging from this passage – and that will be explored in following example as well – is that data do not always converge – even in those cases when you are explicitly looking for convergence – but they might also be divergent, opening to different possibilities.

*«The failure is not in the integration because I refuse to consider contradiction a failure. I think a lot of people will tell you that "Oh, yeah. Integrating failed because my data were totally contradictory." That's not a failure. It's only a failure if you give up on further analysis and you don't pursue the contradiction. People will say, "In fact, qualitative and quantitative didn't agree. One must be wrong." That's what people, I would predict, would tell you was a failure of integration» (From the interview with Elizabeth Creamer).*

The quote just presented expresses the mainstream idea that if data from different sources do not agree on a phenomena that would be a failure, in terms of integration. However, Elizabeth Creamer introduces here the idea – pursued also, among others, by Jennifer Greene, who notices that divergence could be the start for a new study, within the purpose of initiation (see *Paragraph 1.1.2 in Chapter 1*) – that divergence can creates space for new creative strategies.

### 5.3 Mixed Methods Legitimation

Being part of an academic area wherein paradigms have been kept separated and methodologies are often considered as a direct consequence of a selected paradigm, mixed methods have to deal with the issue of legitimation: what is the reason to

exist for mixed methods? A main drive to answer this question is the issue of a *better understanding*, that I already mentioned as it was emerging from some quotations. Indeed, discourses on a better understanding, whatever specific forms it might assume, emerged here as crucial, whenever mixed methods scholars need to face the resistance of people in academia who are not open to mixed methods. However, some discourses that reverse the logic that mixed methods scholars should explain their choice in terms of methods can be found.

*«This is why I always say I think that should be... mixed methods should be the default way to do research, especially on a topic like child development and family life, which is embedded in in some cultural community somewhere, and I just assumed that you would do mixed methods and you would have to explain why you are not doing mixed methods. So, I have always argued that position and I've gotten in trouble sometimes but I have... I have push it very often. So why did you not do mixed methods? What's the reason not to do it? And often people have very difficult time to explain why they didn't do it» (From interview with Tom Weisner).*

This excerpt stated that researcher *not* using mixed methods should justify their choice. The assumption here is that “mixed methods are better”, at least in terms of grasping a fuller and more comprehensive picture of the phenomenon, as reported in earlier quotes by the same scholar, Tom Weisner. Similarly, the passage that follows shows how mixed methods could be useful to understand a particular issue.

*«Just yesterday I met with someone who told me he had spent ten years trying to find out why some hospitals were more successful than other hospitals for taking care of patients with cardiac arrest. [...] He said he'd looked numerically for ten years. He was on the Institute of Medicine committee. Last year he did a qualitative study where they actually went to nine or ten hospitals and they interviewed people. He said after they went to the hospitals and they interviewed people that he found out more from nine hospitals and interviews that he had done in hospitals than he had learned in ten years. Now he's like, “Wow, this is really great. There's a place for both of these things. We still want to measure and see which hospitals are doing better. That's really important for us to know which hospitals need to improve. To understand why they improve it depends on having a methodology best designed for that”» (From the interview with Dr. Fetters).*

Also this quote suggests the idea of a *better understanding*, through the use of mixed methods. Thus, this kind of legitimizing seems to be located not much at the philosophical – epistemological – level, but rather at a more methodological and practical one, from a *pragmatic* perspective, in the connotation of *everyday pragmatism* (as explained in the first part of this manuscript, in *Paragraph 1.2.2*). The following quote relates the pragmatic and the transformative paradigm to specific methodological choices:



*«The specific features of pragmatism and the transformative paradigm that are useful and appropriate for my approach to research are:*

- *Use combination of methods that help not only to achieve a better answer / response for research questions, but also to determine and identify interesting and relevant research questions and issues.*
- *Try to research issues and questions whose responses help to solve grand challenges and important social problems»* (From the report by Interviewee04).

From this excerpt largely emerges the centrality of research questions, that it was already mentioned as a key feature in mixed methods inquiry. Some scholars indeed consider research questions as the predominant aspect of a study, as highlighted in the quotation that follows:

*«There are different schools of thought out there, there are wars, epistemological wars, and my view of that is... I'm sure there are very learned people who have very studied philosophy and so on, but I'm interested in findings that matter. There are kids who have disabilities, what are their lives like? How are they dealing? How can we help their parents? I'm interested in that. There are poor people in the United States, how can we provide assistance to them? What are their lives like? How do we make it better? If you go to Africa you find, all over the world, you find a mass urbanization of population in the whole country. How does that affect children? I'm interested in that. I'm not interested in the epistemological and philosophical debates over what we can know and what's truth. So, and I confess that I am not trained enough in it maybe, I don't know enough... There's a lot to learn, I'm sure, about philosophy. It's just not that interesting»* (From the interview with Tom Weisner).

The main takeouts from the passage just presented are related to the thought that research questions should come before philosophy, in terms of relevance in a study. Similarly, the next quote presents a reflection on the issue of epistemology covering a predominant role in mixed methods, sometimes representing an obstacle to the research itself.

*«“How can you do research in family medicine if all you talk about is philosophy?” I think especially in the United States there is a big emphasis on applied mixed methods. It's fascinating to me that someone will say mixed methods is impossible, yet the journal has been published for 11 years now. People have been writing about it for almost 40 years now. There is lots of activity. There are multiple funded proposals. There are still people that seem sort of stuck saying philosophically this is impossible. It's sort of like saying it's impossible for bees to fly yet they're flying, right? I don't know if you know bees are not supposed to be able to fly. The physics is that they're not supposed to be able to fly, but they fly. They do. It's like, okay, well, that just can't be. It's fascinating to me for people to speak about the impossibility when in fact it's happening everywhere and across multiple fields»* (From the interview with Mike Fetters).

What Mike Fetters is referring to in this quote is the afore-mentioned idea of “paradigm wars” (see *Chapter 1*). As a consequence of the incompatibility thesis already commented above, there are scholars in the social sciences who would – still

– assert that mixed methods are not legitimate from an epistemological perspective. The pragmatic point of view in the quotation just seen emerges in presenting the absurdity of scholars saying is not possible to carry out mixed methods research, when it is regularly done. For what concerns “paradigm wars” I already elaborated on the fact that the epistemological fights directly relates to the methodological dimension. In the following excerpt Elizabeth Creamer notices how qualitative and quantitative are often called – and used as – paradigms.

*«If someone talks to you about paradigms the first thing you have to make clear. [...] Some people mean qualitative as a paradigm and quantitative as a paradigm, so you've got to get that clear. I think you can use qualitative and quantitative as a constructivist, as a dialectical pluralist, as any of the paradigms. I do not think it's accurate to say qualitative is a paradigm and quantitative is a paradigm because you can bring different ontological and epistemological expectations to it. It's all how much you expect phenomena to be diverse» (From the interview with Elizabeth Creamer).*

The idea from the quotation above is that paradigms are larger than qualitative and quantitative methods, and to some extent more complicated. The possibility of using qualitative methods under a paradigm typically associated with the quantitative tradition – and vice versa – is here considered as valid. By the same token the excerpt that follows introduces the idea of paradigms as heuristics.

*«I'm not a philosopher, so this is not well worked out. All of our assumptions are shaping how we think about the phenomenon, what we're trying to learn from it, what methods we pick. The methods we pick are also interacting with that phenomenon. It's really important but it's really fascinating. I think we actually need them all. I've never met a philosophy that I didn't like in some ways. There's some I wouldn't ... I'm not going to be a positivist but yet even in some times that has some value. [...] I'm drawn to Joe Maxwell's writings in thinking about even the paradigms themselves as heuristics and as tools to help us understand. My training didn't include ... I had no courses. I had nothing on paradigms as part of it. By learning about the different ones that helps me understand not only other people's research but understand the different ways I'm operating in different contexts. Like I said, I like them all. I think they're really important. You have to be cognizant of what assumptions you're operating from at any one point or any one project» (From the interview with Interviewee07).*

However, this quote also shows the importance of epistemology in shaping a research. Moreover, Interviewee07 in this passage makes the point that there is not a paradigm better than others, in her opinion, but rather different paradigms might be useful in the same study, by having a diversified approach to a phenomenon of interest. Similarly, the following quotations build on the need for appreciation of different paradigms in order to have a pluralistic perspective.

*«If you have any sophistication as a scholar in the 21<sup>st</sup> century, you shouldn't be making chauvinistic statements about ... Actually I feel very passionate about*

*this. Because to make chauvinistic statements, this is not 1955, when ordinary least-squares regression analysis was the Cadillac version of social science approaches, with rather significant state investment in certain kinds of, especially in the United States, certain kinds of methodologies. In other words the state was validating certain kinds of methodologies then researchers were following because that's where all the money was going. Anyway, you can't get away with that in the 21<sup>st</sup> century. To do so is just to admit ignorance of the literature you should be familiar with before you engage in your work» (From the interview with Ted Lowe).*

The passage just seen highlights, once again, concerns for those scholars in the social sciences who insist on keeping paradigms completely separated one from each other. In the following quotation focused on respect for different ways of knowing.

*«I think this turn to mixed methods has provided a space for people to either work together or to at least ... I think it's a space where it only works when there's genuine respect for all these other ways of knowing despite what your own way is. You have to do a mixed methods study genuinely respecting these data and these other ways of knowing, and honoring that data set with the values and criteria that go with that data set, and not having it discounted or just collected because the federal government wants it, or collected because the leader of the program thinks that interviews are the only source of data. Whatever it might be» (From the interview with Jennifer Greene).*

In the excerpt just presented Jennifer Greene elaborated on the idea of honoring different perspectives on social inquiry, with the implicit – but rather reasonable – assumption that a study could only benefit from an acknowledgment of various points of view on a social phenomenon. About the same idea of staying open in research, the following quote presents an interesting viewpoint.

*«I'm both practical and strategic. As a woman in the 80s trying to get tenure at a research university it wasn't easy. It was difficult to publish qualitative, very difficult to publish qualitative. I couldn't get grants funded with qualitative. I added quantitative, even if it was trivial quantitative. I counted ... whatever. I added quantitative and then it was okay. Publishing opportunities were limited for qualitative, funding opportunities. It was completely impossible to fund qualitative only. Add quantitative, you are fine in those days. I think it's still true in the funding world» (From the interview with Elizabeth Creamer).*

There is a practical thinking behind Elizabeth Creamer's first contact with mixed methods. However a goal-oriented way of reasoning alone would not be enough: the real necessary condition to pursue mixed methods is a perspective that acknowledges and gives value to diverse models in social inquiry. This kind of perspective may take different forms, as for example the one described in the following quote.

*«The paradigm I favor is an integrative paradigm where the focus is on a pragmatic epistemological usefulness of different methods and frameworks to produce*

*findings that matter. [...] Because I am a pragmatic person and I believe that a functional epistemological position is very defensible and it's helpful. I believe in that... this philosophical positions that helps me to learn something new about these questions» (From the interview with Tom Weisner).*

Tom Weisner describes the pragmatic position that he assumes as an integrative paradigm. Thus, being open to perspectives that are different from the one you are used to seems to be a rather crucial aspect in the issues related to epistemology for mixed methods. Moreover, the very existence of this modality for social inquiry is often legitimized by this ability of valuing various points of views about social phenomena.

## 5.4 The Mixed Methods Community

I presented above the main arguments used by scholars in legitimizing mixed methods. However, the main audience to which mixed methods researchers need to express their arguments is composed by scholars in social sciences who stick to the traditional separations between quantitative and qualitative methods. In the following passage, a similar scenario is introduced:

*«I've certainly been on panels and meetings where you'll have to defend yourself. I've been on foundations where you have to fight for the people you want to give money to and there's this other person sitting there and saying "no". So, you have to fight sometimes for your position. [...] You have to have an answer. This is something that not all mixed methods people... I've experienced they're not good at. They can't defend mixed methods amazingly. They may be doing it, but if somebody has very strong idealist position about knowing about the world, the kind of, they say "Oh well, yeah of course, you know, you're right". But that's not good. You have to have an argument for your position. You have to be willing to fight for it if you're asked to» (From the interview with Tom Weisner).*

The idea shown here is that of *defending* mixed methods from possible attacks from people who are not familiar with them and who want to affirm their own viewpoint on the world of social sciences, based on long – epistemological – traditions. By the same token, the following quotation focuses on the need to provide answers to people questioning the feasibility of mixed methods.

*«You're never going to do a presentation on mixed methods at a conference, I would tell you, when someone in the audience will not ask you the question "Are not qualitative and quantitative methods incompatible, and therefore you can't do mixed methods research?" There's always someone that asks you that question. You must be prepared to answer that question» (From the interview with Elizabeth Creamer).*

Sometimes these kind of questions might even come from the people with whom you are collaborating, as shows the next passage.

*«What did happen, in several projects (one of which I will recall forever), was the surfacing of politics and values associated with different methodological traditions. Specifically, stakeholders in the context who held a strong position on the project I was evaluating were highly critical of the data that were negative regarding the project. These stakeholders attacked the data but also attacked the stances, assumptions, and so forth that these data represented. Most often, qualitative, constructivist data were the targets of these attacks – typically representing interviews and observations» (From the interview with Jennifer Greene).*

This compartmental way of thinking – implying that if you are associated with a tradition you become critical of all the others – might be found also in the idea of disciplines as silos, as shown in the quote that follows:

*«So, another issue is that in your own discipline some people are suspicious of you. Like... I'm an anthropologist, so anthropologists are supposed to kind of go out and do fieldwork, do ethnography and they do work alone and write an essay or book based on that: that's what we are supposed to do! Now, there are many anthropologists as me that are mixed methods, so I'm not alone, there are plenty of people in this building that are doing that. But there are a lot of anthropologists in this building that are very suspicious about mixed methods. They're my colleagues, so you have to learn how to, socially, how to be accepted that as an anthropologist that is doing his research and is recognized by somebody who isn't doing what the standard thing is. Not everybody... I'm a person who kind of likes to do that, but not everybody does. This is true in every field: education, psychology... There are a lot of psychologists who are very good. They do not want to leave their lab, their office, they do not want to do anything other than tightly controlled experiment, and they are very suspicious of anything else. And they live down the hall, they are in the faculty meeting. If you do mixed methods you have to, first of all, you have to accept that that's good, what they're doing, they are useful. So that they don't think that you are attacking them. Many people feel it, just by doing mixed methods, like I do, that you're attacking somebody else because he is not doing it. But I'm not, I'm just doing what I think is good. So those are all difficulties» (From the interview with Tom Weisner).*

Moreover, in various occasions, during conversations interviewees ended up mentioning other scholars within the field of mixed methods in social inquiry with the intent to refer to different ideas on the issues of relevance for the interview.

*«I think there's some foundational people: Tashakkori and Teddlie and Creswell. I think my thinking is a little... Greene was in that group but her work can move forward into the next generation because she's more interested in the philosophical mindset less than the designs and all that stuff. Though I think she straddles.*

*I think my thinking is a little . . . It was built on the foundational work but I'm less enamored on it than I used to be» (From the interview with Elizabeth Creamer).*

In this quote Elizabeth Creamer identifies a core of scholars who had a relevant role in the foundation of mixed methods. Specifically, she mentioned Tashakkori, Teddlie and Creswell: all names that clearly emerged in the phase of citation network analysis in this work (*Chapter 4*). In particular, while Teddlie and Tashakkori edited the first handbook of mixed methods research ("Handbook of mixed methods in social and behavioral research", with a first edition in 2003 and a second in 2010), Creswell's work represents a well-recognized contribution in the field – once again, as I already showed earlier with the analysis of citations, considering quoting behaviors as a device to recognize the value of a scholar's work in academia. Moreover, Jennifer Greene is mentioned in this quote as well, but with a clarification: her work, although being developed in the same period – or even earlier – than that of the other scholars mentioned here, focuses more on philosophical aspects of mixing methods. It seems, therefore, that the foundational core of mixed methods established the mainstream discourses on the field, setting them on the design issues. Additionally, a strand concentrated on epistemology – and parallel to the first one – affirmed itself. Similarly, in the following passage Mike Fetters mentions Jennifer Greene's work among the earliest attempt to build a mixed methods field in social inquiry.

*«When people first started talking about integration they were really talking about it after the data were collected. In fact, Jennifer's classic paper, a very, very important paper from 1989, it's a wonderful paper. It's pivotal in the field, but her analysis was based on looking backwards. She looked back in time to say what happened after people integrated. We don't know that from reading an article. We don't know what the researcher's intention was that they even had . . . if they had clearly thought about what their intention was» (From the interview with Mike Fetters).*

The same interviewee, then, goes on – while talking about different ways of thinking about integration – and provides various examples, referring to the work done by different scholars.

*«Another option for that is called finding a common thread. I don't know if you've heard of that approach before. Alicia O'Cathain has published that and popularized it. The idea is that you're looking for a commonality. It's a metaphor from English. I'm not sure if you have this in Italian or not. The idea is that you're looking for something that's related between both databases. A thread has a string. It's like finding a string of relationship. [...] Another person, Patricia Bazeley talks about back and forth exchanges. I don't know, you may have heard of that before. The idea is going back and forth into the quantitative data and the qualitative data until you find the pieces that fit together. [...] I see all of those*

*as a continuum. The spiraling is the most general, like you're really looking at the very big picture of both pieces. Then you start finding a thread where there is some linkage. Then the back and forth helps you to solidify what is that relationship not in just the most narrow sense. The back and forth exchange allows you to think more broadly about each of those related topics about how they relate» (From the interview with Mike Fetters).*

It is possible to notice how different metaphors and procedures to integration can be endorsed by specific scholars in the field, as the two one mentioned in the quote: Alicia O'Cathain and Patricia Bazeley.

The ability of a community in academia to constitute and maintain itself is also related to efficiency in attracting funding: another crucial element that arose from interviews.

*«Another reason is that you can't get money for it as easily, so to get money for it you have to make the case, you have to. . . You have to prove it, you have to say what justifies spending more money if you want to do fieldwork, ethnography... cost money. "Why should we give you the money to do that?"» (From the interview with Tom Weisner).*

In this piece extracted from the interview with Tom Weisner, funding is mentioned among the possible challenges to integration. Using a mixed methods approach may require additional funding, with the consequent need to sufficiently justify the specific methodological choices in the research project. Similarly, the following quotation highlights the potential restraint to processes of integration due to funding procedures and timing.

*«If it was reliant on just the funding or the basic sort of "get the study done and move on" it wouldn't happen. I find that's a common problem with a lot of our. . . at least, in the US the way research is funded. [...] Here in the US a lot of our projects, especially big federal-funded projects are funded three years, four years or five years, something like that. They're largely just long enough to collect the quantitative and qualitative data and maybe do some basic analyses. Even a lot of times the basic analyses and initial publications even those aren't covered by the funding period. Especially for current designs where then you would get to the point where you would do the integration analyses. It's really problematic, in my opinion, for the logistics side of it of paying for people's time and having that» (From the interview with Interviewee07).*

This excerpt from the interview with Interviewee07 showed how the logic behind research funding might represent a barrier to integrated analysis – as well as to mixed methods in general. Similarly, mixed methods research might meet resistance in publishing dynamics, as I will address in the next section.

#### **5.4.1 Publishing Mixed Methods Research**

As mentioned, a rather relevant – for this specific work – theme emerging from the interviews, is that of publishing mixed methods studies and possible issues related

to it. Publishing a study is indeed a modality to make it public – at least to the larger academic community – which is a crucial phase of the research itself, opening up the possibility of evaluation and critique from other scholars. Publication is therefore a crucial device for researchers, in order to make themselves accountable in academia for the work done and the obtained results.

It certainly appears easier to publish results coming from one methodological approach pursued alone, rather than having to spend a certain number of words or characters – a “scarce commodity” in academic journals – in the process of explaining what is mixed methods and why it was preferred in the study<sup>7</sup>. Of course any methodological choice would always need to meet at least a basic level of legitimation. However, a mixed methods study may add complication to a methodological section of a manuscript, representing a possible challenge to the publication of a study results.

For this reason, publishing only one part of the study – isolating a singular methodological approach – in a journal, and leaving the other part(s) for different manuscripts is a rather common practice. I have already noticed this concern when I had to develop the categorization scheme for my automated text analysis of papers<sup>8</sup> (*Paragraph 2.1.1, in Chapter 2*), and the same issues found confirmations in dialogues with the interviewees, as shown in the following excerpts.

*«And so, it's not so much that you can't do it. It's that it's not so easy to put the same things in the same paper, because you're doing very different things, depending on the kind of analyses that you're doing... These kind of different dimensions of a larger project and to try and combine two very different ontological standpoints in the same paper is an absurdity. So, people wouldn't know what to do with it. So you tend to break them up, you know target this audience with that particular approach might be more qualitative, this one is more inherently quantitative and you have to really radically shift the way that you frame papers, depending of what you're trying to do with the analyses» (From the interview with Ted Lowe).*

In this quote from Ted Lowe it is reported exactly the issue that I mentioned above, about *splitting* a study for publication. This practice is not merely a way to overcome technical limitations in the publishing process – such as the number of characters – but it seems to be also related to the perpetuation of the qualitative / quantitative divide among specific journals that would privilege a methodological tradition over the other(s). By the same token, the following passage shows how this represents a concern within the mixed methods community.

<sup>7</sup>I intend here to focus on the fact that journals require submitted manuscripts to be limited to a definite number of words or characters. This means that within a paper, concentrating on an issue would subtract space to other possibly relevant concerns in a study.

<sup>8</sup>Among the various categories I also provided for the one of *integration suggested only or still to be implemented*, that included cases in which the integration part of the study is reported elsewhere.



*«There are a lot of journals in every field that literally would not publish qualitative methods or mixed methods. They say they will do it, when you read the journal, but in practice they don't do it, or they make it very very difficult. [...] I was not going to accept that. So I published articles on "Child Development" and "American Educational Research Journal" and pediatric journals and all kinds of journals and books and I just made them be mixed methods. And I had to fight that all the time» (From the interview with Tom Weisner).*

Tom Weisner, in the passage just presented, pointed out the matter of journals being attached to definite methodological approaches and being suspicious about studies adopting a mixed methods standpoint in their methodology section. The scholar reminded – once again, as the same perspective on the need to fight emerged earlier, when presenting other themes – that this is something to fight for. Similarly, the following quotation focuses on publishing – and funding – practices as potential obstacles to integration.

*«Sometimes the integration is concealed because of publication practices or the timing of publications. I think that if you publish a paper on qualitative only and a paper on quantitative only it tends to erase the integration. You cannot see it. Or, let's say, you did the qualitative phase first so you don't know the quantitative phase. You've got a five year grant. You can't wait till year five to report your data. You start publishing after you've finished your qualitative phase. I think the publishing practices work against integration not only because of the timing issue in large projects but because of the space issue. In that it's very difficult to say, "Phase one was qualitative. Here's all my procedures. Here's my results. Phase two is quantitative. Here's all my procedures. Here's all the results." Then I would call an integration failure as the publication failure to frame it as a wider mixed methods study and to frame it... If you could wait till the end and say, "Okay. Now I understand that the reason the qualitative and the quantitative were contradictory" and then you framed all your publications that way. You can't publish that way because you can't wait to publish data that way or your funder will withdraw their funding. They expect a series of publications along the way» (From the interview with Elizabeth Creamer).*

As Elizabeth Creamer states, publishing phases of a study separately does not seem to be beneficial for integration. Even though this is a common practice when publishing, it will not provide for the space needed to present integration of the qualitative and the quantitative sides in a research. Therefore, this issue is something that the mixed methods community should “fight for” – using Tom Weisner’s words – in order to assure that also the phase of restitution of results can represent a mixed methods effort<sup>9</sup>.

<sup>9</sup>Of course there are a few exceptions in the world of academic journals. The *Journal of Mixed Methods Research* is the most predominant one. Then, special issues on mixed methods have been published in methodological journals (e.g. on the *International Journal of Social Research Methodology* ).

## 5.5 A Better Understanding through Mixing

I ended the previous section with a reflection on publishing mixed methods research. As I mentioned, information emerging from the interviews was helpful in order to *better understand* some of the issues arose during the phase of text analysis of papers. In the first part of this chapter I will go back on the analysis of papers, to better explore a category that lacked of understanding in the previous phases of this study. The ambiguous category that I will better explore in this chapter is that of papers coded as "NA" – i.e. those articles that did not result as being associated with any other of the imagined categories, even though I could see some form of integration, that it was not clear how it has been implemented in the study. After the identification of themes during the analysis of interviews, I wanted to apply to NA papers the same framework of themes.

In particular, this framework emerged from interviews' transcriptions through an hermeneutic modality of analysis, possibly offering a set of lens that could differ from the categorization scheme I imposed on articles in the automated text analysis phase.

Nevertheless, during this process I need to take into account some limitations. First of all, I am facing two different corpora – that of interviews transcriptions and that of NA papers – built with different intents in mind. On the one hand, interviews were intentionally collected to let the scholars' point of views emerge; on the other hand, papers reporting empirical studies were retrieved with the aim of a content analysis to look at declared and implemented approaches to integration. This is at the basis of the processes of building, respectively, a set of themes – emerging through a hermeneutic modality – and a *a-priori* categorization scheme. Therefore, applying to papers themes related to the interviews might not work perfectly, considering that themes were extracted from somewhat contemplative conversations, while articles are written with the goal of presenting results of an empirical study to an academic audience.

Moreover, among aspects I need to consider during this phase, I also need to mention timing. The performing of this second analysis on NA papers is necessarily sequential in respect to all the other steps of analysis. This aspect implies that, in the meanwhile, I acquired new knowledge on mixed methods and this will inevitably reflect on the analysis. Nonetheless, having gained information and expertise that I did not possess at the begin of the study represents an advantage from an interpretative perspective, under the need for enlarging my understanding on the approach to integration pursued in previously coded as NA papers.

Then, I also want to notice that the presence of articles that cannot be categorized within the coding scheme that I defined is not necessarily an unsound situation. Uncategorized papers might indeed remind us of the aspect of creativity about methods in social inquiry pursued with mixed methods, that I more than once expressed in this elaborate. The possibility is that papers I identified as NAs could move in a

direction of subverting methods as traditionally intended in social sciences.

I will now explore some general information about the set of articles coded as NA (a total of 40 articles from the sample selected for handcoding). In *Table 5.2* I show the distribution by year of the NA papers. It can be noticed how 2015 represents a peak in articles coded as NA, followed by 2013. Generally speaking, earlier years are also those having fewer papers in the handcoding sample – due to the general distribution by year in my dataset (see *Paragraph 3.2* in *Chapter 3*) – therefore low presence of NAs was expected in years before 2012.

TABLE 5.2: Count of papers coded as NA by year and frequencies within the NA subset by year

Year	Count of NA papers	% within NAs
2003	0	0
2004	0	0
2005	1	3
2006	0	0
2007	1	3
2008	2	5
2009	2	5
2010	1	3
2011	2	5
2012	5	12
2013	7	17
2014	3	7
2015	12	30
2016	4	10
2017	0	0

I randomly sampled 8 texts among the NA papers and I went through them once again, applying the framework that resulted from the thematic analysis of the interviews. Although it was not a straightforward task, I gained some added understanding of these papers, thanks to this procedure. I found very diverse cases within the subsample of the NA papers, but I can affirm – after this further step of analysis – that the common thread in the selected articles was a lack of clarity around the matter of integration.

In one example I faced the case explained in the previous section of this elaborate: that of a part of the study presented elsewhere, with no mention about integration. I did not code this article as part of the category *integration suggested only or still to be implemented* because it was hard to say whether the study in general would encompass any form of integration at all. However, the themes used in the new coding of this article had to do with research design and better understanding, through mixing.

Then, in a similar case, I found a presentation wherein phases related to the implementation of the different methods were kept separated. Moreover, the article

seems to implicitly adopt a post-positivist approach in the presentation of research results. Therefore, not only quantitative and qualitative aspects seem to have an unequal weight in the study, but the implementation of integration is also obscure.

Another example resulted likewise challenging in the modality of approaching integration, since focus groups were enforced in a logic of informing a survey, that was the predominant method in the paper. Therefore, a purpose of *development* can be noticed in the explicit aims of the authors. I intentionally did not consider this informative objective as a strict stance of integration between methods. Similarly, another paper showed a logic of *expansion*. Once again, themes extracted from the qualitative data resulted helpful for a *better understanding* of results from the survey, that was the predominant method in the study. Notwithstanding, the qualitative phase is not explored in detail, producing a confused idea of what constitutes integration in the study. As for *development*, *expansion* purposes were not included in my initial categorization scheme: while *convergence* and *complementarity* – when actually implemented in the research – would both present some form of integration, mixed methods carried out from a *development* or *expansion* perspective can result in a fuzzy idea of integration. However, not necessarily a loose idea of integration would negatively influence the quality of a study. Possibilities for adopting creativity in the uses of mixed methods could indeed emerge also from this perspective.

By the same token, in another example Community-Based Participatory Research (CBPR) was used – one more time – to *better understand* survey results. It was not completely clear how the study would locate within the mixed methods field, especially if we consider the methodological tradition of *participatory survey research*. However, also in this case a certain creative approach in using methods in social inquiry can be pointed out.

Moreover, I further analyzed papers where either a *complementary* or a *convergent* approach was declared, although modalities to reach such a similar purpose of integration did not result transparent. In a first case, I could find an intent of *complementarity* in the introduction section of the article, while in the rest of the discussion I could not identify any sign of integration. A possibility is that the idea of complementarity endorsed in this paper is wider than the definition of the same category that I selected. Then, in two other cases the same dynamic could be found for *convergence*. In one of these two articles, a «mixed methods triangulation approach» was declared to be adopted in the study. However, in both cases the discussion of results coming from different methods are kept separated, making it arduous to spot the level wherein integration happens and how it is done.

To the greatest extent, I could not properly apply the coding procedure emerging from the thematic analysis of interviews to the NA papers in a substantial way, considered that the two corpora of texts were collected and built with very diverse intents. Nonetheless, after the analysis of interview, not only I gained further knowledge on the field and a deeper understanding of it, but I also could take advantage of a different framework from the one that I imagined myself at the beginning of the

research process. Therefore, in this way I could enlarge my own mindset, providing new analytical tools to look at the papers with a renewed focus.



# Conclusions

Since I arrived at the ending section of this elaborate, I need to draw some conclusions about the study I presented. In order to briefly remind the phases of this work, I will look back at what I exposed so far. I started by an exposition of selected discourses in academia, about epistemological and methodological issues regarding mixed methods and academic communities in general. This was necessary in order to let the reader understand where this work is developing from, why it is needed, but also where it is situated in social sciences and in academia. In the first section, I explored the contemporary mixed methods panorama, in order to offer a general overview of how the field emerged and which are the most discussed issues. I then introduced the lens that I took advantage of while looking at my topic of interest – i.e. that of sociology of scientific knowledge – that was helpful in order to notice ways through which knowledge around mixed methods is produced, re-produced, and communicated in academia. While looking at the mixed methods field, indeed, I wanted to stress that within a specific academic community knowledge is socially constructed, on the basis of social relationship, potentially built on power and privilege dynamics. I finally entered in the issues of paradigms of particular interest for the mixed methods field, noticing trends but also problems with a dogmatic application of paradigms.

This initial theoretical part was necessary in order to describe elements that I wanted to investigate empirically and that I reported in the second part. The second part was indeed related to the presentation of the phases of empirical research. I here intend to remind the research questions – and modalities I selected to investigate them – so that I can accordingly elaborate on possible answers to those questions, based on findings from this study.

The first set of questions had to do with the specific modalities to approach integration in mixed methods. In particular I posed the following questions: (1.a) how is the issue of integration addressed within the mixed methods inquiry field in social sciences? and (1.b) how is integration implemented empirically in studies? In order to answer to these questions, I mainly conducted an automated text analysis on published mixed methods studies<sup>10</sup>. I looked at integration as an umbrella term, encompassing different possible levels and dimensions: the key element is the conjoint endorsement of elements – no matter the level at which they are located – typically

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<sup>10</sup>I initially took advantage of exploratory analyses and later I imposed a categorization scheme on the set of articles fulltexts, using a supervised method for automated text analysis.

associated with the qualitative and the quantitative traditions. Moreover, I considered possible approaches to integration as divided in two broad categories. From the one hand *complementarity* is pursued from a perspective of information enrichment, with different methods focusing on specific aspects of a phenomenon of study. *Convergence*, on the contrary, originates from the idea that each method presents specific bias, and by combining methods it would be possible to increase the overall validity of a research. I then wanted to distinguish between what was merely declared as an approach to integration and what was substantially implemented in the empirical section in papers. Therefore, the categorization scheme I built looked at this two aspects and the various combinations possible in articles: on the one hand the *complementary* and / or *convergent* approach to integration; on the other hand it was of interest to ascertain the theoretical level of what is declared in published papers, as well as the practical level of empirical applications.

As I explained earlier, complementarity is by far the most applied approach in mixed methods studies. Moreover, it resulted mostly pursued alone, rather than in association with convergence. On the contrary, convergence showed to be more challenging: it only emerges as a declared approach, often in articles that end to endorse a complementary approach in empirical praxis. I could have a confirm of these aspects also through the interviews with experts. Although I only had a few interviews – that were not intended to be representative but merely exemplary – when asked about challenges in integrating methods, scholars mainly reported cases related to convergence and *triangulation*. More in general, integration was often depicted by interviewees as an *intentional* practice, reminding us how mixed methods should not be improvised, but thoughtfully envisioned, endorsed, and carried out.

Another challenging element – emerging from the phase of text analysis – was the rather relevant presence of papers that I found not related to any of the categories I had in my hand-coding scheme. These articles – coded as “NAs” – ended up to report examples wherein integration was not conceptually defined. A further examination of this set of papers, that went through the same framework of themes emerged from interviews, underlined creative modalities of thinking about mixed methods.

Regarding the second set of questions raised in this work, I asked: (2.a) are there groups of scholars adopting different approaches on integration? and (2.b) how the different groups interact each other? In order to answer to these questions, I carried out a citation network analysis on reference lists reported in the papers that were previously analyzed in their content. The main operation conducted had to do with the identification of “communities” in the general network of the overall citations in my dataset. Among these communities, a group of scholars clearly associated with mixed methods: I called this cluster “mixed methods community”. This community is represented by authors who write *about* mixed methods and that I could recognize thanks to a previous knowledge of the field, acquired in the early phases of this work. More in detail, some specific names were particularly noticeable (e.g.



Creswell, Onwuegbuzie, Greene, Johnson, Tashakkori, Bryman): with their central position in the network and their elevated degree they end up to cover a relevant influence role for the entire network.

Moreover, while the mixed methods community appears rather interconnected, clusters of scholars may be identified within the community as well, representing what I called “schools of thought”. However, it was not strictly possible to clearly distinguish among groups of scholars explicitly associated with specific approaches to mixed methods.

Furthermore, also in interviews scholars in different occasions were mentioning other members of the mixed methods community, in order to present some aspects emerging in their work or with the intent to expose a specific approach in the mixed methods field, as pursued by specific scholars.

Finally, among my research questions, I also asked: (3.) how is integration philosophically legitimated? The main intent of this last query was to investigate paradigms associated with mixed methods, as well as epistemological issues, but also to understand what are the dominant discourses raised by mixed methods scholars when they have to legitimize the choice of this methodological approach. By some means, the principal answer to this concern reported by interviewees had to do with the idea of a *better understanding* through mixing, whatever specific forms the integration may assume. In relation to this matter, the idea of centrality of research questions emerged as well: before paradigms and philosophy, mixed methods scholars seemed to have a clear conception on what matters the most – i.e. research questions.

Nevertheless, epistemological concerns can not be completely overlooked. A possibility – increasingly popular in the mixed methods field – is to commit to Pragmatism. However, this is not the only circumstance that can be found in the field, and other prospects arose from the interviews as well. Dialectical pluralism is an example of taking into consideration different paradigms, respecting their own traditions. Another potential scenario is to deem paradigms as they were *heuristics* (Abbott, 2004; Maxwell, 2011). Epistemology, indeed, embodies a rather relevant role in discourses around – as well as is those *against* – mixed methods (Sale, Lohfeld, and Brazil, 2002). Notwithstanding, in some occasions, conversations on epistemological issues might even end up being an argument of discussion that prevent scholars in the field of mixed methods to focus on what really matters in social inquiry: to find answers to questions, through the best modality possible. To this extent, paradigms could result being an obstacle – rather than a useful tool for research – binding a researcher to a set of assumptions, but also of more practical implications (e.g. preferred methods as being dictated by adhere to a certain paradigm).

Thus, I found myself questioning whether an alternative to a dogmatic use of paradigms was possible, while still valuing the role of assumptions and mindsets in research. In mixed methods I discovered a similar approach to epistemology in the

“everyday” conception of Pragmatism. This perspective, however, does not explicitly recognize assumptions that the researcher have about the social world. Other potential alternatives would include the already mentioned idea of paradigms as heuristics or as “toolkits” (Abbott, 2004; Maxwell, 2011). This strategy could be particularly beneficial to mixed methods, in terms of taking advantage of the *useful* aspects of paradigms and drawing elements from different paradigms – when necessary – instead of considering a specific paradigm as a dogmatic body of assumptions, that lead every choice needed in the research process. Another possibility could be to accept the invite suggested by feminist epistemologies to endorse shared conversations in epistemology (Haraway, 1988). This strategy could represent a compelling alternative to the reprehensible approach of relativism. With the words of Haraway (*ibid.*, p. 585):

«I want to argue for a doctrine and practice of objectivity that privileges contestation, deconstruction, passionate construction, webbed connections, and hope for transformation of systems of knowledge and ways of seeing. But not just any partial perspective will do; we must be hostile to easy relativisms and holisms built out of summing and subsuming parts».

A similar idea could be borrowed – once again, I see a potential in feminist thinking to be useful in diverse fields of inquiry – and translated in terms that are more close to the mixed methods world. This would mean for scholars to intentionally engage in dialogues that encompass qualitative and quantitative traditions, without “subsuming parts”, but rather recognizing the values of *other* perspectives. By all means, this specific understanding is vital to the mixed methods field under the prospect of the transformative paradigm (Mertens, 2003, 2007, 2010). Notwithstanding a similar lesson could still be learned by the larger world of mixed methods inquiry, in the understandings and usages of paradigms.

This is only one of the various suggestions I advance through this dissertation, which is not necessarily intended to be a complete and concluded work. On the contrary, some limitations can be found in this study, that could represent the starting point for potential further developments. For instance, I concentrated my analysis on Western academia – with a specific focus on the United States – with the aim to look at the mainstream practices related to mixed methods. Nonetheless, different world areas might present diverse modalities of thinking about the issues of interest for this study (Goonatilake, 1993). Therefore, other parts of the world – especially non-Western ones – could and should be possibly included in futures work on mixed methods in social inquiry.

Moreover, in the mixed methods field we can notice a proliferation of procedures for research design that might represent a potential barrier for creative ways of combining methods. Within this research, I intentionally did not adhere to any of the typical designs that can be found in literature on mixed methods: this was

both a standpoint on the problematic distinction between qualitative and quantitative strategies – as I showed particularly for network analysis – but also an attempt to be imaginative about modalities of mixing methods. However, the added value of integrated analysis could be exploited more in this kind of research that looks at an academic community and further studies could elaborate more and be more inventive in ways of mixing. By the same token, I argued earlier in this elaborate that the term “mixed methods” itself might be reductive, if we consider that it implies elements that are being mixed: hence, the separation between quantitative and qualitative worlds still results as absolute. On the contrary, the divide has been largely criticized and deconstructed (see, for example, Hanson, 2008), and the debates in social sciences about the need for *mixing* methods might be deceptive. Recalling, once again, the metaphor with gender – considering the two opposite genders on a continuum rather than a dichotomy and the whole concept as a social construction (Bazeley, 2017; Creamer, 2017) – I would like to suggest, for further developments, a innovative way of thinking about methods in social sciences that would not start from the differences between qualitative and quantitative approaches, as a sort of *queer methodology*. This aspect, however, is merely intended as an insight for future research in the social sciences, yet a similar approach to methods would need deep reflections, as well as empirical cases, assuming a new radical way of thinking in methodology of social inquiry, while still respecting the long tradition that allowed social sciences methodology to become as we know it today.

This last section was an attempt to identify possible future developments for research *on* but also *within* the mixed methods field in social inquiry. The doctoral work presented here was indeed the product of a three years process – with inevitable limitations, but also beneficial insights – and my wish is that it will be of help to the whole methodology field in social sciences and that it will be further explored in the future.



# Appendices



## Appendix A

# Interview Protocol

### A.1 Pre-Interview Operations

- Check interviewee's webpages/online public information:
  - Are mm mentioned among research interest?
  - Does any clearly mm research show among highlighted publications?
- Check whether any article in the dataset (whole/full texts) is authored by the scholar in question and eventually put a note on the dataset.

### A.2 Introduction

- Introduce myself and the purposes of the research and of the interviews.
- Confirm informed consent – and eventually confidentiality, when required – including permission to audio record the interview.

### A.3 Interview Guide

- *Icebreaker*
  1. From your webpage/papers, it appears that one area in which you work is [mention field]. Could you please tell me how your interest in these topics emerged?
    - a. How are you able to explore those within the University/Institution you are affiliated with?
- *Mixed Methods in Social Inquiry*: I would like to now focus more on Mixed Methods in social inquiry and to ask some questions about your personal experience with this specific modality to conduct research.
  2. Could you please tell me something about your first encounter with mixed methods?

*(Note: The set of sub-questions marked with alphabetical letter below is not required to be asked. The questions offer various options for getting descriptions of studies/practice of research and integration.)*

- a. When did you carry out the first research using mixed methods?
  - b. What was the study about?
  - c. How did it work out as your first endeavor in mixed methods?
  - d. Did this initial mixed method study build your interest in mixed methods as a researcher? In what ways?
- *Integration – Research Examples:* The research I’m conducting specifically focuses on integration of different methods and perspectives. I’m interested in understanding scholars’ ways of thinking about integration. So, I would like to now ask some questions that explore the issue more in detail, always starting from your personal experience as a scholar and researcher.
    3. Could you please tell me about any mixed methods study that you have conducted or been involved into that you would consider a good example of integration? [If it is asked what I mean by integration, I want to understand the interviewee’s thinking on the matter, but I would be happy to share my personal view at the end of the interview]
 

*(See the note above)*

      - a. What was the study about?
      - b. Can you describe the research design?
      - c. What features (of the research design and implementation) do you think that allowed the integration to be successful?
    4. Could you please tell me about any mixed methods study that you have conducted or been involved into that you would consider an unsuccessful attempt to integration?
 

*(See the note above)*

      - a. What was the study about?
      - b. Can you describe the research process?
      - c. What features do you think that were involved in the failure of integration?
    5. Thank you for the examples you shared. However, mixed methods is a complex and emerging field in social inquiry and I’m not sure I understand your point of view on integration yet. Can I ask you to elaborate more on this?
    6. What are the challenges to this kind of integration in empirical research?
      - a. Can you please give me an example?
  - *Paradigms:* Another aspect I would like to explore has to do with paradigms in the social science. With the term “paradigm” I mean 3 main levels of assumptions that stand behind a research. The first one is ontology, meaning our assumptions of what reality is; the second one is epistemology, meaning



assumptions on what we consider as knowledge; the third level is methodology, the ways we think we can adopt to reach knowledge in research. In the mixed methods field, however, mixing at the paradigm level is still an ongoing debate and scholars find different rationales for integration.

7. Generally speaking, what paradigm in the social science you favor? [Any approach you feel close to, because better represents your point of view as a researcher?]

a. Can you give me an example of research you conducted from this perspective? [If the interviewee has no paradigms in mind, ask: Have you ever participated in a study with a clear paradigm behind?]

8. What paradigm you specifically favor when conducting a mixed method study? [Or: Which paradigm do you think should guide a mixed method study?]

*(See the note above)*

a. Can you give me an example of mixed methods research you conducted from this perspective?

b. What are the specific features of this paradigmatic approach that enabled you to conduct this mixed method study?

9. Have you ever taken part in a study that was using a paradigm that you don't particularly value?

*(See the note above)*

a. Can you describe the study (topic, methods, research process)?

b. How was that paradigm used in the study?

c. There was someone in particular deciding for the strand to follow?

10. Have you ever find yourself appreciating studies using a paradigm that you didn't use to give particular credit to before?

*(See the note above)*

a. Can you describe the study (topic, methods, research process)?

b. Did you also end up appreciating that particular paradigm?



## Appendix B

# Protocol for the Self-Filling Interview

### B.1 Informed Consent

This form is intended to be used as a substitute of a face-to-face or online interview. The interviewee is asked to answer the questions, writing his/her answers and return the fulfilled form to the researcher. The PhD candidate, Noemi Novello, the supervisor, Dr. Alessandra Decataldo, the co-supervisor, Professor Jennifer C. Greene, and the board of the PhD program in Applied Sociology and Social Science Methodology will have access to this document. The document will be carefully stored and nobody else will have access to it.

Data collected will be analyzed and used exclusively for research purposes. The name of the interviewee will be displayed in the final report, unless he/she expresses a different choice on this.

### B.2 Introduction

Thank you for agreeing on being interviewed for my research. I will briefly explain what I am doing: - The research I am conducting is a methodological research synthesis on papers published on academic journals in the social science that declare to use mixed methods. The aim is to understand which are the approaches to integration used by researchers in the social science and how they are implemented empirically. Moreover, I am interested in the paradigmatic approaches and the philosophical assumptions that legitimize integration; - Interviews have a twofold role. From one side, they will be a chance to discover scholars' personal perspectives on the topic of interest – approaches to methods combination used and social research paradigms – providing me with a richer understanding of the methodology in question and how it is applied in social studies; from the other side I will be able to understand whether interviews confirm findings from analyzed articles or whether discrepancies between my findings and scholars' perception exist.

Please, consider that by filling this form you are agreeing on the informed consent stated above. Feel free to answer in the way that is more convenient for you. I

left some space between the different questions, but the length of the answer to each question is totally up to you. Do not hesitate to contact me or my supervisor if you have any question before answering the following questions.

I hope this will be a pleasant experience for you, Noemi Novello

### B.3 Interview Questions

- *Mixed Methods in Social Inquiry*: I would like in this section to focus on mixed methods in social inquiry and to ask some questions about your personal experience with this specific modality to conduct research.

Could you please tell me something about your first encounter with mixed methods?

*(Note: Please feel free to answer this question without any constraint. If you are uncertain about the meaning, there are some subquestion you could follow below)*

a. When did you carry out the first research using mixed methods?

b. What was the study about?

c. How did it work out as your first endeavor in mixed methods?

d. Did this initial mixed method study build your interest in mixed methods as a researcher? In what ways?

- *Integration – Research Examples*: The research I'm conducting specifically focuses on integration of different methods and perspectives. I'm interested in understanding scholars' ways of thinking about integration. So, I would like to now ask some questions that explore the issue more in detail, always starting from your personal experience as a scholar and researcher.

2. Could you please tell me about any mixed methods study that you have conducted or been involved in that you would consider a good example of integration?

*(See the note above)*

a. What was the study about?

b. Can you describe the research design?

c. What features (of the research design and implementation) do you think that allowed the integration to be successful?

3. Could you please tell me about any mixed methods study that you have conducted or been involved in that you would consider an unsuccessful attempt to integration?

*(See the note above)*

a. What was the study about?

b. Can you describe the research process?

c. What features do you think that were involved in the failure of integration?

4. What are the challenges to the kind of integration you are depicting in empirical research?

*(See the note above)*

a. Can you please give me an example?

- *Paradigms*: Another aspect I would like to explore has to do with paradigms in the social science. With the term “paradigm” I mean 3 main levels of assumptions that stand behind a research. The first one is ontology, meaning our assumptions of what reality is; the second one is epistemology, meaning assumptions on what we consider as knowledge; the third level is methodology, the ways we think we can adopt to reach knowledge in research. In the mixed methods field, however, mixing at the paradigm level is still an ongoing debate and scholars find different rationales for integration.

5. Generally speaking, what paradigm in the social science you favor? [any approach you feel close to, because better represents your point of view as a researcher?]

*(See the note above)*

a. Can you give me an example of research you conducted from this perspective? [If you have no particular paradigms in mind: Have you ever participated in a study with a clear paradigm behind?]

6. What paradigm you specifically favor when conducting a mixed method study? [Or: Which paradigm do you think should guide a mixed method study?]

*(See the note above)*

a. Can you give me an example of mixed methods research you conducted from this perspective?

b. What are the specific features of this paradigmatic approach that enabled you to conduct this mixed method study?

7. Have you ever taken part in a study that was using a paradigm that you don't particularly value?

*(See the note above)*

a. Can you describe the study (topic, methods, research process)?

b. How was that paradigm used in the study?

c. There was someone in particular deciding for the strand to follow?

8. Have you ever find yourself appreciating studies using a paradigm that you didn't use to give particular credit to before?

*(See the note above)*

- a. Can you describe the study (topic, methods, research process)?
- b. Did you also end up appreciating that particular paradigm?

## Appendix C

# Themes and Categories from the Thematic Analysis

### C.1 Description of Themes

In this section, I will present all the themes emerged from the thematic analysis of interviews. *Table C.1, C.2, C.3 and C.4* shows a brief description of each theme, reporting also the category(ies) that are related to the specific theme. Please note that a single theme might adhere to more than one category.

### C.2 Description of Categories

Regarding categories, they were defined only after the identification of themes from the interviews transcripts. Categories can be considered as macro-themes, or general concepts encompassing several themes. Thus, categories were not emerging from transcript but I considered them merely as a heuristic to semantically order themes. Chosen categories are the following:

**Integration:** encompasses themes connected to issues of integration of methods at various levels. The category includes the themes: better understanding; dialectical approach; epistemology: mixing; integration: “failed”; integration: all phases; integration: complementarity; integration: convergence; integration: divergent; integration: general; integration: inference level; integration: quantification / qualification; integration: visualizations; purpose of mixing.

**Epistemology / Paradigm:** elements that have to do with paradigms and issues of epistemology, in general and related to mixed methods. The category includes the themes: dialectical approach; epistemology: general; epistemology: mixing; epistemology: truth claims; feminism; hermeneutic perspective; paradigm: chauvinism; paradigm: heuristics; paradigm: constructivism; paradigm: fluid; paradigm: postpositivism; paradigm: postqualitative; paradigm: pragmatism; paradigm: transformative; research interest before epistemology; theories.

**Methodological aspects:** elements that are closely related to methodology, in social inquiry in general and in mixed methods research in particular. The category

includes the themes: data collection; dialectical approach; expertise by practice; interdisciplinarity: challenges; methodological challenges; mm quality; non simplicistic research; practicality in research; purpose of mixing; research design; research topics; theories; training in mm; values in research.

**Interdisciplinarity:** themes regarding interdisciplinary aspects. The category includes the themes: disciplines as silos; intrdisciplinarity: challenges; interdisciplinarity: general.

**MM community:** aspects related to mixed methods scholars, interacting each other as a community, as well as a part of the academia, considering also the relationships with members of other communities, in social sciences and in academia in general. The category includes the themes: disciplines as silos; expertise by practice; funding; mm schools of thought; need for legitimation; personal story in mm; policy implications; publishing; research as a career; specialization by method; training in mm; values in research.



TABLE C.1: Description of themes – in alphabetic order – emerged from the thematic analysis of interviews, with the respective categories – PART I –

<i>Theme</i>	<i>Category1</i>	<i>Category2</i>	<i>Category3</i>	<i>Description</i>
Better understanding	Integration	-	-	MM contribute to a better understanding of social phenomena and there is a inherent value in using mm
Data collection	Methodological aspects	-	-	Aspects related to data collection strategies in mm
Dialectical approach	Methodological aspects	Integration	Epistemology/Paradigm	Use of a dialectical approach to mm interpretation and inferences
Disciplines as silos	Methodological aspects	Interdisciplinarity		Discourses around the fact that disciplines remain separated, often using diverse methods
Epistemology: general	Epistemology/Paradigm	-	-	General aspects related to epistemology
Epistemology: mixing	Epistemology/Paradigm	Integration	-	Possibility of mixing paradigms or some elements from them, in the conduction of mm
Epistemology: truth claims	Epistemology/Paradigm	-	-	Aspects related to truth claims in epistemological perspectives
Expertise by practice	Methodological aspects	MM community	-	In research praxis, expertise is gained with practice
Feminism	Epistemology/Paradigm	-	-	Aspects related to feminism in doing mm and research in general
Funding	MM community	-	-	Aspects related to funding for mm research
Hermeneutic perspective	Epistemology/Paradigm	-	-	Using an approach of hermeneutics to mm
Integration: "failed"	Integration	-	-	Challenges to integration in mm and examples where integration was not reached
Integration: all phases	Integration	-	-	Discourses around integration during all phases of the research process

TABLE C.2: Description of themes – in alphabetic order – emerged from the thematic analysis of interviews, with the respective categories – PART II –

<i>Theme</i>	<i>Category1</i>	<i>Category2</i>	<i>Category3</i>	<i>Description</i>
Integration: complementarity	Integration	-	-	Complementarity perspective on integration of methods
Integration: convergence	Integration	-	-	Convergence perspective on integration of methods
Integration: divergent	Integration	-	-	Divergent findings from different methods while conducting mm
Integration: general	Integration	-	-	General aspects related to integration
Integration: inference level	Integration	-	-	Elements of integration at the level of inference
Integration: quantification / qualification	Integration	-	-	Discourses around practices of quantification and/or qualification in mm
Integration: visualizations	Integration	-	-	Aspects related to visualization of forms (and as a form) of integration in mm
Interdisciplinary: challenges	Interdisciplinary	Methodological aspects	-	Challenges to interdisciplinary practices
Interdisciplinary: general	Interdisciplinary	Methodological aspects	-	General aspects of interdisciplinary practices
Methodological challenges	Methodological aspects	-	-	Challenging aspects to mm from a methodological perspective
MM quality	Methodological aspects	-	-	Criteria to address quality in mm
MM schools of thought	MM community	-	-	Other scholars of the mm community mentioned as referring to a specific strategy in mm inquiry

TABLE C.3: Description of themes – in alphabetic order – emerged from the thematic analysis of interviews, with the respective categories – PART III –

<i>Theme</i>	<i>Category1</i>	<i>Category2</i>	<i>Category3</i>	<i>Description</i>
Need for legitimation	MM community	-	-	Discourses around how mm need to be legitimated, especially when facing scholars outside the mm community
Non simplistic research	Methodological aspects	-	-	Discourses around mm as a sophisticated approach and/or other approaches being too simplistic
Paradigm: chauvinism	Epistemology/Paradigm	-	-	Chauvinistic approach to the use of paradigms in social research with the belief of superiority of the preferred paradigm
Paradigm: constructivism	Epistemology/Paradigm	-	-	Reference to the constructivist paradigm, either in relation to mm or to research in general
Paradigm: fluid	Epistemology/Paradigm	-	-	Fluid perspective on the use of paradigms
Paradigm: heuristics	Epistemology/Paradigm	-	-	Perspective on paradigms as heuristics
Paradigm: postpositivism	Epistemology/Paradigm	-	-	Reference to the postpositivist paradigm, either in relation to mm or to research in general
Paradigm: postqualitative	Epistemology/Paradigm	-	-	Reference to the postqualitative paradigm, either in relation to mm or to research in general
Paradigm: pragmatism	Epistemology/Paradigm	-	-	Reference to the pragmatic paradigm, either in relation to mm or to research in general
Paradigm: transformative	Epistemology/Paradigm	-	-	Reference to the transformative paradigm, either in relation to mm or to research in general
Personal story in mm	MM community	-	-	Discourses on personal career paths towards mm, including education and early career

TABLE C.4: Description of themes – in alphabetic order – emerged from the thematic analysis of interviews, with the respective categories – PART IV –

<i>Theme</i>	<i>Category1</i>	<i>Category2</i>	<i>Category3</i>	<i>Description</i>
Policy implications	MM community	-	-	Implications in terms of policy of mm research
Practicality in research	Methodological aspects	-	-	Practical consequences of research in terms of evaluation or choices oriented to a practical level
Publishing	MM community	-	-	Difficulties in publishing mm studies, successful examples and mm methodological literature
Purpose of mixing	Methodological aspects	Integration	Epistemology/Paradigm	Discourses around motivations and purposes for mixing methods in social inquiry
Research as a career	MM community	-	-	Aspects related to research as a career path
Research design	Methodological aspects	-	-	Issues related to design involved in mm, including sampling
Research interests before epistemology	Epistemology/Paradigm	-	-	Perspective that considers epistemology not so relevant, giving priority to research topics
Research topics	Methodological aspects	-	-	Aspects related to research topics in mm studies
Specialization by method	MM community	-	-	Attitude of scholars in the social sciences who tend to specialize to a field not only in relation to a topic, but also regarding methods
Theories	Epistemology/Paradigm	Methodological aspects	-	Aspects related to the uses of theories in social sciences
Training in mm	MM community	Methodological aspects	-	Aspects related to education and training specifically addressing mm
Values in research	Methodological aspects	MM Community	-	Values that guide the research and/or in conducting research

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