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Toward a Definition of Mixed Methods Research

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The purpose of this article is to examine how the field of *mixed methods* currently is being defined. The authors asked many of the current leaders in mixed methods research how they define mixed methods research. The authors provide the leaders' definitions and discuss the content found as they searched for the criteria of demarcation. The authors provide a current answer to the question, What is mixed methods research? They also briefly summarize the recent history of mixed methods and list several issues that need additional work as the field continues to advance. They argue that mixed methods research is one of the three major "research paradigms" (quantitative research, qualitative research, and mixed methods research). The authors hope this article will contribute to the ongoing dialogue about how mixed methods research is defined and conceptualized by its practitioners.

Keywords: *mixed methods; mixed methodology; mixed research; multimethod; paradigm; pragmatism*

Mixed methods research (also called *mixed research* in this article) is becoming increasingly articulated, attached to research practice, and recognized as the third major research approach or *research paradigm*,[1] along with qualitative research and quantitative research. In this article, we will show that there might not be a single criterion of demarcation for mixed methods research, but there are several important criteria for thinking about mixed methods research in a narrow or pure sense as well as in a broader or highly inclusive sense. We believe that whereas there might not be a perfect or essentialist definition forthcoming, dialogue and social construction of a workable definition is a worthwhile goal for the field, understanding, of course, that definitions can and will usually change over time as the approach or "research paradigm" continues to grow. The classical pragmatic philosophers (i.e., Peirce, James, Dewey) had it right when they pointed out that the present is always a new starting point.

This article has four related purposes. First, we will review the recent history of mixed methods research to place the forthcoming definitions in recent historical context. Second, we list 19 definitions and summarize them through content analysis and discussion. The summary definition we provide is the result of an online discussion with several leaders in the field. Third, we also provide definitions of qualitative dominant and quantitative dominant mixed methods research. Fourth, we list several issues that might need additional

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attention as the field advances. We hope that the definitions provided here will be useful as the field continues positioning itself as one of the three methodological or research paradigms (i.e., qualitative research, quantitative research, and mixed methods research).

A Recent History of Mixed Methods Research

Debates about singular or universal truths or approaches to viewing the world (Socrates, Plato), versus multiple or relative truths (the Sophists such as Protagoras and Gorgias), versus balances or mixtures of the extremes (Aristotle's "golden mean" or principle of balance, moderate skepticism, Cicero, Sextus Empiricus), go back, at least, to ancient Western philosophy, and the spirit of these debates lives today in the different views of the three major approaches to social research. According to Plato, Protagoras said that "man is the measure of all things," and in many ways the history of Western philosophy still is debating Protagoras and the other Sophists.[2] This debate continues to affect how we view knowledge, what we look for, what we expect to find, and how we believe we are to go about finding and justifying "knowledge."

We would position mixed research between the extremes Plato (quantitative research) and the Sophists (qualitative research), with mixed research attempting to respect fully the wisdom of both of these viewpoints while also seeking a workable middle solution for many (research) problems of interest. Today, the primary philosophy of mixed research is that of pragmatism. Mixed methods research is, generally speaking, an approach to knowledge (theory and practice) that attempts to consider multiple viewpoints, perspectives, positions, and standpoints (always including the standpoints of qualitative and quantitative research).

Mixed research, in its recent history in the social and behavioral or human sciences, started with researchers and methodologists who believed qualitative *and* quantitative viewpoints and methods were useful as they addressed their research questions. For the first 60 years or so of the 20th century, "mixed research" (in the sense of including what we, today, would call qualitative and quantitative data) can be seen in the work of cultural anthropologists and, especially, the fieldwork sociologists (e.g., Gans, 1963; Hollingshead, 1949; Jahoda, Lazarsfeld, & Zeisel, 1931/2003; Lynd & Lynd, 1929/1959). However, the mixed methods label would not be coined until many years later. It is interesting to browse the books written by these earlier social scientists to see how they blended qualitative and quantitative data as they studied their communities. Although mixed methods research is not new, it is a new movement, or discourse, or research paradigm (with a growing number of members) that has arisen in response to the currents of *quantitative research* and *qualitative research*. In the history of ideas, new antitheses and syntheses continually develop in response to current theses. Mixed research is a synthesis that includes ideas from qualitative and quantitative research.

In the social science methodological literature, Campbell and Fiske's (1959) article sometimes is viewed as formalizing the practice of using multiple research methods. In this 1959 article, Campbell and Fiske introduced the idea of triangulation, referring to "multiple operationalism," in which more than one method is used as part of a validation process that ensures that the explained variance is the result of the underlying phenomenon or trait

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and not of the method (e.g., quantitative or qualitative). It was argued that the convergence of findings stemming from two or more methods "enhances our beliefs that the results are valid and not a methodological artifact" (Bouchard, 1976, p. 268). Interestingly, during the early 1950s, even though he did not use the term *multiple operationalism*, Boring (1953) foreshadowed this concept as follows:

> As long as a new construct has only the single operational definition that is received at birth, it is just a construct. When it gets two alternative operational definitions, it is beginning to be validated. When the defining operations, because of proven correlations, are many, then it becomes reified. (p. 222)

As can be seen, however, the idea of multiple operationalism is more of a measurement and construct validation technique, in its original formulation, than it is a full research methodology. 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 Fiske (1959) are rightfully credited as being the first to show explicitly how to use multiple research methods for validation purposes.

The ideas of Campbell and Fiske (1959) were extended further by Webb, Campbell, Schwartz, and Sechrest (1966), who defined multiple operationalism as representing the use of multiple measures that "are hypothesized to share in the theoretically relevant components but have different patterns of irrelevant components" (p. 3). According to Webb et al.,

> Once a proposition has been confirmed by two or more independent measurement processes, the uncertainty of its interpretation is greatly reduced. The most persuasive evidence comes through a *triangulation* [italics added] of measurement processes. If a proposition can survive the onslaught of a series of imperfect measures, with all their irrelevant error, confidence should be placed in it. Of course, this confidence is increased by minimizing error in each instrument and by a reasonable belief in the different and divergent effects of the sources of error. (p. 3)

Thus, Webb et al. are credited with being the first to coin the term *triangulation*. This type of triangulation is referred to as between- or across-method triangulation.

It was Denzin (1978) who first outlined how to triangulate methods. Denzin defined triangulation as "the combination of methodologies in the study of the same phenomenon" (p. 291). Denzin outlined the following four types of triangulation: (a) data triangulation (i.e., use of a variety of sources in a study), (b) investigator triangulation (i.e., use of several different researchers), (c) theory triangulation (i.e., use of multiple perspectives and theories to interpret the results of a study), and (d) methodological triangulation (i.e., use of multiple methods to study a research problem). Denzin also distinguished *within-methods* triangulation, which refers to the use of either multiple quantitative or multiple qualitative approaches, from *between-methods* triangulation, which involves the use of both quantitative and qualitative approaches. Denzin surmised that within-methods triangulation had limited value because essentially only one paradigm (e.g., quantitative) is being used such that any inherent weakness stemming from the paradigmatic approach used (e.g., inability to explain why an observed causal relationship exists) will prevail regardless of the specific research design (e.g., experimental) used within a methodological paradigm.[3]

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Denzin (1978) recommended the use of between-method triangulation, contending that by utilizing mixed methods, "the bias inherent in any particular data source, investigators, and particularly method will be canceled out when used in conjunction with other data sources, investigators, and methods" (p. 14); and (b) "the result will be a convergence upon the truth about some social phenomenon" (p. 14). According to Denzin, three outcomes arise from triangulation: convergence, inconsistency, and contradiction. Whichever of these outcomes prevail, the researcher can construct superior explanations of the observed social phenomena.

Although acknowledging that triangulation may not be suitable for all research purposes, Jick (1979) noted the following advantages of triangulation: (a) it allows researchers to be more confident of their results; (b) it stimulates the development of creative ways of collecting data; (c) it can lead to thicker, richer data; (d) it can lead to the synthesis or integration of theories; (e) it can uncover contradictions, and (f) by virtue of its comprehensiveness, it may serve as the litmus test for competing theories.

Morse (1991) outlined two types of methodological triangulation: simultaneous or sequential. According to Morse, simultaneous triangulation represents the simultaneous use of qualitative and quantitative methods in which there is limited interaction between the two sources of data during the data collection stage, but the findings complement one another at the data interpretation stage. On the other hand, sequential triangulation is utilized when the results of one approach are necessary for planning the next method.

While Denzin (1978), Jick (1979), and others were promoting triangulation, Sieber (1973) provided a list of reasons to combine quantitative and qualitative research. He outlined how such a combination can be effective at the research design, data collection, and data analysis stages of the research process. For example, at the research design stage, quantitative data can assist the qualitative component by identifying representative sample members, as well as outlying (i.e., deviant) cases. Conversely, at the design stage, qualitative data can assist the quantitative component of a study by helping with conceptual and instrument development. At the data collection stage, quantitative data can play a role in providing baseline information and helping to avoid "elite bias" (talking only to high-status individuals). On the other hand, at the data collection stage, qualitative data can help in facilitating the data collection process. During the data analysis stage, quantitative data can facilitate the assessment of generalizability of the qualitative data and shed new light on qualitative findings.[4] Alternatively, during the data analysis stage, qualitative data can play an important role by interpreting, clarifying, describing, and validating quantitative results, as well as through grounding and modifying.

Rossman and Wilson (1985) identified three reasons for combining quantitative and qualitative research. First, combinations are used to enable confirmation or corroboration of each other through triangulation. Second, combinations are used to enable or to develop analysis in order to provide richer data. Third, combinations are 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 or rationales of mixed methodological studies: (a) triangulation (i.e., seeking convergence and corroboration of results from different methods studying the same phenomenon), (b) complementarity (i.e., seeking elaboration, enhancement, illustration, clarification of the results from one method with results from the other method), (c) development (i.e., using the results from one method to help inform the

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other method), (d) initiation (i.e., discovering paradoxes and contradictions that lead to a reframing of the research question), and (e) expansion (i.e., seeking to expand the breadth and range of inquiry by using different methods for different inquiry components).

In 1979, Reichardt and Cook made a plea for program evaluators to use both quantitative and qualitative "methodological paradigms." They pointed out that although specific research methods and techniques are sometimes linked to methodological paradigms, it is nonetheless "our view that the paradigmatic perspective which promotes this incompatibility between the method-types is in error" (p. 11). They also pointed out that

> one will often want to sample attributes from each paradigm *on the same dimension*. For instance, comprehensive evaluations should be process-oriented as well as outcome oriented, exploratory as well as confirmatory. There is no reason for researchers to be constrained to either one of the traditional, though largely arbitrary, paradigms when they can have the best from both. (pp. 18-19)

Cook (1985) coined the term *critical multiplism* (also see Houts, Cook, & Shadish, 1986) to refer to the ideas that research questions can be examined from different perspectives and it is often useful to combine different methods with different biases. Generally speaking, evaluation as a field has moved more quickly into the use of mixed methods research than has psychological and, even, educational research, perhaps because of the very practical nature of evaluation research and the need for multiple sources of evidence when judging social programs.

Sechrest and Sidana (1995) listed four reasons for methodological pluralism: (a) for verification purposes, (b) to provide some basis for estimating possible error in the underlying measures, (c) to facilitate the monitoring of data collected, and (d) to probe a data set to determine its meaning. Also, Dzurec and Abraham (1993, pp. 76-77) identified the following six "pursuits" that link qualitative and quantitative research: (a) the pursuit of mastery over self and the world, (b) the pursuit of understanding through recomposition, (c) the pursuit of complexity reduction to enhance understanding, (d) the pursuit of innovation, (e) the pursuit of meaningfulness, and (f) the pursuit of truthfulness.

Most recently, Collins, Onwuegbuzie, and Sutton (2006) identified four rationales for conducting mixed research: participant enrichment (e.g., mixing quantitative and qualitative research to optimize the sample using techniques that include recruiting participants, engaging in activities such as institutional review board debriefings, ensuring that each participant selected is appropriate for inclusion), instrument fidelity (e.g., assessing the appropriateness and/or utility of existing instruments, creating new instruments, monitoring performance of human instruments), treatment integrity (i.e., assessing fidelity of intervention), and significance enhancement (e.g., facilitating thickness and richness of data, augmenting interpretation and usefulness of findings).

Meanwhile, in recent years, some of the strongest supporters of qualitative research, such as Denzin, Lincoln, and Guba, have, at times, made statements that appear to give credence to mixed methods research. For example, Lincoln and Guba (1985) acknowledged that "indeed, there are many opportunities for the naturalistic investigator to utilize quantitative data—probably more than are appreciated" (pp. 198-199) Also, Guba and Lincoln (1989) stated that "the information may be quantitative or qualitative. Responsive evaluation does not rule out quantitative modes, as is mistakenly believed by many, but deals with whatever

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information is responsive to the unresolved claim, concern, or issue" (p. 174). Further, Guba and Lincoln (1994) noted that "Both qualitative and quantitative methods may be used appropriately with any research paradigm" (p. 105). Similarly, Guba and Lincoln (2005) reiterated that "within each paradigm, mixed methodologies (strategies) may make perfectly good sense" (p. 200). They also declared, "As we tried to make it clear, the 'argument' arising in the social sciences was *not about method*, although many critics of the new naturalistic, ethnographic, phenomenological, and/or case study approaches assumed it was" (p. 200). Guba and Lincoln (2005) posed and answered the following question:

> Is it possible to blend elements of one paradigm into another, so that one is engaging in research that represents the best of both worldviews? The answer, from our perspective, has to be a cautious *yes*. This is especially so if the models (paradigms) share axiomatic elements that are similar, or that resonate strongly between them. (p. 201)

Schwandt (2000, 2006) has taken a stronger position on the "paradigm wars," calling into question the need for the divisions or differentiation and the defining through opposition of qualitative (and other) research. He has pointed out that "it is highly questionable whether such a distinction [between qualitative inquiry and quantitative inquiry] is any longer meaningful for helping us understand the purpose and means of human inquiry" (2000, p. 210). Schwandt (2000) also declared the following:

> All research is interpretive, and we face a multiplicity of methods that are suitable for different kinds of understandings. So the traditional means of coming to grips with one's identity as a researcher by aligning oneself with a particular set of methods (or being defined in one's department as a student of "qualitative" or "quantitative" methods) is no longer very useful. If we are to go forward, we need to get rid of that distinction. (p. 210)

We agree with Schwandt that the dividing lines are *much* fuzzier than typically suggested in the literature and that antagonism between paradigms is unproductive. The paradigm warriors also too frequently ignore the presence of many intraparadigmatic differences. At the same time, we still believe that it is useful to identify three research paradigms to signify three general clusters of methodological and philosophical positions. However, these positions are not nearly as "logical" and as distinct as is frequently suggested in the literature.

In sum, the 20th century started with some use of what later came to be called mixed research, but social and psychological research quickly became primarily quantitative (e.g., as influenced by logical positivism and a reinvigorated scientism). Partially in reaction, many qualitative currents developed throughout the century, coalescing into a qualitative research paradigm in the 1980s and 1990s (e.g., Guba, 1990). In reaction to the polarization between quantitative and qualitative research, another intellectual movement (focusing on synthesis) occurred and it has come to be called mixed methods research. We currently are in a three methodological or research paradigm world, with quantitative, qualitative, and mixed methods research all thriving and coexisting. In contrast to Thomas Kuhn's (1962) expectation for single paradigms characterizing "normal science," we suggest that a three-paradigm *methodological* world might be healthy because each approach has its strengths and weaknesses and times and places of need. Perhaps normal science is not best for social research; that is, perhaps a continual interaction between Kuhn's normal *and* revolutionary science will best keep us all in check and balanced.

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Current Definitions of Mixed Methods Research

In addition to multiple operationalism and triangulation, the third methodological movement (an intellectual and practical *synthesis*) has been given many names. Here are a few: blended research (Thomas, 2003), integrative research (Johnson & Onwuegbuzie, 2004), multimethod research (e.g., Hunter & Brewer, 2003; Morse, 2003), multiple methods (Smith, in press), triangulated studies (cf. Sandelowski, 2003), ethnographic residual analysis (Fry, Chantavanich, & Chantavanich, 1981), and mixed research (Johnson, 2006; Johnson & Christensen, 2004). An advantage of the broader term *mixed research*, as well as *integrative research*, is that it does not suggest a limitation of mixing to methods only.

Mixed methods research has become the most popular term used to describe this movement.[5] It is important to keep in one's mind, however, that the word *methods* should be viewed broadly. Greene (2006) provided an excellent description of the way we viewed the word *methods* in this term (i.e., we see it as meaning "methodology" as conceived and outlined by Greene, 2006). We believe that a broad interpretation and use of the word methods (in mixed methods) allows inclusion of issues and strategies surrounding methods of data collection (e.g., questionnaires, interviews, observations), methods of research (e.g., experiments, ethnography), and related philosophical issues (e.g., ontology, epistemology, axiology). In our view, each of the three major approaches to research include assumptions, principles, and values about these kinds of methodology and practice-related issues as parts of the research paradigm (Johnson & Onwuegbuzie, 2004; Morgan, 2006). Now we will examine how leaders in the field define mixed methods research.

Because, in recent years, the concept of mixed methods research has been defined in a number of ways, we felt that it was important to examine the criteria leaders in the field currently consider important for defining mixed methods research. Our sampling frame (i.e., politically important case sampling; Miles & Huberman, 1994) started with a list of 31 leading mixed methods research methodologists from Tashakkori's "Bridges Web site" (see People Links at http://www.fiu.edu/~bridges/); we later added 5 additional leaders (i.e., contributors to a special journal issue on mixed methods research; see Johnson, 2006). We asked (via e-mail) all of these methodologists if they would share their current definitions of mixed methods research. The 19 definitions provided by the participating methodologists are presented in Table 1. The unit of analysis is definition rather than participant (because 2 definitions were provided by pairs of methodologists).

As can be seen in Table 1, these definitions have varying levels of specificity. A cross-case analysis (Miles & Huberman, 1994) was undertaken to compare and contrast the 19 separate definitions. Specifically, the method of constant comparison was used (Glaser & Strauss, 1967), wherein we compared each subsequent significant statement (i.e., definition or parts of a definition) with previous statements such that similar clusters were labeled with the same code. After all the statements had been coded, the codes were grouped by similarity, and a theme was identified and documented based on each grouping. This analysis revealed five themes. We quantitized (Tashakkori & Teddlie, 1998) some of the themes to provide information about quantity in addition to quality. That is, the themes (i.e., qualitative data) were transformed to numerical form (Onwuegbuzie & Teddlie, 2003) to indicate the number of definitions that contributed to each theme.

According to 15 of the 19 definitions, quantitative research and qualitative research is *what is mixed* (i.e., Theme 1). According to one definition (Hunter's), mixing also includes

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Table 1
Definitions of Mixed Methods Research by Leaders in the Field Responding

Pat Bazeley:
I tend to distinguish between mixed methods and multimethod, although if I need a generic term, I used mixed methods. Multimethod research is when different approaches or methods are used in parallel or sequence but are not integrated until inferences are being made. Mixed methods research involves the use of more than one approach to or method of design, data collection or data analysis within a single program of study, with integration of the different approaches or methods occurring during the program of study, and not just at its concluding point. Note that I am not limiting this to a combination of qualitative and quantitative research only, but more broadly, combinations of any different approaches/methods/data/analyses.

Valerie Caracelli:
A mixed method study is one that planfully juxtaposes or combines methods of different types (qualitative and quantitative) to provide a more elaborated understanding of the phenomenon of interest (including its context) and, as well, to gain greater confidence in the conclusions generated by the evaluation study.

Huey Chen:
Mixed methods research is a systematic integration of quantitative and qualitative methods in a single study for purposes of obtaining a fuller picture and deeper understanding of a phenomenon. Mixed methods can be integrated in such a way that qualitative and quantitative methods retain their original structures and procedures (pure form mixed methods). Alternatively, these two methods can be adapted, altered, or synthesized to fit the research and cost situations of the study (modified form mixed methods).

John Creswell:
Mixed methods research is a research design (or methodology) in which the researcher collects, analyzes, and mixes (integrates or connects) both quantitative and qualitative data in a single study or a multiphase program of inquiry.

Steve Currall:
Mixed methods research involves the sequential or simultaneous use of both qualitative and quantitative data collection and/or data analysis techniques.

Marvin Formosa:
Mixed methods research is the utilitization of two or more different methods to meet the aims of a research project as best as one can. The research project may be conducted from either one or two paradigmatic standpoints (mixed methodology study).

Jennifer Greene:
Mixed method inquiry is an approach to investigating the social world that ideally involves more than one methodological tradition and thus more than one way of knowing, along with more than one kind of technique for gathering, analyzing, and representing human phenomena, all for the purpose of better understanding.

Al Hunter:
Mixed methods is a term that is usually used to designate combining qualitative and quantitative research methods in the same research project. I prefer the term *multimethod research* to indicate that different styles of research may be combined in the same research project. These need not be restricted to quantitative and qualitative; but may include, for example, qualitative participant observation with qualitative in-depth interviewing. Alternatively it could include quantitative survey research with quantitative experimental research. And of course it would include quantitative with qualitative styles.

(continued)

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Table 1 (continued)

Burke Johnson and Anthony Onwuegbuzie:
Mixed methods research is the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study or set of related studies.

Udo Kelle:
Mixed methods means the combination of different qualitative and quantitative methods of data collection and data analysis in one empirical research project. This combination can serve for two different purposes: it can help to discover and to handle threats for validity arising from the use of qualitative or quantitative research by applying methods from the alternative methodological tradition and can thus ensure good scientific practice by enhancing the validity of methods and research findings. Or it can be used to gain a fuller picture and deeper understanding of the investigated phenomenon by relating complementary findings to each other which result from the use of methods from the different methodological traditions of qualitative and quantitative research.

Donna Mertens:
Mixed methods research, when undertaken from a transformative stance, is the use of qualitative and quantitative methods that allow for the collection of data about historical and contextual factors, with special emphasis on issues of power that can influence the achievement of social justice and avoidance of oppression.

Steven Miller:
Mixed methods is a form of evolving methodological inquiry, primarily directed to the human sciences, which attempts to combine in some logical order the differing techniques and procedures of quantitative, qualitative and historical approaches. At present mixed methods must devote itself to resolving a set of issues, both epistemological and ontological. The first must devote itself to what Miller and Gatta (2006) call the "epistemological link," that is the rules and rationales which "permit" one to proceed mixed methodologically. The second must adhere to some form of "minimal realist" ontology, where either social reality is "One" but can be accessed by different methods separately or working in conjunction, or social reality is multiple in nature and can ONLY be accessed through mixed methods. Present day attempts to couch mixed methods within some broad notion of pragmatism are not satisfactory.

Janice Morse:
A mixed method design is a plan for a scientifically rigorous research process comprised of a qualitative or quantitative *core component* that directs the theoretical drive, with qualitative or quantitative *supplementary component(s)*. These components of the research fit together to enhance description, understanding and can either be conducted simultaneously or sequentially.

Isadore Newman:
Mixed methods research is a set of procedures that should be used when integrating qualitative and quantitative procedures reflects the research question(s) better than each can independently. The combining of quantitative and qualitative methods should better inform the researcher and the effectiveness of mixed methods should be evaluated based upon how the approach enables the investigator to answer the research question(s) embedded in the purpose(s) (why the study is being conducted or is needed; the justification) of the study. (See Newman, Ridenour, Newman & DeMarco, 2003.)

Michael Q. Patton:
I consider mixed methods to be inquiring into a question using different data sources and design elements in such a way as to bring different perspectives to bear in the inquiry and therefore support triangulation of the findings. In this regard, using different methods to examine different questions in the same overall study is not mixed methods.

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Table 1 (continued)

Hallie Preskill:
Mixed methods research refers to the use of data collection methods that collect both quantitative and qualitative data. Mixed methods research acknowledges that all methods have inherent biases and weaknesses; that using a mixed method approach increases the likelihood that the sum of the data collected will be richer, more meaningful, and ultimately more useful in answering the research questions.

Margarete Sandelowski:
First, I think of this in terms of either a single primary research study or as a program of research. Then, I see mixed methods as something of a misnomer as mixing implies blending together. Mixed methods research, though, is more the use of different methodological approaches TOGETHER in a single study or single program of research. One cannot blend methods in the sense of assimilating one into the other. I use methods here to refer to larger inquiry approaches (e.g., experiments and grounded theory) which are themselves based in distinctive theoretical perspectives. Yet this sets up a problem too, as grounded theory, for example, can be "positivist" (a la Strauss & Corbin), "constructivist" (a la Charmaz), or "postmodern" (a la Clarke) in sensibility or influence. So, if a researcher is doing grounded theory (positivist style) and an experiment (positivist influence), are any methods actually being mixed? In other words, mixed methods research can be defined at the technique level as the combination of, e.g., purposeful & probability sampling, open-ended and closed-ended data collection techniques, and narrative and mutivariable analyses—i.e., in which anything can be used together (linked or assimilated into each other)—or it can be defined at a larger theoretical/paradigmatic level as using divergent approaches to inquiry together. I would not define mixed methods research as constituting ANY combination of 2 or more things, as any research involves the use of 2 or more of something and the use of experiment and survey is 2 things, but they are informed by one mind (typically positivist/objectivist/realist). We get tangled in words, do we not?

Lyn Shulha:
By collaborative mixed method research, we will mean the purposeful application of a multiple person, multiple perspective approach to questions of research and evaluation. Decisions about how methods are combined and how analyses are conducted are grounded in the needs and emerging complexity of each project rather than in preordinate methodological conventions. . . . Within this context, methods can be "mixed" in a variety of ways. Sometimes, one method serves another in validating and explicating findings that emerge from a dominant approach. On other occasions, different methods are used for different parts of the issues being investigated, and in an independent way. In more complex cases, the methods and perspectives are deliberately mixed from the beginning of the process. The resulting interaction of problem, method, and results produce a more comprehensive, internally consistent, and ultimately, more valid general approach. What sets the most complex forms of collaborative mixed method research apart from other forms of inquiry is that findings depend as much on the researchers' capacities to learn through joint effort and to construct joint meaning as on their expertise in conventional data collection and analysis techniques.

Abbas Tashakkori and Charles Teddlie:
Mixed methods research is a type of research design in which QUAL and QUAN approaches are used in type of questions, research methods, data collection and analysis procedures, or in inferences.

Note: QUAL = qualitative research; QUAN = quantitative research.

within research paradigm mixing (e.g., QUAL + QUAL). One definition includes historical research in addition to quantitative and qualitative research. In other words, there is strong agreement that mixed research involves both quantitative and qualitative research, although one person specifically recommends a broadening of mixed research to include within-research-paradigm mixing.

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When or where in the design mixing is carried out (i.e., the *mixing stage*) is another theme (i.e., Theme 2). This theme involves the stage at which mixing is said to take place. For example, three definitions indicate that mixing occurs in the data collection stage. Two definitions indicate that mixing occurs at the data collection and data analysis stages. At least four (and perhaps all of the other definitions indirectly) suggest that mixing can occur at all of the stages of research. According to one definition, mixed methods must include quantitative and qualitative perspectives in the examination of the same research question. Although this was not frequently mentioned, we agree that this is an important point for consideration; Yin (2006) provides explicit argument for this point in his article in a special issue on mixed methods research (for the special issue, see Johnson, 2006).

A related issue is that of the *breadth* of mixed research (i.e., Theme 3). This theme can be regarded as lying on a continuum from those who define mixed methods research as by definition entailing the collection of both qualitative and qualitative data (e.g., Creswell) to those who define mixed methods research as potentially involving mixing at all stages (e.g., Bazeley, Tashakkori and Teddlie), to those who include in their definition the mixing of methodological worldviews and language (i.e., Johnson & Onwuegbuzie, 2004). In fact, the last part of the Johnson and Onwuegbuzie (2004) definition includes a very broad criterion: the mixing of qualitative (kind, type) and quantitative (amount) *language or discourse* (e.g., in one's methodological worldview, in forming interpretations, and in writing and communicating research findings). Viewed in this very broad way, much published research would involve this sort of mixing. Our goal, at the time, in including the criterion of language (while recognizing the importance of pure qualitative research, pure quantitative research, and "pure" mixed methods research) was to provide a very broad middle position for mixed methods research rather than a more narrow middle position. When viewed on the criterion of language or discourse, mixing is a very natural and commonplace process.

The next major theme is *why* mixing is carried out in research (i.e., Theme 4). Many of the definitions included one or more purpose(s) for conducting mixed research. A key purpose mentioned by a number of people was breadth (7) and/or corroboration (5). Comments reflecting breadth or depth included (a) provide better understanding, (b) provide a fuller picture and deeper understanding, and (c) enhance description and understanding. Corroboration was reflected in the definition that focused on providing triangulation of the findings. A number of methodologists included both of these purposes (breadth and corroboration) in their definitions including (a) validate and explicate findings from another approach and produce more comprehensive, internally consistent, and valid findings; (b) provide more elaborated understanding and greater confidence in conclusions; (c) handle threats to validity and gain a fuller and deeper understanding; and (d) provide richer/more meaningful/more useful answers to research questions. However, for a small number of researchers, the theme of why was not limited to providing breadth and/or corroborations. Other purposes included (a) meet the aims of the research project and (b) achieve social justice and avoid oppression.

A final major theme pertains to the *orientation* of the mixed methods research (i.e., Theme 5). Whereas some definitions (e.g., Newman) are consistent with what Tashakkori (2006) labeled a "bottom-up" approach wherein the research question drives the mixed methods research approach, at least one of the definitions (i.e., Mertens) can be classified as representing a "top-down" approach in which the mixed methods approach is not driven by

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the research question; rather, it is driven by the researcher's quest to conduct research that is emancipatory, antidiscriminatory, participatory, and the like, which focuses squarely on the lives and experiences of marginalized persons or groups such as women; ethnic/racial/cultural minorities; religious minorities; individuals with disabilities/exceptionalities; and members of gay, lesbian, bisexual, and transsexual communities (i.e., transformative-emancipatory research; Mertens, 2003). In fact, rather than representing a dichotomy (Tashakkori, 2006), we believe that every mixed methods research study is situated somewhere along this bottom-up/top-down conceptualization continuum.

Homogeneity and heterogeneity can be seen in the definitions shown in Table 1. On one hand, we hoped to find some consensus about the core of mixed methods research, and we did. On the other hand, heterogeneity also is natural and should be valued positively, because mixed methods research can include a large group of researchers and a large number of research projects. In short, we view agreement *and* difference in the definitions as good for this emerging research paradigm and recommend that readers examine the definitions for both of these characteristics.

Based on our analysis of the definitions in Table 1, we offer the following general definition:

> Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.

This definition refers to mixed methods research as a type of research:

> A mixed methods study would involve mixing within a single study; a mixed method program would involve mixing within a program of research and the mixing might occur across a closely related set of studies.

Defining Different Types of Mixed Methods Research

Looking at the qualitative-quantitative continuum in Figure 1, mixed research can be viewed as incorporating several overlapping groups of mixed methods researchers or types of mixed methods research. The area in the center of the figure, moving outward in both directions (and excluding the area near the poles), is where mixed methods research, broadly speaking, falls, with the center representing the strongest or "pure" form. It makes sense that a researcher might have one primary home (out of the three major homes: qualitative research, mixed research, and quantitative research). Because we argue for a contingency theory of research methodology, however, it also makes sense for the researcher to visit other homes when his or her research can benefit from such a visit (Johnson & Onwuegbuzie, 2004).

The area around the center of the continuum, *equal status*, is the home for the person that self-identifies as a mixed methods researcher. This researcher takes as his or her starting point the logic and philosophy of mixed methods research. These mixed methods researchers are likely to believe that qualitative and quantitative data and approaches will add insights as one considers most, if not all, research questions.

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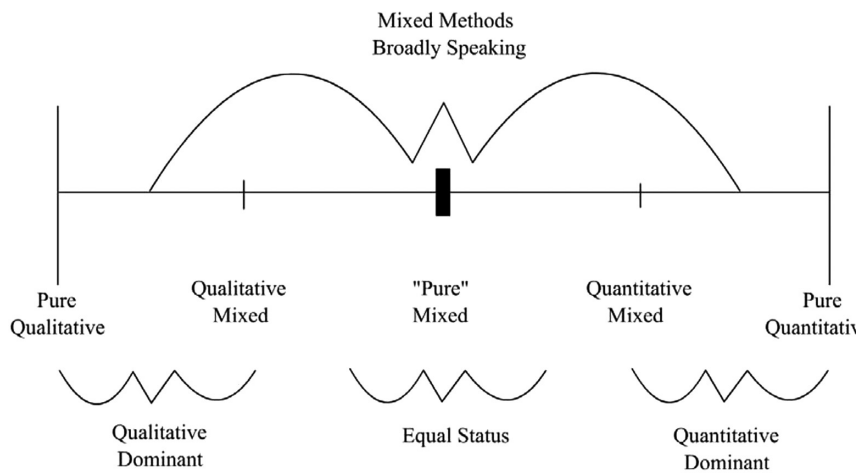
Figure 1
Graphic of the Three Major Research Paradigms, Including Subtypes of Mixed Methods Research



Another type of mixed methods research that results from the continuum shown in Figure 1 is labeled *qualitative dominant* mixed methods research. This type of research is symbolized as QUAL +quan research.[6] This area on the continuum would fit qualitative or mixed methods researchers who believe it is important to include quantitative data and approaches into their otherwise qualitative research projects. Here is a potential definition:

> Qualitative dominant mixed methods research is the type of mixed research in which one relies on a qualitative, constructivist-poststructuralist-critical view of the research process, while concurrently recognizing that the addition of quantitative data and approaches are likely to benefit most research projects.

Another type of mixed methods research that results from the continuum shown in Figure 1 is labeled *quantitative dominant* mixed methods research. This type of research is symbolized as QUAN+qual research. This area on the continuum would fit quantitative or mixed methods researchers who believe it is important to include qualitative data and approaches into their otherwise quantitative research projects. Here is a potential definition:

> Quantitative dominant mixed methods research is the type of mixed research in which one relies on a quantitative, postpositivist view of the research process, while concurrently recognizing that the addition of qualitative data and approaches are likely to benefit most research projects.

Some Current Issues for Mixed Methods Research

After considering the definitions provided in this article, several issues emerged as potentially needing additional consideration in future methodological works. Our purpose

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here is briefly to introduce a few issues, not to provide extensive discussion or final solutions. First, can we (i.e., researchers and methodologists situated near the middle of the continuum in Figure 1) reach broad agreement about the stages of the research process at which mixing can occur? Is it oftentimes more important to mix at some stages rather than at other stages? What are the gains from mixing at the different stages?

Second, what are effective strategies for integration at different stages of the research process? For example, Bazeley (2006) has carefully examined how to integrate qualitative and quantitative data using data analysis software. Teddlie and Tashakkori (2006) and Tashakkori and Teddlie (2006) discussed the process of making metainferences (that are based on the integration of qualitative and quantitative strands in research studies). Onwuegbuzie and Johnson (2006) also have explored the concept of integration in several ways, including, most directly, what we labeled commensurability legitimation (see below). The key idea that mixed methods research requires some form of integration is clear; still, however, additional research is needed to further explicate this process.

Third, what philosophy of science, or set of philosophical positions, will best partner with mixed methods research? Constructivism and poststructuralism are connected to qualitative research, and postpositivism is connected to quantitative research. Many (or most) mixed methods writers have argued for some version of pragmatism as the most useful philosophy to support mixed methods research. We agree that pragmatism is a well-developed and attractive philosophy for integrating perspectives and approaches. Pragmatism offers an epistemological justification (i.e., via pragmatic epistemic values or standards) and logic (i.e., use the combination of methods and ideas that helps one best frame, address, and provide tentative answers to one's research question[s]) for mixing approaches and methods. A pragmatist would reject a incompatibility thesis and would claim that research paradigms can remain separate, but they also can be mixed into another research paradigm. He or she also likely would be content with making what Dewey called warranted assertions. Another attractive feature of pragmatism for mixed methods research is that pragmatism includes a wide range of theorists that mixed methods researchers can consider. For example, Rescher (2000) and Putnam (2002) offered what Rescher calls *pragmatism of the right* (where "right" is not a political concept but refers to holding a moderately strong form of realism, and a weak form of pluralism). Rorty (see Brandom, 2000) and Maxcy (2003) offered what we call called *pragmatism of the left* (where "left" implies antirealism and strong pluralism; Brandom, 2000; also see Maxcy, 2003). We generally argue for what we call *pragmatism of the middle* as an especially useful philosophy for mixed methods. We have constructed a version of this kind of pragmatism around the ideas of Charles Sanders Peirce, William James, and John Dewey. We (i.e., Johnson & Onwuegbuzie, 2004, especially Table 1) have previously outlined this version of pragmatism. We believe that one or more of the pragmatisms can provide a philosophy that supports paradigm integration and helps mixed research to peacefully coexist with the philosophies of quantitative and qualitative research.

Fourth, does mixed methods need a particular, detailed set of philosophical and methodological positions? For example, does the field need to come up with specific positions that would fit into the classification scheme popularized by Guba and Lincoln (i.e., listing a particular ontological commitment, a particular epistemology, and specific stances toward axiology and appropriate methodology)? In our view, variation in particular philosophical commitments should be welcome in mixed methods research, and we should embrace these

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differences as an important part of the mixed methods research paradigm—a view shared by Greene (2006). At the same time, it is important that arguments and discussion about "appropriate" philosophical commitments continue so that the field is self-reflexive and continues to grow (philosophically).

Fifth, are equal status designs (equal use of quantitative and qualitative epistemologies) possible? We have asked this because one of the experts suggests that mixed methods research must come from either a quantitative or a qualitative dominant paradigm (Morse). Although we disagree with this position, the position should fit well within mixed methods research "broadly conceived." Our disagreement is based on our observation or interpretation that many philosophers of epistemology and/or science hold nuanced positions that *typically* involve a blending of assumptions, beliefs, and preferred analytical techniques (Johnson, Meeker, Loomis, & Onwuegbuzie, 2004). To address specifically the issue of mixing ideas associated with research paradigms, we have introduced a concept called commensurability validity or legitimation, which is "the extent to which the meta-inferences made [in a mixed methods study] reflect a mixed worldview based on the cognitive process of Gestalt switching and integration" (Onwuegbuzie & Johnson, 2006, p. 57). Commensurability legitimation will not be possible for many researchers, and it is difficult to learn how to switch perspectives and create new perspectives, but we believe that it is possible and desired. The strong (or fully) mixed methods position, we argue, is developed only after explicit and systematic consideration of qualitative and quantitative perspectives. In future work, we hope to draw on ideas from cognitive psychology, counseling psychology (e.g., role-playing), and philosophy and linguistics (intertranslatability of different languages) as we continue to work on the commensurability legitimation issue. Fortunately, commensurability is not always required within an individual because commensurability also can be obtained through the use of research teams that carefully interact and produce joint constructions.

Sixth, the credibility or trustworthiness or validity of mixed research is an important issue. Although this issue tended not to be explicitly mentioned in the definitions, it might be useful to address this in a fuller definition. Several methodologists have started addressing this important issue (cf. Onwuegbuzie & Johnson, 2006; Tashakkori & Teddlie, 2006). In Onwuegbuzie and Johnson (2006), we provided a typology of nine types of validity or legitimation for mixed methods researchers to consider (i.e., inside-outside, sample integration, weakness minimization, sequential, conversion, paradigmatic mixing, commensurability, multiple validities, and political validity). Additional work in this important area is needed. A closely related issue is that of standards for mixed methods research. Patton (2002) has provided an excellent set of standards that should work well in a contingency theory of mixed research (where different standards will be appropriate for different communities and situations). Patton presented five sets of standards, including what he calls traditional scientific research criteria, social construction and constructivist criteria, artistic and evocative criteria, critical change criteria, and evaluation standards and principles (see Exhibit 9.1, pp. 544-545). Additional issues for future consideration might be whether additional sets of standards are needed and how to determine which set or combination of standards would apply to a particular circumstance.

Seventh, should and how might qualitative dominant, equal status, and quantitative dominant mixed methods research be more fully developed and differentiated? Will the qualitative and quantitative dominant mixed research be explicitly incorporated into the qualitative

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and quantitative research paradigms or will they develop as distinct types? This should be an exciting area for future research as researchers and methodologists coming from different epistemological perspectives construct and systematize these subtypes.

Eighth, what are the details of a full contingency theory for the conduct of human research? That is, exactly (a) when and under what conditions should qualitative research be considered the appropriate approach, (b) when and under what conditions should quantitative research be considered the appropriate approach, and (c) when and under what conditions should mixed research be considered the appropriate approach? A strength of a *contingency theory* of research is that the strengths and weaknesses of qualitative, quantitative, and mixed research are recognized, and all three approaches are considered to be important and needed, albeit in different circumstances. A contingency theory also needs to be carefully developed to help the mixed methods researcher make wise decisions about how to mix methods and approaches in relation to situational contingencies (e.g., given limited resources, what is the best combination to maximize usefulness of information and evidence?). A fully general contingency theory of human research would suggest that researchers need to understand all three research paradigms. The contingency theory also would explain how to make decisions about mixing quantitative and qualitative methods and approaches. This theory, when more fully developed, will help researchers understand how to combine research components in a way that provides a reasonable opportunity to answer the research question(s), and it will require that researchers tailor their designs to unique, and sometimes emergent, research situations.

McLafferty and Onwuegbuzie (2006) have attempted to provide a form of mixed methods contingency theory by proposing a dimensional framework that allows for the coexistence of quantitative and qualitative research approaches and, by extension, provides a philosophical foundation for mixed methods research. Under their framework, the quantitative and qualitative research paradigms are no longer dichotomous—rather, they are *dimensionally different*. According to these authors, research can be methodologically legitimated by recognizing the dimensionality of a study's research question (its what?), purpose (why?), process (how?), and potential (scope of results).

Ninth, a fuller definition of mixed methods research might include reference to the logic of mixed research. We believe that additional work is needed to explicate this logic or set of logics. We have begun addressing this issue in what we have labeled the *fundamental principle of mixed research* (Johnson & Onwuegbuzie, 2004; Johnson & Turner, 2003). When designing a mixed study, according to this "logic," the research should strategically combine qualitative and quantitative methods, approaches, and concepts in a way that produces complementary strengths and nonoverlapping weaknesses. Consideration of the strengths and weaknesses of different approaches is required in relation to situational contingencies. Our intention is for the principle to be viewed very broadly. The principle is *not* limited to triangulation. The "complementary strengths" component of the principle means data should be collected that will provide all of the information that is potentially relevant to the purpose(s) of the study. The complementary strengths component, for example, includes any or all of the major purposes identified by Greene et al. (1989; i.e., triangulation, expansion, complementarity, development, and initiation). The second component of the principle suggests that researchers also attempt to eliminate potential design weaknesses by combining methods that have different weaknesses. The fundamental principle (and its resulting logic of research) should be a point on which researchers from different paradigms can reach agreement

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because the principle is a general restatement of an idea that is used in qualitative research (e.g., Denzin & Lincoln, 2005; Lincoln & Guba, 1985, used the metaphor of putting together a new, superior, fishnet that is constructed from multiple flawed fishnets), quantitative research (e.g., Campbell & Fiske, 1959; Mark, Henry, & Julnes, 2000), *and* mixed methods research (Brewer & Hunter, 2006; Tashakkori & Teddlie, 1998, 2003). The logic suggests designing studies to diverge, where needed, and converge, where needed, in a way that results in overall or total design viability and usefulness.

Another consideration for mixed methods research logic is provided in our (Onwuegbuzie & Johnson, 2006) concept of multiple validities legitimation. According to "multiple validities legitimation," researchers should attempt the difficult task of designing and conducting studies that are based on consideration of the types of "validity" presented in the qualitative research literature (e.g., Kvale, 1995; Lather, 1986, 1993; Maxwell, 1992; Onwuegbuzie & Leech, in press), the quantitative research literature (e.g., Bracht & Glass 1968; Campbell, 1957; Campbell & Stanley, 1963; Cook & Campbell 1979; Messick, 1989, 1995; Onwuegbuzie, 2003; Smith & Glass, 1987), *and* the mixed methods research literature (Onwuegbuzie & Johnson, 2006; Tashakkori & Teddlie, 2006). Obviously, mixed methods research, when well conducted, is a very intensive and difficult task. Given the alternative, however, it is a challenge we are implored to undertake.

Tenth, will the field be able to develop a typology of mixed methods designs that can be broadly agreed upon? Currently, several typologies are available including, for example, Creswell and Plano Clark (2007), Morgan (1998), and Teddlie and Tashakkori (2006). Do the qualitative dominant, quantitative dominant, and pure mixed methods research need separate sets of designs? We tentatively suggest that the answer is yes.

Eleventh, and last, if one were to view mixed methods research, metaphorically, as the trunk of a tree, then what are its branches? For example, should the major branches be labeled QUAL+quan, QUAN+qual, and QUAN+QUAL? What other branches or specialized types might develop over time (e.g., transformative mixed methods, collaborative mixed methods, reflective mixed methods)? We expect many more specific types of mixed methods research and designs to crystallize in the future as researchers relate mixed methods research concepts and thinking to new and reoccurring research problems and situations.

Conclusion

We believe that Greene (2006) has offered a useful framework for thinking about mixed methods research as a methodological or research paradigm, which she called "Mixed Methods Social Inquiry." She divided mixed methods social inquiry or mixed methods *methodology* (broadly viewed) into four domains: (a) philosophical assumptions and stances (i.e., what are the fundamental philosophical or epistemological assumptions of the methodology?), (b) inquiry logics (i.e., what traditionally is called "methodology" and refers to broad inquiry purposes and questions, logic, quality standards, writing forms that guide the researcher's "gaze"), (c) guidelines for practice (i.e., specific procedures and tools used to conduct research; the "how to" part of research methodology), and (d) sociopolitical commitments (i.e., interests, commitments, and power relations surrounding the location in society in which an inquiry is situated). The five definitional themes identified in the

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present article (i.e., what is mixed, when/where, breadth, why, and orientation) partially overlap Greene's four domains of methodological development. Specifically, Domain 1 (i.e., philosophical assumptions and stances) overlaps the *breadth* theme; Domain 2 (i.e., inquiry logics) overlaps both by the *when/where* theme and the *why* theme; Domain 3 (i.e., guidelines for practice) overlaps the *what is* mixed theme; and Domain 4 (i.e., sociopolitical commitments) overlaps the *orientation* theme. However, no definition provided by the leaders represented all four of Greene's domains. Yet as noted by Greene, the development of mixed methods research—as is the case for the quantitative and qualitative research paradigms—requires consideration of all four domains. Thus, we believe that a more comprehensive definition might be helpful to the field of mixed methods research.

In an attempt to integrate the ideas discussed in this article including Greene's (2006) domains of methodology, the leaders' general definitions of mixed methods research, and some of the potential gaps in definitions we identified in the previous section, we decided to conclude by offering a tentative and first approximation of a more comprehensive definition or summary of what is called mixed methods. Our new "definition" is 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.

Notes

1. Thomas Kuhn (1962) coined the term *paradigm*. In a recent article we coined a term we thought might work for delineating the three major research approaches in the social and behavioral sciences: qualitative research, quantitative research, and mixed research (or mixed methods research). We used the term *research paradigm* (Johnson & Onwuegbuzie, 2004) as follows:

> Thomas Kuhn (1962) popularized the idea of a paradigm. Later, when he was asked to explain more precisely what he meant by the term, he pointed out that it was a general concept and that it included a group of researchers having a common education and an agreement on "exemplars" of high quality research or thinking (Kuhn, 1977). In this article, by *research paradigm* we mean a set of beliefs, values, and assumptions that a community of researchers has in common regarding the nature and conduct of

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> research. The beliefs include, but are not limited to, ontological beliefs, epistemological beliefs, axiological beliefs, aesthetic beliefs, and methodological beliefs. In short, as we use the term, a research paradigm refers to a research culture. We will be arguing that there is now a trilogy of major research paradigms: qualitative research, quantitative research, and mixed methods research. (p. 24)

A synonym for our concept of "research paradigm" would be the term *methodological* paradigm. The point is that a paradigm can develop around what it means to conduct research and how it is undertaken. For Kuhn, the term *paradigm* was clearly not limited to epistemology, which is one of several popular usages today, but not ours. We find it convenient to speak of research or methodological paradigms as a way of separating organizing qualitative, quantitative, and mixed research.

2. Here are the approximate dates of these classical philosophers' lives: Protagoras (c. 490-420 B.C.E), Socrates (470-399 B.C.E), Plato (429-347 B.C.E), Aristotle (384-322 B.C.E), Gorgias (483-375 B.C.E), Cicero (c. 106-43 B.C.E), and Sextus Empiricus (c. late first century C.E. to mid–2nd century).

3. It is questionable whether Denzin currently holds this viewpoint.

4. This is contingent, for example, on an equal probability selection method (EPSEM) being used, a sufficient response rate being obtained, and attrition not being a serious problem.

5. For example, Collins, Onwuegbuzie, and Jiao (in press), who examined 14 major electronic databases (e.g., PsycINFO, CINAHL, ERIC) that represented the fields of psychology, education, sociology, social services, nursing and allied health, and business, identified 496 mixed methods articles (for each database, they examined all the years for which records existed)—representing a conceptual, methodological, theoretical, or applied article in the area of mixed methods—in which the term *mixed methods* or *mixed methodology* was used. A search using other terms did not yield such a large number of articles. For example, the phrase *blended research* yielded only 1 article.

6. The word *Qual* stands for qualitative research, *Quan* stands for quantitative research, and the use of capital letters denotes the dominant approach.

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