

# **Method Decisions: The Advantages and Disadvantages of Quantitative and Qualitative Modes of Inquiry**

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**Abstract** The conceptual and procedural differences between quantitative and qualitative methods have led many researchers to realize that some methodologies are better suited for studying some phenomena over other phenomena. However, practical guidelines for making these method decisions have yet to be developed. The primary purpose of this paper is to begin to provide such guidelines, especially in the study of religious phenomena. We first discuss the common mistake in Western psychology of considering methods as mere procedures rather than as the outcomes of different interpretations of the world. We then compare five features of a general quantitative interpretation with five features of a general qualitative interpretation. From this comparison, the advantages and disadvantages of each method strategy are discussed. Knowledge of these advantages and disadvantages allows methods to be better matched to the religious phenomena being studied.

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The subject matter of religion can present a special challenge to the psychological researcher. Although some topics, such as church attendance, can be easily quantified, other topics, such as what church attendance *means* to attendees, are dramatically more complicated and often less quantifiable. This complexity has not stopped Western psychologists from attempting to quantify such meanings. However, the recent emergence of qualitative methods has shown us that these meanings can be studied in ways that are far richer and thicker. Indeed, this difference between quantitative and qualitative methods has led many researchers to realize that some methodologies are better suited for studying some phenomena over other phenomena. Still, practical guidelines for making these method decisions have yet to be developed.

The primary purpose of this paper is to begin to provide such guidelines, particularly for the study of religious phenomena. We first discuss the common mistake in Western psychology of considering methods as mere procedures rather than as the outcomes of worldviews.

Frequently underestimated in the West is how much implicit interpretations of the world guide method practices and decisions. In this paper, we compare five features of a general quantitative interpretation with five features of a general qualitative interpretation. Drawing on this comparison, the advantages and disadvantages of each method strategy are discussed.

Knowledge of these advantages and disadvantages allows methods to be better matched to the religious phenomena being studied. We describe how better method decisions are possible when the best tool or method is used for the investigative job at hand.

## **Procedures versus interpretations**

Western research methods are often, if not primarily, taught as if they were nondebtable procedures or strategies. For instance, psychology students in research methods courses are routinely instructed to make their topics observable, turn their observables into numbers, and analyze the numbers for patterns (statistics). Rarely are the philosophies or interpretations that originated and still implicitly guide these procedures described, preventing students from having a truly conceptual perspective on the methods advocated (Slife & Williams, 1995). When Western students are taught, for example, that only observable phenomena can be studied, they are rarely taught the reason for this teaching. They are instructed, of course, that the methods of science require observables, but this instruction merely begs the question: why do the methods of science require observables? No substantive answers are typically provided because such an inquiry would mean that methods classes would have to delve into the worldviews or philosophies that underlie the methods in question (Slife, 2008).

In the case of the observability requirement, the epistemology of empiricism needs to be explained (Polkinghorne, 1989). This philosophy asserts that all we can really know comes through our senses, with the primary sense (at least in the West) being the sense of vision—hence the requirement of observability. Part of the reason that discussion of this epistemology is avoided in the West is that it is obvious that this assertion, as a philosophy, is completely disputable. Most people believe, for example, that they can know many nonobservables, such as their thoughts, relationships, and even spiritual experiences.<sup>2</sup> In other words, we do not have to endorse the philosophy of empiricism. We could advocate another epistemology for science,

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<sup>2</sup> As we will see, even the strategy of operationalization does not really allow empiricists to study nonobservables.

such as the epistemology that undergirds qualitative methods (Denzin & Lincoln, 2005; Slife & Gantt, 1999). We understand why Western instructors want to avoid these “messy philosophical discussions,” but this avoidance results in a more superficial understanding of these methods.

This avoidance also leads students to identify certain philosophies, such as empiricism, *with* science, as though particular philosophies have exclusive rights on how scientists can know and investigate the world (Richards & Bergin, 2005; Slife & Melling, 2009). The problem is that there is no empirical evidence for the philosophy of empiricism, and there is no scientific evidence for *any* philosophy that guides science. A philosophy would have to be assumed as correct *before* such evidence could even be gathered. Some scientists may claim that certain philosophies, such as empiricism, have been shown to be more effective historically, but this is merely a claim, not a conclusion from systematically gathered, scientific evidence. The crucial point here is that the hallmark of science is not a particular philosophy; the hallmark of science is investigation, in all its possible forms. Even the term “empirical” can refer to different philosophies, from the narrow brand of British empiricism that tends to focus only on observables to the broader brand of “radical empiricism” (e.g., William James 1902/1982) that values all types of experiences, including nonobservable experiences. Indeed, the psychology of religion, in particular, has a vested interest in a variety of guiding philosophies of science, because many important religious phenomena are not observable, in principle.

Our point here is threefold. First, many Western researchers underestimate the crucial philosophical differences between methodologies, such as quantitative and qualitative forms of inquiry.<sup>3</sup> Their differing procedures were originally spawned and are now guided by differing

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<sup>3</sup> We distinguish between methods and methodologies in this paper. Methods are the procedures, strategies, and practices of researchers, whereas methodologies are the assumptions,

philosophies or interpretations. This means, secondly, that a complete understanding of these methodologies requires some comprehension of these philosophies. Method practices, such as focusing only on observables, are underlain with different philosophies that are pivotal not only to understanding them but also to guiding their current use. Third, if we are going to proceed in a manner that takes advantage of the strengths of both qualitative and quantitative methodologies in studying religious phenomena, then we need to thoroughly understand how these method practices are connected to the particular interpretive frameworks<sup>4</sup> that spawned them (Slife, Reber, & Richardson, 2005).

### **Comparison of two interpretations**

To help us understand how method practices are related to their underlying interpretive frameworks, Table 1 summarizes five different features of the interpretive frameworks of quantitative and qualitative methodologies: two characteristics of their epistemologies (ways of knowing and learning about the world), one aspect of their symbolism (ways of translating or representing the world), and two features of their metaphysics (ways of thinking about the world, especially what the world fundamentally is, i.e., its ontology). As we describe each pair of method interpretations, we will not only discuss its similarities and differences but also sketch its advantages and disadvantages for the investigation of specifically religious phenomena.

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philosophies, and systems of thinking that originate, underlie, and guide the use of these methods.

<sup>4</sup> We use philosophies, assumptions, and interpretive frameworks somewhat interchangeably because all three are different ways of referring to the conceptions that underlie and guide the use of our methods.

[Table 1 here]

## Epistemology 1

The previous discussion has already helped us identify an important difference in the interpretations of many qualitative and quantitative researchers—their epistemologies or ways of knowing. As mentioned, the particular brand of empiricism embraced by traditional quantitative methods asserts that the only reliable form of knowledge is that which comes through sensory experience. Part of our discipline's accommodation to this assertion stems from *operationalism*. Operationalism supposedly allows for the study of nonobservables, such as attitudes, memories, emotions, and spiritual experiences.

For example, to study a nonobservable aspect of religion, such as agape love, one might study observable factors, such as hugs and kisses, that seem closely associated with that love. The conceptual difficulty is that we can only study the *observable manifestations* of these nonobservables—the operationalizations of these invisible phenomena. With our example of agape love, this would mean that we can only study hugs and kisses, not love itself. This difficulty becomes particularly problematic when we realize that we can have hugs and kisses without love, and love without hugs and kisses. In other words, there is never a necessary relationship between the construct being operationalized and the operationalization itself. Furthermore, we can never know this relationship empirically because the relationship itself is unobservable (Slife, Wiggins, & Graham, 2005).

In this sense, empiricism is an inherently limited epistemology (as all epistemologies are), because studying even the manifestation of something—its operationalization—is not the same as studying the thing itself (Slife, Wiggins, & Graham, 2005). The manifested is not the same as the thing doing the manifesting. Indeed, there is *no* operationalization that is identical to

love, so a study of the operationalizations is *never* a study of love. This principle holds true for religious experiences as much as it does for love experiences. Thus, empiricism has distinct advantages and disadvantages, as do all epistemologies. It deals well with observables, but it never really ever studies nonobservables.<sup>5</sup>

These disadvantages are part of the reason that qualitative methods were formulated—they deal better with the important nonobservables of our experience. Unlike conventional empiricism, which only validates a very narrow range of our experiences (i.e., sensory experiences), qualitative methods open up *all* experiences to knowledge status. The qualitative researcher assumes that we know far more than our sensory experiences. As mentioned, we can know our thoughts, our emotions, and even our spiritual experiences, though none of these experiences fall on our retinas. Knowledge, therefore, is not limited to observables or even observable manifestations.

Meanings are a particular focus for the qualitative researcher in this regard (Denzin & Lincoln, 2005; Slife, 2005). Although the printed words on a page are clearly observable, the meanings or relationships *among* the words are not observable. We experience the story of a book, but these narrative meanings do not fall on our retinas. Similarly, a religious person can

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<sup>5</sup> This fact is rarely understood in the West. Indeed, studies of operationalizations, such as hugs, are often misrepresented in the West as studies of the construct being operationalized, such as love. In other words, many Western researchers have assumed that a study of the operationalization is a study of the nonobservable they want to study. As noted, this is especially problematic since most Western researchers do not study the relationship between their operationalization and the construct. Indeed, this relationship cannot be studied empirically, in principle, because this relationship is not observable.

experience important religious meanings that are not strictly observable, and the qualitative researcher not only values these meanings but also provides ways to study them. Consequently, the advantages and disadvantages of qualitative methods are fairly straightforward for psychology of religion research: qualitative methods are specifically formulated to investigate meanings and personal experiences, even spiritual experiences, and are less adept at studying external, observable events.

## Epistemology 2

A second feature of a traditional quantitative epistemology concerns the seeking of universals (Polkinghorne, 1989; Slife, 2004). By universals we mean the striving for knowledge that is invariant, fixed, and unchangeable across time and space (e.g., the law of gravity in the natural sciences). A central goal of psychology researchers, as one Western method text puts it, is to “establish general laws of behavior that help explain and predict behavioral events that occur in a variety of situations” (Bordens & Abbott, 1999, p. 15). That is to say, a given bit of information is not knowledge until it has been generalized and thus is replicated and reliable in more than one place and time. Interestingly, there are no widely endorsed laws or universals in Western psychology, unlike in the natural sciences. The absence of these laws could indicate that quantitative research is less important than more contextual approaches to inquiry (Nelson & Slife, in press). Still, the advantage of this method practice is that it emphasizes generalized knowledge that can be useful in other situations.<sup>6</sup>

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<sup>6</sup> As we will see, we can value generalizability without requiring it to be invariant or lawful in a conventional sense.



The disadvantage of this replication notion of knowledge is that it makes it difficult to adequately study unique events. Consider, for example, as did William James (1902/1982), the possibility that unique religious experiences are significant to humans. Many of our own students report having undergone deeply significant and life transforming spiritual experiences that have happened to them only once and are thus not strictly replicable. The search for universals typically strips away differences in contexts, as in laboratory research. The issue of unique spiritual experiences, then, is a case of a potentially important topic not being directly considered, let alone empirically supported, because the interpretive framework for quantitative methods does not allow it (Richards & Bergin, 2005; Slife, Hope & Nebeker, 1999).

This emphasis on universals contrasts sharply with the emphasis on contextual particulars in many qualitative methods (Denzin & Lincoln, 2005). Some knowledge, according to this emphasis, is relative to the particular context in which it occurs. In other words, we can have an awareness of something that is relatively unique and singular, without automatically assuming that it is *not* knowledge. Indeed, from within the qualitative framework, it is expected that some knowledge is thoroughly cultural, historical, and thus unique and singular (Bohman, 1991). Consider, for example, the case of an individual who reports that she experienced Jesus while in a particularly unique care-taking context that was central to her spiritual experience (K. Slife, personal communication, May 5, 2010). If this type of uniqueness is true of other spiritual experiences, then we should not sterilize experiences of their contexts, because they could yield important information about the meaning and occurrence of these spiritual experiences.

This uniqueness does not preclude a generality of sorts. As parts of the whole, these singularities are somewhat reflective of the whole and thus generalizable, after a fashion, without needing to assume universalism (see Slife & Gantt, 1999). For example, some of the meanings

and practices of particular religious people are reflective of wider cultural and historical meanings. A study of the evangelical emphasis on individual spiritual experiences, for instance, could reveal important aspects of the individualism of Western culture (see Cushman, 1995). If this is true, then as the culture changes, so do religious experiences. In this sense, some important knowledge is not universal and thus is not replicable outside its specific context. The advantages and disadvantages of these methods are obvious: quantitative research is more attuned to contextless universals, and qualitative methods are more attuned to contextual particulars.

### Symbolism

As a third feature of traditional quantitative methods, it is important not merely to observe phenomena but also to measure them. That is to say, it is vital to somehow translate or symbolize whatever is experienced through the senses in the language of numbers (Slife & Gantt, 1999). Numbers, in this symbolic sense, literally “stand for or suggest something else by reason of relationship” (Merriam-Webster, 2010). For example, it is a common practice among psychology of religion researchers to provide participants with intricately crafted verbal questionnaires concerning their religious experiences. Respondents are often asked not only to formulate accurate answers to these difficult questions but also to translate or symbolize their answers in the language of numbers. One of the main advantages of this method practice is that it makes respondent answers readily comparable. This, in turn, allows sophisticated statistics to be performed for detecting important patterns of answers.

The disadvantages of this quantitative approach are at least threefold. First, it is quite possible that there may be any number of interesting variables here that cannot be adequately translated into the language of numbers. Consider, for example, a typical questionnaire item to

“rate how close you are to God” on a Likert-type, 7-point scale. Obviously, the details and richness of this closeness are omitted in this rather impoverished assessment of closeness. This is not to say that this quantitative information is not helpful or important. It is to say, rather, that this information is thin and omits important contextual details, such as when this closeness occurs. For instance, a Latter-day Saint (Mormon) participant in one of our studies answered an item like this according to his experience “in the temple.” With further questioning, however, we found that his temple attendance was a rare occurrence, and most of the time he perceived himself to be distant from his God. This is an instance where quantitative impoverishment, stripping data of much of its context, is misleading.

As a second disadvantage of this quantitative approach to symbolism, we could ask the question: how skillful are study participants in doing this sort of numerical translation? Could the participants know how they feel about their religious experiences and yet not necessarily know how best to translate that experience into a number? In our example concerning a participant’s closeness to God, is it possible that this participant would have trouble capturing his relationship with God in words, let alone in one number? In some cases, of course, the investigators do the translating, either before or after the study. Questionnaires that provide non-numerical responses, such as “always, sometimes, never,” are often coded after the study in numerical form. This practice does not force the subject to translate their responses into numbers, but the point is the same—a translation occurs to a language that is native to no one.

A third disadvantage of this symbolic approach concerns the specific language of number. Prominent linguists assert that all languages open up and close down different aspects of the world to understanding. Many Western theologians, for example, report that their study of Hebrew and Greek has given them new insights into the Bible. Likewise, many scholars prefer to

read Chinese canonical texts in classical Chinese for similar reasons. Our scientific language of numbers is no exception. How aware are psychology of religion researchers of the advantages and disadvantages of this numerical language? Is it well known in the literature which aspects of religious experience are opened up and closed down by this language? Surely, for instance, a numerical representation of a spiritual experience is a thin rather than thick symbol of this experience (see Dueck, 1995). In other words, numerical symbolism makes for easier comparison, but it may do so at the expense of omitting many important details of these experiences that could be important to understanding them properly (e.g., the Mormon participant whose experience of God varied from context to context).

Qualitative researchers, by contrast, do not present their questions to subjects in a common language and then ask them to reply in the foreign language of numbers. These researchers contend that such a translation omits and distorts important information. Consequently, qualitative researchers are committed to dealing with the data in the “ordinary language” of the subjects themselves, including both nonverbal and verbal forms of this language. For example, when the authors performed a qualitative study of Mexican immigrants, we conducted and analyzed the interviews in the participants’ own language of Spanish. A main advantage, then, is that no *extra* translation, especially to a foreign language, is necessary for the participants in qualitative research. A disadvantage is that linguistic data, information in terms of ordinary language, may be harder to compare across participants.

The qualitative researcher is similar to the quantitative researcher in that both seek patterns in their data. Just as quantitative researchers seek patterns in their numbers, most qualitative researchers seek patterns in their linguistic data. Could the experiences of the Mormon participant above, for example, be more general? Perhaps many Mormons, perhaps

many Christians, find themselves closer to God when they are inside their churches or temples. Similar to quantitative investigators, qualitative researchers believe that they should be able to demonstrate to another researcher's satisfaction that their conclusions are grounded in and justified by the data themselves (Polkinghorne, 1989). In other words, any researcher should be able to see why qualitative researchers interpret their data in a particular way.<sup>7</sup> The advantage of both of these methodologies, in this sense, is their devotion to their respective data sets.

### Metaphysics 1

As a fourth feature of the quantitative interpretive framework, researchers typically assume that the goal of science is to discover the natural laws or principles (universals) that govern or determine nature, including our human nature (Slife, 2004). In other words, humans are thought to be ultimately forced to act the way they do by these natural laws, just as all sorts of natural phenomena are forced to act the way they do (e.g., gravity and terrain governing a rolling boulder). For example, many Western social psychologists believe in a kind of natural social law that media violence causes aggression. If this law is, in fact, true, then aggressors exposed to significant amounts of media violence cannot choose or decide their behaviors; media violence forces their aggressive behaviors. The aggressive person, in this case, is considered to have no real choices or possibilities.

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<sup>7</sup> This research value does not preclude the possibility of someone else, with a different interpretive framework, re-interpreting these data in another manner. Qualitative researchers are explicitly open to these re-interpretations and view them as normal and even good. Such reinterpretations also occur in quantitative research, but these are typically viewed as problematic.

Quantitative researchers may admit that they do not already know these laws, but the absence of this knowledge does not prevent quantitative researchers from supposing that the world is ultimately lawful and determined and that our methods must be designed to detect these governing laws. As one Western method text puts it, "Viewing behavior as lawful leads to a second, related assumption: Psychologists assume that the behavior of organisms is determined. According to the doctrine of determinism, behavior is *solely* influenced by natural causes; it does not result from free will or choice" (Heiman, 1995).

One distinct advantage of this presumption of determinism is that it makes cause-and-effect pronouncements possible. A science of prediction and control is thought to become conceptually viable when the world is supposed to operate in this causally necessary manner. Our experimental methods, in particular, presume that there exists a necessarily determined, cause-effect world out there waiting to be discovered, manipulated, controlled, and predicted. The disadvantage of presuming determinism is that our methods *preclude* researchers from ever finding anything resembling a free will, because the form of our method decides the issue before it is even investigated. Because most Western research on aggression uses experimental methods, methods that supposedly reveal causal relations, this research would be incapable of revealing an uncaused (free) will, even if it existed.

In contrast, as one example, many religions and religious people explicitly recognize the importance of choice and a human and/or divine agency (see Richards & Bergin, 2005). Would it make more sense to investigate the possibility of human agency, instead of allowing philosophers—the original formulators of quantitative methods—to decide our position on this crucial issue through the methods? After all, it was the philosophers, in this quantitative case the positivistic philosophers, who decided that experimental evidence yields causal relations. In fact,

they also decided what these causal relations mean, i.e., what constitutes sufficient conditions for effects (Bunge, 1959). Recent philosophy-of-science examinations have questioned these causal conclusions (e.g., Slife, Burchfield, & Hedges, 2010).

Qualitative researchers, on the other hand, generally assume that humans possess some modicum of agency (or possibilities) in the meanings of their lives. Nature and nurture may constrain or enable these meanings, but they do not dictate them. In the case of aggression and media, qualitative researchers view the experience of media violence as an important constraint or enablement, but they do not assume that these media dictate the choice to be aggressive. In other words, qualitative methods do not assume that humans are at the mercy of natural laws that determine their every thought and behavior. Otherwise, no meaning is possible. A computer, for example, can be programmed to “say” many things, but it cannot *mean* what it says without the capacity to say otherwise. Meaning, in this sense, requires possibilities. Objects that are governed by laws do not have such possibilities.

The advantage of assuming agency, then, is that humans can have meanings in their lives. From a qualitative perspective, the goal of psychological science is not so much to find the patterns of laws and principles that supposedly govern our behavior and cognition but rather to understand patterns of meaning, whether personal or cultural. In this sense, meanings, not laws, are what foster cognitive and behavioral patterns and thus predictability. These patterns are what Aristotle called patterns of final causes rather than patterns of efficient causes. If, for example, the authors care about this article and our readers’ learning, then our patterns of care should manifest themselves in patterns of meaning in our language in this text.

A disadvantage of this assumption, as Kruger (1988) notes, is that “meaning does not lend itself to reductive analysis” (p. 148). Although it is possible, for example, to reduce a kiss to

a series of muscle movements stimulated by hormonal secretions, this reduction is viewed by the qualitative researcher as, at best, incomplete, and, at worst, misleading. To be fully understood, a kiss must be understood in context: is it a sexual advance, a greeting, a good-bye, or a Mafia death sentence? Consequently, many qualitative researchers conduct a nonreductive or holistic analysis of the context of an action, not just of the action itself (see Kruger, 1988).

## Metaphysics 2

The fifth feature of a general quantitative mindset is that of objectivism (Bernstein, 1983; Slife, 2008). Being “objective” typically connotes that methods ought to be as free as possible from biases or subjective values. In a certain paradoxical sense, we could say that valuing objectivity implies that quantitative researchers *value* being value-free. This aspect of qualitative methods is manifested most obviously in the common research dictum: avoid bias as much as possible. The advantage of this method practice is considered straightforward—more accurate findings. If subjective values or biases are allowed in knowledge-gathering activities, researchers might selectively attend only to what they value and not to what is truly in the real, objective world, and thus distort the reality studied. This feature of a quantitative framework has led researchers to formulate all sorts of research practices, from reducing “demand characteristics” to formulating “double blind” studies.

The disadvantage of these objective method practices is that they can ignore virtually all the interpretive features we have discussed thus far. All methods, quantitative or qualitative, involve interpretive biases and values about the world. Quantitative methods, in this sense, value the observable, replicable, and quantifiable. Events or experiences that are not observable,



replicable, and quantifiable<sup>8</sup> are thought to have little merit for science or, in other words, are not valued for scientific purposes. Yet these values are frequently presented as the facts of method rather than as the outcomes of interpretive frameworks. Objectivism, for this reason, can be an obstruction to a deeper understanding of methods.

Contrast this objectivist mindset with the interpretive framework of many qualitative researchers. Instead of attempting to avoid values and biases, biases and values are considered not only inescapable but also necessary to true understanding (Packer & Addison, 1989; Slife, Smith, & Burchfield, 2003). Values are inescapable because methods are formulated from subjective interpretations of the world prior to investigation. Values are necessary because they tell us what matters to study and how to study what matters properly (Patton, 1990; Slife & Gantt, 1999). Quantitative methods could themselves be an example of this value-ladenness, from the qualitative perspective, because they tell us to value that which is observable, replicable, etc. The problem with quantitative methods, at least as they are often practiced, is that these values are rarely identified, discussed, and taken into account when interpreting specific quantitative data.

The potential advantage of this qualitative approach, then, is that values and biases are monitored and taken into account. The disadvantage is that this monitoring and accountability may be difficult to do. Consider an example in the psychology of religion that illustrates these advantages and disadvantages. Under the supervision of the first author, an American pastor did his doctoral dissertation on the conversion of Mormons to his version of Christianity. In keeping

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<sup>8</sup> Here we mean emotions, thoughts, and meanings *themselves*, with “themselves” emphasized because the operationalizations of these nonobserved experiences are not the things themselves.

with the value-laden tradition of qualitative research, he identified several of his own assumptions and values before he began to interview these converted Mormons. For example, he assumed that Mormons had to be dissatisfied with their circumstances and/or church before they could convert to his church. Indeed, much of the data of his interviews *could* have been interpreted in this manner. However, because he monitored his biases in this regard, and attempted to actively investigate them, he was surprised to find that his assumption was rarely the case. He found, instead, that other factors, including a kind of “conversion,” occurred *before* the Mormons’ dissatisfaction with their church. In other words, what he thought was the cause (dissatisfaction) of conversion was, in fact, the effect of a kind of conversion, because he paid attention to his biases and carefully investigated them. His surprise is a qualitative form of objectivity, because he was willing to change values, depending on the data or meanings presented. This type of investigation is in sharp contrast to the quantitative approach, which attempts to eliminate rather than investigate researcher biases.

### **Practical recommendations**

We have now reviewed and compared five general features of the interpretive frameworks of our two most prominent methodologies. This review allows us now to formulate some practical recommendations for psychology of religion research, especially as they might affect the Chinese psychology of religion. Perhaps foremost, and different from many Western understandings of research on religion, methods cannot be viewed as the “describers” or “mappers” of some objective (unbiased, uninterpreted) reality. All methods, all the time, are interpreters of reality. In other words, they are not some transparent window to reality; they are

more like a particular prism to reality, one that organizes reality according to its own assumptions and properties.

This fact of method does not have to be viewed as problematic (e.g., distorting reality). Indeed, the assumptions and features of these interpretive frameworks tell us how and what to study. What, then, do the foregoing five pairs of interpretive properties tell us about quantitative and qualitative methods? As we have discussed all along, they provide us the advantages and disadvantages of these methods. Because qualitative methods were formulated later, somewhat in reaction to quantitative methods, many of the disadvantages of the quantitative interpretive framework are the advantages of the qualitative framework. However, in countering these disadvantages, as we have seen, the qualitative framework encounters its own problems (Slife, 2008).

Table 2 provides a short-cut to understanding the relationship between these two major methodologies and interpretive frameworks. This table oversimplifies the points made, but it can serve as a practical guide to some of the major method decisions confronting psychology of religion researchers.

[Table 2 here]

Three important questions

At this juncture, we anticipate that three major questions will arise among many psychology of religion researchers concerning these practical recommendations and conceptual understandings of quantitative and qualitative methods: 1) Are these recommendations suggestions or rules? 2) Can these methodologies be used together? and 3) Are we limited to only these two methodologies? To be sure, these are not the only questions that can and will arise from this kind

of methodological analysis, but we want to communicate our openness to such questions. We also want to acknowledge the incompleteness and tentativeness of our analysis as well as the need for an ongoing dialogue about methodological issues.

Consider the first question: are these recommendations suggestions or rules? For many reasons that space constraints prohibit us discussing here, these recommendations are more suggestions than rules. Perhaps most importantly, the notion of “suggestion,” at least as we are thinking about it here, does not preclude the possibility that one method can be used for investigative questions not recommended for it. The example we offered in our above analysis is the use of quantitative methods for investigating religious meanings, e.g., through questionnaires. Much like a hammer can be used for tasks not recommended for it, such as pounding screws, quantitative methods can be used to study meanings. Neither method—the hammer for pounding screws or quantitative methods for studying meanings—is the ideal tool for the task at hand.

The question we should ask, given our analysis here, is “why?” Why have quantitative methods (e.g., Likert-style questionnaires) been used to investigate meanings? Could they have been used because an analysis of methodologies, such as that performed here, was not available, and so their advantages and disadvantages were not well known? We noted above that few Western psychology students have been exposed to the features of these interpretive frameworks. Consequently, it seems unlikely that researchers and journal reviewers have taken these features into account when evaluating psychology of religion investigations. Quantitative methods still dominate Western psychology of religion studies, regardless of their advantages or disadvantages in relation to the investigative question at hand.

Our second question is: can these two general methodologies be used together? Part of the answer to this question has to be affirmative, because there is a growing movement within

Western psychology called “mixed-method research.” Here, Western researchers favor both types of methodologies in the same study (Slife, 2009). The primary rationale for this movement seems to be: “why not get two different method perspectives on the same phenomena?”

Although we have sympathy for this rationale, mixed-method research is much more difficult to conduct than it might first appear. For example, most mixed-method approaches currently conduct qualitative research as if it stems from a quantitative interpretive framework (Wiggins, in press). In other words, many Western researchers seem to be unaware of the differences between these interpretive frameworks and so they treat them as differing procedures under the only interpretive framework they know—a quantitative one.

Three examples of this type of mixed-method approach, where qualitative procedures are used from a quantitative perspective, are perhaps important to mention briefly here. Consider first the widespread notion that qualitative research is primarily good for “generating hypotheses.” This notion still assumes that all research concerns hypothesis-testing, which is typically a quantitative approach to knowledge advancement, especially when quantitative research is viewed as the “validator” of the hypotheses generated. A second example is the “focus groups” method, where quantitative researchers use qualitative procedures for garnering items that they intend to include in quantitative questionnaires. These groups, while perhaps helpful, are rarely conducted in a rigorously qualitative manner, i.e., using a qualitative interpretive framework. The third example is when qualitative findings are criticized using quantitative criteria, such as “qualitative findings are too subjective,” implying that qualitative research is more meaning-oriented or less generalizable, which is sometimes the very purpose of qualitative research. Needless to say, none of these approaches are truly mixed-method

approaches because they only “mix” the procedures of the two methodologies, not the interpretive frameworks that guide the procedures.

If one *does* attempt to conduct truly mixed method research, which means mixed interpretive frameworks as well as mixed procedures, then the challenge is combining two completely different philosophies (Slife, 2009). For example, in our mixed-method study of Mexican immigrants (mentioned above), the immigrants filled out both quantitative questionnaires and did qualitative interviews. When interpreting the questionnaires, the experimenters were “blind” as to the participants’ experimental condition. However, in the qualitative interviews the condition of experimental blindness was not possible to achieve, because the depth of the interviews provided information that nearly always defeated this condition.

In such mixed-method designs, the question is often, where does one philosophy (e.g., the need for blindness) end, and where does the other philosophy (e.g., the need for informational depth) begin. While we do not have space to delve into the specifics of this challenge of combining philosophies, we do believe that it is not insurmountable. Indeed, it is met all the time in less complex tasks, such as a carpenter’s use of multiple tools. Despite each tool (or each method) being “shaped” for a specific task, the carpenter somehow successfully matches the tool to the job. We believe that psychology of religion researchers can do this as well.

Our final question: are we limited to only these methodologies? The short answer is “no,” because there is nothing especially sacred about either quantitative or qualitative methodologies. We could never preclude the possibility of new philosophies of science spawning innovative methods of investigation. This type of openness might be especially important to our Chinese colleagues, because they may wish to develop their own, indigenous mode of inquiry.

Chen Yongsheng (in press), for example, has attempted to outline a methodological approach that emphasizes dialectical materialism as its philosophy of science. An example of one aspect of this philosophy of science, according to Professor Chen, is that this research approach would be very practical and even practice-oriented. Instead of always or primarily taking a phenomenon of interest into the “laboratory,” figuratively or literally, to sterilize it of its practical context, a dialectical materialist approach to inquiry might attempt to understand the phenomenon as it more naturally occurs. For example, instead of the meaning of temple worship being assessed in a classroom through elaborate questionnaires, its meaning might be investigated as temple attenders actually worship.

We think that Professor Chen’s project is intriguing, partly because most Western researchers, as we have described, would assume that such a project is completely inappropriate. Some of these researchers would doubtless object to the particular philosophy itself, but many others would object because dialectical materialism is a system of values and assumptions about the world. They would presume that research should be as value-free and assumption-free as possible. We want to be clear that we do not believe that any methodology is free of either assumptions or values, broadly defined. All methodologies are interpretations of reality; the only question is whether or not researchers know the interpretation they are employing and account for it in conducting their studies and understanding their findings.

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**Table 1. Comparison of the Interpretive Frameworks of Quantitative and Qualitative Methodologies in Studying Religious Phenomena**

<b>Features of Interpretation</b>	<b>Quantitative Methods</b>	<b>Qualitative Methods</b>
Epistemology 1	Empirical	Experiential
Epistemology 2	Universal	Particular
Symbolism	Numerical	Linguistic
Metaphysics 1	Deterministic	Agentive
Metaphysics 2	Objective	Value-laden

**Table 2. Appropriate Uses of Quantitative and Qualitative Methodologies and Interpretive Frameworks**

<b>Feature</b>	<b>IF the investigative question concerns:</b>	<b>THEN use some variation of this method:</b>	<b>EXAMPLES</b>
Epistemology 1	observables, “objective” experiences	quantitative	Number of participations in church-related activities
	meanings, “subjective” experiences	qualitative	Reasons or meanings for these activities for the individual (unique) participant
Epistemology 2	contextless universals	quantitative	Lawful patterns of church-related participations and/or activities
	contextual particulars	qualitative	Particular and potentially unique reasons or meanings for these participations
Symbolism	patterns of things that can be counted	quantitative	Offerings, donations, or number of altruistic actions or activities
	patterns of linguistic data	qualitative	Interviews with church attenders about the meanings or reasons for altruistic activities
Metaphysic 1	entities that are determined by other entities	quantitative	Causal relations between past experiences with authority figures and a person’s image of God
	entities that may have choices or possibilities	qualitative	Image-of-God meanings where the person (and/or God) could be viewed as having some agency in regard to these meanings
Metaphysic 2	topics where values are less involved	quantitative	Speed that a church building is erected
	meanings where values are endemic	qualitative	Meanings involved in a speedy church erection