Transcending the Quantitative-Qualitative Divide With Mixed Methods Research: A Multidimensional Framework for Understanding Congruence and Completeness in the Study of Values

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Quantitative research dominates published literature in the helping professions. Mixed methods research, which integrates quantitative and qualitative methodologies, has received a lukewarm reception. The authors address the iterative separation that infuses theory, praxis, philosophy, methodology, training, and public perception and propose a dimensional viewpoint as a framework for successful integration of mixed methods research. This dimensional perspective demonstrates that mixed methods research techniques are necessary but not sufficient to study spiritual, ethical, and religious value issues. Research of career development, "best practices," nature-nurture, and prayer illustrate weaknesses and opportunities for evaluating dimensional mixed methods approaches.

A great divide has long been present that segregates researchers and practitioners in the helping professions, a division that bifurcates entire disciplines (e.g., psychology, education, and counseling). Although some methodologists maintain that objectivistic and naturalistic research philosophies are contradictory and mutually exclusive paradigms (Smith & Heshusius, 1986), other methodologists insist that qualitative (QUAL) and quantitative (QUAN) research methods can be used interchangeably, and thus the "paradigm wars" are largely irrelevant (Tashakkori & Teddlie, 1998). The resulting pragmatic philosophy calls for the use of QUAL, QUAN, or mixed methods (MM) approaches that are congruent and resonant with the topic of study, the stakeholders' viewpoints, and the application of conclusions (cf. Greene, 2006).

Standardized definitions of QUAN and QUAL research tend to be contextual (Leech & Onwuegbuzie, 2006). For this article, we define QUAN research as that which primarily involves quantifiable, numeric data and the use of statistics. Defining QUAL research is much more elusive (Denzin & Lincoln, 2005); we define QUAL methods as those approaches that primarily involve...
the use of nonnumeric data, expressed and analyzed in words. MM research, therefore, involves the intentional use of both QUAL and QUAN in a given study. We readily acknowledge deficiencies in this oversimplification.

Research and practice in the helping professions cannot be accomplished solely by mixing QUAL and QUAN methods. A mechanical technician of research methods likely will find only concrete results. We argue that a dimensional framework is required to apply MM research to the spiritual, ethical, and religious values issues present in Counseling and Values.

First, we examine the great divide that permeates counseling, psychology, and education in training, public policy, theory, research, and publication. Then, we provide an overview of the assumptions inherent in the use of QUAL and QUAN data. We believe that a dimensional framework will provide a perspective for understanding MM research of spiritual and religious values. Finally, examples of theory and research are examined through a dimensional legitimation model for congruence and completeness.

College Curricula and Training Programs

Accreditation standards of professional programs have adapted rapidly to include both QUAN and QUAL research methods. Accreditation standards for counseling and school psychology programs specifically mention QUAL (Ponterotto, 2005). The Council for Accreditation of Counseling and Related Educational Programs (CACREP; 2009) specifies a range of methods, "such as qualitative, quantitative, single-case designs, action research, and outcome-based research" (p. 13). Training in both QUAN and QUAL is specified by the National Association of School Psychologists (Ponterotto, 2005). In contrast, the American Psychological Association's standards encourage training in a broad range of methods, without specifying QUAL or QUAN (Ponterotto, 2005).

However, professional training programs in counseling and psychology overwhelmingly favor QUAN research. Only 10% of counseling psychology programs in the United States require students to take a QUAL course, and less than 16% of doctoral candidates in these programs defend QUAL dissertations (Ponterotto, 2005). Powell, Mihalas, Onwuegbuzie, Suldo, and Daley (2008) reported that two of 57 programs in school psychology (3.5%) required enrollment in QUAL or QUAN/QUAL courses. Less than 20% of the school psychology programs offered an elective QUAL course.

The emphasis on QUAN research in counseling and psychology effectively isolates and separates QUAL from QUAL and MM research. Often, these courses are set up as exclusively QUAL or QUAN in nature (Tashakkori & Teddlie, 2003). Survey courses and textbooks tend to separate these methods (Onwuegbuzie & Leech, 2005b), although research methodology textbooks increasingly include one or more chapters on MM research (e.g., Creswell, 2007, 2008; Johnson & Christensen, 2008).
An underlying Zeitgeist in public perception in the United States supports—and is supported by—the great divide. A prototypical example is present in the field of education, in the conflict that emerged as a full-scale battle when the No Child Left Behind (2001) legislation was being written. The Education Sciences Reform Act of 2002, which defined and delimited scientific research, passed unanimously in both the U.S. House and Senate. Recently, the American Educational Research Association Council (2008) issued a “Definition of Scientifically Based Research” that supports generalizable, experimental research.

Members of the National Research Council (NRC) presented their views in a consensus statement, Scientific Research in Education (NRC, 2002). Some NRC members were open to “a range of research designs” (Eisenhart & Towne, 2003, p. 31) as well as “mixed methods (qualitative and quantitative) depending on the research questions” (Eisenhart & Towne, 2003, p. 31). Other NRC members, such as Feuer, Towne, and Shavelson (2002), countered that all scientific studies should follow principles, such as posing “significant questions that can be investigated empirically” (p. 7) and yielding “findings that replicate and generalize across studies” (p. 7). They asked pointedly, “When will [educational research] produce the equivalent of a Salk vaccine?” (p. 6). To them, research should produce “the answers” to social, educational, and psychological questions.

Professional Publications: Peer-Reviewed Journals

Peer-reviewed journals in counseling and psychology predominantly publish science-based research. Only 16.5% of the empirical studies published in key counseling journals were QUAL in nature (Berrios & Lucca, 2006). Powell et al. (2008) reviewed articles published from 2001 to 2005 in four prominent school psychology journals: Approximately 13.7% of the articles were MM, whereas 1.4% of the empirical studies were purely QUAL. Furthermore, approximately the same frequency (1.3%) of studies in 15 psychology journals was deemed QUAL (Kidd, 2002). In the latter study, Kidd interviewed 10 of the journals’ editors, four of whom reported that QUAL research was not appropriate for their publication because “paradigmatic and methodological differences could not be negotiated or reconciled [emphasis added]” (p. 134).

Maybe the war is over or has not yet been fought, as Newman and Benz (1998) noted, but a great divide remains.

Theories of Practice

A profession is defined by a body of theory that informs practice. Theoretical foundations in textbooks tend to emphasize objectivist or constructivist theory. Most notable is what has been excluded from consideration. For ex-
ample, McLafferty (2003) reviewed seven widely used human development textbooks and reported that three of them had no index listing for topics such as “spirituality” or “religion.” On average, the textbook authors allotted a fraction of 1% of the 4,900 text pages to spiritual and religious issues, although all texts dealt with topics such as career choice, identity formation, and death and dying.

**Differential Assumptions in QUAL Versus QUAN Methods**

A set of functional assumptions define and differentiate QUAN and QUAL research methods. Because they are so well accepted, often they are taken for granted. QUAN research involves several assumptions. First, statistical methods are based on the idea that numbers can be used to represent the construct being measured: *What is real can be measured and expressed completely in numbers.* For example, for a scale of happiness, the researcher must choose items that completely represent the construct and allow it to be consistently quantified.

The second assumption derives from the use of ordinal, interval, or ratio scales: *No one is unique.* In other words, all people are alike, or they are consistently clustered around a central tendency, indicating a normal distribution. For example, in constructing an instrument to measure depression, the researcher assumes that everyone will have the same understanding of each item. Furthermore, each person who reads a question will *quantify the meaning identically.*

The third assumption derives from random sampling (and random assignment to intervention/control groups), if needed, to make statistical inferences from a sample to a given population. When a participant drops out of a study, the researcher treats this individual as if he or she never existed (e.g., pairwise/listwise deletion or imputation of data) or reaches into a mythical hat and randomly draws another: *Each person is replaceable.*

A fourth assumption is that QUAN *data collection occurs in predetermined (named) categories.* That is, the researcher must know what is to be measured before gathering data. For example, respondents answer questions with predetermined choices on a survey (Patton, 1997).

Assumptions made by QUAL researchers center on language and meaning. The first assumption is that the participant and researcher are able to “speak the same language” literally and figuratively. Participants must be able to access and convey the meaning-content sought by the researcher, who is then able to understand the responses and in turn evaluate, process, and convey the meaning in a manner that is understood by the research consumer. Stated simply, *language is adequate to convey the needed meaning-content completely and accurately for the research at hand.* Gürtler and Huber (2006) proposed that language “creates reality” (p. 326).

A second assumption is that each person creates his or her own meaning. This relativist-constructivist perspective results from the observation that
each participant has a background of experience and perception that cannot be duplicated or repeated. Therefore, \textit{each respondent—and each response—is unique}. A third assumption is related. To maximize the range and depth of meaning, sampling can be purposive (Patton, 2002); in these cases, \textit{each person is irreplaceable}.

A fourth assumption is that the respondent is free to answer questions posed by the researcher without predetermined categories or responses (Patton, 1997). To the extent that the research is constructionist, \textit{the respondent and researcher are co-constructors of the experience}.

If these assumptions are true, even in MM, the researcher must assume that numbers and/or language are adequate to study a given concept. But is there not some part of human experience that is beyond language, which is just as real as that for which we have symbols? From this perspective, a reality exists that cannot be constructed. This reality extends beyond language and numeration. Thus, the idea that "language creates reality" cannot always be true for human experience.

\textbf{Philosophy and Practice}

Even in the practice of the helping professions, a dichotomy is evident. For example, a strong movement exists in the professions of teaching, psychology, and counseling to study and categorize best practices—as was illustrated earlier in the call for scientific research to study educational praxis. Hansen (2006b) used a constructivist stance to argue that a best practices approach was antithetical to the humanistic orientation of counseling, in which "humans, in language, create our world" (Efran & Fauber, as cited in Hansen, 2006b, p. 157).

In 2001, CACREP (2009) accreditation guidelines were changed to require that counselors be trained in the \textit{Diagnostic and Statistical Manual of Mental Disorders} (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association [APA], 2000), which Hansen (2003) noted was incompatible with the humanistic nature of counseling. The inclusion of the DSM-IV-TR is objectivistic because it implies that given phenomena can be neatly categorized and professional responses prescribed, resulting in the best possible outcome (Hansen, 2003). Hansen's stance parallels that of the paradigm wars, in which postpositivism and objectivism conflict with constructivist and/or humanistic practice.

\textbf{Philosophy and Methods}

It has been argued that "pure" QUAN and QUAL methodologies are theoretical illusions (Gürtler & Huber, 2006). One cannot exist without the other. For example, the QUAL researcher routinely quantifies data by using terms such as "'many,' 'most,' 'frequently,' 'several,' 'never,' and so on . . . [that] are fundamentally quantitative" (Sechrest & Sidana, 1995, p. 79), whereas the QUAN researcher repeatedly engages in QUAL decision making in choosing methodology and survey questions and in interpreting the meaning of the
resulting statistical findings. Gürtler and Huber (2006) contended, therefore, that all methodologies are mixed. This idea is consistent with the proposition that QUAN research is a search for (numeric) fact, whereas QUAL is a search for (language-based) meaning. We agree that both methods are needed in any study (Onwuegbuzie & Leech, 2005a); however, as is demonstrated in this article, fact and meaning, QUAN and QUAL, or numbers and language are sometimes insufficient (even combined) to fulfill the purposes of a study.

**Philosophy and Theory**

In the arena of theory, Hansen (2002, 2004, 2007) noted a dialectical tension between modernism (e.g., positivism and objectivism) and postmodernism (e.g., constructivism and social constructionism). Hansen (2007) addressed the problem by pointing out that constructivist and constructionist theories are also objectivistic, to the extent that the counselor practicing these theories assumes that the narrative of the client is something that can be known and shared. The counseling relationship is defined from a postmodern perspective as a linguistic cocreation of meaningful narrative (Hansen, 2006a).

Later, Hansen (2007) brought the philosophies together: "Effective counseling promotes an optimal internal balance of both epistemic polarities, objectivist and constructivist" (p. 120). The contradictory epistemologies are so pervasive, Hansen (2007) suggested, "that counseling theories are trying to tell us something. Perhaps the epistemic contradictions in counseling theories are indicative of the structure of human experience [emphasis added]" (p. 121). To Hansen (2007), the polarity between these two stances persists because each reflects and reveals an essential component of the human condition. This observation directly supports our thesis, although we propose that the tension is not linear and dichotomous, but multidimensional and triadic. Specifically, resolution of this dichotomous tension necessitates a third factor. Hansen’s epistemological insights involve the “relationship of knower to the known” (p. 37) as discussed in Lincoln and Guba (1985). For us to discern the knower and known, a third party (we) must be present as an Observer. Hansen’s (2007) insight represents a third point of view, which is required to place objectivism and constructivism in the “structure of human experience” (p. 113). Simultaneous awareness, and holding, of the epistemic polarity requires a new and coexistent (third) epistemic stance.

**The Need for Congruence and Completeness**

These extensions of Hansen’s (2007) insights into the connection between the objectivist-constructivist dichotomy and human experience have other implications. For example, MM research involves integrating QUAL-QUAN methodologies; the pragmatic approach potentially allows coexistence of both the objectivist and constructivist viewpoints as they apply to methodology. One recurrent theme is the need to examine congruence among various aspects of
the research process. For example, Greene (2006) noted that “a methodology for social inquiry gains credibility and persuasiveness when [philosophical assumptions, inquiry logics (methodology), guidelines for practice, and sociopolitical commitments] act in concert with one another” (p. 94).

Consequently, we also agree with Haverkamp and Young (2007) that “achieving a match between purpose and paradigm enhances the credibility of one’s research” (p. 275). Although these authors were referring to QUAL research, we believe this reference is equally applicable to QUAN and MM. But caution is in order: By focusing only on a dichotomous polarity such as objectivism versus constructivism, it is easy to ignore other possibilities. The potential for this error can be reduced by refocusing from a linear, either/or perspective, to one that is multidimensional and interactive. This issue is a problem of completeness: A given research methodology must, as far as possible, completely encompass the concept under study. Although a study might exhibit congruence, such as Greene’s (2006) examples, it could lack completeness. This issue becomes more readily discernible when the research concept is evaluated dimensionally.

**Bridging the Great Divide: Toward a Dimensional Understanding**

The methodologies of QUAL and QUAN can be integrated under a pragmatic umbrella; indeed, MM studies have arguably been conducted for decades. In fact, one of the promises (and, to some, the threat) of MM is that it disrupts the human tendency of dichotomous thinking (Ridenour & Newman, 2008). MM research allows for the coexistence of both postpositivistic/scientific and constructivist theory and methodology. More importantly, MM requires the researcher and practitioner to become aware that decisions regarding research, theory, and praxis require a perspective that is independent from and interdependent with both camps. This idea is best conceptualized as a dimensional understanding.

In studying theories of psychology that integrated spirituality, McLafferty (1997) identified interrelated dimensions shared by three theories. One of these theories contained a dimensional ontology proposed by Viktor Frankl (1967, 1946/1986). Frankl (1967, 1946/1986) noted that the person lives in three interrelated dimensions: “soma,” “psyche,” and “noös,” “which translate respectively into the physical, biological body; the mind and emotions; and the spiritual, which includes the human spirit (free will) and the divine spirit (the numinous, transcendent).

These dimensions are by no means the only ones that can be used to conceptualize and support this thesis. Other frameworks should be considered, such as fact/meaning/value, science/philosophy/religion, or body/mind/soul/spirit. What is paramount in this thesis is that the linear, dichotomous, either/or conceptualizations be reconsidered within an interactive, multidimensional framework that includes the arena of choice, insight, and spirituality.
Frankl (1946/1986) used a diagram of three circles to depict the two-dimensional representation of the person as shown in Figure 1, on the left. Considered in two dimensions, each person appears as a circle. It is only when one looks at all three dimensions simultaneously that one sees distinctive shapes, of which the three circles are an incomplete representation, as represented by the shadows in the right-hand circles in Figure 1 (McLafferty, 1999).

The *somatic* dimension is concrete, fragmentable, easily measured and quantified, predictable, and readily generalized to a population. This physical and biological dimension is eminently replicable and lends itself to the idea of absolute (concrete) truth. Considering that much of the objectivist, modernistic outlook has a mechanistic, materialistic basis, the somatic dimension is best suited to explain postpositivistic assumptions of research and theory. QUAN research methods are intended to yield findings that are accurate, concise, replicable, and generalizable—that is, optimal to study mechanical aspects of human experience.

In the *psychic* dimension, the intellect and emotions (psyche) of the person are idiographic, unique, and more difficult to quantify than are somatic variables. Each individual's point of view (perspective) is paramount in this constructivist realm. Meanings are constructed. The psyche of each person is interactive, changeable, and much less replicable. Without a common frame of reference and context-related results, "truth" is seen to be relative. It is through words and language that individuals are able to share their psychic experiences and worldviews.

Frequently, research is conducted in the psychic dimension using numbers, as when depression is measured with a standardized instrument. Note, however, that the factors used to define the concept in the instrument must be identified or constructed before quantification is possible. The psyche (and by extension the noetic), therefore, can be quantified, but only on a foundation of the perceived meaning components (naming) that make up the psychic component. No matter how "objective" a measure, scale, or in-
instrument of the psyche appears, it is constructed from meaning components: Its origin is QUAL.

Dimensionally, the distinctions between QUAN and QUAL methodologies are no longer linear or in opposition. Rather than being defined at the ends of a continuum, they are dimensionally distinct. As mentioned earlier, QUAN represents the search for fact, which is most easily represented in the physical, mechanical part of the person, whereas QUAL includes the study of constructed meaning. This conceptualization allows both methodologies to coexist and to overlap. Both facts and meanings are needed in any study: Statistical results (facts) must always be given meaning, and meaning constructed in QUAL studies should be congruent with known fact. However, facts and meanings by themselves are not enough. These research methods are themselves evidence of the human quest to understand, to know, to transcend; in fact, a third dimension must be present to explain this uniquely human need.

The third factor or dimension is the noetic and transcendent. Frankl (1967, 1946/1986) defined the noetic as that which makes a person uniquely human, that is, more than an animal. The noös (soul, or human spirit) includes choice, responsibility, and discovered meaning: one’s uniqueness as a person. The transcendent includes purpose and spirituality, and includes an arena of understanding that is beyond language or measure: the divine spirit. This dimension includes one’s universal connection with life. The human spirit belongs to “a level above ‘healthy or ill, being born or withering away,’ to a level of ‘freedom and responsibility, creativity and decision-making, not being produced by parents and not being destroyed by death’” (E. Lukas, personal communication, July 1, 1996; as cited in McLafferty, 1997, p. 103).

Logotherapy has six premises ( Lukas, 1984) that derive from the existence of a spiritual dimension. The sixth premise is most relevant to research and theory: In each dimension, homeostasis acts differently. Biologically, homeostasis acts to reduce a drive, thereby lowering or ending the tension. For example, eating reduces hunger. Most psychological theories point to reduction of tension as a desirable goal of therapy. But in the spiritual dimension, the reduction or absence of tension is not desirable or natural: “Frankl speaks of a ‘healthy noodynamism,’ a field of tension between what we are and our vision of becoming... Balance is enormously important for all life forms, but for human beings it is not enough” (Lukas, 1984, p. 28).

We propose that this spiritual dimension is more prevalent than might be apparent. For example, the use of the concept “person as instrument” requires recognition of both the psychic and noetic dimensions, as the researcher brackets personal beliefs and biases in phenomenological inquiry, in the sense of the epoché (or bracketing) of Husserl (1931, 1970). The counselor who endeavors to transcend the “I–It” dichotomy toward an “I–Thou” encounter (Buber, 1958; Buber & Kaufmann, 1970) or to “be present with” a client (as in the sense of Rollo May, 1958) is entering a space of empathy and love. To a counselor, this sacred space is beyond language and numbers but
is known and experienced. From this point of view, it is not only language that creates reality; a reality that is greater than the self also serves as a foundation for language.

A dimensional framework has implications for MM. By taking a stance that transcends QUAL–QUAN or objectivist–constructivist dichotomies, the researcher has the potential to use methods and philosophies as needed to explore human experience fully. Moreover, a dimensional perspective provides insight into the Feuer et al. (2002) question: When will our educational research give us results that are as effective as the Salk vaccine? The question assumes a biological–homeostatic perspective of the person, which is most appropriate in the somatic dimension. With a dimensional understanding, the question can be answered: Education will be as effective as the Salk vaccine when our researchers, teachers, and students are each uniquely stimulated to respond meaningfully on all dimensions of human existence and when we have research methods, theory, and praxis that fully include our multidimensionality.

Furthermore, this dimensional perspective reveals the weakness in both sides of the paradigmatic–political debate. The eventual coexistence of QUAL, QUAN, and MM does not address the underlying problem faced by researchers: Without appropriate methods, noëtic concepts (e.g., choice, responsibility, and purpose) are largely missing from research and theory. Simply stated, research is conducted on those theories and topics that are most resonant with predominant methodologies. Most published research is QUAN. Theories that lend themselves to being quantitized are most likely to be studied. It is understandable, therefore, how our textbooks, theory, and publications leave out the spiritual dimension: To some, it is nonexistent.

**A Model for Dimensional Legitimation of Research**

From these ideas, a formal model can be used to maximize the appropriateness and completeness of research across dimensions and methodological types. Admittedly, such a model is an oversimplification (cf. Teddlie & Tashakkori, 2006), but it allows the researcher to include concerns about philosophy, purpose, and outcome in the interactive dialogue that emerges in research design. Onwuegbuzie and Johnson (2006) called for nine areas of “legitimation” of research design; this model constitutes a 10th, *dimensional legitimation* of MM. In this approach, a matrix, which is presented in Table 1, is drawn to “place” the study’s research question(s) (What?), purpose (Why?), process (How?), and results (scope and usage) in relation to the respective dimensions used: somatic (facts, knowledge), psychic (making meaning), and spiritual (noëtic, transcendent, discovering a greater meaning, wisdom, value, reflection, transcendence, purpose, spirituality). Such a matrix allows the researcher to understand the range of methodologies required in a dimensional context.
<table>
<thead>
<tr>
<th>Dimensional Ontology</th>
<th>Research Question(s) (What?)</th>
<th>Purpose (Why?)</th>
<th>Process (How?)</th>
<th>Assumes</th>
<th>Results (Scope and Usage)</th>
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<tbody>
<tr>
<td>Soma (physical, biological) facts</td>
<td>Concrete; &quot;objective&quot; questions (e.g., which teaching method is best)</td>
<td>Concrete answers, science-based research</td>
<td>Use of checklists, surveys, tests; randomized controlled trials</td>
<td>Construct can be numerically measured and bounded; finiteness, predictability</td>
<td>Reproducible, generalizable, quantifiable</td>
</tr>
<tr>
<td>Psyche (originates in emotions, intellect); includes constructed meaning</td>
<td>Tentative, exploratory; research questions can be undefined at beginning; allow multiple perspectives</td>
<td>To find a process, define a meaning construction, explore perspectives and points of view</td>
<td>Open-ended observation, dialogue; emergent design/data sets; relativistic/constructivist frameworks</td>
<td></td>
<td>Idiographic responses; delimited by language; construction of meaning; knowledge of processes; transferable</td>
</tr>
<tr>
<td>Spiritual (noetic—transcendent; discovered meaning, that which is greater than oneself); value, purpose, spirituality</td>
<td>Metacognition; insight; abstract thought; spiritual growth. Can reframe traditional questions, require multiple/alternative perspectives; might not involve &quot;research questions&quot; at all</td>
<td>To effect change; break down barriers; discover greater meaning; understand nature of concepts such as purpose, symbol systems, genius, transcendence, choice, creativity, spirituality</td>
<td>Intuitive process; “aha” experiences, reflection, insightful observations, gnosis (e.g., Piaget’s observations, Einstein’s thought experiments; Gardner’s multiple intelligences)</td>
<td>There is value in studying that which might not have boundaries. Construct might range beyond words and numbers. All people share a greater Reality. Practitioner and participant are part of a greater whole.</td>
<td>New ideas, theories, methodologies; ways of “seeing”; transcendence of current thought; discovery of greater meaning; genius</td>
</tr>
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The great divide has created an incomplete view of the human being in research and theory. Examples from the literature illustrate long-standing, widely accepted research methods that are methodologically congruent but dimensionally incomplete. We discuss studies of vocational choice, best practices, nature versus nurture, and prayer in the following sections.

**Career Counseling and Vocational Choice**

One of the most popular vocational theories was developed by John Holland (1959, 1966, 1996). With personality types defined by the acronym RIASEC (Realistic, Intellectual, Artistic, Social, Enterprising, Conventional), the model is used extensively to help counselees better understand their own temperament in relation to possible careers. The basis of Holland’s theory is the idea that “at the time of vocational choice, the person is the product of the interaction of his particular heredity with a variety of cultural and personal forces” (Holland, 1959, p. 35). Holland (1966) later acknowledged that “the most explicit forerunner” (p. 10) to the RIASEC model was developed earlier by Guilford, Christensen, Bond, and Sutton (1954). Guilford et al. compiled 100 attributes of personality temperaments and factors and constructed an instrument of verbal items, avoiding “controversial ethical or religious issues” (p. 4). The resulting factors lacked religious interests or vocations: “We found no factor of religion in our results for the good reason that we avoided the inclusion of items bearing on that subject” (Guilford et al., 1954, p. 35). Thus, the construct does not completely and accurately measure human personality and temperaments.

A dimensional legitimation of the use of RIASEC (and other theories derived from factor analysis) reveals the lack of dimensionality in such a construct. A factor analysis of a pool of job titles or vocational interests simply seeks to maximize clusters of shared variance, thereby revealing what occupations are most similar to each other. Deciding what vocations and interests to include in the factor analysis, as well as naming the derived factors, are QUAL functions. The noetic sense of “calling” to one’s profession, in the sense of Carl Jung, has been omitted; the spiritual dimension is not considered nor discussed. From a dimensional standpoint, it can be concluded that the research is congruent with theory but is incomplete because the noetic is omitted. Furthermore, a theory that uses a mechanical construct for vocational choice might be considered dimensionally incomplete, because choice is a noetic function.

To be sure, the RIASEC model is intended to stimulate thought and discussion for clients, not as a vocational determiner. Career counselors frequently include the noetic dimension by using books such as Bolles’s (2009) *What Color Is Your Parachute?* and Robin, Dominguez, and Tilford’s (2008) *Your Money or Your Life*. It is not an accident that these books are multidimensional in nature: Both books directly incorporate Frankl’s logotherapy.
As noted earlier, Hansen (2003, 2006b) questioned the emphases on best practices and the DSM-IV-TR (APA, 2000) in counselor training. Each assumes an objectivistic stance, for example, that a prescribed treatment is indicated for each diagnosis. A spiritual dimension, which includes the inherent freedom of the person to transcend the ordinary, expected, automatic responses (Frankl, 2000), accommodates and expands on Hansen’s (2003, 2006b) points. Moreover, an objectivistic diagnosis that does not consider the dimensionality of origin, such as in the biological, social/cognitive, and spiritual influences of depression, is incomplete and potentially iatrogenic (McLafferty, 1997, 1999).

Furthermore, in studying best practices of helping professionals, a common methodology (which is arguably MM) is to select exemplary professionals and observe them to see what behaviors they have in common. Such behaviors become a part of training and are incorporated into checklists to determine professional effectiveness. For example, the SOLER position (Egan, 1994)—that is, facing client Squarely, Open posture, Leaning slightly toward client, Eye contact, and Relaxed—is widely taught in counseling programs and divinity schools. Considered dimensionally, this research limits the definition of best practice to observable behavior (arguably a function of soma and psyche). The spiritual dimension, which includes a sense of “being present with” and empathy (which should be defined as more than the behavior of paraphrasing), is not as easily defined, qualified, or quantified.

However, when we begin with a dimensional framework that includes the noetic, we are more likely to include those factors in the research. Without such a dimensional understanding, QUAL, QUAN, or MM tend to be mechanically or relativistically applied. An educational philosophy that begins with a sense of freedom, responsibility, calling, and life purpose will inure students to find meaning in the topics studied.

Nature Versus Nurture

For decades, twin studies have mathematically derived the influence of genetics and environment on the human being. Sternberg, Grigorinko, and Kidd (2005) stated that nature and nurture are unitive: Nature plus nurture equal 1. As McLafferty (2006) noted, this statement assumes that only genetics and environment contribute to human development. Free will, choice, and a sense of calling—concepts that lie at the heart of helping professions—are excluded. Thus, the famous twin studies of substance abuse, intelligence, and schizophrenia are based on assumptions that have never been validated (McLafferty, 2006). Twin studies have been used to determine heritability for vocational interests (Harris, Vernon, Johnson, & Jang, 2006; Schermer & Vernon, 2008) and religious interests (Waller, Kojetin, Bouchard, Lykken, & Tellegen, 1990).
A dimensional legitimation would confirm that the theory and research method are congruent and coherent with each other, but only in the somatic and psychic dimensions. The comparison of identical (monozygotic) twin pairs with fraternal (dizygotic) twin pairs, raised together versus raised apart, provides a theoretically congruent QUAN methodology that is considered the gold standard of genetic research today. However, viewed from a dimensional standpoint, the research topics often involve the possibility of human expression in the noetic/transcendent dimension (McLafferty, 2006). For example, all interventions for substance abuse by definition must assume that the substance abuser has some arena of choice; in fact, the most effective intervention is Alcoholics Anonymous, which involves the invocation of a Higher Power. Thus, the noetic/transcendent dimension is active in this process. By “folding” all variability into nature and nurture (soma and psyche), the current twin studies of nature–nurture are dimensionally incomplete (McLafferty, 2006).

Prayer

Recent large-scale studies of prayer have not found any effect of prayer on the outcomes of cardiac patients (Benson et al., 2006; Krucoff et al., 2005). The outcome measures include QUAN measures of days to recovery, number of relapses, mood, or occurrence of death. These reflect only a shadow of the possible effects of prayer, much like Frankl’s shadows of three-dimensional figures fail to reflect their respective shapes. As McLafferty and Onwuegbuzie (2005) noted, “caution is indicated as we attempt to use the yardstick of statistics to measure the expression of [I]nfinity” (p. 1769). Dimensionally, an MM approach requires inclusion of soma, psyche, and the noetic in exploring the effects of prayer on cardiac patients.

Conclusion

The QUAN–QUAL divide, which resonates with the objectivist–constructivist dichotomy, delimits the discussion by obscuring the noetic dimension. The introduction of a dimensional viewpoint, however, subsumes the great divide with a third perspective. Applied dimensionally, MM dissolves the QUAN hegemony and supersedes the dichotomous distraction by encouraging awareness of a wider range of human experience.

With a simple formula, \( e = mc^2 \), Einstein revealed a multidimensional relationship between light, energy, and matter. His thought experiments shattered the traditional linear formulas (QUAN) and constructed meanings (QUAL) of physics. Einstein transcended the limits of human constructions; he demonstrated that a realm of understanding is present that includes and supersedes, quantity and quality. Likewise as we become conscious of—and work within—a multidimensional understanding, our theories, research, textbooks, training, and practice will be forever changed.
References


