

CHAPTER 1

Mixed Methods as the Third Research Community

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Objectives

Upon finishing this chapter, you should be able to:

- Explain what Kuhn meant by the term *paradigm* and the concept of a community of researchers
- Distinguish among the three communities of researchers in the social and behavioral sciences: qualitatively oriented methodologists, quantitatively oriented methodologists, and mixed methodologists
- Explain the differences in how researchers from the three methodological communities approach a research problem

- Describe the paradigms debate, using the concepts of the incompatibility and compatibility theses
- Discuss the issue of coexistence among the three research communities

Mixed methods research has been called the third path (Gorard & Taylor, 2004), the third research paradigm (Johnson & Onwuegbuzie, 2004), and the third methodological movement (Teddlie & Tashakkori, 2003) by various individuals writing in the field. We refer to it as the *third research community* in this chapter because we are focusing on the relationships that exist within and among the three major groups that are currently doing research in the social and behavioral sciences.

Mixed methods (MM) research has emerged as an alternative to the dichotomy of qualitative (QUAL) and quantitative (QUAN) traditions during the past 20 years. Though this book focuses on MM, its relatively recent emergence must be examined within the context of its two older cousins. We believe that MM research is still in its adolescence, and this volume seeks to more firmly establish the foundations for this approach.

This chapter has three purposes: (1) to briefly introduce the three communities of researchers in the social and behavioral sciences, (2) to demonstrate how the three research orientations differentially address the same research problem, and (3) to briefly discuss issues related to conflict and concord among the three communities.

Several terms are briefly introduced in Chapter 1 and then presented in greater detail later in the book. Because paradigms are referred to throughout Chapter 1, we define the term here. A **paradigm** (e.g., positivism, constructivism, pragmatism) may be defined as a “worldview, complete with the assumptions that are associated with that view” (Mertens, 2003, p. 139). Each of the three communities of researchers in the social and behavioral sciences has been associated with one or more paradigms.

The Three Communities of Researchers in the Social and Behavioral Sciences

Basic Descriptions of the Three Methodological Movements

In general, researchers in the social and behavioral sciences can be categorized into three groups:

- Quantitatively oriented social and behavioral scientists (QUANs) primarily working within the postpositivist/positivist paradigm and principally interested in numerical data and analyses
- Qualitatively oriented social and behavioral scientists (QUALs) primarily working within the constructivist paradigm and principally interested in narrative data and analyses
- **Mixed methodologists** working primarily within the pragmatist paradigm and interested in both narrative and numeric data and their analyses

These three methodological movements are like communities in that members of each group share similar backgrounds, methodological orientations, and research ideas and practices. There appear to be basic “cultural” differences between these researchers in terms of the manner in which they are trained, the types of research programs they pursue, and the types of professional organizations and special interest groups to which they belong. These cultural differences contribute to a distinct sense of community for each group.

Thomas Kuhn (1970) described such scientific communities as follows:

Scientists work from models acquired through education and through subsequent exposure to the literature often without quite knowing or needing to know what characteristics have given these models the status of *community* paradigms. (p. 46)

These three methodological communities are evident throughout the social and behavioral sciences and continue to evolve in interesting and sometimes unpredictable ways.

The Quantitative Tradition: Basic Terminology and Two Prototypes

The dominant and relatively unquestioned methodological orientation in the social and behavioral sciences for much of the 20th century was QUAN and its associated postpositivist/positivist paradigm. **Quantitative (QUAN) methods** may be most simply and parsimoniously defined as the techniques associated with the gathering, analysis, interpretation, and presentation of numerical information.

QUAN researchers originally subscribed to the tenets of **positivism**—the view that “social research should adopt scientific method, that this method is exemplified in the work of modern physicists, and that it consists of the rigorous testing of hypotheses by means of data that take the form of quantitative measurements” (Atkinson & Hammersley, 1994, p. 251). **Postpositivism** is a revised form of positivism that addresses several of the more widely known criticisms of the QUAN orientation, yet maintains an emphasis on QUAN methods.¹

For instance, the original position of the positivists was that their research was conducted in an “objective,” value-free environment; that is, their values did not affect how they conducted their research and interpreted their findings.

Postpositivists, on the other hand, acknowledge that their value systems play an important role in how they conduct their research and interpret their data (e.g., Reichardt & Rallis, 1994).

Research questions guide investigations and are concerned with unknown aspects of a phenomenon of interest. Answers to quantitative research questions are presented in *numerical* form. A **research hypothesis** is a specialized QUAN research question in which investigators make predictions—based on theory, previous research, or some other rationale—about the relationships among social phenomena before conducting a research study. **Quantitative (statistical) data analysis** is the analysis of numerical data using techniques that include (1) simply describing the phenomenon of interest or (2) looking for significant differences between groups or among variables.

A variety of classic texts guides the QUAN community, including a trilogy of works by Donald T. Campbell and associates that constitute the core logic for the tradition (e.g., Campbell & Stanley, 1963; Cook & Campbell, 1979). The third in this series of books, *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* (Shadish, Cook, & Campbell, 2002), was published in the 21st century and effectively updates the QUAN tradition. Berkenkotter (1989) described these books as charter texts for the postpositivist/QUAN orientation.

Boxes 1.1 and 1.2 contain descriptions of two prototypical researchers, named Professor Experimentalista and Professor Numerico, who are members of the QUAN researcher community.²

Box 1.1

Prototypical QUAN Researcher #1: Professor Experimentalista

Professor Experimentalista is employed by the psychology department at Flagship University. She conducts her research in the laboratories of Thorndike Hall, and her subjects are

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freshman and sophomore students. Professor Experimentalista works in an area known as attribution theory, and she reads the latest journals to determine the current state of knowledge in that area. She uses the hypothetico-deductive model (described in Chapters 2 and 4) and generates a priori hypotheses based on Smith's XYZ theory (as opposed to Jones's ABC theory). Professor Experimentalista hypothesizes that her experimental group of subjects will respond differently than the control subjects to closed-ended items on a questionnaire devised to measure the dependent variables of interest. With her colleague, Dr. Deductivo, who is known for his ability to ferret out significant results, Dr. Experimentalista tests the hypotheses using statistical analyses.

Box 1.2

Prototypical QUAN Researcher #2: Professor Numerico

Professor Numerico is a medical sociologist at Flagship University. He typically uses questionnaires and telephone interviews to collect his research data. Participants in his studies are adolescents and young adults. Professor Numerico's research focuses on predicting risky behaviors that might lead to contracting AIDS. One of his research interests is to test the adequacy of three theories of behavior prediction: the theory of reasoned action, the theory of planned behavior, and the health belief model. Professor Numerico hypothesizes that the health belief model predicts the risky behaviors of young adults more accurately than the other two theories. He uses complex statistical procedures to predict participants' behaviors based on a number of potentially important factors.

The Qualitative Tradition: Basic Terminology and a Prototype

Qualitatively oriented researchers and theorists wrote several popular books during the last quarter of the 20th century. The authors of these texts were highly critical of the positivist orientation and proposed a wide variety of alternative QUAL methods. Their critiques of positivism, which they pejoratively labeled the received tradition, helped establish QUAL research as a viable alternative to QUAN research.

Qualitative (QUAL) methods may be most simply and parsimoniously defined as the techniques associated with the gathering, analysis, interpretation, and presentation of *narrative* information.

Many qualitatively oriented researchers subscribe to a worldview known as **constructivism** and its variants (e.g., Howe, 1988; Lincoln & Guba, 1985; Maxcy, 2003). Constructivists believe that researchers individually and collectively construct the meaning of the phenomena under investigation.³

Answers to qualitative research questions are narrative in form. **Qualitative (thematic) data analysis** is the analysis of narrative data using a variety of different inductive⁴ and iterative techniques, including categorical strategies and contextualizing (holistic) strategies. Because these strategies typically result in themes, QUAL data analysis is also referred to as thematic analysis.

The QUAL community also has a variety of classic texts, including Glaser and Strauss (1967), Lincoln and Guba (1985), Miles and Huberman (1984, 1994), Patton (1990, 2002), Stake (1995), and Wolcott (1994). Three editions of the *Handbook of Qualitative Research* (Denzin & Lincoln, 1994, 2000a, 2005a) have enjoyed great popularity and may be considered charter texts for the constructivist/QUAL orientation. Box 1.3 contains a description of the prototypical QUAL researcher, named Professor Holistico, who is a member of the QUAL research community.

The Mixed Methods Tradition: Basic Terminology and a Prototype

The MM research tradition is less well known than the QUAN or QUAL traditions because it has emerged as a separate orientation during only the past 20 years. Mixed methodologists present an alternative to the QUAN and QUAL traditions by advocating the use of whatever methodological tools are required to answer the research questions under study. In fact, throughout the 20th century, social and behavioral scientists frequently employed MM in their studies, and they continue to do so in the 21st century, as described in several sources (e.g., Brewer & Hunter, 1989, 2006;

Greene, Caracelli, & Graham, 1989; Maxwell & Loomis, 2003; Tashakkori & Teddlie, 2003a).

Mixed methods (MM) has been defined as “a type of research design in which QUAL and QUAN approaches are used in types of questions, research methods, data collection and analysis procedures, and/or inferences” (Tashakkori & Teddlie, 2003a, p. 711). Another definition appeared in the first issue of the *Journal of Mixed Methods Research*, in which MM research was defined as “research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry” (Tashakkori & Creswell, 2007b, p. 4).

The philosophical orientation most often associated with MM is pragmatism (e.g., Biesta & Burbules, 2003; Bryman, 2006b; Howe, 1988; Johnson & Onwuegbuzie, 2004; Maxcy, 2003; Morgan, 2007; Tashakkori & Teddlie, 1998, 2003a), although some mixed methodologists are more philosophically oriented to the *transformative perspective* (e.g., Mertens, 2003). We defined **pragmatism** elsewhere as

a deconstructive paradigm that debunks concepts such as “truth” and “reality” and focuses instead on “what works” as the truth

Box 1.3

Prototypical QUAL Researcher: Professor Holistico

Professor Holistico is employed by the anthropology department at Flagship University. He conducts his research regarding female gang members in urban high schools around the state. Professor Holistico is developing a theory to explain the behaviors of these individuals, some of whom he has gotten to know very well in his 2 years of ethnographic data gathering. It took some time for him to develop trusting relationships with the young women, and he has to be careful to maintain their confidence. He has gathered large quantities of narrative data, which he is now reading repeatedly to ascertain emerging themes. He discusses his experiences with his colleague, Professor Inductiva, who is known for her keen analytical abilities and use of catchy metaphors. To check the trustworthiness of his results, Professor Holistico will present them to members of the gangs in a process known as member checking.

regarding the research questions under investigation. Pragmatism rejects the either/or choices associated with the paradigm wars, advocates for the use of mixed methods in research, and acknowledges that the values of the researcher play a large role in interpretation of results. (Tashakkori & Teddlie, 2003a, p. 713)

MM research questions guide MM investigations and are answered with information that is presented in *both narrative and numerical* forms. Several authors writing in the MM tradition refer specifically to the centrality of the research questions to that orientation (e.g., Bryman, 2006b; Erzberger & Kelle, 2003; Tashakkori & Teddlie, 1998).

Mixed methods data analysis involves the integration of statistical and thematic data analytic techniques, plus other strategies unique to MM (e.g., data conversion or transformation), which are discussed later in this text. In properly conducted MM research, investigators go back and forth seamlessly between statistical and thematic analysis (e.g., Onwuegbuzie & Teddlie, 2003).

Mixed methodologists are well versed in the classic texts from both the QUAN and QUAL traditions as well as a growing number of well-known works within the MM field (e.g.,

Creswell, 1994, 2003; Creswell & Plano Clark, 2007; Greene, 2007; Greene & Caracelli, 1997a; Johnson & Onwuegbuzie, 2004; Morgan, 1998; Morse, 1991; Newman & Benz, 1998; Reichardt & Rallis, 1994; Tashakkori & Teddlie, 1998, 2003a). Box 1.4 contains a description of a prototypical MM researcher named Professor Eclectica, who is a member of the MM community.

An Example of How the Three Communities Approach a Research Problem

Introduction to an Evaluation Study (Trend, 1979)

An often-referenced article from the MM literature is a study conducted by Maurice Trend (1979) involving the evaluation of a federal housing subsidy program involving both QUAN and QUAL methods. Others have used this article to demonstrate several aspects of MM research, such as the difficulty of conducting studies using researchers from both the QUAL and QUAN orientations (e.g., Reichardt & Cook, 1979); how MM research can be informed by the separate components of QUAL and QUAN research

Box 1.4

Prototypical Mixed Methodologist: Professor Eclectica

Professor Eclectica is employed in the School of Public Health at Flagship University. She is interested in children's health issues, especially the prevention of diabetes in middle-school children. Her research program involves both hypotheses related to weight loss and research questions related to why certain interventions work. Professor Eclectica was trained as a sociologist and has expertise in QUAN data analysis that began with her dissertation. She has also gained skills in QUAL data gathering and analysis while working on an interdisciplinary research team. Her research involves interventions with different types of cafeteria offerings and differing types of physical education regimens. She spends time in the field (up to 2 weeks per site) interviewing and observing students to determine why certain interventions work while others do not. Her analyses consist of a mixture of QUAL and QUAN procedures. She describes her research as *confirmatory* (the research hypothesis regarding weight) and *exploratory* (the research questions regarding why different interventions succeed or fail). She tries to integrate her QUAL and QUAN results in dynamic ways to further her research program.

(Maxwell & Loomis, 2003); the value and credibility of QUAL and QUAN data when discrepancies occur (Patton, 2002); and the balance in results that can be achieved when differences between the QUAL and QUAN components are properly reconciled (e.g., Tashakkori & Teddlie, 2003c).

In this chapter, we use the Trend (1979) study in a different way: as a vehicle for demonstrating how the three research communities address the same research problem. Although the study became mixed as it evolved, it started out with two separate components: one QUAN and one QUAL. It became mixed when the evaluators had to write reports that synthesized the results from the two separate components. Trend (1979) described the components of the study as follows:⁵

Three types of reports were envisioned by HUD and Abt Associates. The first consisted of comparative, cross-site function reports. They were to be based mostly on quantitative analysis and would evaluate program *outcomes*. Eight site case studies were planned as a second kind of product. These were designed as narrative, qualitatively based pieces that would enrich the function reports by providing a holistic picture of program *process* at the administrative agencies. A final report would then digest the findings of all the analyses and convert these into policy recommendations. (p. 70, italics in original)

Trend's (1979) opinion was that "different analyses, each based upon a different form of information, should be kept separate until late in the analytic game" (p. 68). Because the QUAL and QUAN components were conducted separately from start to finish, followed by Trend's MM meta-analysis using both sources, this study provides a unique example of how the three communities approach the same research scenario.

The overall project consisted of eight sites located in different areas of the United States. At each site an administrative agency was selected to implement a federal housing subsidy program, whose goal was to provide better housing for low-income families. Each site was to serve up to 900 families. Trend's (1979) article focused on

the results from one site (Site B), which had three distinct geographical areas: two rural areas with satellite offices and one urban area with the site's central office.

The Quantitative Approach to the Evaluation Study

The QUAN component of this study is a good example of an *outcomes-based evaluation*, where the emphasis is on whether a program has met its overall goals, typically measured quantitatively.⁶ The QUAN component was set up to determine if the use of direct-cash housing allowance payments would help low-income families obtain better housing on the open market. The QUAN research questions in this study, which were established before the evaluation began, included the following:

- Did the sites meet their stated goals in terms of enrolling families in the program (i.e., up to 900 families per site)?
- Was the minority population (African American) represented proportionally in the number of families served by the program?
- Did participants actually move to better housing units as a result of the program?
- Were potential participants processed "efficiently"?
- Did the sites exert proper financial management?

Teams of survey researchers, site financial accountants, and data processors/analysts at the Abt Associates headquarters conducted the QUAN component of the study. Numeric survey data were gathered on housing quality, demographic characteristics of participants, agency activities, expenses, and other relevant variables. A common set of six forms was employed to follow the progress of participating families. Teams of survey researchers interviewed samples of participants at scheduled times during the process using structured interview protocols. Accountants kept track of all expenditures, and this information became part of the database. Trend (1979) noted that "eventually, the quantitative data base

would comprise more than 55 million *characters*” (p. 70, italics in original).

In summary, this component of the evaluation exhibited several prototypical characteristics of QUAN research, including the establishment of well-articulated research questions before the study started, the development and use of numeric scales to measure outcome variables of interest, the employment of professional data gatherers (e.g., survey researchers, accountants) to collect information, and the statistical analysis of the data using computers at a central location. Significant efforts were put into generating an “objective” assessment of the success of the federal housing subsidy program using QUAN techniques.

The computer-generated QUAN outcome data indicated that Site B had done quite well compared to the other sites. Site B completed its quota of enrolling 900 households in the

program, and participants experienced an improvement in housing quality that ranked second among the eight sites. Trend (1979) stated additional results of the study: “The cost model indicated that the Site B program had been cheap to run. Revised calculations of site demography showed that minorities were properly represented in the recipient population” (p. 76). Figure 1.1 illustrates the conclusions from the QUAN component of this study.

The Qualitative Approach to the Evaluation Study

The QUAL component of this study is a good example of a *process-based evaluation*, where the focus is on how the program is implemented and how it is currently operating or functioning,



Figure 1.1 QUAN Researcher’s Point of View

typically measured qualitatively.⁷ The QUAL component of this evaluation involved the generation of eight case studies by observers using field observations, interviews, and documents (e.g., field notes and logs, program planning documents, intraoffice communications). The purpose of the case studies was to provide a holistic description of what actually occurred at each of the program sites.

Unlike the QUAN component, the QUAL research questions were generic in nature, involving the description of what actually happened in the field when the programs were initiated and how the programs evolved during the first year of operation. As the observations and interviews were conducted, several issues emerged at each program site, and the observers used those problems or concerns to continually refocus their research questions.

Each site had one observer (typically an anthropologist), who was assigned to that site for the first year of the program. Observers were assigned office space by the administrative agency at each site and allowed to collect data daily. They regularly collected field notes and logs and mailed them to the evaluation headquarters. These data “eventually totaled more than 25,000 pages” (Trend, 1979, p. 70).

Unlike the conclusions from the QUAN component, the QUAL data indicated that there were serious problems with the manner in which the program was implemented and operating at Site B. The Site B observer reported that there had been problems from the beginning: There was a delay in opening the local offices (one main urban office, two rural ones), and potential families’ initial response to the program was slow to develop.

As a result of these problems, Site B administrators were forced to increase their efforts to enroll the site’s 900 families. Progress in recruiting families was the slowest at the urban center; the two rural offices met program recruitment requirements more easily.

Recruitment quotas were established by the administrative agency to increase enrollment at the urban center, and conflict emerged between

the staff at the urban office and the administrator who had set the quotas. Difficulties escalated at the urban office when staff began to complain about overwork, and personality conflicts emerged. Conditions were different at the rural offices, where the staff members also worked hard but found time to make home visits and inspect all recipient housing units.

Another problem at the urban office concerned the recruitment of minorities. Because African Americans oversubscribed at the urban site (unlike the rural sites), the administrative agency ordered the urban office to curtail their enrollment. Some staff members were angry with this recruiting policy (which they considered racist), and several employees resigned at the end of the enrollment period with months still left on their contracts.

The discrepancies between the QUAN and QUAL results became an issue when the Site B observer wrote an essence paper detailing themes that had emerged from the QUAL analyses, including office strife, personality conflicts, managerial incompetence, and so forth. Trend (1979) was the overall manager of the case studies and had requested the essence papers from each of the observers as a prelude to the final case study.

This component of the evaluation demonstrated several classical characteristics of QUAL research, including the use of emerging (not predetermined) questions to guide the research; the use of unstructured and semistructured observations, interviews, logs, and documents as data sources; an emphasis on providing a holistic description of the social scene as it emerged from the QUAL data sources; and a close and empathic relationship between the observer and the program participants. The observer at Site B was comfortable with the “subjective” orientation of the essence paper because QUAL research is constructivist in nature, and the paper reflected an informed understanding or reconstruction of the social reality of the program as implemented at Site B. Figure 1.2 illustrates the conclusions from the QUAL component of this study.



Figure 1.2 QUAL Researcher's Point of View

The Mixed Methods Approach to the Evaluation Study

The specific MM study described by Trend (1979) emerged as a result of the unexpected discrepant results between the QUAN and QUAL components at Site B.⁸ As noted in the previous section, the conclusions from the observer at Site B contradicted the results from the QUAN analysis of program effects at that site. The QUAN data indicated that the program was working, whereas the QUAL data pointed out serious problems with program implementation. The MM approach was used to explain such apparent discrepancies between the QUAN and QUAL results.

The evaluation study as presented in the Trend (1979) article is an example of what has been called a *parallel mixed design*,⁹ in which the QUAN and QUAL components are conducted separately (and in a parallel manner), followed by a *meta-inference process*, which integrates the results. (See Chapter 7 for more details regarding this design.)

The research questions for an MM study are a combination of those from the separate QUAL and QUAN components, plus any questions that might emerge as inferences are made. This study asked the following additional questions: Why were the results of the QUAN and QUAL components discrepant? What explanation can be derived from the combined data that would reconcile the differences?

Trend (1979) rationalized these new questions as follows:

We had to answer the question of how a program could produce such admirable results in so many of its aspects, when all of the observational data indicated that the program would be a failure. What had happened, and how? (p. 78)

Although Trend (1979) was not the observer at Site B, he became involved in writing a revised essence paper after the evaluation company asked the observer to rewrite the report in a manner more consistent with the QUAN results. Trend and the observer then began reanalyzing the data, looking for information that might help them reconcile the differences. One major breakthrough came when they split the data into three parts based on office location (two rural, one urban). They found that very different processes were at work at the rural and urban sites:

- More in-depth investigation led to the discovery of inconsistent patterns of results across the sites, which were more important than the overall average pattern of results in understanding program impact.
- The rural context produced many advantages for the program. Potential recipients there were more likely to be White and to have smaller families and higher incomes, which led to lower-than-average housing subsidies. These lower subsidies reduced the average subsidy paid across all program recipients, thereby contributing to the overall positive QUAN results. Also, families were easier to recruit in the rural areas, and this increased the total number of recipients.
- The urban context had numerous disadvantages. The initial oversubscription of African American families in the urban area led to a quota system that fueled some staff members' negative feelings, which resulted in their alienation from the program. Ironically, this led to some positive QUAN effects because workers left their jobs early, thereby resulting in lower

program costs when they were not replaced. The quota system and small staff size led to a mass-production process in the urban office that increased the number of recipients in a supposedly "efficient" manner.

A number of other factors related to the urban/rural context differences made the overall discrepancies between the QUAN and QUAL results more understandable. Trend (1979) concluded that "by treating Site B as a single piece the quantitative analysts had missed almost all of what we were now discovering" (p. 80).

Six versions of the essence paper were written before it was finally accepted. Though the reconciliation of the discrepancies in the MM data was obviously necessary to truly understand the contextually distinct aspects of the program, the meta-analysis of the QUAN and QUAL data took Trend and the observer 10 weeks to complete. MM research is often more expensive than QUAL or QUAN research alone due to increased data gathering, analysis, and interpretation costs.

If only the QUAN data had been analyzed, then an inaccurate (too positive) picture of the federal housing-subsidy program would have resulted. Similarly, if only the case study had occurred, then an inaccurate (too negative) picture of the program would have emerged. When the data were mixed, a more accurate overall picture emerged. In this evaluation, MM first allowed the opportunity for divergent views to be voiced and then served as the catalyst for a more balanced evaluation.

In summary, the evaluation study conducted by Trend and his colleagues exhibited several classical characteristics of MM research, even though it was not planned to be an integrated study: the use of both predetermined and emerging research questions to guide the study, the use of both QUAL and QUAN data sources, the use of both QUAL and QUAN data analyses, and the innovative use of MM techniques to integrate the QUAN and QUAL findings in a manner that made sense. Figure 1.3 illustrates the context-bound conclusions from the MM component of this study.



Figure 1.3 MM Researcher's Point of View

The Three Methodological Communities: Continuing Debates or Peaceful Coexistence?

The three methodological communities have experienced periods of both philosophical conflict and peaceful coexistence over the past four decades. During this time, the QUAL community first emerged to challenge the traditional QUAN orientation and then the MM community visibly surfaced. This section briefly describes the *paradigms debate* or *paradigm wars* (e.g., Gage, 1989) that occurred as the QUAL community's

positions gained acceptance, challenging the preeminence of the QUAN community.

Thomas Kuhn (1962, 1970, 1996) popularized the notion of competing paradigms and paradigm shifts in his book *The Structure of Scientific Revolutions*. The paradigms debate in the social and behavioral sciences (circa 1975–1995), which was particularly widespread in educational and evaluation research, is a good example of proponents of competing paradigms disagreeing about the relative merits of their theoretical positions. (See Chapter 5, Box 5.1, for more details regarding Kuhn's positions on paradigms.)

These disagreements were largely a product of the QUAL community's intense criticisms of

issues associated with what they called the received tradition of the positivist paradigm. In place of the positivist paradigm, many QUALs posited constructivism as a better theoretical perspective for conducting research. The simplest definition of the **paradigms debate** is the conflict between the competing scientific worldviews of positivism (and variants, such as post-positivism) and constructivism (and variants, such as interpretivism) on philosophical and methodological issues (e.g., Gage, 1989; Guba & Lincoln, 1994; Howe, 1988; Reichardt & Rallis, 1994; Tashakkori & Teddlie, 1998).

As constructivism emerged, some authors (e.g., Guba & Lincoln, 1994; Lincoln & Guba, 1985) set up **paradigm contrast tables** summarizing the differences between positivists and constructivists on philosophical issues such as *ontology, epistemology, axiology*, the possibility of generalizations, the possibility of causal linkages, and so forth.¹⁰ These contrast tables presented fundamental differences (i.e., dichotomies) between paradigms, thereby indicating that the paradigms were not compatible with one another.

A major component of the paradigms debate was the **incompatibility thesis**, which stated that it is inappropriate to mix QUAL and QUAN methods due to fundamental differences in the paradigms underlying those methods (e.g., Guba, 1987; Sale, Lohfeld, & Brazil, 2002; Smith, 1983; Smith & Heshusius, 1986). The incompatibility thesis is associated with the supposed link between paradigms and research methods. According to this thesis, research paradigms are associated with research methods in a kind of one-to-one correspondence. Therefore, if the underlying premises of different paradigms conflict with one another, the methods associated with those paradigms cannot be combined.

Mixed methodologists countered this position with the compatibility thesis, exemplified in the following quote:

However, the pragmatism of employing multiple research methods to study the same general problem by posing different

specific questions has some pragmatic implications for social theory. Rather than being wedded to a particular theoretical style . . . and its most compatible method, one might instead combine methods that would encourage or even require integration of different theoretical perspectives to interpret the data. (Brewer & Hunter, 2006, p. 55)

On a philosophical level, mixed methodologists countered the incompatibility thesis by positing a different paradigm: pragmatism (e.g., Howe, 1988; Maxcy 2003; Morgan, 2007; Tashakkori & Teddlie, 1998). A major tenet of Howe's (1988) concept of pragmatism was that QUAL and QUAN methods *are compatible* (the **compatibility thesis**), thereby rejecting the either-or choices presented by the incompatibility thesis. Pragmatism offers a third alternative (combine both QUAL and QUAN methods) to the either-or choices (use either QUAL methods or QUAN methods) of the incompatibility thesis. Howe (1988) described the thesis as follows: "The compatibility thesis supports the view, beginning to dominate practice, that combining quantitative and qualitative methods is a good thing and denies that such a wedding is epistemologically incoherent" (p. 10).

The paradigms debate waned considerably in the mid- and late 1990s (e.g., Patton, 2002), largely because "most researchers had become bored with philosophical discussions and were more interested in getting on with the task of doing their research" (Smith, 1996, pp. 162–163). Mixed methodologists were actively interested in reconciliation of the communities, and MM provided a justification for and a place to combine QUAN and QUAL methods.

Therefore, the paradigms debate has been resolved for many researchers (especially mixed methodologists) currently working in the social and behavioral sciences.¹¹ Nevertheless, there is a vestige of the debate that particularly affects graduate students and less experienced researchers: the tendency to remain QUANs or QUALs based on initial research orientation. Gorard and Taylor

(2004) described this unfortunate phenomenon as follows:

The most unhelpful of the supposed paradigms in social sciences are the methodological ones of “qualitative” and “quantitative” approaches. Unfortunately, novice research students can quickly become imprisoned within one of these purported “paradigms.” They learn, because they are taught, that if they use any numbers in their research then they must be positivist or realist in philosophy, and they must be hypothetico-deductive or traditional in style. . . . If, on the other hand, students disavow the use of numbers in research then they must be interpretivist, holistic and alternative, believing in multiple perspectives rather than the truth, and so on. (p. 149)

Boyatzis (1998, p. viii) employed the respective terms **quantiphobe** and **qualiphobe** for researchers who have a fear or dislike of either QUAN or QUAL methods. We might add *mixiphobes* as another type of researcher, one who subscribes to a purely QUAL or QUAN orientation and has a fear or dislike of MM. Interestingly, MM is still controversial in some quarters (e.g., Denzin & Lincoln, 2005b; Howe, 2004; Sale, Lohfeld, & Brazil, 2002), and potential researchers should be aware of this point of view (discussed more in Chapter 5).

Though distinct, these communities can coexist peacefully, so long as no group proclaims its superiority and tries to dictate the methods of the other groups. Our position is for greater dialogue among the three communities, each of which contributes greatly to an understanding of many complex social phenomena. This understanding will be accelerated when researchers realize that some research questions can only be answered using QUAN methods, whereas others can only be answered using QUAL methods, and still others require MM.

Of course, our advocacy for integration is not a new stance: Many eminent QUAL and QUAN scholars have expressed similar thoughts during

the past 50 years. For instance, Barney Glaser and Anselm Strauss (1967), the originators of the QUAL method known as grounded theory, made the following statement some 40 years ago:

Our position in this book is as follows: there is no fundamental clash between the purposes and capacities of qualitative and quantitative methods or data. What clash there is concerns the primacy of emphasis on verification or generation of theory—to which heated discussions on qualitative *versus* quantitative data have been linked historically. We believe that *each form of data is useful for both verification and generation of theory. . . . In many instances, both forms of data are necessary. . . .* both used as supplements, as mutual verification and, most important for us, as different forms of data on the same subject, which, when compared, will each generate theory. (pp. 17–18, italics in original)

Reichardt and Cook (1979) stated the same sentiment from the postpositivist perspective:

It is time to stop building walls between the methods and start building bridges. Perhaps it is even time to go beyond the dialectic language of qualitative and quantitative methods. The real challenge is to fit the research methods to the evaluation problem without parochialism. This may well call for a combination of qualitative and quantitative methods. To distinguish between the two by using separate labels may serve only to polarize them unnecessarily. (p. 27)

Summary

The three research communities were introduced and prototypical researchers within each were presented: Professor Experimentalista and Professor Numerico (the QUAN community), Professor Holistico (the QUAL community), and Professor Eclectica (the MM community). Basic differences among the three groups were delineated in several areas.

We argue throughout the text that these three communities are culturally distinct, each with its own educational and social backgrounds, research traditions, and perceptions of how research should be conducted. Despite this, we also argue that the three communities can coexist peacefully.

An evaluation study was described, and then accounts were given showing how researchers from each of the three communities approached the study. Discrepancies between the QUAN and QUAL results from this study were reconciled using the MM approach.

Finally, there was a brief discussion of the paradigms debate and of issues related to conflict and

concord among the three communities. We and many other mixed methodologists advocate peaceful coexistence based on the compatibility thesis and the idea that each community is more suited to answering certain types of research questions.

Chapter 2 continues our presentation of various contrasts among the three methodological communities. The chapter includes a summary of an MM article, which is located in Appendix A located at www.sagepub.com/foundations. A continuum is then introduced to describe the interrelationships among the three communities. This continuum is used throughout the text as one of its major unifying themes. Finally, issues of nomenclature and utility in MM research are discussed.

Review Questions and Exercises

1. What are (a) postpositivism, (b) quantitative methods, and (c) statistical analysis?
2. What are (a) constructivism, (b) qualitative methods, and (c) content analysis?
3. What are (a) pragmatism, (b) mixed methods, and (c) mixed methods data analysis?
4. Find a journal article that employs QUAN methods only. Summarize it in one page.
5. Find a journal article that employs QUAL methods only. Summarize it in one page.
6. Find a journal article that employs MM. Summarize it in one page.
7. Compare your MM journal article to the QUAN and QUAL articles. Discuss major differences among the three articles.
8. Describe how Trend (1979) and his colleagues used MM to reconcile discrepant QUAN and QUAL results.
9. What was the paradigms debate and how did the incompatibility thesis contribute to that debate? What is the compatibility thesis and how did it help to reconcile the paradigms debate?

Key Terms

Compatibility thesis

Constructivism

Incompatibility thesis

Mixed methodologists

Mixed methods (MM)

Mixed methods data analysis

Paradigm

Paradigm contrast tables

Paradigms debate

Positivism

Postpositivism

Pragmatism

Qualiphobe

Qualitative (QUAL) methods

Qualitative (thematic) data analysis

QUALs

QUANs

Quantiphobe

Quantitative (QUAN) methods

Quantitative (statistical) data analysis

Research hypothesis

Research questions

Notes

1. Very few researchers in the social and behavioral sciences would refer to themselves as positivists at this point in time due to the discrediting of many of the original philosophical positions of that paradigm. Many QUAN researchers, however, consider themselves to be postpositivists today.

2. We present two prototypes of QUANs because there are major differences between experimentalists (Professor Experimentalista) and individuals who work primarily with surveys and other descriptive QUAN designs (Professor Numerico). We did not want to give the impression that all QUANs are experimentalists.

3. There are many perspectives or traditions (e.g., critical theory) associated with QUAL research in addition to constructivism and its variants, as noted by Creswell (1998), Denzin and Lincoln (2005b), and others. Glesne (2006) summarized the relative importance of constructivism as follows: "Most qualitative researchers adhere to social constructivism or a *constructivist* paradigm" (p. 7, italics in original).

4. *Inductive logic* involves arguing from the particular to the general, which is how inductive analyses occur: The researcher uses a variety of facts to construct a theory. More information on inductive and deductive logic is presented in Chapters 2, 3, and 5.

5. HUD refers to the U.S. Department of Housing and Urban Development, which was the agency funding the study. Abt Associates is the evaluation firm that undertook the evaluation.

6. QUAL data may also be used in outcomes-based evaluations, but these were not emphasized in the Trend (1979) study.

7. QUAN data may also be used in process-based evaluations, but these were not emphasized in the Trend (1979) study.

8. Though the evaluation plan originally called for a final MM report based on a "digest of [the] findings of all the analyses" (Trend, 1979, p. 70), that report was not discussed in the Trend article or in this summary of it. It appears that the original digest would have been heavily weighted toward the QUAN component.

9. We refer to the Trend (1979) study as an example of a parallel MM design, but it is important to remember that the author of the study did not use this term. Our designation of this study as a particular type of MM design is based on an *ex post facto analysis* of its design characteristics.

10. Philosophical terms associated with the paradigms debate are defined in Chapter 5. The contents of the original Lincoln and Guba (1985) paradigm contrast table are presented in Table 5.1.

11. Despite this overall trend toward coexistence, the gap between QUALs and QUANs increased in the educational research field in the United States during the tenure of the G. W. Bush administration with a small-scale reenactment of the paradigms debate due to the establishment of a distinctly postpositivist QUAN orientation in the U.S. Department of Education. More details are presented in Chapters 4 and 5.