

# The Nature of Research Methodologies

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## INTRODUCTION

In the research community, according to Tran (2015), the process of research, is generally defined as the procedures used in research that involve introducing a problem, narrowing the research problem into purpose statements, research questions, and hypotheses, collecting and analyzing data to address these questions and hypotheses, and using a writing structure that best fits the problem and the methods. Hence, terms such as *investigator* (often associated with quantitative research) and *inquirer* (often associated with qualitative research) are used interchangeably. Thus, a *methodology* refers to the philosophical framework and the fundamental assumptions of research (van Manen, 1990), *research design* refers to the plan of action that links the philosophical assumptions to specific methods (Creswell, 2003; Crotty, 1998), and *methods* are techniques of data collection and analysis (Creswell, 2003; van Manen, 1990). Some mixed methods writers, like Tashakkori and Teddlie (1998), consider this form of research a methodology and focus on the philosophical assumptions. To call a process a *methodology* introduces a complexity to the process of research. Other mixed methods writers, like Creswell, Plano-Clark, Guttman, and Hanson (2003), Greene, Caraceli, and Graham (1989), and Onwuegbuzie and Teddlie (2003), emphasize the techniques or methods of collecting and analyzing data. To call mixed methods research a *method* is clean and concise and resonates with many researchers (Elliott, 2005). The purpose of this chapter is to cover the three types (trends) of research methodologies: the traditional (quantitative, qualitative), the universal (mixed-methods),

and the trends (blogs, webinars, virtual intercepts, and virtual reality). This chapter will also cover a brief history of research methods and the usage of research methodologies.

## BRIEF HISTORY OF RESEARCH METHODOLOGIES

Before the advent of mixed methods, many studies used multiple methods to achieve the benefits of triangulation (Galton & Wilcocks, 1983) without restricting themselves to any paradigmatic membership or methodological category (Tashakkori & Teddlie, 2003). Thus, during the last 50 years, writers have used different names, making it difficult to locate articles that might relate to mixed methods research. Mixed methods has been called *multitrait/multimethod research* (Campbell & Fiske, 1959), *integrated* or *combined* (Johnson & Onwuegbuzie, 2004, p. 17; Steckler, McLeRoy, Goodman, Bird, & McCormick, 1992), and *quantitative and qualitative methods* (Fielding & Fielding, 1986). It has been called *hybrids* (Ragin, Nagel, & White, 2004), *methodological triangulation* (Morse, 1991a), *combined research* (Creswell, 1994), and *mixed methodology* (Tashakkori & Teddlie, 1998). It has also been called the *third methodological movement* (Tashakkori & Teddlie, 2002, p. 5), the *third research paradigm* (Johnson & Onwuegbuzie, 2004, p. 15), and *a new star in social science sky* (Mayring, 2007, p. 1). Nevertheless, the beginning of mixed methods is cited by some (Creswell & Plano-Clark, 2007, p. 5; Johnson, Onwuegbuzie, & Turner, 2007) to Campbell and Fiske (1959) as *multitrait* or *multimethod* research, a concept later formalized by

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Webb, Campbell, Schwartz, and Sechrest (1966) as *triangulation* (Greene, Caracelli, & Graham, 1989), and is often cited as having methodological superiority over single methods (Johnson et al., 2007; Tran, 2014a). For the first 60 years or so of the 20<sup>th</sup> century, mixed research can be seen in the work of cultural anthropologists and, especially, the fieldwork sociologists (Gans, 1963; Hollingshead, 1949; Jahoda, Lazarsfeld, & Zeisel, 1931/2003; Lynd & Lynd, 1929/1959).

In social science methodological literature, Campbell and Fiske's (1959) article introduced the idea of triangulation, referring to *multiple operationalism* (Bouchard, 1976). Today, the most frequently used name is *mixed methods research*, a name associated with the *Handbook of Mixed Methods in Social and Behavioral Research* (Tashakkori & Teddlie, 2003). Furthermore, early researchers' idea of multiple operationalism follows more closely what today is called *multimethod research*, in contrast to what currently is called *mixed methods research*. However, Campbell and Fisk (1959) are rightfully credited as being the first to show explicitly how to use multiple research methods for validation purposes, and were extended further by Webb, Campbell, Schwartz, and Sechrest (1966). Thus, Webb et al. are credited with being the first to coin the term *triangulation*. With that said, Cook (1985) is credited for coining the term *critical multiplism* (also see Houts, Cook, & Shadish, 1986).

## THE USAGE OF RESEARCH METHODOLOGIES

In the usage of research methodologies, it was Denzin (1978, p. 291) who first outlined how to triangulate methods. Denzin outlined the following four types of triangulation: (1) data triangulation, (2) investigator triangulation, (3) theory triangulation, and (4) methodological triangulation (Tran, 2014a). According to Tran (2014a), Denzin also distinguished *within-methods* triangulation, from

between-methods triangulation (Tran, 2014a). According to Denzin, three outcomes arise from triangulation: convergence, inconsistency, and contradiction. Furthermore, Jick (1979) noted the following advantages of triangulation: (1) it allows researchers to be more confident of their results, (2) it stimulates the development of creative ways of collecting data, (3) it can lead to thicker, richer data, (4) it can lead to the synthesis or integration of theories, (5) it can uncover contradictions, and (6) by virtue of its comprehensiveness, it may serve as the litmus test for competing theories (Tran, 2014a). Morse (1991b) on the other hand, outlined two types of methodological triangulation: simultaneous or sequential.

Sieber (1973) provided a list of reasons to combine quantitative and qualitative research data that can play a role in providing baseline information and helping to avoid *elite bias*. Rossman and Wilson (1985) identified three reasons for combining quantitative and qualitative research: (1) used to enable confirmation or corroboration of each other through triangulation, (2) used to enable or develop analysis in order to provide richer data, and (3) used to initiate new modes of thinking by attending to paradoxes that emerge from the two data sources. By examining published research, Greene, Caracelli, and Graham (1989) inductively identified the following five broad purposes of rationales of mixed methodological studies: (1) triangulation, (2) complementarity, (3) development, (4) initiation, and (5) expansion. Sechrest and Sidana (1995) listed four reasons for methodological pluralism: (1) for verification purposes, (2) to provide some basis for estimating possible error in the underlying measures, (3) to facilitate the monitoring of data collected, and (4) to probe a data set to determine its meaning. Also, Dzurec and Abraham (1993) identified the following six *pursuits* that link qualitative and quantitative research: (1) the pursuit of mastery over self and the world, (2) the pursuit of understanding through recomposition, (3) the pursuit of complexity reduction to enhance understanding,

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