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Mixed-Methods Research: Integrating Qualitative And Quantitative Approaches To The Psychological Study Of Culture

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The study of culture has grown increasingly central to North American psychology over the past several decades as ethnocultural diversity has increased. Confusingly, however, this work is often published within isolated literatures: cross-cultural psychology; several flavors of ‘cultural psychology’; multicultural counselling; and ethnic minority psychology. Psychological anthropologists and transcultural psychiatrists also pose broadly similar questions. While these subdisciplines represent particular intellectual communities with particular histories, a major reason for continuing separation is methodology – in particular, the distinction between quantitative and qualitative methods (Ritsher, Ryder, Karasz, & Castille, 2002).

The specific questions that engage these communities help dictate the preferred approach, as do philosophical commitments to various degrees of universalism and relativism. Choice of methods is best made on the basis of questions asked, but such flexibility is rare in practice; rather, there are institutional pressures that privilege certain approaches over others. In psychology, we too often begin with a method and search for questions that can be asked using the method – in effect, ‘putting the epistemological cart before the ontological horse’ (Martin & Sugarman, 1999). Quantitative methods dominate the major journals, academic departments, and training opportunities for research psychologists (Richardson, 1996), an emphasis carried over to many of the subfields concerned with culture in psychology. Unfortunately, sole reliance on quantitative methods happens at the expense of contextualized and historically situated perspectives (Shweder & Sullivan, 1993). For this reason, most other disciplines with a concern for culture emphasize qualitative methods.

In any case, the current dominance of quantitative methods in mainstream psychology research obscures its qualitative foundations. For example, the ‘scientist-practitioner model’ of clinical psychology promotes the mutual influence of scientific research and clinical practice, with neither being sufficient alone. Clinical experience is a crucial element in framing hypotheses and interpreting findings, processes that are not themselves subject to strict scientific rules (Polanyi, 1968; Ritsher et al., 2002). In psychopathology, the traditional division of symptoms into particular syndromes, although subject to modification as a result of quantitative findings, is based on careful observation and phenomenological work carried out during the late nineteenth and first half of the twentieth century. Similarly, social psychology would be inconceivable in the absence of hypotheses grounded in observations of the social world, in effect using the researcher’s own life

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experience as non-systematic qualitative investigation. Even brain research has progressed in part through qualitative observations of individual participants. In short, while psychological research is often portrayed as a purely objective form of inquiry, this idealized view bears little resemblance to the actual practice of science (Woolgar, 1996).

At the same time, a solely qualitative perspective can obscure quantitative aspects of the research, leading to the same exaggerated loyalty to methods over questions. Qualitative work often contains quantitative elements, data-driven iterative hypothesis-testing, and other features usually associated with the quantitative approach. Often, qualitative studies make claims about magnitude, difference, and so on, although rarely using formal quantitative procedures; some go further and incorporate careful reliability checks and counting of important variables. Moreover, just as quantitative studies can be used to study purely local problems, qualitative studies have been served as the basis for generalizable claims (Ritsher et al., 2002). Our position is that while individual questions might be better suited to one approach, and different research teams might be better trained to emphasize one approach, the field would benefit by a more thorough engagement with both approaches.

The argument for engaging with both forms of research is rooted in Wilhelm Wundt's nineteenth century formulation of two approaches to psychology (Ritsher et al., 2002). His first psychology emphasized the traditional laboratory experiment for the study of lower-level processes. In contrast, his second psychology – had it been fully pursued – would have involved observational and ethnographic methods to study 'higher-level' sociocultural processes (Cole, 1996). Cultural psychology has belatedly emerged as a hybrid of these two approaches, albeit not always knowingly. This subdiscipline has embraced the central idea that culture and mind (or 'self', or 'psyche') mutually constitute each other – they 'make each other up' (Shweder, 1990). More recently, this idea has been extended to include the brain, so that culture-mind-brain might best be understood as a single system with three levels (Ryder, Ban, & Chentsova-Dutton, 2011). If Wundt's first psychology focuses on mind-brain aspects of this system, his second psychology focuses on mind-culture. Consideration of the whole system requires both approaches (Harré & Moghadam, 2012).

In his argument for 'peaceful coexistence' between these two different approaches to psychology, Taylor (1973) describes three levels of psychological research. Level 1 involves 'infrastructural domains', such as neurobiology (i.e., brain), and is best apprehended through the classical scientific approach. At the other end, Level 3 involves 'fully motivated performance' in context (i.e., culture), and is best apprehended through a hermeneutic approach. In between, Level 2 involves 'formalized competencies', such as particular cognitive skills (i.e., mind) and requires a mixed approach. With psychology as a 'hub science' (Cacioppo, 2007) that engages with the entire culture-mind-brain system, most often emphasizing the mind-level and its interconnections, a serious consideration of mixed-methods research is warranted. In our view, this claim goes beyond the requirements for what is traditionally identified as 'cultural' research in psychology.

While mixed-methods research approaches may benefit psychology more broadly, it is in the various subfields that engage in various ways with 'culture' that the need is most keenly felt. For that reason, and in keeping with the focus of this book, we provide in this chapter a brief overview of mixed-methods research approaches for the psychological study of culture. We have therefore selected a group of recent published studies that take some kind of mixed-methods approach and use these studies to illustrate our arguments. Rather than bogging the reader down in the details of these studies, we focus instead on conceptual issues, providing a brief synopsis of each study in an accompanying box. In the first section of this chapter, we begin by defining mixed-methods research before turning to a consideration of its philosophical underpinnings; in the second section, we examine why one might consider mixed-methods research and then review a typology of different ways in which such research might be done. We conclude with a brief consideration of how the psychological study of culture could be transformed by a serious engagement with mixed-methods approaches.

Mixed-Methods Research: What Is It?

Defining Mixed-Methods Research

A simple definition of mixed methods research (MMR) is, “research that involves collecting, analyzing, and interpreting quantitative and qualitative data in a single study or in a series of studies that investigate the same underlying phenomenon” (Leech & Onwuegbuzie, 2009, p. 267). In other words, MMR involves combining qualitative and quantitative ingredients in the study of a common phenomenon. This seemingly simple beginning is soon challenged, however, by the observation that qualitative and quantitative research might not fall neatly into two distinct categories. Studies where qualitative data is first thematically coded and then quantized for statistical analysis exemplify the issue. Karasz, Garcia, and Ferri (2009; see Box 1), for example, collected in-depth narratives describing the experience of depression among primary care patients. They then coded this qualitative data by creating dichotomous ratings of dimensions of illness representation for each narrative, a step that starts to blur the boundaries between qualitative and quantitative orientations. Finally, they computed chi-square tests of differences between ethnic groups from these ratings, a clearly quantitative procedure. This entire process straddles the demarcation between qualitative and quantitative in a way that defies unambiguous labels for each component.

Goals. To compare European-Americans to Hispanics and African-Americans in conceptions of depression, through: (1) quantitative evaluation of whether the biopsychiatric model is more common in European-Americans; (2) qualitatively examination of the influence of sociocultural context.

Sample. 74 participants in primary care with major depression from 3 ethnocultural groups ($n=15$ African-Americans, $n=23$ Hispanics, and $n=36$ non-Hispanic Whites).

Procedure. Participants provided in-depth narratives addressing the five dimensions of the Illness Representation Model (IRM) and answered general life history questions.

Data analysis. Quantitative analysis involved the following: (1) quantization by rating themes of the IRM as present vs. absent, and (2) Chi-square tests of difference in distributions between ethnocultural groups. Qualitative analysis of the data involved thematic analysis of interviews based on a coding scheme used in previous work, with the creation of new codes. Qualitative and quantitative results were presented in parallel, organized by the five dimensions of the IRM.

Findings. European-Americans were statistically more likely to endorse a biopsychiatric model of depression compared with Hispanics and African-Americans. Qualitative analyses revealed variations in symptom report, causal attribution, treatment preferences and impact of depression.

Box 1 | Karasz, Garcia, & Ferri. (2009). Conceptual models of depression in primary care patients: A comparative study.

Allwood (2011) argues that, in any case, the distinction between these two approaches is problematic at best, adding that the qualitative approach in particular is characterized by striking heterogeneity. The extent to which qualitative researchers value the generalizability of results is an example – some researchers aim at large-scale generalization, others totally reject the very possibility. As a result, the status of quantitative research also becomes more complicated as it can no longer be assumed to simply be the converse of qualitative research.

In addition to the issue of heterogeneity, Allwood (2011) argues that all research components include both qualitative and quantitative aspects. For example, even the most positivist, number-driven study results includes qualitative elements such as the formulation of a specific research question and the interpretation of results. Qualitative analyses that emphasize reporting the frequency of themes in the results are a converse example. For instance, Mendenhall and Jacobs (2012; see Box 2) collected life history narratives among Mexican immigrant women suffering from Type 2 diabetes. The data were thematically coded for life stressors and a substantial proportion of the results involved commenting on the frequency of each theme in the sample. The authors even

chose to include a bar chart displaying the frequency of all life stressors identified. This style of reporting is not uncommon among qualitative studies, supporting the notion that even qualitative results usually comprise quantitative elements.

While this blurred distinction between qualitative and quantitative approaches makes MMR seem like a natural and logical course of action, it also questions the location – and perhaps existence – of its boundaries. Where does MMR start, and where does it stop? What is MMR, and what is not? Is MMR defined solely in terms of its qualitative and quantitative constituents, or does it need its own category?

Goals. To investigate the relation between life stressors and depression among diabetic Mexican immigrant women in the United States.

Sample. 121 Mexican women seeking diabetes care in a safety-net clinic in Chicago.

Procedure. Participants (1) provided in-depth answers to open-ended questions, (2) completed measures assessing depression, diabetes distress, and acculturation, and (3) provided a blood sample.

Data analysis. Quantitative analysis involved two steps: (1) quantization of various life stressors as present vs. absent; and (2) logistic regressions predicting depression as a function of life stressors. Qualitative analysis involved a grounded analysis of life stressors in the narrative answers.

Findings. Qualitative analysis revealed seven life stressors: interpersonal abuse, stress related to health, family, neighborhood violence, immigration status, and work, and feeling socially detached. Quantitative results showed that interpersonal abuse was a significant predictor of depression.

Box 2 | Mendenhall & Jacobs. (2012). Interpersonal abuse and depression among Mexican immigrant women with Type 2 Diabetes.

Even if we accept the traditional distinction between qualitative and quantitative research, as molded by historical, political, and discipline-specific conventions, the question of what counts as MMR still remains. The simple definition, “mixing qualitative and quantitative data”, stated above, may be far too broad to be truly useful. For example, would a survey study where all data are analyzed quantitatively, but where one or two excerpts from open-ended responses are mentioned in the discussion, count as a mixed methods study? Conversely, what about predominantly qualitative mixed-methods studies where the quantitative component is limited to a few descriptive statistics? For example, Beagan, Etowa and Bernard (2012; see Box 3) conducted a study on racism and spirituality among African-heritage Nova Scotian women. The qualitative thematic analysis of in-depth interviews dominated the study, whereas the quantitative component was limited to reporting mean scores of items from scales assessing experiences of racism, depression, and coping. While the authors characterize this study as 'mixed-methods', we believe a 'qualitative' label would have been just as appropriate. This study is located in a grey area that begs examination of what counts as 'mixed-methods'.

Historically, the MMR movement has emphasized eclecticism and methodological openness, which would not favour a strict threshold of how much mixing is enough to count as MMR. Certainly, there is value to being comprehensive, but at the same time, if MMR is to stand as an approach that is distinct from existing ones and valuable in itself, there should be clear defining boundaries. Unfortunately, as we shall see, there is still considerable debate about the best definition.

Philosophical Underpinnings of Mixed-Methods Research

The early history of MMR has been marked by the 'paradigms war' between proponents of qualitative and quantitative research traditions. Purists from both camps saw their respective positions as incompatible and

incommensurate with that of the other camp – qualitative and quantitative methods cannot and should not be mixed (see Johnson & Onwuegbuzie, 2004 for a description of both positions). In other words, MMR is doomed to fail due to untenable theoretical foundations. While the majority of the MMR movement has moved beyond this view, the incompatibility debate has not really been adequately resolved (Greene, 2008) and we need to address it here.

Goal. To examine the impact of racism on mental health and the role of spirituality as a coping mechanism among African Nova Scotian women.

Sample. The sample included 50 women self-identifying as African-heritage Nova Scotian.

Procedure. Participants (1) completed measures assessing racism, depression, and coping, and (2) provided in-depth answers to open-ended questions about racism, stress and spirituality.

Data analysis. Quantitative analysis involved computing descriptives for questionnaire scores. Qualitative analysis involved a thematic analysis of the narrative answers. Qualitative and quantitative results were presented in parallel, organized by the themes that emerged from the qualitative analysis.

Findings. The quantitative results showed that all participants suffered from considerable racism-related stress. In the qualitative results, spirituality emerged as a central coping mechanism, providing women with community and ways of making meaning of their difficult experiences.

Box 3 | Beagan, Etowa & Bernard. (2012). “With God in our lives he gives us the strength to Carry on”: African Nova Scotian women, spirituality, and racism-related stress

It may well be that quantitative and qualitative paradigms in their pure form are incompatible. Indeed, from a purely philosophical standpoint, “the question remains as to how we can combine a perspective that subscribes to objectivity, unbiased and value-free research, and the separation between the researcher and the researched, with a perspective that emphasizes subjectivity, researcher context, value-laden research, and the inseparability between the researcher and the researched.” (Bergman, 2012, p. 272) However, such concerns might be much less of an issue for the social science researcher wanting to use mixed methods to answer a complex research question.

First, ontologies and methods are not synonymous. Although specific methods have traditionally been linked to a specific ontological paradigm, the association between methods and paradigms is, “neither sacrosanct nor necessary” (Johnson & Onwuegbuzie, 2004, p. 15). As Bergman points out, “qualitative and quantitative analysis techniques do not necessitate a particular view of the nature of reality, privilege a specific research theme and how to research it, or determine the truth value of data or the relationship between researchers and their research subject.” (Bergman, 2010, p. 173) In this view, it is possible to conduct MMR – which by definition is a mixing of methods – while still retaining a dominant worldview that is more sympathetic to one paradigm or another. The mixed-methods study by Castro and Coe (2007; see Box 4) on tradition and perinatal behaviors among Latinas exemplifies this possibility. The authors adopt a predominantly realistic orientation, although not explicitly. They articulate several concerns about the rigorousness of qualitative research and formulate clear research hypotheses. Nevertheless, they successfully integrate quantitative and qualitative components within that hypothesis-testing framework. The task might be more difficult for a purist of either camp because of the traditional association between methods and paradigms, but it is doubtful that a paradigm purist would attempt to conduct MMR in the first place.

Second, paradigm assumptions and the like might not play such a central role in actual practice. Greene (2008) asked the question of, “what actually does influence inquirers’ methodological decisions in practice” (2008, p. 11), concluding that, “paradigm assumptions were rarely cited as important practical influences” (2008, p. 11). In other words, paradigmatic considerations may play a larger role in textbooks than in actual practice. In

our small sample of mixed-methods studies investigating culture/ethnicity and health, only two out of eight studies explicitly mention a paradigm: Beagan and colleagues (2012) refer to a naturalistic approach, and Rosen and colleagues (Rosen, Miller, Nakash, Halperin, & Alegría, 2012; see Box 5) to a pragmatic approach. Both articles mention it in passing; neither clarify what theoretical assumptions are entailed by the paradigm chosen, nor do they discuss how paradigmatic considerations influenced the study practically. The reader can infer these influences, especially for the study by Beagan and colleagues, but there is no clear explication.

Goals. (1) To test whether traditionalism predicts more self-care beliefs during pregnancy and more abstinence from alcohol in rural Hispanic women. (2) To unpack the meaning of ‘traditionalism’.

Sample. 77 young Hispanic women eligible for perinatal health services in rural Arizona.

Procedure. Participants (1) provided in-depth answers to open-ended questions about family traditions and rural lifestyles; and (2) completed measures assessing family traditionalism, rural lifestyles, acculturation, folk beliefs, pregnancy self-care beliefs, and alcohol abstinence.

Data analysis. Quantitative analysis of the data involved three steps: (1) quantization of interview data through coding the affective emphasis of qualitative themes; (2) logistic regressions predicting pregnancy self-care beliefs and alcohol abstinence as a function of scale scores; and (3) inclusion in logistic regression models of affectively coded thematic variables. Qualitative analysis involved a semi-automated process of inductive theme generation (word frequency and co-occurrence) and thematic coding. Data was then axially coded: researchers assigned a degree of intensity or emphasis to each identified category. Correlations among thematic variables were then computed.

Findings. Quantitative results revealed a lack of predictive strength for the three scales, but cross-methods regression showed that two qualitatively derived thematic variables predicted pregnancy self-care beliefs and alcohol abstinence.

Box 4 | Castro & Coe. (2007). Traditions and alcohol use: A mixed-methods analysis

However, the fact that paradigms may not be important practical influences does not mean that we should ignore them or that their assumptions are made more compatible by their marginal role in actual practice. Nor does it mean that we should refrain from embracing both alternatively, attempting to reconcile them, or challenging them. As Creswell rightly points out, “sometimes they may be in tension, and such tension is good. The dialectic between opposing ideas can contribute to new insights and new understandings” (Creswell, 2008, p. 102).

As mentioned earlier, the majority of mixed methods researchers resolved the paradigm war by adopting pragmatism as their philosophical stance, thus giving rise to the “third paradigm”. Pragmatism is ideally suited for MMR for several reasons. First, its recognition of both the natural-physical world and the emergent social-psychological world pays tribute to both realism and constructivism in a way that does not attribute more importance to one perspective or another (Johnson & Onwuegbuzie, 2004). Moreover, its emphasis on an organism-environment transactional view of human behavior provides a way in which realist and constructivist stances can be reconciled (Greene, 2008) – or at least made to peacefully coexist. This potential for conciliation is even furthered by the pragmatic epistemological stance that, “knowledge is viewed as being both constructed and based on the reality of the world we experience and live in.” (Johnson & Onwuegbuzie, 2004, p. 14) Second, pragmatism advocates eclecticism and pluralism, a stance that fits well with the creative endeavor that MMR can represent.

Goal. To investigate the relation between dimensions of social identity (race/ethnicity, sex, and age) and complementarity between provider and client during the intake session.

Sample. 44 providers and 114 clients in eight outpatient mental health clinics in the Northeast (ethnocultural distribution: 53% Latino, 36% non-Latino White, 11% African-American).

Procedure. Intake sessions were videotaped. Participants then provided in-depth answers to open-ended questions about the intake session (e.g., about provider-client rapport or the role of socio-cultural factors in care) and completed a demographic questionnaire.

Data analysis. Quantitative analysis involved: (1) coding videotapes according to existing guidelines grounded in interpersonal theory, (2) computation of a total complementarity score, and (3) multilevel regression using demographics to predict complementarity. Qualitative analysis was based on interviews with client-provider dyads in the top and bottom quartiles on complementarity.

Findings. Quantitative results showed that complementarity for African-American clients was higher with a White versus Latino provider, and with an age match between client and provider. Qualitative analysis showed that in high complementarity dyads, client and practitioner gave consistent descriptions of concerns, expectations, and importance of topics discussed

Box 5 | Rosen, Miller, Nakash, Halperin & Alegría. (2012). Interpersonal complementarity in the mental health intake: A mixed-methods study

Third, pragmatism focuses on the empirical and practical consequences of ideas or theories. In MMR, this stance has been interpreted as a focus on the best way to answer the research questions at hand (Bazeley, 2009): “research methods and designs must be judged on the basis of what they can accomplish.” (Karasz & Singelis, 2009, p. 910) While pragmatism should not be reduced to an oversimplified, atheoretical, aphiosophical statement, we believe it offers a desirable third alternative to the purely realist and constructivist positions and is a paradigm ideally-suited for MMR. However, while the importance and advisability of pragmatism are discussed in depth in the theoretical literature on MMR, it is worth reiterating that of the eight empirical articles reviewed, only one declares a pragmatic orientation – and only does so in passing.

Mixed-Methods Research: Why And How?

Rationales for Mixed-Methods Research

Over the years, theorists have identified a number of rationales for conducting MMR. One of the most prominent and comprehensive is that developed by Greene and colleagues (Greene, Caracelli, & Graham, 1989), who identified five main rationales: (1) *triangulation*, seeking convergence and corroboration of results obtained from different methods but investigating the same phenomenon; (2) *complementarity*, seeking elaboration, enhancement, illustration, clarification of the results from one method by using the results obtained with the other method; (3) *development*, using the results from one method to inform or develop the other method; (4) *initiation*, discovering paradoxes and contradictions, or recasting research questions from one method by using that from the other method; and (5) *expansion*, extending the range and breadth of investigation by using different methods for different inquiry components. In our small sample of articles on culture/ethnicity and health reviewed here, rationales for conducting MMR are formulated without reference to any existing typology or nomenclature, with the exception of triangulation. Nonetheless, although most studies offer idiosyncratic and relatively broad rationales, we can interpret them in light of this framework.

In their review of the literature, Greene and colleagues (1989) demonstrate that while many studies identify *triangulation* as a rationale, it is rarely appropriate in the classical sense of triangulation as converging evidence

(see definition above). They contend – and we agree with this view – that only independent data sources can achieve triangulation. In our sample, two studies cite triangulation as rationale for conducting MMR: Deacon and colleagues (Deacon, Pendley, Hinson, & Hinson, 2011; see Box 6); and Tsai and colleagues (Tsai, Morisky, Kagawa-Singer, & Ashing-Giwa, 2011; see Box 7). We believe this rationale is unjustified in the latter case, however. Tsai and colleagues collected quantitative (standardized scales) and qualitative (semi-structured interviews) data in the same sample of first-generation Chinese-American women suffering from breast cancer. Note that qualitative and quantitative data are not independent from one another. In contrast, Deacon and colleagues collected quantitative data (survey) in a sample of Chickasaw community members and qualitative data (narratives) in a different sample of employees of the Chickasaw Nation Division of History and Culture. Both sets of data were independent and were brought to bear on the same phenomenon, namely the meaning of healthy families in the Chickasaw tribe, thus justifying a triangulation rationale. In contrast the other seven studies used the same participants to collect quantitative and qualitative data, a design that precludes triangulation as a possible rationale.

Goal. To answer: “What is the definition of a strong and healthy Chickasaw family?”

Sample. 230 Chickasaw community members and 7 Chickasaw expert informants.

Procedure. Quantitative data collection consisted either of a brief survey ($n=115$) or a card sort task ($n=115$) designed to assess conceptions of strong families. Qualitative data collection consisted in the seven employees providing narrative definitions of the meaning of strong families.

Data analysis. Quantitative analysis involved correlating age of participants with item frequencies. Qualitative analysis involved a thematic content analysis of the narrative definitions.

Findings. Qualitative and quantitative results were presented in parallel, organized by themes. Quantitative results show that greater age predicts tendency to associate family strength with cultural traditions and American-Indian ethnicity. Qualitative analysis revealed that strong families are seen as cohesive, extended, grounded in community, pro-education, non-materialistic, and valuing tradition.

Box 6 | Deacon, Pendley, Hinson & Hinson. (2011). Chokka-Chaffa' Kilimpi', Chikashshiyaakni' Kilimpi': Strong family, strong nation

The rationale of *complementarity* was identifiable in most studies in our sample. For example, Tsai and colleagues aimed to use qualitative methods to, “interpret the quantitative findings from the cultural perspective,” (2011, p. 3384) a rationale explicitly defined as triangulation, but perhaps better labeled as complementarity. Other examples are Castro and Coe's goal to mix methods in order to obtain, “a more complete understanding of complex cultural constructs,” (2007, p. 271) and Rosen and colleagues' statement that the, “qualitative portion served primarily to elucidate the quantitative findings through exploration of participant narratives” (2012, p. 189).

The rationale of *development* was very rare in our sample. The only partial example is the case of Rosen and colleagues (2012) who used their quantitative results to decide which qualitative data to analyze. Namely, they examined only the in-depth interviews of dyads that obtained a complementarity score in the lower and upper quartiles of the distribution. Thus, to some extent, the quantitative results informed one aspect of the qualitative analysis.

Karasz and colleagues (2009) provide the only example of *initiation* as a rationale. One of their explicit goals is to use qualitative results to generate hypotheses for future studies. The other studies did not seem to mix methods with the aim of identifying paradoxes or contradictions between qualitative and quantitative results.

None of the eight studies in our sample explicitly referred to the rationale of *expansion* as such. However,

the designs of several studies seem congruent with this goal. For example, Rosen and colleagues (2012) examined interpersonal complementarity through quantitative analysis of mental health intake videos. The addition of interviews of dyads that scored very low or very high in interpersonal complementarity broadens the scope of investigation by accounting for participants' experiences and impressions during the intake session. In doing so, the authors aim to "add depth" (p. 187) to the quantitative analysis. Similarly, Castro and Coe (2007) enter qualitatively derived variables into logistic regressions to "add explanatory information" (p. 278).

Goal. To examine the relation between acculturation and breast cancer survivorship among Chinese immigrant women.

Sample. 107 first-generation Chinese-American women diagnosed with breast cancer.

Procedure. Participants completed a quantitative survey, comprising scales assessing acculturation, health-related locus of control, social support, and life stress. Some participants ($n=16$) took part in a semi-structured qualitative interview exploring cancer, cultural practices, and identity.

Data analysis. Quantitative analysis consisted of correlations and 1-way ANOVAs between level of acculturation and other quantitative variables. Qualitative analysis involved inductive thematic analysis of interviews and participant check to confirm correctness of interpretation.

Findings. Quantitative results, presented first, show that acculturation was related to health beliefs, social support and life stress. Qualitative analysis revealed that Chinese cultural beliefs significantly influence how Chinese-American women make sense of, and adjust to, their illness.

Box 7 | Tsai, Morisky, Kagawa-Singer & Ashing-Giwa. (2011). Acculturation in the adaptation of Chinese-American women to breast cancer: a mixed-method approach

Overall, however, we reiterate that for most studies, rationales were only implied or vaguely defined. With rare exceptions, the authors did not discuss what goal was served by the choice of MMR. In addition, they did not ground their rationales in the existing theoretical literature on MMR – unfortunate, as most studies would benefit from being explicitly anchored in existing MMR theoretical frameworks.

The rationales identified by Greene and colleagues are important, but there are additional reasons to use mixed methods when conducting cultural research. Karasz and Singelis (2009) identify two problems relevant for psychologists: (1) the problem of culture; and (2) the problem of transferability. The first problem refers to the notion that culture has usually been treated as a categorical independent variable, mostly for the sake of establishing comparisons between groups. In such designs, "the contents, processes, and structures that constitute culture are not specified" (Karasz & Singelis, 2009, p. 913). Combining qualitative methods, with their emphasis on constructed meaning with this more post-positivist characterization of culture can highlight identified psychological differences as more meaningful, or challenge their validity altogether. In either case, MMR has the potential to restore complexity and content to culture, without ignoring important large-scale cultural group differences. Three studies in our sample were concerned with this issue.

In their examination of the experience of Chinese immigrant women living with breast cancer, Tsai and colleagues (2011) show an explicit concern with the cultural meaning of illness. They discuss the role that the three prominent Chinese philosophical traditions (Taoism, Buddhism, and Confucianism) might play in shaping this meaning and suggest that, "coping with breast cancer may draw on the cultural beliefs about life and illness" (p. 3384). Through in-depth interviews of Chinese immigrant women, the authors explore these beliefs and how they might shape not only the meaning of illness but also how one copes with breast cancer. Castro and Coe's (2007) investigation of the construct of traditionalism is also concerned with cultural meaning. In their view, qualitative approaches are essential in restoring content and complexity to culture: "the measurement of complex cultural constructs, such as traditionalism, in the form of traitlike variables tends to decontextualize these

constructs from their full cultural meaning.” (p. 270) In keeping with this consideration, their article probes the meaning of traditionalism among rural Latinas, from an insiders' perspective. Zukoski and colleagues' (Zukoski, Harvey, Oakley, & Branch, 2011; see Box 8) motivations are similar. Specifically, they investigate how the typically Latino cultural concepts of *sympatía*, *confianza* and *familismo* play out in power and decision-making in sexual relationships among rural Latinos. In their discussion, they also interpret their results in light of changing cultural norms in this population (immigrant Latina women becoming more assertive, independent, and demanding a more egalitarian status in relationships) (p. 456).

Goals. To examine: (1) definitions of power among young rural Latinos/as; and (2) the association of relationship power with decision making about contraceptive use in this population.

Sample. 58 Latinos/as, aged 18 to 25, living in rural U.S. counties ($n=29$ men, $n=29$ women).

Procedure. Participants (1) answered demographics and scales assessing acculturation and relationship control, and (2) provided in-depth answers to open-ended questions about power.

Data analysis. Quantitative analysis involved computing descriptive statistics for standardized scales. Qualitative analysis involved an inductive content analysis of the narrative answers.

Findings. Quantitative and qualitative results were presented in parallel, organized by the themes that emerged from qualitative analysis. Quantitative results show that, overall, men have more power in relationships. Also, the majority of participants believe that both partners are involved in decisions to take contraceptive measures and use condoms. Qualitative results revealed that relationship power is described mostly in terms of decision-making dominance and relationship control. Some participants also characterized power in terms of joint decision-making and equality.

Box 8 | Zukoski, Harvey, Oakley & Branch. (2011). Exploring power and sexual decision making among young Latinos residing in rural communities

The second problem identified by Karasz and Singelis (2009) argue that most psychological theories have been developed by white, western, middle-class scholars and that they might not be relevant in other cultural contexts. “It is difficult to use exclusively quantitative methods to generate meaningful data about the degree to which cross cultural theories actually make sense across cultural contexts” (Karasz & Singelis, 2009, p. 913). MMR can solve this transferability issue by including qualitative methods to explore how meaning is constructed in various cultural context and to what extent it is commensurate with 'mainstream' (i.e., white, western, middle class) psychological constructs.

This is a central rationale in Karasz and colleagues' (2009) study of cultural models of depression, where they investigate cross-cultural differences in people's conceptions of depression among three ethnocultural groups: African-Americans, Latinos, and non-Hispanic whites. An important component of their work is to identify contrasts in what it means to be depressed for members of these groups. In that sense their study is concerned with the transferability of depression as a cultural construct. Deacon and colleagues (2011) follow a similar strategy, although their study does not involve direct cross-cultural comparisons. In this case, the comparison is implied between their results and mainstream conceptualizations of healthy families. They contend that the existing literature is replete with the latter, and therefore they decided to explore the construct of healthy families in a specific American-Indian tribe: the Chiskasaw Nation. As such, MMR need not involve samples from different cultural groups to have the issue of cultural transferability as a rationale; the comparison with mainstream ideas can be implied.

A third potential reason becomes evident through the recognition of the disciplinary roots of research on culture-related phenomena. One strand of research comes from anthropology, a discipline that has been characterized by its qualitative orientation. A second comes from psychology, which has embraced a quantitative

approach, at least over the last several decades. As such, mixed methods are ideally suited for studies that seek to investigate culture in a deep and holistic fashion in the sense that they combine the strengths of two complementary research traditions and fields.

Typologies of Mixed-Methods Research

As MMR became more prominent, scholars have argued that there is a need to develop a typology of MMR designs (Leech & Onwuegbuzie, 2009). Here, we present one approach that is both comprehensive and relatively prominent. In this typology, Leech and Onwuegbuzie posit three dimensions along which most mixed methods designs are located, namely: (a) *level of mixing*, whether the research partially versus fully mixes qualitative and quantitative approaches; (b) *time orientation*, whether the qualitative and quantitative components of the research occur at the same time or concurrently, versus one after the other or sequentially; and (c) *emphasis of approaches*, whether the qualitative and quantitative components of the research receive the same emphasis or have equal status, versus one component having dominant status. They then propose a typology with eight mixed research designs that result from crossing these three dimensions in a 2x2x2 matrix. We find their framework is actually more useful and less rigid if left in its dimensional form; nevertheless, when planning to conduct MMR, all researchers are faced with choosing where along these three dimensions their research will fall.

In terms of *level of mixing*, adopting a continuum perspective definitely seemed more appropriate than a dichotomous 'partial vs. full' mixing characterization, as studies in our sample displayed a variety of strategies. At one end of the continuum are examples of studies that adopted a really partial mixing stance – quantitative and qualitative data are collected separately, at different time points, they are analyzed separately, and results are presented in separate sections. Here, mixing essentially occurs only during the discussion. Tsai and colleagues (2011) adopted this strategy in their study on Chinese-American women experience of breast cancer. In a slightly more mixed version, quantitative and qualitative data collection and analysis take place separately, but quantitative and qualitative results are presented in parallel, in a thematic way. Deacon and colleagues (2011) exemplify this approach: the results section starts with the theme of 'cultural orientation', where qualitative and quantitative results are presented side by side. It proceeds in a similar fashion with the themes of 'Chokkachaffa'—Family', 'Chikashsha alhiha'—Chickasaw Community', and so on. Studies where qualitative and quantitative data are collected in the same session, then analyzed separately and where results are presented in parallel represent the next level on the mixing continuum observed in our sample. Zukoski and colleagues (2011) as well as Beagan and colleagues (2012) adopted this mixing strategy. Studies that build up on the previous characteristics to include cross-method analyses represent the highest level of mixing in our sample. For example, both Mendenhall and Jacobs (2012) and Castro and Coe (2007) quantitized the pre-coded qualitative data and included it in statistical analyses (although it should be noted that in their case, results were presented separately).

In terms of *time orientation*, six of the eight studies in our sample adopted concurrent collection of qualitative and quantitative data. Typically, doing so involved an extended interview where participants filled out questionnaires (or answered structured questions) combined with narrative answers to open-ended questions (see e.g., Castro and Coe, 2007; Beagan et al., 2012; Zukoski et al., 2012; and Mendenhall and Jacobs, 2012). Logistically this choice is sensible, as it economizes time, presents fewer scheduling issues, and circumvents drop-out problems. All of these reasons might contribute to the popularity of concurrent data collection. This time orientation precludes certain types of studies and rationales, however. For example, it forbids triangulation as a rationale, as both sets of data are not independent. Development, where one method informs the other, is also ruled out as a rationale.

In our sample, *emphasis of approaches* also varied on a continuum, like degrees of mixing – ranging from studies that explicitly declared a quantitative emphasis (Rosen et al., 2012), to studies where both approaches seemed relatively well-balanced (Tsai et al., 2011; Karasz et al., 2009), to studies that adopted a clearly more qualitative approach (e.g., Beagan et al., 2012; Deacon et al., 2011). In the latter case, two studies comprised a

minimal and simplistic quantitative component where the analysis was limited to descriptive statistics (Beagan et al., 2012; Deacon et al., 2011). This minimalist quantitative component brings to the forefront the potential distinction between emphasis of approaches and 'shallowness' or quality of approaches. Researchers should not confuse questions of quality of a study or analysis that are relevant irrespectively of any emphasis, with issues of emphasis, which do not address the respective merits of qualitative and quantitative components.

With respect to the Leech and Onwuegbuzie's (2009) typology, or to any typology one chooses to adopt, we would like to make two arguments. First, the choice of one design over others should primarily be governed by the research question at hand. For example, the choice of a concurrent time orientation should be driven by a specific research question rather than convenience. Different research questions call for different designs, and the choice of a tool should come in response to a well-formulated goal. It could be argued that in many ways, the formulation of the question constrains the range of sensible methods that could be used. MMR, because it combines qualitative and quantitative tools, expands the range of possible methods, but nevertheless the same directional 'research question to methods employed' requirements apply. A useful guideline in identifying research methods to answer a specific research question is to rely on what has been called the, "fundamental principle MMR". That is, researchers should combine methods that have complementary strengths and nonoverlapping weaknesses (Johnson & Onwuegbuzie, 2004).

Most or all of the studies in our sample had a clearly formulated research question, but we were struck by the general lack of a discussion of how the research question implied or informed the chosen methods and design. The adopted research strategies always seemed sensible in light of the research question, but often one could easily imagine alternative methods or designs that would have served the research question just as well. To take a simple example, Deacon et al. (2011) aimed to explore the concept of family health in the Chickasaw tribe. They chose to collect questionnaire data and conduct in-depth interviews of key informants. This methodological decision is clearly judicious, but other possibilities abound: presumably, analyzing cultural artifacts (e.g., analyzing the content of songs, tales, cultural texts, rituals, etc.) could also have yielded important insights. A justification of the connections between research question and research design/methods would have been desirable.

Related to this last point, note that MMR questions are facing additional requirements compared to their mono-method counterparts. Indeed, as Tashakkori and Cresswell (2007) suggest, "mixed methods studies need at least one explicitly formulated mixed methods question or objective about the nature of mixing, linking, or integration" (p. 210). In our sample, only Castro and Coe's (2007) study met this particular requirement: the authors developed and introduced an integration model, the "Multistage Paradigm for Integrative Mixed-Methods Research." This observation echoes our comments with respect to rationales and typologies. Overall, we found that many methodological considerations relevant to mixed-methods are only implied in the studies we reviewed. Most authors seemed to conduct MMR without explicitly establishing or discussing a methodological framework.

This specific requirement brings us to our second point: the importance of integration. Integration includes at minimum a combination of results from qualitative and quantitative strands in the conclusion, but scholars call for more 'genuine' integration (e.g., Bazeley, 2009; Bryman, 2007). In this view, which is also our position, "quantitative and qualitative components can be considered 'integrated' to the extent that these components are explicitly related to each other within a single study and in such a way as to be mutually illuminating, thereby producing findings that are greater than the sum of parts." (Woolley, 2009, p. 7) We believe that in our sample, Castro and Coe (2007) achieved the highest level of integration. For example, the same data was analyzed both qualitatively and quantitatively. Open-ended interview responses were first analyzed thematically and these themes were interpreted inductively. Second, the same data was quantitized and included side by side with other quantitative data in the same logistic regression models. The various levels of processing of the qualitative data (e.g, partialling out the influence of source attribution by creating another qualitative code before conducting cross-method analyses) showed a high concern for integration. Perhaps not surprisingly, the highest level of

integration was achieved in the only article that explicitly presented an integration strategy.

Achieving such a level of integration is neither easy nor straightforward. Bryman (2007) identified several barriers to genuine integration, such as publication issues or the realization that when writing up their results, mixed methods researchers sometimes end up addressing their qualitative and quantitative findings to different audiences. Nevertheless, integrating qualitative and quantitative strands so that they are 'mutually illuminating' is a worthy goal. We believe that, ideally, integration should not be confined to the concluding paragraphs of a study and that 'genuine integration', as defined above, should be a prominent goal for researchers conducting MMR. The reader is directed to Bazeley (2009) for a list of integration strategies.

Conclusions

We began this chapter by arguing that the psychological study of culture emphasizes mind-culture links within an overall concern for culture-mind-brain (see also Ryder et al., 2011). To pursue this ambitious goal, researchers will need to engage seriously with quantitative, qualitative, and mixed-methods approaches. Sole reliance on one or the other will give us an incomplete, even flawed, picture. The MMR examples provided here demonstrate the incompleteness of conclusions that would have been made had the researchers had solely relied on the quantitative or qualitative components of their investigations. Embracing multiple approaches and various ways of integrating them, while confronting the philosophical challenges that emerge from doing so, is necessary to ensuring that the various 'cultural psychologies' start with questions (ontology) and proceed to methods (epistemology). Successful integration would also help to lower the barriers between subdisciplines, advancing the vision of an integrated and interdisciplinary cultural psychology (e.g., Shweder, 1990).

Practical implementation of mixed methods approaches in the psychological study of culture will require institutional changes, not merely ideological ones. Both quantitative and qualitative methods require extensive training, and there is little point in rushing to MMR if one (or more than one) of the components is conducted poorly. At a minimum, psychologists interested in culture should develop competence in understanding how to read critically both qualitative and quantitative research so as to take advantage of the knowledge generated by both. Doing so would allow for lines of inquiry to be pursued by several teams of research from different methodological traditions who are able to at least respond to each others' work. Ideally, however, single research teams, and some single researchers, would best be able to pursue MMR in a fully integrated way. The studies reviewed here represent some promising beginnings in exactly this direction.

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