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Title

Exemplary Mixed-Methods Research Studies Compiled by the Mixed Methods Working Group

Permalink

<https://escholarship.org/uc/item/9rv8k2rd>

Journal

Teachers College Record The Voice of Scholarship in Education, 121(10)

ISSN

0161-4681

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Publication Date

2019-10-01

DOI

10.1177/016146811912101008

Peer reviewed

Mixed Methods for Studies That Address Broad and Enduring Issues in Education Research

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This special report of the Mixed Methods Working Group is edited by Lois Weis, Margaret Eisenhart, and Greg J. Duncan.

REPORT: MIXED METHODS FOR STUDIES THAT ADDRESS BROAD AND ENDURING ISSUES IN EDUCATION RESEARCH

THE MIXED METHODS WORKING GROUP

The Mixed Methods Working Group (MMWG) included senior-level scholars and funders who use or support the use of multiple methods in education research. The group was convened to discuss guidelines for mixed-methods research that addresses broad and enduring educational problems in an increasingly diverse and unequal society by capitalizing on the complementary strengths of different methods.

BACKGROUND TO THE MMWG CONVENING

Over the past decade, research universities and funding agencies have vigorously encouraged research that addresses pressing and large-scale problems of education in an increasingly diverse and unequal society. It is widely accepted that such research requires research teams drawn from several disciplines and employing a range of research designs and methods. At least a handful of universities are pushing “cluster hiring” schemes that encourage cross-disciplinary and mixed-methods teams of researchers to build critical mass in vital fields of scholarship, including education.¹ Constructing and actualizing such broad-based teams demands that scholars leverage institutional support to pursue external federal, state, and/or private foundation funding and work across disciplinary and methodological boundaries to accomplish their goals.

Although there has been scholarly discussion of what mixed-methods research is or should be, limited attention has been paid to the ways in which such methods can be thoughtfully and rigorously employed in the service of broad-based projects that attack significant education issues, seek external funding, and strive for wide dissemination. Unfortunately, the value of multiple investigative methods in education research has, at times, been overshadowed by a Manichean debate pitting quantitative and qualitative research approaches against each other (Johnson & Onwuegbuzie, 2004). Although mixed-methods approaches have become increasingly popular, method syntheses—where multiple research methods are used in truly integrated, coherent, and logical ways—remain less common in education research. This type of research is difficult to conceptualize and implement. Many questions and constraints remain regarding research goals, methodological choices and coordination, constructive team development, and forms and venues for effective dissemination of research results.

The MMWG was convened to address these issues. We proposed two face-to-face working group meetings on the scope and possibilities of mixed-methods research for studying broad and enduring educational issues. Lois Weis, Margaret Eisenhart, and Greg Duncan approached the Spencer Foundation for support for this project. Specifically, we aimed to (1) consider what is and could be meant by mixed-methods research that goes well beyond qualitative work that employs a set of descriptive statistics or quantitative work that includes a few interviews; (2) address the “value added” of mixed-methods designs in the service of research projects aimed at contextualizing and addressing broad-based and significant educational problems; (3) detail the ways in which one method or one set of methods or research design (e.g., qualitative) can usefully leverage others (e.g., quantitative or experimental); (4) focus on issues specifically linked to preparing competitive proposals for funding that employ a mixed-methods design, with an eye toward providing guidance to potential grantees; and (5) focus on critical issues involved in publishing and disseminating mixed-method research in highly impactful venues. The meetings took place at the Spencer Foundation during a one-year period, 2014-2015.

The three conveners took responsibility for identifying and inviting all participants. Twelve participants were invited based on the following criteria: (1) research experience using multiple methods for studies of significant

educational issues; (2) diversity of perspectives; (3) breadth of theoretical and empirical knowledge; (4) experience working on broad-based funded research teams; and (5) a record of publication in highly impactful venues. Three participants represented funders with interests in mixed-methods research in education. We were especially interested in attracting participants who were enthusiastic about working across methodological traditions and paradigms to think through the ways in which mixed-methods research can be leveraged in the service of team-based funded research tied to broad-based and pervasive educational problems. All those approached to be part of the group enthusiastically agreed to participate.

The goal of the MMWG was not to debate or come up with a singular definition of mixed-methods research, but rather to produce a document that would consider the utility of such research in the service of broad and significant research questions in education. There are rich literatures, with long histories, on “mixed methods” and interdisciplinary/transdisciplinary research (Bergman, 2008; Frodeman, Klein, & Mitcham, 2010; Greene, 2007; Repko, 2012; Tashakkori & Teddlie, 2010). We were seeking recommendations as to how empirical researchers could usefully address important and enduring educational problems using mixed-methods approaches. As such, our group addressed key features of successful mixed-methods research; challenges of proposing and conducting such research; ways to address such challenges; training in mixed-methods research; and issues of funding and publishing such work. To focus our discussion, we drew on examples of exemplary mixed-methods research suggested by all members of the MMWG (see the next section for lists and summaries of these examples).

A WORKING DEFINITION OF MIXED METHODS

The MMWG conceived of “mixed methods” more broadly than the specific tools used to collect information that represents the world we are trying to understand—as important as those tools and expert uses of them are. We thought of mixed methods as encompassing broad uses of research concepts, theories, designs, and methods drawn from a wide range of disciplines, intellectual traditions, and research paradigms; as dynamic and integrated uses of methods that complement one another as they unfold over time and across levels and scales of a system; as guides to more comprehensive studies; as ways to collect, analyze, and integrate data creatively; and as ways to interpret and disseminate results to a wide range of audiences.²

MOVING BEYOND THE QUALITATIVE-QUANTITATIVE BINARY

Integrating qualitative (text-based) and quantitative (number-based) methods is usually the way mixed methods are described. These two categories are themselves very broad, however, and the many kinds of qualitative methods and quantitative methods need to be specified. The term *mixed methods* is imprecise and can be confusing unless the particular qualitative and quantitative methods that are being used are carefully detailed. Further, the explicit or implicit division of methodological approaches into “qualitative,” “quantitative,” and “mixed” to describe, classify, and justify methods (or identify researchers) is overly simplistic for analytic and pedagogic purposes. Importantly, methods are not independent of the disciplinary and theoretical traditions in which they have been produced, a fact that the division into “qualitative” and “quantitative” obscures.

Further, research methods should not be chosen without regard for the research questions at issue (Johnson & Onwuegbuzie, 2004). Some methods are particularistic, useful for capturing a part of some phenomenon; others are holistic, attempting to capture the whole context or situation (Yoshikawa, Weisner, Kalil, & Way, 2008). Methods can be naturalistic, to unobtrusively capture ordinary human activity, or experimental, which control human activity to understand impacts on specific outcomes. Some methods are useful in understanding processes, and others in analyzing variables (Maxwell, 2011). Anthropologists have categorized methods as experience-near (representing the voices, intentions, meanings, and local rationality of people in local settings) and experience-distant (representing the meanings or concepts used by specialists to describe, categorize, or theorize other people’s experiences; Geertz, 1980). The affordances of methods given research questions, rather than their designation as “qualitative” or “quantitative,” should guide their use in a research design.

KEY FEATURES OF EFFECTIVE MIXED-METHODS RESEARCH

Fruitful Combinations

Over the years, education researchers have employed various techniques to investigate what goes on in schools and classrooms—techniques including strictly controlled experiments, longitudinal surveys, and meta-analyses summarizing effects found across numerous studies. Additionally, micro-analyses of classroom discourse, in-depth interviews, and participant observations have become common research approaches. Education research is not wanting for methodological diversity. The fruitful combination of these and other methods is a hallmark of effective mixed-methods research. Methods can complement one another to deepen understanding or challenge one another by illuminating taken-for-granted assumptions and limitations (Moss & Haertel, 2016). They can

corroborate some findings, interrogate and/or elaborate on others, and help to initiate new ideas not foreseen in the initial study design. The value of mixed-methods research for addressing broad-based projects that attack enduring education problems lies in their ability to draw on the unique strengths of varying methods so as to investigate these problems from a variety of perspectives, in a variety of contexts at potentially different points in time, and at a variety of levels (or scales). Yet collaboration and bidirectional problem solving among researchers employing different methods does not routinely occur, despite growing evidence that it should.

Integration and Iteration

A key feature of effective mixed-methods research is the ability to organize—integrate, coordinate, or juxtapose—the findings from different methods. It may be fairly straightforward to add survey results to a participant observation study to assess generalizability or to add findings from interviews to an experimental study to interpret statistical outcomes. However, because different methods derive from different perspectives, paradigms, and research questions, they often produce disparate or inconsistent findings. When findings vary by method, mixed-methods researchers must figure out how to make sense of all the findings together and represent them to relevant audiences. This effort demands a high level of team interaction and a shared attitude of methodological and theoretical flexibility as a program of research moves forward (see the section on multidisciplinary teams that follows). A special power of mixed-methods research in the service of addressing broad and enduring educational problems is to successfully integrate, coordinate, or juxtapose findings derived from multiple methods in ways that expand and deepen understanding of problems.

The iterative use of methods is another hallmark of effective mixed-methods research. By “iterative use,” we mean that findings from one study (e.g., a controlled experiment or an ethnography) become the impetus for subsequent studies that both incorporate and move beyond the initial study.³ Subsequent studies may extend the reach, clarify the theory, or explore the unanticipated results of single studies. For example, unexpected findings from a large-scale quantitative study of teacher effectiveness might lead to in-depth studies of a few classrooms either drawn from the larger study or strategically chosen to illuminate the mechanisms through which previously identified outcomes are produced in classrooms and schools. Additionally, participant observation and narrative interviews can enable investigators to understand how to interpret findings from quantitative studies and develop more useful measures for future research. Also, “positive outliers” from a quantitative study can become the focus of case (or cross-case) analyses that aim to understand underlying processes (see Maxwell, 2011).

Iterative uses of mixed methods are especially valuable in longitudinal research, wherein various methods must often be used to follow individuals or groups over time. For example, as children grow up and move from context to context, different methods may be required to sensitively investigate their developing lives. Such mixed-methods studies, which may be undertaken by individual scholars or research teams, can be indispensable for studies across the life course. Design-based studies also may depend on iterations of multiple methods. In design-based research, interventions (e.g., in a classroom) are proposed in accord with a particular theory (e.g., a theory of learning), and their implementation and effects are studied in multiple ways in situ. Findings produced in one setting at one point in time are then assessed in terms of the theory. Findings that are inconsistent with the theory lead to revisions in practice or revisions of the theory, which are then restudied in situ. As theory and practice are refined over time, various methods may be employed to assess them. (Integration and iteration are further exemplified among the compilation of exemplary mixed-methods studies later in this article.)

Programs of Study

In many cases, mixed methods are used most effectively in *programs* of research, as well as in individual studies. There can, of course, be great analytical value in using single methods, or exclusively qualitative or quantitative methods, for particular studies, or a series of studies where only certain methods are available. However, sustained research programs that focus on large-scale education issues must inevitably consider numerous geographical sites, multiple timescales, and nested complex systems. The complexity of large-scale programs of research makes them ideal candidates for mixed-methods research. Such programs of research are, as noted earlier, often iteratively built, wherein additional lines of investigation are added as research proceeds over time. Although mixed-methods studies are sometimes conceived from the outset, broad programs of research frequently add additional components as the research proceeds.

CHALLENGES OF MIXED-METHODS RESEARCH AND PROPOSED SOLUTIONS TO SUCH CHALLENGES

Constituting And Coordinating Multidisciplinary Teams

Although mixed-methods and multidisciplinary teams are increasingly valued as a way to address large-scale questions of educational importance, constituting such teams poses a challenge. Investigators tend to develop in-

depth expertise in particular theoretical and methodological perspectives. Those who lead and become part of mixed-methods and multidisciplinary teams must exhibit an intellectual and personal flexibility. They must also see the value of other methods and perspectives and develop a willingness to work across these methods and perspectives in the service of broad-based research questions. In all likelihood, one or two principal investigators (PIs) will initially conceptualize a large mixed-methods and interdisciplinary project, in conversation with a set of investigators who exhibit methodological and intellectual strength in relevant areas. The goal is not to undermine the value of one methodological or disciplinary perspective, but rather to recognize that approaching questions from a mixed perspective has the potential to expand the knowledge base in key areas. It is important that PIs continue to have a sense of the overall project, as well as all component parts, and be able to coordinate these key components as the group moves forward.

Funding

While many funders limit the scope of the methodologies they will consider, a considerable number are interested in large-scale mixed-methods research designs in the service of interdisciplinary research questions of importance. Those scholars who propose such research must take careful account of the ways in which one method leverages the use of a second or third method and make explicit statements to this effect in proposals for funding. Employing additional methods cannot be seen as an “add-on” with no compelling purpose. For instance, if a large-scale survey and in-depth interviews are proposed, a thoughtful explanation should be provided regarding how each method complements the other in addressing the research problem, as well as what empirical insights will be gained by employing each method. Justifications can readily be found in existing scholarly research on the topic of interest and expected findings from the proposed research.

When seeking funding for mixed-methods projects, those who are leading the project, particularly PIs, must be cognizant of the fact that adding a method often involves adding an investigator, and this creates additional costs for the study. Generally speaking, the amount of research funding available within particular funding agencies has remained constant, making it difficult for investigators to constitute larger teams. This has potential implications for funding agencies because they may wish to rethink funding in such a way as to accommodate mixed-methods projects in particular instances (for example, setting aside some money for larger mixed-methods teams along the lines outlined here).

Training Programs In Mixed Methods

Training in research methods in doctoral programs usually involves courses in quantitative research and in qualitative research. Students are often expected to develop expertise in one of these methodological categories so that they can formulate a research question, collect data that answer their questions, and produce a dissertation. In some programs and universities, students are expected to develop expertise in one method, with some training in another type. For example, quantitatively focused individuals might be expected to take a one- or two-semester course on ethnographic methods, and qualitatively focused students would be expected to do a year of statistical methods. This is not optimal mixed-methods training, in our view.

As an alternative to traditional training, introductory research methods courses might focus on the development of students' research agenda and the career implications of experience with multiple research methods. Training in specific research methods (by research agenda) would logically follow. In this way, students would learn to see methods as useful to particular kinds of questions, and they would be exposed to the nature of research wherein multiple methods can be employed in the service of developing a program of research. This training approach seems particularly critical for producing effective mixed-methods researchers.

While existing training programs largely encompass coursework aimed at intense technical training in one method, *problem-centered* programs in mixed-methods training can fruitfully be designed to build on and expand expertise in methods across the familiar quantitative/qualitative divide. Such training programs would emphasize the importance of research *questions* in determining the selection of research methods that can be used to address them. Such an approach, while acknowledging that questions are shaped in part by the methods known, underscores the fact that methods should address the research question(s) asked. At the conclusion of mixed-methods training, the trainees should be able to identify possible points of entry into collaborative projects involving multiple methods. As noted earlier, while courses for graduate students in research methods are available in many universities, such training, especially in schools of education, is not necessarily linked to specific research questions that might be collaboratively pursued over time and organized into a coherent program of research. Above and beyond traditional methods courses, methods training linked to specific research questions is more likely to produce future scholars who can envision and execute broad-based mixed-methods research and multidisciplinary research teams. Such problem-centered approaches to research can also be encouraged by apprenticeships for graduate students on multimethodological problem-focused research teams.

Mixed methods can also be promoted at the dissertation stage if students are encouraged to formulate dissertation research questions that require designs incorporating mixed methods and if dissertation committees are composed of faculty able to provide the needed expertise. The value of such dissertations can be enhanced if students are asked to reflect on the synergies generated by the mixing of methods.

To further encourage and strengthen mixed-methods research, funders could provide targeted postaward support, with the intention of bringing together grantees focused on a particular problem area who could benefit from considering mixed methods or from collaborating with scholars with different methodological strengths. With such support, sets of funded research teams could come together around particular problem areas to explore new methods, improve their skills, and learn from one another across projects. Researchers, postdoctoral scholars, junior faculty, graduate students, and undergraduate students associated with such projects could broaden their perspectives, gain additional training, and establish cross-disciplinary contacts.⁴

Professional Identity

Given current training, scholars are most likely to identify themselves as aligned with a particular method. A professional identity for mixed-methods researchers—more specifically, an identity for someone who has *the training and ability to work on mixed-methods teams*—should be encouraged. By this we mean that graduate students should be prepared to collaborate on problem-focused mixed-methods teams. In other words, they should have some sense of the affordances of alternative methodologies and the ways in which varying methods can work together to address broad and enduring issues in education research.

Our goal here is productive collaboration across differences, not necessarily *identical* methodological preparation in the sense that all students would be expected to take all available courses linked to each major method. We continue to need scholars with deep expertise in particular methodologies. Scholars with a mixed-methods identity are those who can take such deep expertise and move comfortably across methodological boundaries as they work with others.

A mixed-methods identity would signal the kind of linguistic competence, comfort with and understanding of research logics, and familiarity with the precise vocabulary of various research designs that maximize the contributions of different methods. Researchers who are deeply and rigorously trained to pursue a problem-driven research agenda rather than a single study or a single method are those likely to work most productively on mixed-methods teams. Laying the groundwork through training that fosters mixed-method professional identity can facilitate the kind of mixed-methods teamwork and habits of mind necessary for large-scale interdisciplinary research on questions of importance in education.

Vetting And Evaluating Mixed-Methods Articles And Proposals

Editors of education research journals and funding agency program officers find it difficult to both advise researchers who wish to submit work that draws on multiple methods and identify reviewers with appropriate expertise to evaluate these submissions. By way of example, a mixed-methods proposal or submitted article might draw on multilevel statistical models and in-depth interviewing wherein few (or no) individual reviewers are likely to be able to adequately assess the merit of all aspects of the article or proposal. So too, a mixed-methods proposal or submitted article encompassing multimethodological, multilevel, multi-interacting contexts would pose challenges with regard to appropriate reviewers. As with building mixed-methods teams more generally, the review process must capitalize on individual reviewers' strengths while simultaneously employing a range of reviewers with complementary strengths and editors capable of guiding authors through the at times conflicting reviewer advice. Having more researchers with mixed-methods sensibilities and credentials could lessen this problem. Clearly, careful evaluation of each method and of one method as linked to a specific research question must be sustained. However, those with mixed-methods expertise would be more likely to understand the value added of a mixed-methods approach while paying careful attention to the aspects of the article or proposal that are aligned with their own high-level expertise.

In addition, funders express concern that many mixed-methods proposals do not make clear how the various methods are connected to the research questions, the conceptual framework, theory, or the analysis and dissemination proposed. Journal editors have similar concerns. Mixed-methods proposals and articles must give careful attention to how all elements of the study fit together and will be or are coordinated. Investigators must carefully describe each method and the forms of analysis employed. Importantly, one method should not appear to be a mere "add-on" in an otherwise single-method study. The value of a mixed-methods approach should be apparent in the research questions, the framework or theory used, the choice of methods and analysis, and, in the case of an article, the findings and conclusions.

THE FUTURE OF MIXED-METHODS RESEARCH

The challenging education issues of today require sophisticated theorizing and the collection of complex data using mixed methods. Using these tools to capture educational phenomena, and the forces driving them, strengthens education policy and its outcomes. As a global leader, the United States must find ways to train the next generation of scholars to create mixed methods, broad-based research agendas that can serve as models to the world.

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EXEMPLARS: EXEMPLARY MIXED-METHODS RESEARCH STUDIES COMPILED BY THE MIXED METHODS WORKING GROUP

Our group addressed key features of successful mixed-methods research; challenges of proposing and conducting such research; ways to address such challenges; training in mixed-methods research; and issues of funding and publishing such work. To focus our discussion, we drew on examples of exemplary mixed-methods research suggested by all members of the MMWG. Group members were asked to annotate these resources with the following questions in mind: (1) How were methods mixed in this study? (2) Why was mixing methods vital to the study?

Alexander, J., Entwisle, D., & Olson, L. (2014). *The long shadow: Family background, disadvantaged urban youth, and the transition to adulthood*. Volume in the American Sociological Association's Rose Series in Sociology. New York, NY: Russell Sage Foundation.

This volume expands our understanding of the ways in which and the extent to which social and institutional contexts (e.g., family, neighborhood, school) have long-term consequences for the lives of disadvantaged youth. Authors consider outcomes such as educational attainment, occupation, income, family formation, and "problem behaviors" such as substance abuse and encounters with the law, among others. They additionally give attention to the ways in which and the extent to which urban youth of low-income background enhance their status via institutions noted above.

To accomplish this, authors draw on data collected as part of the Baltimore Beginning School Study Youth Panel, a probability sample of approximately 800 urban youth who started school in Baltimore in 1982 and grew to maturity in the latter decades of the 20th century and first decade of the 21st century. Through repeated surveys of students, teachers, and parents, authors detail student progress from Grade 1 to age 28-29. *The Long Shadow* focuses on the Youth Panel's social mobility, with specific attention on those of low socioeconomic status.

Although sociologists have been attentive to social context, they have focused mainly on older youth. Most stratification studies take secondary school as a starting point rather than looking at the full complement of

experiences from early schooling and beyond. The Alexander et al. study spans close to a quarter century, chronicling life experiences and outcomes until close to age 30. Important findings include, among others, the life experiences of the children of poor Whites and the contrasting experiences of poor African Americans, particularly African American men.

HOW METHODS ARE MIXED

The Youth Panel study began in fall 1982, when sampled students were beginning Grade 1 in Baltimore public schools. Using a probability sample, schools and children were selected in two stages. To begin with, Baltimore public schools were classified with regard to racial/ethnic composition (segregated White; segregated Black; relatively racially mixed) and neighborhood socioeconomic status (SES; white collar, blue collar). Twenty schools were randomly selected. First-time, first-grade students were then randomly selected for inclusion in the study via classroom rosters. A total of 790 students composed the initial sample. Two thirds of the sample fell into the low-income category, with the remaining third being of higher SES relative to all other students, although not objectively of high SES. In addition, interviews were conducted with students, in which members of the sample were asked to reflect on their years growing up and to speculate on their anticipated futures. Student participants were interviewed up to 20 times through high school and twice after high school. Teachers and parents of participants were also interviewed, with parents interviewed up to 11 times over the course of the study. Teachers were interviewed up to nine times from Grade 1 to Grade 9.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The survey data and analyses provide the backdrop for ongoing interviews. Although the interview data “breathe life” into some of the institutional processes that lie at the center of this analysis, most of the volume focuses on the quantitative portion of the study, with the qualitative data enabling insight into how these processes work on a day-to-day and year-by-year basis from the perspective of sampled students, parents, and teachers.

-Lois Weis

Bartlett, L., & Vavrus, F. (2014). Transversing the vertical case study: A methodological approach to studies of educational policy as practice. *Anthropology and Education Quarterly*, 45(2), 131-147.

HOW METHODS ARE MIXED

This article proposes a methodological approach, the “vertical case study,” for researching the production and circulation of social phenomena, such as educational policies. The authors were especially interested in understanding how educational policies, originating in a particular time and place, spread out from there to be taken up, implemented, and appropriated elsewhere. They wanted a method for expanding the reach of educational policy studies by following the course of policies across scales, spaces, and times. To this end, the vertical case study requires data that can be analyzed in three cross-cutting ways: the “vertical,” which attends to the local, national, and global domains in which a policy is produced and circulates (scale); the “horizontal,” which attends to how a policy takes shape and is implemented in distinct locations simultaneously (space); and the “transversal,” which attends to how a policy is historically situated and appropriated over time (time). With a focus on policies related to learner-centered pedagogy (originating in the United States and United Kingdom) and adopted in Tanzania, the authors collected historical and contemporary documents (education and language policy statements, professional development materials, curricula, tests), conducted participant observation and interviews in six schools in Tanzania, used highly structured observation protocols, held structured focus groups, and conducted structured interviews. They used critical discourse analysis (CDA) of the documents to reveal policy themes, contradictions, and changes over time; they used school documents, field notes, and unstructured interviews to identify themes in the social, cultural, and material conditions at the six schools; they used the structured observation schedule to capture evidence of learner-centered pedagogy in each classroom; and they used structured interviews to capture teachers’ thoughts about their own pedagogical practices, knowledge and views of learner-centered pedagogy, and professional experiences. Combining the findings from these diverse data collection and analysis methods, the authors demonstrated the multiple ways a specific teaching and learning approach, popularized in the United States and United Kingdom in the 1970s, was taken up, simplified, and spread to another nation and into its local educational contexts over time.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The results of this study reveal relationships and interconnections across scales, spaces, and times not usually possible with conventional case study designs. For the most part, individual case studies, ethnographies, and

comparative studies do not reveal how educational policies carry power and influence from one part of the world to another or reorganize educational practices in dispersed locales and across time.

-Margaret Eisenhart

Bernheimer, L. P., & Weisner, T. S. (2007). "Let me just tell you what I do all day. . .": The family story at the center of intervention research and practice. *Infants & Young Children, 20*(3), 192-201.

HOW METHODS ARE MIXED

The CHILD project used normed child assessments, surveys and questionnaires, and teacher ratings, as well as qualitative fieldwork, including conversational parent interviews, field notes by field visitors, and home observations in a longitudinal 16-year study of 100 Los Angeles-area families with children with generalized developmental delays of various kinds. Children and their families were followed from first visits at child ages 3-4, through adolescence. Parents described their struggles raising their children with disabilities, and these interviews led to a number of useful constructs that distinguished different family accommodation patterns. The Ecocultural Family Interview (EFI), a conversational, qualitative method, asks parents about these processes. The integration of methods led to new constructs, which were then assessed through quantitative coding of qualitative data, and the creation of scales used in family interviews and visits. Professionals who ask parents about everyday life with a child with disabilities can plan and implement interventions that will better support the family's daily routine. No intervention will have an impact if it cannot find a slot in the daily routines of an organization, family, or individual. The nature of the child's disability and the family and community care system need to be considered together.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Qualitative family research can discover new concepts and terms family members use that crystallize important dimensions of their lives. Mixed methods led to *the development of new constructs* for understanding families with children with disabilities. We followed 102 families with children with disabilities for 15 years, listening to their descriptions of their daily lives. A major theme running through all the stories was *accommodation*—changes made or intentionally not made to the family's daily routine of activities due, at least in part, to their child with disabilities. Accommodations are usually adaptations to everyday routines, not responses to stress; are responsive to how children impact parents' daily routine, not to children's test scores; are related to parents' differing goals and values; do not fit a single script or model for what is good or bad parenting; and predict family sustainability of daily routines, rather than child outcomes. Accommodations can and do change—so interventions can indeed find their places in daily routines. The practitioner participates in this "conversation" between the social structural constraints and opportunities of families and communities, the beliefs and values of parents, and the contributions of the intervention.

Families in the study face a familiar and daunting task. They have to rebalance their family lives to accommodate their child with disabilities. Accommodation refers to the process of deciding what activities to do and which not to do, given that there is a child with disabilities in the family. Accommodation differs from coping with stressors and adaptation, however. It occurs with all levels of stress and responds to perturbations due in part to the child with disabilities, affecting the normal family daily routine. "Look, let me just tell you what I do all day to keep our family together, all day, then we can talk about supports and stress scales," one mother commented.

Parents frequently used the everyday term *hassle*; their child was more or less a hassle for them. This is not a pejorative term in parents' everyday use, but rather a practical description of the extent of disruption in the flow of the functional daily routine of activities due at least in part to the child with disabilities. We developed a scale measuring hassle, which then proved valuable in predicting family support and sustainability. Another outcome measure that emerged from this work is *sustainability* of the family routine, which refers to the attainment of family goals consistent with the moral direction of their lives, as well as the more pragmatic balancing of resources and time. Not only parents could describe these circumstances; many adolescents with disabilities themselves, followed since they were age 3 or 4, could provide a reasonable explanatory model of their own illness and sense of difference. "I speak a different dialect from other people," is how one boy described this. A *scale for adolescent self-construal* was developed from these narratives. This was the first study to ask teens directly about their self-construal and explanations of their disability.

The EFI narratives were summarized and systematically rated along a series of dimensions informed by what parents described to us and by theory from family ecology and research on disability. These quantitative ratings, derived from qualitative interviews and home visits, were used along with quantitative family assessment scales to

predict child and family outcomes. EFI-derived ratings added significant predictive ability to measures of family functioning, compared with quantitative family assessment scales alone.

-Thomas S. Weisner

Boaler, J., & Staples, M. (2008). Creating mathematical futures through an equitable teaching approach: The case of Railside School. *Teachers College Record*, 110, 608-645.

HOW METHODS ARE MIXED

This article reports a five-year longitudinal study of 700 students as they progressed through mathematics classes in three high schools. The authors had initial indications that one of these high schools was more effective in terms of (1) gains in students' mathematics achievement, (2) reducing achievement gaps, and (3) students' attitudes toward mathematics, the number of mathematics courses that students elected to take, and the proportion of students who planned to take mathematics in college. The purpose of the study was to identify sources of this school's success. The analysis of student assessment and student survey data confirmed that the achievement gains of students in this school were greater and that the students had more positive attitudes toward mathematics. The analysis of observational data and of artifacts revealed that mathematics teachers in this school worked more collaboratively than those in the other two schools and that the mathematics curriculum was organized around central mathematical ideas and was more coherent and less fragmented than those in the other two schools. The research team compared the mathematical pedagogy in the three schools by coding 600 hours of classroom video recordings for (1) the types of activities in which students engaged (individual work, group work, etc.) and (2) the frequency and level of rigor of teachers' questions. In addition, they conducted case studies of several teachers in each school that focused on teacher moves that shaped students' engagement with mathematics. The findings indicate that teachers in the more successful school consistently used group work to a greater extent and that they employed strategies to make group work effective that included (1) maintaining the level of rigor of mathematical tasks throughout lessons, (2) pressing students to justify their mathematical reasoning, and (3) positioning students as mathematically competent. Boaler and Staples concluded that although the curriculum played a part in the school's success, it was an element of only one part of a complex system that encompassed the organization of the mathematics department and shared instructional routines.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The analysis of student assessment and data confirmed that one school was significantly more successful and thus that there was something worth explaining. However, Boaler and Staples were hampered by the lack of appropriate instruments for assessing the quality of classroom mathematics instruction (promising instruments are now available). Their coding of classroom video recordings revealed that the mathematics teachers in the more successful school allocated a greater proportion of instructional time to group work and that they asked higher level questions. The qualitative case studies of the instruction of several teachers in each school enabled them to clarify how teachers in the more successful school made group work effective by enacting specific instructional routines. In addition, the qualitative analysis of the curricula and the mathematics departments in the three schools goes some way toward explaining why the quality of instruction was relatively consistent in the successful school.

-Paul Cobb

DeLuca, S., & Rosenblatt, P. (2010). Does moving to better neighborhoods lead to better schooling opportunities? Parental school choice in an experimental housing voucher program. *Teachers College Record*, 112(5), 7-8.

HOW METHODS ARE MIXED

The Moving to Opportunity (MTO) residential mobility program provided public housing residents in extremely poor neighborhoods in five U.S. cities a chance to apply for a housing voucher that would enable them to move to lower poverty neighborhoods. Families were randomly assigned to this voucher opportunity. One of the most surprising and disappointing results from the analysis of quantitative data from the experiment was that, relative to control group children, the school achievement and attainment of children in experimental-group families—measured 5-15 years after baseline—was not significantly better. In all, 572 families participated in the Baltimore site of the MTO evaluation. DeLuca and Rosenblatt combined survey data, census data, and school-level data from these families with data from semistructured interviews conducted with 55 families in the control group families and 35 families

who received and used experimental vouchers. They used these data to understand why the children of families who participated in the Baltimore MTO program were not more successful than control group children in school.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Survey and school-records data collected for the experimental analysis showed consistent patterns of null impacts across a range of child educational outcomes. But they also showed that, as with children in the other four cities, only a handful of Baltimore MTO children attended high-performing, affluent schools in surrounding suburban counties. The vast majority either remained in their original city schools or relocated to other low-performing schools. DeLuca and Rosenblatt's semistructured interviews reveal how the conditions of life for poor families facilitated or constrained their ability to engage the new structural opportunities provided by the voucher. About a third of the parents were resistant to transferring their children from the schools in their old neighborhood because they thought it would be too disruptive for them. Others were not well informed about the educational opportunities provided by the school in their new neighborhoods. Most striking of all, DeLuca and Rosenblatt found that, despite the poor conditions in their children's neighborhood schools, two thirds of the parents in the qualitative study believed that school quality mattered much less for learning than a child's work effort and "good attitude." These factors combined to prevent larger changes in school quality that might have been expected from the moves to more affluent neighborhoods.

-Greg Duncan

Duncan, G. J., Huston, A. C., & Weisner, T. S. (2007). *Higher ground: New hope for the working poor and their children*. New York, NY: Russell Sage Foundation.

HOW METHODS ARE MIXED

The New Hope program was a policy experiment that operated for three years in Milwaukee, Wisconsin, in the mid- to late 1990s. It was created by a coalition of community activists and business leaders and provided a set of work supports for full-time workers—parents and nonparents, men and women—that would lift them out of poverty, ensure that they had access to quality child care and health insurance, and, if needed, provide a temporary community service job to help get them on their feet. The quantitative evaluation of New Hope's impacts on work, family life, and child well-being was based on data gathered from surveys and administrative records. Qualitative data come from a longitudinal study of 46 families, with field workers making quarterly visits to families. The assessment of New Hope was enhanced by decisions to randomly sample qualitative cases from the larger population of New Hope participants and to train graduate student research assistants to both conduct the qualitative interviews and analyze the quantitative data.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

As detailed in Duncan et al. (2007) and other publications, a random-assignment evaluation using these data showed that the program reduced poverty, increased employment, and, perhaps most important, boosted the achievement and positive behavior of children. As with many intervention evaluations, quantitative data provided strong evidence on program impacts but could not answer the vital "how" and "for whom" questions. The mixed-method approach was helpful for understanding program impacts estimated in the quantitative data and for identifying subgroups for which program impacts were the strongest. For example, one of the most important—and initially puzzling—impacts of the New Hope experiment was that in the experimental group, boys, but not girls, were rated by their teachers as much better behaved and higher achieving than their control group counterparts. The qualitative data revealed instances in which parents referenced the gender of their children and suggested that mothers believed that gangs and other neighborhood pressures were much more threatening to their elementary-school boys than girls. As a response to these pressures, mothers in the experimental group channeled more of the program's resources (e.g., childcare subsidies for extended-day programs) to their boys. Qualitative interviews also revealed families that benefited the most from the programs. Around one fifth of New Hope families appeared to have so many problems (e.g., drug dependence, children with severe behavior problems, abusive relationships) that New Hope's package of economic benefits was unlikely to make much of a difference. A second group was at the other end of the spectrum: They had no such apparent problems and were able to sustain employment on their own. But a third group, constituting about 40% of New Hope families, experienced only one or two of the problems of the sort that New Hope might be able to address and appeared poised to profit from the New Hope package of benefits. Extensive quantitative work on subgroups defined according to the number of potential employment-related problems they faced at the beginning of the program confirmed the wisdom of these qualitatively derived insights.

-Greg Duncan

Heinrich, C. J., Burch, P., Good, A., Acosta, R., Cheng, H., Dillender, M., . . . Stewart, M. (2014). Improving the implementation and effectiveness of out-of-school-time tutoring. *Journal of Policy Analysis and Management*, 33(2), 471-494.

HOW METHODS ARE MIXED

This multisite, mixed-method longitudinal study examined the impact of out-of-school time (OST) tutoring on student reading and mathematics achievement during the implementation of No Child Left Behind (NCLB). The study was able to link provider attributes and policy and program administration variables to tutoring program effectiveness. The study used a rigorous, quasiexperimental design integrated with an in-depth comprehensive examination of the intervention-provider instructional practice in different program models and settings, the nature and quality of tutoring provided, and district-level program administration. Quantitative outcomes included student achievement outcomes and recorded/invoiced hours of tutoring for each student. The qualitative data were collected using multiple techniques, including observations of tutoring sessions; interviews with program administrators, tutoring staff, and district and state administrators; parent focus groups; and document analysis of curriculum materials, assessments, and policy documents.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

This study took place in four urban school districts over four academic years. More than 200 unique tutoring providers participated in this study. To understand the wide variability that the team encountered, they developed a standardized observation instrument that could be used to more precisely capture the nature of supplemental tutoring. This tool enabled the team to capture rich information that could be clustered into indicators of OST best practice and then used to make sense of their findings, such as tutor knowledge, differentiation, and student engagement.

Systematic impacts of OST tutoring on students' reading and math achievement were found only in the Chicago Public Schools. Additional exploration of the data indicated that the number of hours students attend OST was directly influenced by the rate per hour charged by tutoring providers and the dollars allocated per student by districts. Dosage analysis made it clear that positive program effects were only seen when the average hours of OST tutoring exceeded 30 hours. In addition, the team found a linear relationship between the number of hours received and outcomes attained. However, the qualitative data indicated that a simple measure of invoiced time was not an accurate measure of instructional time. Wide variability was observed between the advertised time of tutoring sessions and actual instructional time, often resulting in a substantially reduced amount of instructional time. This was particularly true in OST programs situated in schools where administrative tasks and competition for other school-based after-school activities reduced available instructional time. The qualitative data collected also enabled the team to provide a detailed description of what actually happens during an invoiced hour of tutoring. These data were invaluable to uncovering critical areas in which program improvement could occur. For example, curriculum materials and instruction were rarely tailored to meet the needs of students with disabilities or English learners, and providers did not have specialized expertise in working with these students. Observational data pinpointed wide variability of instructional styles and quality within providers. Interviews with parents and program administrators clearly articulated the difficulty and confusion surrounding the provision of information about English language learner or disability status to providers. School staff often believed that they were prohibited from providing that information to providers because of FERPA or IDEA regulations. These qualitative findings were shared with the participating districts, and the specificity of the findings enabled districts to make strategic changes to how OST was provided.

-Elizabeth Albro

Hill, H. C., Kapitula, L., & Umland, K. (2011). A validity argument approach to evaluating teacher value-added scores. *American Educational Research Journal*, 48(3), 794-831.

HOW METHODS ARE MIXED

How well do teacher value-added scores obtained by comparing test scores at the beginning and end of a school year identify high- and low-quality teachers? Hill and colleagues attempt to answer this important policy question by collecting value-added test score data on virtually all 222 middle school math teachers in a large and demographically diverse school district. Detailed data were collected on teachers—24 in all—who taught in six

district schools selected to represent both high- and low-performing schools. For the 24 teachers, observational and interview-based indicators of teacher quality, instruction, and student characteristics were gathered. Comparisons of value-added scores and the intensive teacher quality data showed that teachers' value-added scores did indeed correlate with their mathematical knowledge and quality of instruction. But while positive, the correlation was far from perfect. Almost all high-quality teachers scored well on the value-added measures, but some lower-quality teachers did also. The article presents case studies to show problems that might arise in using value-added scores in pay-for-performance plans.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The important question addressed in this study requires gathering the value-added test score data that states use to implement their accountability schemes and that some school districts use to link teacher pay to teacher performance. These data are easily obtained from the administrative data systems of cooperating districts. Determining whether these scores bear any relationship to the quality of classroom instruction requires gathering valid data on teacher quality, which takes a great deal of time and effort and necessarily limits the total number of teachers from whom such data can be gathered. This study balances these data demands by using comprehensive value-added information to identify representative schools and measure value added for individual teachers, but then gathers the detailed survey and observational measures from a manageable number of teachers to distinguish between high- and low-quality instruction. The article also uses detailed descriptions of classroom interactions to illustrate differences between high- and low-quality instruction as defined by its quantitative measures.

-Greg Duncan

Holland, D., & Skinner, D. (1987). Prestige and intimacy: The cultural models behind Americans' talk about gender types. In D. Holland & N. Quinn (Eds.), *Cultural models in language and thought* (pp. 78-111). Cambridge, England: Cambridge University Press.

HOW METHODS ARE MIXED

This study used interviews, participant observation, and multidimensional scaling to understand the unspoken expectations and taken-for-granted knowledge about male/female relationships in the talk of a small group of American college students about other people. From college students' talk about gender and gendered relationships, the authors were trying to identify a "cultural model" (or mental map of shared implicit knowledge) about gender that could explain and predict aspects of students' behavior toward each other. Beginning with a cognitive-structure approach (emphasizing the connection between language and thought), in a first set of interviews, female participants were asked to give names for types of males, and male participants were asked to give names for types of females. Participants were then asked to describe each type they had listed and describe when someone might use such a term. This method generated hundreds of terms and colorful descriptions of males and females but no way to know how participants actually used the terms to organize their interactions with others. In a second set of interviews, participants were asked to compare and contrast types of males and types of females according to whatever criteria they considered important, to sort the types into piles according to similarity, and then to describe the similarities among types sorted into each pile. Discussion of types and reasons for sorts were recorded verbatim. To identify salient dimensions that participants used in their sorts, the authors used multidimensional scaling to obtain a visual display of types that were frequently (and infrequently) sorted together. The patterns of sorting were then interpreted with reference to the descriptions and explanations given by participants in the two sets of interviews. This method suggested that women organize their thinking about men according to a small number of dimensions. Men do the same but do not use the same dimensions as women. Although these findings were useful for identifying the characteristics of male and female types that were important to participants and to predict how participants would likely react to various types, the interview data contained more nuanced information that was not captured by the simple attributes in the multidimensional scaling models. Information including emotions, complicated co-occurrences, and special cases could not be represented in the multidimensional scaling. Returning to the earlier interviews, the researchers noticed that participants actually described gender types in the context of social dramas (not as having single attributes). To learn about these social dramas, new research, consisting of participant-observation and open-ended interviews, was conducted to investigate the talk that occurred among participants in everyday activities, in "talking diaries" of their lives, and in focused conversations about long-term gender-marked relationships. These additional data were used to identify what participants assumed about how gender-marked relationships are supposed to play out and what happens when they do not play out as expected. Combining results from this sequence of methods applications, the researchers identified a cultural model of male/female relationships organized around prestige and intimacy gained and lost.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The mixed methods used in this study led to the realization that knowledge about gender is mentally organized in terms of prototypic events and scenarios rather than as lists of definitions or attributes of a domain as anticipated by previous research. When participants were asked which gender types were similar, they did not explicitly focus on definitions or attributes of the types. Instead, they described the types in social dramas (or scenarios) in which a prototypical male/female relationship was disrupted. After the initial elicitation of gender-marked terms, the multidimensional scaling assisted in identifying male/female groupings, but it did not provide a way of making sense of the taken-for-granted expectations, deeply felt emotions, and unexpected interconnections in participants' mental maps of gender relationships. Additional qualitative research was necessary to identify the underlying logic of participants' thinking and reveal a cultural model with potentially widespread implications for American college students and perhaps others.

-Margaret Eisenhart

Kim, K. H. (2014). Community-involved learning to expand possibilities for vulnerable children: A critical communicative, Sen's capability, and action research approach. *Journal of Mixed Methods Research*, 8, 308-316.

HOW METHODS ARE MIXED

The purpose of this study was to develop a transformative approach to improving the future lives of disadvantaged children in Korea. This work was conducted in collaboration with community volunteers, parents, staff, and children from one center and aimed to encourage the 33 participating children's motivation and commitment to learn, and their ability to do so. Kim conducted focus groups with adult participants to understand their perspectives about helping the children, and with children to understand how they would like to spend their time and what they would like to learn if they had a choice. The focus group data then informed the development of two surveys that were given to all the participating adults and children, respectively. The findings indicated that the children had few experiences that fostered motivation for learning. Against this background, Kim conducted an action research study to develop, implement, and evaluate an intervention. In doing so, she identified five principles for developing and implementing programs of this type.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

In the research report, Kim highlights a quantitative analysis of demographic data of children served by centers such as the one in which she worked. However, it is not clear how this analysis informed either the conceptualization of the problem or the design of the intervention. She subsequently developed surveys based on the focus groups to inform the formulation of goals for the intervention. The use of surveys does not seem vital to the study given the relatively small number of participants: 23 adults and 33 children.

-Paul Cobb

Kim, K. H. (2014). Community-involved learning to expand possibilities for vulnerable children: A critical communicative, Sen's capability, and action research approach. *Journal of Mixed Methods Research*, 8, 308-316.

HOW METHODS ARE MIXED

This study employed a three-phase mixed-methods transformative approach to understand, develop, and implement strategies to improve education outcomes and life chances of "vulnerable" children in Korea. Phase 1 of the study involved a contextual analysis of the Child Welfare Act that had a goal of "resolving educational polarization and to discontinue generational poverty transmission" (p. 209). In 2004, the law was revised, and Community Child Care Centers (CCC) received \$20,000 a month to provide supportive and supplemental services to children in local areas. Kim also conducted historical analysis of other community programs and how the economic crisis affected families' resources. Kim also analyzed demographic data from low-income families and children. Phase 2 involved a two-year case study of 33 children, most with "little interest in going to school and learning. . . . They were usually considered as trouble makers in schools and even in the community" (p. 310). A total of 23 adults also participated in the program. The qualitative data included several focus groups, team meeting materials, seminar materials, teaching and supervising notes/worksheets, audiovisual recordings, and students' reflection notes/worksheets. Quantitative data were collected via questionnaires about adults' general/common views about how to support the children. During the first year, they explored and designed the CCC program and

implemented it during the second year. The goal of the program was to build on students' capabilities and avoid a deficient approach to their educational challenges. Phase 3 included the development, implementation, and evaluation of transformative interventions that sought to expand the CCC program and to improve children's access to quality education. The team used many of the methods mentioned during Phase 2. They developed two new programs, "Encountering Wide, Open World" and "Our Dreams Come True. Ready Action!" (p. 313).

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Kim wanted to understand the "children's hopes, dreams and expectations about themselves and their lives" and asked the following questions of them: What would they like to become? What do they like doing? What is the most important thing about their life? The children demonstrated little interest in answering these questions, so the team divided them into smaller groups and asked more concrete questions: How do they spend their time? How would they like to spend their time if they had a choice? What would they like to learn if they could? When do they enjoy learning? The team also gave students surveys about learning. They found that children "have a difficult time finding meaning in their learning in the CCC, and that they do not have high expectations that their life will be better" (p. 312). After mixing the methods, Kim identified elements that impeded children's learning. Kim also found transformative elements that inspired a love of life and learning in the children. So the team developed two lifelong learning programs. The first program, "Encountering Wide, Open World" had the goal of giving children experiences that "stimulate curiosity, desire, or aspiration about life, thereby creating desire, motivation or commitments for lifelong learning" (p. 313). Kim stated that when children are curious and find something that interests them, you don't have to coerce them to learn. The second program, called "Our Dreams Come True. Ready Action!" was designed to give students the tools they needed to achieve their hopes and dreams. The program had five principles and processes (p. 314): (1) small group-based learning, (2) inclusion of 1-2 adults in the group, (3) an experiential and participatory action-oriented learning activity (they created drama scripts for English drama), (4) reflective learning (review and question) that included students sharing how the activity related to their lives (Carol Lee's cultural modeling) and what they desired to learn more about (feeling and reflection), and (5) consequences that foster a sense of achievement. The students performed their drama on stage in front of 500 people. Kim stated, "The participants had a strong sense of achievement, which especially affected children to have eagerness about learning" (p. 315).

This was a very interesting article, and quotes from the children and parents would have made it stronger. One of the strengths of qualitative research is it allows you to hear the voices of the participants, especially those who may be marginalized. This article is tapping into something crucial about human development and learning that was also captured in the Weisner (2011) article about New Hope. Children have a great sense of, as Kim (2014) put it, "Encountering wide, open world" (p. 313). Kim's initial questions about what drives a child are critical for educators to understand, even if the child has an adult body and appears to be not interested in school. Kim's research points out that if the child does not respond the way we think that he or she should initially, we have to ask the question in a more concrete way and provide learning experiences where his or her talents can be recognized.

-Ruby Mendenhall

LeVine, R. A., LeVine, S., Schnell-Anzola, B., Rowe, M., & Dexter, E. (2012). *Literacy and mothering: How women's schooling changed the lives of the world's children*. New York, NY: Oxford University Press.

HOW METHODS WERE MIXED

A seminal cross-cultural study of family and mothering in Mexico, Venezuela, Nepal, and Zambia (with comparisons to the United States and Europe) in both rural and urban settings, and in girls and boys with varying levels of schooling used extensive mixed methods. The researchers blended community ethnographic study, qualitative interviews and narratives of mothers and children, and quantitative studies of literacy, health, fertility, and language use with children. The team found that maternal increases in literacy through formal schooling led to new communicative socialization processes in families and institutions that in turn led to fertility declines, gains in health, and increases in well-being around the world. Changes in patterns of social participation affect reproductive choice and child-rearing and health-related behaviors. All these studies used qualitative, ethnographic methods, usually integrated with quantitative measures, to first provide a wider cross-cultural sample and then search for correlates of the various family and parenting practices of interest.

Girls acquire academic literacy skills, even in low-quality schools, which enable them, as mothers, to understand public health messages in the mass media and to navigate bureaucratic health services effectively, reducing risks to their children's health. With the acquisition of academic literacy, their health literacy and health navigation

skills are enhanced, thereby reducing risks to children and altering interactions between mother and child. Assessments of these maternal skills in four diverse countries—Mexico, Nepal, Venezuela, and Zambia—support this model. Literacy and language skills acquired through schooling lead to changes in child care and fertility (fewer children; increased orientation of children to text and literacy), as well as gains in health care.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

It has long been known that there is a connection between education for girls and subsequent reductions in fertility, improved health outcomes for girls and women, and changes in parenting and childrearing. But what are the mechanisms that are leading to these changes? Literacy and language skills, leading to changes in social participation, appear to be the key processes involved, though these had not until very recently been clearly established as causal.

Improvements in literacy and associated changes in communication processes cause gains in women's and children's health, declines in fertility, increased economic status, and changes in mother-child interaction and children's schooling. This study helps us understand why and how this happens. It is a model for how to undertake applied, empirical, and evidence-rich policy-relevant work. This study is richly interdisciplinary and uses integrated qualitative and quantitative methods. It moves across levels of analysis from global trends in formal education and the history of the spread of schooling, to national and local classrooms, and then into everyday interactions, homes, and lives of mothers and children in local communities.

The methods blend formal assessments of mother-child interactions and functional literacy, schooling, and sociolinguistic patterns. Each national-cultural community sample is understood ethnographically and in historical context with reference to educational institutions, and access to schools. The measures are carefully adapted to fit each community appropriately. That these communities have samples that include women and children with little or no schooling in the past and present was important for the study and for comparative purposes, and these families are carefully incorporated into the sampling.

-Thomas S. Weisner

Oliver, M., & Shapiro, T. M. (2006). *Black wealth/White wealth: A new perspective on racial inequality*. New York, NY: Routledge.

This volume is a revised edition of *Black Wealth/White Wealth: A New Perspective on Racial Inequality* (1995) by the same authors. This 10th-anniversary edition picks up where the first volume left off, attempting to answer the question, "What are the most important changes in the last ten years affecting racial inequality and the racial wealth gap?" (Oliver & Shapiro, 1995, p. ix). The authors include original material as it appeared in the 1995 volume, updating and extending the argument by adding additional data and analysis.

Black Wealth/White Wealth analytically distinguishes between traditional measures of economic status and wealth. As the authors state, "Income refers to a flow of money over time, like a rate per hour, week, or year; wealth is a stock of assets owned at a particular time" (p. 2). Continuing, they argue, "Wealth signifies the command over financial resources that a family has accumulated over its lifetime along with those resources that have been inherited across generations" (p. 2). The authors argue that wealth, far more than income, contributes to skyrocketing inequalities that are increasingly apparent in the United States. Sitting squarely in broader discussions of the production and maintenance of inequalities in the United States, the authors (1) address the importance of wealth to the production of enduring racial inequalities; (2) discuss how race and class have structured racial inequalities through detailed analyses of wealth holdings; and (3) pinpoint sources of deep wealth disparities by race. In so doing, they offer a "sociology of wealth and racial inequality."

HOW METHODS ARE MIXED

To track wealth holdings at varying points in time, the authors use a range of databases that include measures of household assets and liabilities. These include federal censuses, Survey of Consumer Finances (SCF), and Survey of Income and Program Participation (SIPP), among others. This enabled the authors to quantitatively track wealth inequality, and especially wealth inequality by race, over time.

After analyzing data embedded within their large constructed quantitative database, Oliver and Shapiro engaged targeted in-depth interviews in Boston and Los Angeles. Interviews focused on the ways in which, and the extent to which, assets are generated within families, the ways in which families intended to use them, and how such assets were linked to felt notions of family security, or the lack thereof. Interview data were employed to breathe

life into the quantitative data already analyzed. As the authors state, “Our interviews did not need to be random or representative, because they were intended to explore hypotheses, expand on social processes underlying findings in the national sample, and provide richer insight and meaning” (p. 56).

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Qualitative interview data enable the authors to explore the meaning and significance of the quantitative findings as they play out in the lives of members of individual families. Although most of the volume focuses on the quantitative data and analysis, the narrated words and actions of individuals across class and race enable the authors to more deeply understand the production of race and class inequalities on the ground of actual experience, as well as how such inequalities are experienced within differentially located families. Families for interviews were purposively selected to provide a range of experiences from White and Black families.

-Lois Weis

Penuel, W. R., Riel, M., Krause, A., & Frank, K. A. (2009). Analyzing teachers’ professional interactions in a school as social capital: A social network approach. *Teachers College Record*, 111(1), 124-163.

In this article, Penuel, Riel, Krause, and Frank explored what the structure of teachers’ social networks can reveal about the cohesion of a school community with respect to reform goals. The focus of the study was a comparison of two elementary schools, each of which was attempting to improve reading instruction over the course of several years. Data collection took place in the early 2000s in California.

HOW METHODS ARE MIXED

This study employed a combination of social network analysis derived from survey data and interview data that elicited information about teachers’ professional networks. Survey questions asked teachers to nominate their closest colleagues in the school and to identify colleagues to whom they turned for help regarding instructional matters in reading. On the basis of their responses, sociograms were generated that depicted the structure of each school’s network, including subgroups within which interactions were concentrated. In interviews with a sample of teachers from each school, we elicited information that could not easily be gleaned from surveys to help us explain the network structure. We used interviews to elicit ways that leadership differences, views of the instructional coach, and cohort dynamics might have produced the observed network structure and served to either facilitate or hinder reform efforts at each school.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Many scholars have become interested in social network analysis as a tool for the study of educational reform in recent years. A common impulse has been to attend to the structure of networks, paying close attention to network measures such as centrality and density. Often the premise is that one can “see” a good network by inspecting the structure. Dense networks are presumed to be better than less dense networks, too. Understanding the basis for network structure and its potential for reform requires complementary qualitative data, organized to answer questions about why teachers interact with the colleagues they do and about the reasons for the fissures that exist within school communities and that can be seen in sociograms depicting network structure. We found that there were few differences between the two schools in measures of density and frequency with which teachers met. At the same time, the distribution of valued resources and access to expertise was explained by both the network structure—which revealed significant fissures between subgroups in one school and cohesion and another—and the dynamics of interaction revealed in interviews.

-William Penuel

Poteete, A. R., Janssen, M. A., & Ostrom, E. (2010). *Working together: Collective action, the commons, and multiple methods in practice*. Princeton, NJ: Princeton University Press.

HOW METHODS ARE MIXED

Working Together is a book that can be read at two levels. At one level, it is about research that draws on multiple methods to address questions about “collective action for the regulation of natural resources” (p. 5). Readers see how different methods can contribute to theory development, what the challenges of implementing them are, how theory can evolve as the contributions of different methods are integrated, and what this might

imply for decision making and action in contexts that can differ radically. At another level, the book is about the practice of methodological pluralism; as such, it treats research on collective action with natural resources as an extended case study. While acknowledging the challenges, the authors build an argument for the value of multimethod, often collaborative, programs of research and consider the implications of their case study for developing research policy and infrastructure to support it.

In the research agenda they reported, primarily between 1990 and 2004, much of it their own, “scholars from across the social and natural sciences . . . used a wide variety of research techniques to establish the possibility of collective action for natural resource management, identify conditions associated with the emergence and durability of collective action, and assess whether and when collective action contributes to sustainable management of the resource base” (pp. 21-22).

Across the studies, readers see use of ethnographic field-based research, small-N research with coordinated design of case studies to enable comparisons, survey research, laboratory and field-based experiments, research syntheses of various sorts (including traditional meta-analysis, qualitative comparative analysis [QCA], and narrative analysis), formal modeling (primarily agent-based modeling), and participatory research, sometimes employed in the same studies, sometimes sequentially. These methods allow readers to develop theory that operates on different levels of the relevant systems—including the individual, the immediate social context where decisions are made and actions taken, and the broader social, political, economic, and ecological contexts—and that acknowledges context specificity and heterogeneity of complex causes.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

With collective action for the regulation of natural resources, the authors purposefully developed a case “for which data are scarce, difficult to collect, and not readily comparable” (p. 5) across contexts and circumstances. They noted that collective management of many natural resources occurs on a subnational scale, often with informal rules for resource use and local participation outside government involvement. Because such informal institutions can be difficult for outsiders to recognize, qualitative field-based research is necessary even to identify relevant cases for analysis. The issue is how to develop useful (actionable) theory across such frequently disparate contexts.

The theoretical narrative unfolds largely historically. The authors begin by citing an initial theoretical assumption, dominant during the 1950s and 1960s, that individuals would “maximize expected, short term material returns to self in isolation from other actors” (p. 215), and, consequently, that changing these patterns of behavior required imposing solutions (rules, incentives) from outside. However, they showed that numerous field studies contradicted this assumption, illustrating the ability of local users to self-organize and to engage in sustained, multigenerational collective action. Of course, case studies also illustrated successful arrangements that ultimately failed and cases where collective action never emerged. The key question was what might account for the varied success.

One line of work focused on ways to develop comparisons that might inform theory across cases. This included attention to research syntheses, including QCA, and work on coordinated case studies to facilitate comparison. An outgrowth of this work was the notion that researchers need not only a more nuanced theory of individual action but also an understanding of the ways in which individual action was structured by contexts. Thus, they considered how different methods could contribute differently to theory at three levels: “(1) individual human behavior, (2) the microsituation including the immediate variables impinging on individuals in a collective-action dilemma, and (3) the broader social-ecological context” (p. 215).

For example, field research informed conceptual clarifications related to types of goods and property rights and the rich set of rules used to manage resources. Experiments established the importance of communication and trust in initiating and sustaining collective action. Agent-based models enable scholars to test how diverse combinations of strategies, resource characteristics, and spatial factors combine over time to create situations where cooperation is sustained or disappears.

This pointed to the need for theory that could support and explain context-specific action and accommodate causal heterogeneity. They argued that “the weight of an explanation for cooperation in social dilemmas must lie both in the general theory of human behavior and in specific characteristics of the microsituations they are in as they are embedded in a broader context” (p. 222).

The authors represented their evolving theory in terms of what they called an “ontological frame” to enable a “diagnostic approach” (a term borrowed in part from clinical health professions). The goal is to “help scholars, officials, and citizens to understand the potential set of variables and their subvariables that can be important in analyzing diverse theoretical questions related to the governance of resources” (p. 236).

K. (2003). Counterfeit social capital and Mexican American underachievement. *Educational Evaluation and Policy Analysis*, 25(3), 237-262.

HOW METHODS ARE MIXED

This study shows that social network instability accompanying high mobility rates may contribute to Mexican American underachievement. Moreover, this investigation challenges wholly beneficial and ecumenical notions of social capital. Mexican-origin youth in possession of what on the surface appears to be a valued form of social currency may actually be the unwitting recipients of a form of *counterfeit social capital* that impinges on their school success. As a departure from more common single-method research practices, this mixed-methods study integrates research from a national longitudinal database of adolescents in the United States during the high school years, with a qualitative study that includes field interviews of mobile adolescents in a large West Coast school district. Neither entirely deductive (theory generates hypotheses) nor entirely inductive (observations generate hypotheses), the iterative process of data collection and analysis was ongoing and cyclical throughout the course of this investigation. Sometimes qualitative groundwork helped to shape the design of the survey analysis. In other instances, survey findings validated themes that emerged from the field. Often both sets of findings were considered simultaneously to explore different aspects of a particular research question. For example, initial fieldwork was followed by a survey wave and a subsequent mixed-methods study that built, in part, on the author's previous research. Since the quantitative and qualitative data come from distinct sources, they are presented and interpreted in fundamentally different ways. The former address nationally representative generalizable trends, while the interview data, having been gathered via convenience and snowball sampling techniques, corroborate some survey findings, challenge and/or elaborate on others, and initiate new ideas not foreseen in the study design.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Initial findings from the field suggested that (a) student and residential mobility are disruptive to the accumulation of social capital, and (b) the *reasons* students change schools may have some bearing on the educational and social consequences of doing so. In response to these findings, the author reanalyzed the survey data, including composite measures of social capital and variables reflecting reactive and strategic student mobility, and then returned to the field for another round of interviews. As an elaboration and qualification of survey results showing only a slight negative association between student mobility and 12th-grade test scores, findings suggest that strategic mobility made to gain calculated educational advantage (i.e., better teachers) limits the degree to which negative manifestations (poverty or transfers for behavioral reasons) are accounted for by the survey data. The dichotomy between reactive and strategic student mobility may also help explain Mexican Americans' relative susceptibility to student mobility. Field analyses suggest that Mexican Americans may be more likely to change schools reactively and less likely to do so for strategic reasons. Thus, transient Mexican-origin youth may be especially likely to experience educational setbacks. The mixed-methods research approach also helped to reveal and explain unforeseen and surprisingly negative associations between Mexican American students' perceptions of their teachers' concern for their academic well-being and their performance on standardized tests. How can it be possible that a survey measure of students' interactions with their teachers seems to be of clear educational benefit to Whites but is ineffective, and perhaps disadvantageous, for Mexican-origin youth? Interview findings suggest that teachers employ sometimes patronizing forms of social support for students. Often these patronizing attitudes were directed less toward Mexican American students' academic achievement than toward the demands of social expediency operative in the classroom. Defensive and accommodating teaching strategies may serve the ironic function of increasing students' *perceptions* of teachers' concern for their well-being, while concomitantly short-circuiting the usefulness of social capital, especially among Mexican American adolescents. In sum, the mixed-methods research approach proved advantageous given that neither the quantitative nor qualitative investigative technique is, on its own, as suitable for investigating the *mobility/social capital dynamic* as the two methods combined.

-Robert Ream

Study of Instructional Improvement (SII), as described in:

., & Correnti, R. (2009). Studying reading instruction with teacher logs: Lessons from the study of instructional improvement. *Educational Researcher*, 38(2), 120-131.

This was a multiyear large quasiexperimental study that compared three different whole-school reform models' effects on instruction and achievement. The three models were Success for All, America's Choice, and Accelerated Schools. The three programs varied in their specificity or guidance provided to teachers about how to improve instruction, and the researchers studied variation across the three models with respect to instructional change and achievement.

HOW METHODS ARE MIXED

This study was the first to use instructional logs on a large scale. Instructional logs are a form of time diary in which teachers report on their use of particular instructional strategies at the end of a day of instruction. The SII team gathered data from multiple sources to assess the validity of logs. They compared teacher reports on logs to end-of-year survey results and to the reports of observers who visited classrooms in pairs and completed logs as outside observers. To understand the role of reform design in shaping instruction, the team analyzed reforms' designs from the perspective of how much prescriptive guidance they gave to teachers regarding instruction and then compared changes to instruction as documented in logs over time. The study remains an important one for its deep exploration of the links among reform designs, professional development, instruction, and achievement.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The multiple measures were of central importance to developing a validity argument to support the use of logs to measure instruction. Survey measures are subject to self-report bias, and end-of-year surveys are subject to retrospective bias and loss of memory. By contrast, while observation measures are trusted more by other researchers as a valid source of evidence about instruction, they are expensive to collect, and many measures must be taken to establish reliable estimates of teaching. Direct comparison of the methods was critical here to help the researchers understand how end-of-year surveys, logs, and observations compared. Especially useful was a data collection strategy in which pairs of observers' ratings were compared with each other and with observer-teacher ratings (where teachers were self-reporting) from logs. The researchers found that observer-observer pairs' agreement levels were only slightly higher than observer-teacher pairs.

-William Penuel

Rumbaut, R. G. (2005). Sites of belonging: Acculturation, discrimination, and ethnic identity among children of immigrants. In T. S. Weiner (Ed.), *Discovering successful pathways in children's development: Mixed methods in the study of childhood and family life* (pp. 111-164). Chicago, IL: University of Chicago Press.

HOW METHODS ARE MIXED

This article presents detailed findings on ethnic self-identity and the factors that shape it based on structured longitudinal surveys with a large representative sample of over 5,000 adolescent children of immigrants (1.5 and second generation), from scores of different national origins, coming of age on both coasts of the United States. Four mutually exclusive types of ethnic self-identities emerged: (1) a foreign national identity; (2) a hyphenated-American identity; (3) a plain American identity; and (4) a pan-ethnic minority group identity (e.g., Hispanic, Latino, Chicano, Black, Asian). The paths to those different forms of ethnic self-definition are shaped by a variety of social and psychological forces. The results show the complex, conflictual, often incongruous and unexpected ways in which race and class, discrimination and acculturation, family relationships, and personal dreams can complicate their sense of who they are. This suggests that identities are neither fixed nor irreversible, but always a function of relational processes, whose meaning is embedded in concrete social and historical contexts. Ethnic self-identities emerge from the interplay of racial and ethnic labels and categories imposed by the external society and the original identifications and ancestral attachments asserted by the newcomers. Such considerations underscore the need for mixed research methods to get at dimensions of varying subjectivity and situationality and to facilitate a more thoroughly contextualized study of ethnic identity and social belonging. The authors returned to the field in 2001-2003 to locate and contact as many respondents as possible (from the baseline sample drawn a decade earlier, in fall 1991, when most were 14 or 15 years old). Most of the original respondents were located, even though many of them (then 24 or 25 years old) were no longer living with their parents in the San Diego and Miami metropolitan areas, and some had moved to many different states across the country. Through these intensive interviews and oral histories—which are taped, transcribed, and coded via specialized computer software for qualitative analysis—the authors aim to explore and probe in much greater detail and nuance the kinds of issues that survey instruments and methods constrained them from delving into.

WHY MIXING METHODS WAS VITAL FOR THE STUDY

Methodologically, the quantified coded responses given by thousands of individuals from dozens of diverse national origins in the surveys revealed a handful of distinct patterns that advance our explanation of complex processes of self-identification. However, they do not tell us much about the (likely varying) *subjective meanings* that particular ethnic or racial labels may have had for individual respondents. Ethnicity is likely to some degree to be racialized in the respondents' own notions of these modes of group identity. For that matter, there is a strong possibility that the same label (e.g., "Latino") may take on different meanings for the same individual at a later time (e.g., in young adulthood) or in different circumstances (e.g., in college). Such considerations underscore the need to both broaden and deepen our research by incorporating mixed methods as appropriate to get at those dimensions of varying subjectivity and situationality and to facilitate a more thoroughly contextualized study of ethnic identity and social belonging. In particular, mixed-method considerations suggest the need to extend our study longitudinally into adulthood and to complement the survey methods we have employed in this Children of Immigrants Longitudinal Study—and the representative sample on which the study is based—with in-depth qualitative interviews, oral histories, and targeted ethnographies.

-Rubén G. Rumbaut

Weisner, T. S. (2011). "If you work in this country you should not be poor, and your kids should be doing better": Bringing mixed methods and theory in psychological anthropology to improve research in policy and practice. *ETHOS*, 39(4), 455-476.

HOW THE METHODS ARE MIXED

The New Hope (NH) program is a community-initiated work support and antipoverty program that followed 745 families (with children ranging from 1 to 10 years of age) for 8 years (1995-2004). The families were randomly assigned to program and control groups. The NH benefits could be as high as \$1,000 a month and included wage supplements, health care for children, childcare vouchers, job search support, and respectful interactions with service staff who provided participants with tools for better success in the labor market. The units of analysis included two neighborhoods (one predominantly African American and one mixed-race with a large population of Latinos), working-poor adults, their households, and their children. The ethnographic component examined participants' social contexts, cultural models of work, and parenting goals and practices during seven home visits, which included the ecocultural family interview and extensive field notes. The ethnographic goals included understanding what was meaningful to parents and children, their ways of reasoning, and their everyday practices. The quantitative component of NH included administrative data for employment, wages, and receipt of services and supports. The conceptual frameworks involved the (1) ecocultural perspective, (2) resource pathways such as child investments, and (3) indirect pathways where parents feeling more effective and empowered may positively affect the children's outcome. The policy and practice-relevant outcome was to "understand how and why a serious attempt to alleviate poverty might work, and how such attempts can be improved" (p. 456).

WHY MIXING METHODS WAS VITAL FOR THE STUDY

The mixed-methods design allowed Weisner to use extensive ethnographic information about the complexity of families' social contexts (e.g., household disruptions, household crowding, noise levels, substance abuse, and mental and physical problems) and put them into groups (e.g., those with many problems, few problems, and in the middle). This qualitative grouping of families was then used for the quantitative analysis that examined employment, wages, and receipt of services and supports. Mixing the methods in this way allowed Weisner to identify the groups that appeared to benefit most from NH and to understand their rationale for selecting certain services. For instance, some individuals in the NH program actually worked fewer hours, in some cases, when compared with the control group. The qualitative findings captured the struggles often encountered by women (72% of the sample) as they try to balance employment with the care of children and others in their network (i.e., aging parents, sick relatives, etc.). The field notes and interviews revealed that participants used the work supports to "cut back from working two jobs, or working overtime, to stay home more with their children, or for other personal reasons . . . and others working nonstandard hours (nights, swing shifts, weekends) decided to do so less" (p. 467). Another NH finding from the quantitative results indicated that boys benefitted more from the program in terms of improved reading (although not math), increased engagement in school, higher aspirations, better positive classroom social behavior, and fewer behavior problems. Weisner reported, "For girls, teacher reports of school behaviors may have worsened slightly" (p. 466). The qualitative data provided some helpful insights into these findings by identifying parents' adaptive gendered parenting practices based on their perceptions of neighborhood risk factors for their boys (gangs, drugs, etc.). The adaptive gendered parenting practices included what appeared to be a heavier investment of resources in boys, putting them into after-school programs and more intense monitoring (perhaps because they were able to cut back on work hours).

There is an important educational policy lesson in the finding for the boys that future projects may want to consider. What are the mechanisms that led to higher teacher ratings on behavior and higher rates of achievement for the boys? The mothers invested more of the NH resources in the boys because of the neighborhood, but what would they say was their rationale for picking the specific resources they used? Did the mothers use the programs to keep the boys from hanging on the street, and as a result, the boys felt less stress and were able to focus on their academics? How would the boys describe their transformation? What were the important features for them (e.g., people who saw their talents, quiet and safe space off the streets, etc.)? Did the extended daycare programs explicitly discuss improving self-esteem, self-efficacy, or school performance? What would cause the boys to have higher aspirations? Did they interact with adults who they felt believed in them (see resiliency literature)? Were men leading some of the programs? Because of qualitative sample size, perhaps the team can do chi-square analysis to see if the presence of some of these after-school program components (presence of men, focus on academics, etc.) is statistically associated with improvements in aspirations, reading, etc. As a separate finding, it may also be interesting to look at what risks the girls face (e.g., street harassment, gangs, drugs) and see how parenting practices are structured to protect them. Do girls whose parents gendered protective strategies in place for them do better academically and in terms of their behavior? The finding that showed the girls' school behavior getting worse may be due to the many sexual issues (e.g., harassment, sexual pressures, assaults) they have to navigate as their bodies mature. In terms of neighborhoods, it may also be interesting to see how the environments vary by the race of the participants. Do White and Latino families living in the "same" neighborhoods feel that their boys are at risk?

-Ruby Mendenhall

Acknowledgments

The Mixed Methods Research Working Group was made possible by a research grant from the Spencer Foundation to Lois Weis, University at Buffalo; Margaret Eisenhart, University of Colorado Boulder; and Greg Duncan, University of California, Irvine. The work of the Mixed Methods Working Group was greatly facilitated by Rachel Dominguez, PhD student at the University at Buffalo. Thanks to Rachel for her hard work over the duration of the project. Additional thanks are given to Doris Fischer and Annie Brinkman at the Spencer Foundation.

Notes

1. See, for example, <https://provost.ucr.edu/cluster-hiring/>.
2. Because *mixed methods* is a familiar term and has a history within our broad interdisciplinary field, we use the term *mixed methods* rather than *multiple methods* for the purposes of this document.
3. The term *iterative* signals a *pragmatic* approach to mixed-methods research insofar as the pragmatic approach systematically integrates both quantitative and qualitative methods on at least two levels. First, data collection is staggered, often beginning with an initial field study followed by a survey wave and then a confirmatory field study (reanalysis of the survey data is likely to include additional variables emerging from the subsequent field study). Second, field study "variables" are keyed to survey variables to determine the precise degree of overlap and corroboration between the two.
4. The William T. Grant Foundation supported such an effort, bringing together scholars from its program on research utilization to identify dilemmas and share strategies for integrating data from different sources in order to draw inferences about research use. A particular strength of this effort was that it brought scholars together from different disciplines, including education, public health, and social work.

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Cite This Article as: *Teachers College Record* Volume 121 Number 10, 2019, p. -
<http://www.tcrecord.org> ID Number: 22741, Date Accessed: 4/10/2019 12:46:24 PM