Clinical psychology is positioned to play key roles in mental and physical health issues of 21st century America. In this regard, however, the present Boulder model of educating clinical psychologists is not preparing our graduates to meet the diverse demands of either today’s or tomorrow’s marketplaces. Accordingly, we introduce a new, four level “matrix model” for the education of future clinical psychologists. The core focus of the proposed matrix model is on the weaknesses and strengths of people in their personalities and their environments. Moreover, this matrix model operates at the individual, interpersonal, institutional, and societal–community levels of analyses. The details and implications of this proposed educational curriculum are described. © 2005 Wiley Periodicals, Inc. J Clin Psychol

Keywords: Boulder model; clinical psychology graduate education; four level matrix model

Using the ideas of its post-World War II founders, clinical psychology has prospered in the ensuing 60 years. Having worked the last four decades as educators, researchers, and practitioners in clinical psychology, we are very familiar with much of this “living history.” As with any field seeking to maintain its viability, however, we believe that clinical psychology (we use “clinical” to refer to both clinical and counseling) periodically must reexamine its premises and educational practices. Furthermore, we no longer perceive that the prevailing “scientist–practitioner” Boulder model (Strupp & Hadley, 1977) fully
educates our clinical psychology graduates for the contemporary marketplace (Spruill, Kohout, & Gehlmann, 1997). In this article, therefore, we propose a new four level matrix model for preparing our clinical psychology graduate students to face the professional challenges of the 21st century.

The Core Matrix Model

The previous emphasis in clinical psychology has been on “mental illness” rather than “mental health” (Snyder, Rand, & Berg, 2004). Unfortunately, this focus upon people’s weaknesses and pathologies often has produced imbalanced and less than fully useful representations of our research participants and clients (Snyder & McCullough, 2000). For the future, we suggest a greater emphasis on people’s positive assets (see Seligman & Csikszentmihalyi, 2000; Snyder & Lopez, 2002a). We are not proposing, however, that the exploration of human psychological weaknesses and frailties be abandoned. Rather, we are suggesting that strengths be examined along with weaknesses to provide complete pictures of people. Thus, we believe that it is crucial to take a balanced approach in looking at the “good” along with the “bad” in people (Lopez & Snyder, 2003a, 2003b; Lopez, Snyder, & Rasmussen, 2003; Snyder et al., 2003). Furthermore, such changes are warranted because we seriously doubt that the general public and influential policymakers will continue to support the previous monolithically negative views presented by clinical psychologists.

To achieve a balanced perspective in understanding the individual (whether a research participant or a client), we suggest a four-quadrant matrix (see Figure 1; Snyder et al., 2003, p. 31), which is derived from the ideas of Beatrice Wright (Wright, 1991; Wright & Fletcher, 1982; see also Wright & Lopez, 2002). One dimension of this matrix is Valence, or the degree to which any given diagnostic focus is either positive or negative. As such, valence includes two categories—the person’s strengths and weaknesses. A second dimension is Source, or the location of the particular diagnostic focus. The source dimension

![Figure 1. The matrix model.](image-url)
includes two categories—factors within the person and within the person’s environment. This two (Valence: Assets vs. Weaknesses) by two (Source: Person vs. Environment) matrix yields four quadrants: #1 = Assets; Within Person; #2 = Assets; Within Environment; #3 = Weaknesses; Within Person; and #4 = Weaknesses; Within Environment. Quadrant #3 has been the focal point of the traditional pathology approach emphasizing intrapsychic, personality-based deficiencies. There is more to people than quadrant #3, however, and the use of quadrants #1, #2, and #4 would insure that future clinical psychology assessors explore these other aspects.

The Four Levels of the Matrix Model

In an update of the Strupp and Hadley (1977) tripartite model of therapeutic mental health activities and outcomes for the profession, we have reasoned elsewhere (Elliott & Klapow, 1997; Elliott & Shewchuk, 1996) that activities at the individual, institutional, and societal–community levels require skills and technological applications that most clinical psychologists are capable of, but presently do not possess. The previous educational emphasis has been on the individual level, with some, albeit far lesser, attention having been given to the interpersonal level. On this latter issue, we believe that the interpersonal level warrants much greater attention in the future. Both the individual and interpersonal levels are subsumed within the larger institutional and societal–community levels (see Figure 2). Bronfenbrenner (1979) proposes a similar, four-layer model as applied to human development. The issues at each level of our new model are discussed next.

The Individual Level

The individual level historically has aimed its research, diagnosis, and therapeutic activities toward an identified person who is called a research participant (a.k.a., subject) or a patient (a.k.a., client). Many people, both inside and outside of the field, hold this image of one clinical psychologist working with a single person in a laboratory or therapy room. Overwhelmingly, the previous curricula for educating graduate students aimed their research and applied “lessons” toward weaknesses at this individual level. The matrix model, however, would necessitate additional instruction about strengths. As such, it would direct future students to attend to those portions of pathology continua that portend “lack of weaknesses.” But, is this lack of negative the same as the presence of positive characteristics? We think not. Positive dimensions of appraisal are needed, and there already is a handbook dedicated to validated self-report variables on personal strengths (e.g., control, emotional intelligence, hope, optimism, self-efficacy, and self-esteem; see Lopez & Snyder, 2003a).

Additionally, Buckingham and Clifton (2001) have developed a strengths-based diagnostic system based on matching persons’ on-the-job activities to their natural assets and skills rather than attempting to force all employees to the same skill levels. Also, as a counterpoint to the traditional, widely used pathology-oriented Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 1994), Peterson and Seligman (2004) have assembled the Values in Action (VIA) classification for measuring human strengths.

Clients often have a mixture of weaknesses and strengths, and it is important to search for these to produce a full and accurate diagnosis, as well as to form the best subsequent interventions. In this regard, the matrix model fosters a thorough “search” of the total person. We are reminded here of a story about the couple who go to the shopping...
mall and park their car in the nearby lot. Finished shopping, the man cannot find his car keys. Thinking he may have dropped them in the parking lot, he begins to look around the pavement. Watching him for a while, the bewildered woman eventually asks, “Why are you looking only under this lamppost?” He replies, “Because the light is better here.” In thinking about the previous efforts to train clinical psychology students to find the “keys” to understanding the activities of their research participants or clients, we may have behaved as rigidly, illogically, and ineffectively as this man looking for his keys only under the lamppost.

The Interpersonal Level

In our estimation, interpersonal matters have been given far too little attention previously in the education of clinical psychologists. Humans are social creatures in which virtually

Figure 2. The matrix model embedded in the individual, interpersonal, institutional, and societal–community levels.
everything we learn and do across the life span is based on interpersonal issues. Accordingly, more attention needs to be paid to educating clinical psychologists about the inherent social nature of human goal-directed activities.

It also will be crucial that our future students understand how their own professional behaviors (including diagnosis, therapy, consultation, and research) take place in interpersonal contexts. For diagnosis, our students will need to be apprised about the nature of dyadic interactions. Couples increasingly are seeking treatment (see Baucom, 2000), and more attention must be given to identifying the characteristics of enduring intimate relationships (Gottman, 1994). Furthermore, with the growing viability of the various group approaches to treatment (see Forsyth, 1999), our students should receive training in such group dynamics.

The Institutional Level

The institutional level involves research, consultation, administration, and liaison roles conducted in schools, hospitals, companies, etc. Ideally, the infusion of psychological expertise at this level would promote a coordinated provision of psychological research and applied services across institutions. Although psychologists have worked previously in various institutional administrative roles, most have used the traditional pathology-oriented model.

Beyond the research and psychological health care activities that most readily are associated with the institutional level, we also believe that our students need to be educated about physical health care systems. In this latter regard, there are dramatic changes in the American population that portend far-reaching implications for future clinical psychologists. For example, over half of our citizens have at least one chronic health condition persisting longer than 3 months, and almost half of these people have more than one such condition. Moreover, these chronic health conditions are the leading causes of disabilities and deaths in the United States (Institute of Medicine, 2001). Furthermore, the rates of disability associated with chronic health conditions are increasing among 18- to 51-year-old adults (Lakdawalla, Bhattacharya, & Goldman, 2004), and the management of chronic health conditions accounts for approximately two-thirds of all health care expenditures. Obviously, modern Western health care systems are facing huge challenges (Frank, 1997).

With the exception of those programs with health specialties, present clinical psychology curricula do not educate would-be 21st century graduate students about the psychological components of health problems. As such, most of our students are unaware that approximately 50% of presenting problems in primary care settings have a psychological component or origin (Levant et al., 2001). Although behavioral and social mechanisms have profound impacts on the physical health and psychological well-being of persons with chronic conditions (Israel, Schulz, Parker, & Becker, 1998), we unfortunately still are operating out of the 20th century training model that ignores these important psychological factors (Snyder & Feldman, 2000). As physician Leonard Sagan concluded in his *The Health of Nations*, “It is the brain that is the true health provider” (1987, p. 185).

The Societal–Community Level

Activities at the societal–community level address the large issues and challenges that face all service delivery systems, including those that subsume both mental and physical
health care. Clinical psychologists have been limited previously by their lack of preparation in using their technologies and skills to promote an empirical, science-based agenda at this societal–community level. Accordingly, future education is needed in how to: (a) conduct research in these settings (including large, archival data sets), (b) allocate resources and services, and (c) influence the formation of health care policies (Kaplan, 1994).

Although clinical psychology has been wedded to an educational model that focuses on delivering services to the single client, it is possible to have more of a “top-down” impact on our citizens’ welfares. Research is warranted on how the societal–community processes gravitate downward to the individual. In this regard, not only should we learn to conduct research at this level, but clinical psychology also needs to become a prime stakeholder in health care policy, development, programming, administration, and implementation (Elliott & Klapow, 1997).

As can be seen in Figure 2, the thick-lined arrows going inward depict our belief that the stronger forces for change emanate from the societal–community level. It is important that clinical psychologists become educated and involved in research, along with the establishment, operation, and maintenance of matters that occur at the societal–community level. We would note, however, that there is a smaller possibility for the flow of influence to go “bottom-up” from the individual level (see the thin-lined arrows going outward in Figure 2).

Similar to our previous suggestions about the institutional level, clinical psychology also needs to improve and expand its contributions at the societal–community level in conducting research on, and delivering services to, people with chronic health conditions. Such people previously were within the strict purview of the medical model, and this perspective limited our ability to recognize positive assets and strengths among those who were physically or socially different. We are not surprised, then, that consumers have complained about being stigmatized and having their overall “personhoods” ignored by psychological and medical professionals (Olkin & Pledger, 2003). The matrix model would help to counteract such stigmatization.

With the dramatic increase of chronic health conditions, future clinical psychologists must be skilled at influencing policies and developing cost-effective, relevant, and valued service programs for these consumers. Although there are advantages to huge medical centers, they are not accessible to many needy Americans with physical problems. As examples for solving this problem, clinical psychologists could establish: (a) satellite clinics in locations such as shopping centers with easy access, and (b) mobile psychological and physical outreach units.

Presently, the prevention and management of health conditions do not constitute “mental health” issues as traditionally defined in our field. Because of the costs associated with chronic health conditions, resources have been pulled from other areas of service in inefficient “band aid” attempts to defray losses. Moreover, clinical psychologists have had difficulty in envisioning the far-reaching financial implications of these strains on all health care systems. In contrast to this present norm, we foresee future clinical psychologists playing more active roles in health maintenance organizations (HMOs). For example, we should teach HMOs about the economic incentives of increasing long-term prevention and health maintenance activities.

We also could become role models for promoting less costly forms of psychological treatment. Instead of resisting treatments by BA- or MA-level psychologists, PhD-level persons could help to educate and supervise these therapists, and perform a myriad of other activities involving diagnosis, research, program evaluation, etc. Although the challenges at this societal–community level are large and complicated, we believe that there will be many new opportunities for our future students (see Drum & Sekel, 2003).
The Details of the Matrix Model

Mentoring as the Foundation

Implementing the matrix model will depend on a supportive and yet catalytic faculty. Beyond the classroom, vital graduate education is built on extensive mentor and clinical student one-on-one interchanges (Snyder, 2002b). We suggest that future students have a course or practicum in mentoring. Whereas students presently gain considerable training in how to support their clients, they receive no feedback about supporting their protégés. Therefore, we should teach our students about maintaining hope for their own graduate school careers, along with how to impart this hope in their eventual students (Snyder, 1994, in press).

The Issues

Prevention. Prevention should be an essential feature of our science, education, research, and practice (Kaplan, 2000). Unfortunately, from policy and institutional perspectives, prevention often is seen as nothing more than occasional medical tests and prophylactic interventions. From our perspective, prevention invokes attention to lifestyle factors and accompanying behaviors that are essential components of health for all citizens. When applied to people with chronic diseases, such prevention efforts can lessen complications, add quality years, and diminish the monetary costs to patients and society more generally (Rimmer & Braddock, 2002). It is not likely, however, that such prevention programs will prosper in the face-to-face interactions of traditional clinic settings. For future prevention programs to be effective, we will need novel strategies with long-distance technologies for health interventions, disease management programs, and public and health policies. Clinical psychologists should play leadership roles in discovering and implementing these prevention techniques.

To educate our students about prevention, we suggest both didactic and applied coursework. Additionally, we would encourage the embedding of prevention principles into various required courses. Unfortunately, the effects of prevention do not appear immediately, and clinicians are not remunerated for such activities. Therefore, a crucial aspect of future education will entail teaching our students to “sell” prevention as yielding psychological, physical, and financial benefits over time. Thus, if local city and business organizations can be shown the benefits of prevention, they may be more likely to fund them. Also, granting and government agencies should underwrite prevention programs (Snyder & Ingram, 2000).

In recent years, clinical psychologists have become more involved in the production of public service announcements (on television and in magazines) where well-known people recount their stories of having undertaken prevention efforts to improve their lives. Clinical psychology science and applied skills can help in such prevention-oriented public service activities (Snyder & Ingram, 1983).

Several clinical psychology programs already have health specialties where the curricula pertain to helping people to lower their risk factors to preclude later health problems. Our recommendation is that these health specialties within clinical programs be increased, along with establishing clinical programs and postdoctoral programs that focus on prevention and health.

Problems of passion. “Problems of passion” involve chronic health problems and the exacerbation of secondary complications. Included here are tobacco use, excessive...
alcohol consumption, dietary excess, lack of exercise, sedentary lifestyles, imprudent
risk-taking and impulsivity, and inattention to safety (Snyder, Tennen, Affleck, & Cheavens,
2000). Over time, these lifestyle practices contribute to severe disabilities, motor vehicle
accidents, obesity, diabetes, AIDS, drug and alcohol abuse, and heart disease. Thus, these
problems of passion become carousels of ever-worsening outcomes whose financial costs
are passed to all citizens.

It is inexplicable that granting agencies continue to fund acute medical care at the
expense of health improvement and secondary prevention of behaviors. For example,
roughly 95% of budgeted grant allotments go to acute care and only 5% to long-term
prevention (McGinnis, Williams-Russo, & Knickman, 2002). This disparity is compi-
lcated by the fact that several of these targeted behaviors are “. . . products . . . of strong
commercial forces” (McGinnis et al., 2002, p. 85) that contribute to variants of “afflu-
enza” (e.g., obesity). Likewise, powerful industries promote the purchase and ingestion
of their products to reap financial profits—without attending to the potential harmful
effects on people. Clinical psychologists can and should become involved in teaching
institutional clients about the advantages of “people accounting” in which business trans-
actions are examined not only with an eye toward the immediate financial profits, but
also their long-term effects on the welfare of people.

The challenges of strengths. Although the matrix model emphasizes the important
roles that strengths play in the psychological and physical health of clients, implementing
this approach will not come easily. Almost all clinical psychologists have been taught to
focus on weaknesses, and have been applying this perspective for decades. Also, individ-
ual or institutional clients expect clinical psychologists to ameliorate their problems because
they have seen television and movies depicting one-on-one diagnosing and “curing” of
human pathologies. Likewise, books and magazines still depict this problem-focused,
“mental illness” emphasis.

What realistically can be done to alter the pathology model? As a start, by educating
the next generations of students (via the matrix model) to look at weaknesses and strengths,
clinical psychologists eventually will move toward this balanced approach. In the interim,
the “baby boomer” academicians with the pathology orientations will be retiring. In the
interim, we would suggest educating print and television media sources about this “new
clinical psychology.” Of course, if research increasingly shows benefits in assessing and
fostering human strengths, then consumers are likely to demand this approach. We already
are seeing some public interest in positive psychology, and the viability of this movement
as a science and practice eventually may necessitate that educators include strength-
related information in their curricula.

Good clinical psychology science also should be built upon a balanced weakness and
strength focus. Individuals possessing positive resources may be more likely to adjust
optimally to their chronic health conditions, and thus they may require fewer community
services as they independently manage their conditions. In contrast, those who lack pos-
itive qualities may have difficulties in managing their conditions. They may be at risk for
secondary complications (Snyder, 2002a), and burden tax health systems with their repeated
visits to high-cost professionals (Snyder & Pulvers, 2000). We only have begun to con-
duct the kind of prospective research that could identify clients’ strengths and weak-
nesses (Lopez & Snyder, 2003a), along with the relationships between positive attributes
and adjustment over time (Keyes & Haidt, 2003; Snyder & Lopez, 2002b). Such infor-
mation will be essential to the development of strategic services for persons at risk, and
for developing efficient methods for distinguishing those who will live well on their own
from those who may require supportive services.
**Populations of Clients**

**Children.** Taking care of children, in our estimation, is not given sufficient importance in our society (Snyder & Feldman, 2000). As but one example, childcare workers are in the lowest 10% of wage earners (Etzioni, 1993). Many of the problems that result in adulthood in American society can be traced to our economic structure that does not reward or allow parents, teachers, and mental health professionals to spend enough time interacting with children.

In present clinical psychology education, the curricula pertaining to children are very limited. Clinical students need more preparation to work directly with children and the caregivers of children (parents, teachers, etc.). We know what the crucial contents are in educating clinical child psychologists (Roberts et al., 1998), we need more predoctoral and postdoctoral clinical psychology programs aimed expressly at using these in instructing students. At the University of Kansas, for example, we recently have developed an APA-approved PhD clinical program focused on research and practice with children, adolescents, and their families (for reviews, see Roberts, 1998; Roberts & Steele, 2003).

Education pertaining to children inherently addresses the previously discussed prevention activities. If clinical psychologists can help greater numbers of young children, then many of the later adolescent and adult problems can be avoided (Roberts, 1991). Likewise, more emphasis should be placed on examining children’s strengths along with their weaknesses (Roberts, Brown, Johnson, & Reinke, 2002). Related to this latter point, Dryfoos (1998) concluded that the very best adolescent intervention programs emphasized growth-enhancing activities.

**Elderly.** America is “graying” at an accelerating rate. For example, the 75 million baby-boomers born between 1946 and 1964 are becoming seniors. Likewise, in 45 years, we will more than double the number of Americans who are over age 65 (Blazer, 1989). Finally, it is the “old old” (age 85 or beyond), who are increasing most rapidly in numbers among the elderly (American Association of Retired Persons, 1995).

Physical and psychological health are two of the most important issues for the elderly (Gallagher-Thompson et al., 2000). Most physical problems involve pain, and depression is the most widely reported psychological concern (Cheavens & Gum, 2000), and our future students should play important roles in helping with these two age-related issues. Our 21st century students also should learn how to disabuse our society of its sometimes negative, prejudicial views about older people. We Americans should realize that the elderly are the only minority group that we will be joining after a few more birthdays. We also suggest that more such education on elders should be part of the core curricula for all clinical psychology programs, along with the development of PhD and postdoctoral programs aimed especially at education pertaining to the elderly.

**Minorities.** The term minority soon will be an oxymoron. Although the “Americans of color” (i.e., African American, Asian Americans, Hispanic or Latinos, and Native Americans) presently are in the numerical minority, as we move farther into the 21st century, they will form the majority in terms of being the largest percentage of our population. So, in the ensuing discussion, realize that minorities cannot be so labeled for much longer.

Unfortunately, persons who are of an ethnic minority or elderly are not likely to use mental health services (Ivey, Scheffler, & Zazzali, 1998). Also, even if these two groups of people were to become more open to the seeking of our services, the reality is that our present clinical psychology graduate students have received little education in understanding
and working with them. The ironies here are palpable for a discipline that espouses good care for all people.

Accreditation guidelines by the APA already mandate some attention to minority issues. Additionally, as we suggested for children and the elderly, we need new PhD and postdoctoral clinical psychology programs focused upon minorities. Equally important, we must attract more minority students to study clinical psychology. Many people from this huge cohort of Americans eventually may expect psychological services, as well as to see therapists from their minority groups. Obviously, new and more effective methods must be found to recruit minorities to clinical psychology.

Last, we have two suggestions about research related to minorities. First, attempts must be made to understand why members of ethnic minorities so infrequently use the services of clinical psychologists. Second, given that there are very few minority people in psychotherapy, they naturally will not be in psychotherapy research outcomes studies. This means that we will not be well informed about the efficacy of these treatment for minorities (Gray-Little & Kaplan, 2000). Of note here, National Institutes of Health (NIH) grant guidelines (NIH, 1994) already require the inclusion of minority samples, and we must find additional ways to include ethnic minorities in research.

Prescribing Drugs

The battle largely appears to be over in that the issue is not if, but when such prescription rights will be made available. We (the authors) originally were quite resistant to clinical psychologists having prescription rights. As advocates of psychotherapy research, however, we reconsidered our objection in that clinical psychologists with prescription privileges could facilitate the conduct of research involving adjunctive psychotherapeutic medications, as well as play important roles in testing the efficacy of new drugs in clinical trials.

Increasingly in the 21st century, qualified clinical psychologists will be able to dispense medications. The key word here is qualified. This leads to the crucial question of what education will be required to prescribe medications. We concur with the recommendations of a task force on this topic (see APA, 1992), which suggested three levels of education. To begin, Level 1 would involve a comprehensive predoctoral course in psychopharmacology (or obtained as a continuing education course). These Level 1 people would not have prescription privileges, but they would be informed about the adjunctive roles of such drugs in treatments. Level 2 would be for those with doctorates who were in collaborative practices with other clinical psychologists or other professionals. It would include specific training in “psychodiagnostics, pathophysiology, therapeutics, emergency treatment, substance abuse treatment, developmental psychopharmacology, drug research, and supervised clinical experience” (APA, 1992, pp. 63–64). Last, Level 3 would entail people having independent prescribing capacities, and it would involve graduate courses in biochemistry, physiology, pharmacology, biological basis of behavior, behavioral pharmacology, clinical pharmacology, professional pharmacology, and a specialized internship in psychopharmacology.

Views of Reality

Clinical psychology students historically have been taught the views about the nature of reality that reflected the zeitgeists of given periods. From the mid-1940s onward, students learned the psychoanalytic view that people were ruled by aggressive or sexual thoughts
and feelings developed in their childhoods. This started the negative, pathology views that continue today. Two schools of thought emerged in opposition to the Freudian perspective in the 1950s. One was the Rogerian nondirective model, where the idea regarding views of reality was that people were good, and that this good would emerge in supportive therapeutic atmospheres. The behavioral view defined reality as reflecting an understanding of particular stimulus and response contingencies, and it provided a more neutral view of human nature than the Rogerian goodness perspective. Although strict behavioral visions of reality wanes in popularity by the 1970s, the behavioral analytic principles still are influential. In the 1980s and 1990s, clinical psychologists were influenced by developments in the larger field of psychology about thinking and memory processes, and the brain in particular. In this “cognitive revolution,” reality was seen as a series of mental events. Thus, the psychodynamic, nondirective, behavioral, and cognitive perspectives, in that order, have wielded influences regarding people’s views about reality.

Systemic constructivism. We would suggest yet another perspective, systemic constructivism, for understanding how people form mental models of themselves and their worlds. Realities, in this perspective, are not veridical matters residing outside of people, but rather they are mental representations that enable people to cope. Systemic constructivism allows for the possibility that such working models then actually cause a person (or persons) to change the environments, with the changed environments then altering persons’ working models of reality. In this latter sense, this is a reciprocal systemic constructivism. Also, systemic constructivism assumes that two or more persons will form shared views of reality for the purposes of human commerce. Also, in the degree to which there is a majority of people sharing a similarly constructed reality, then that becomes the prevailing paradigm. Systemic constructivism would allow psychologists to understand how individual working models (at the individual level) operate to take into account the surrounding environment and the importance of others’ views of reality. Although important applications have been made of such constructivism views of reality (see Mahoney, 2003; Neimeyer & Mahoney, 1995), to date such models have not been widely accepted in our field.

Clinical cognitive neuroscience. We already are beginning to see the emerging role of cognitive neuroscience. This is a burgeoning research area, which should have implications for understanding the weaknesses and strengths of people as they cope. Moreover, this cognitive neuroscience perspective will allow future clinical graduate students to interact with scholars from other disciplines outside of the social sciences. We do not see this cognitive neuroscience approach as being antithetical to the previously described systemic constructivism view in that the former should inform our understanding of how such constructions of reality are built. We do not agree with a reductionist view that clinical psychology should focus on biological and neurological processes to the exclusion of understanding how people use those processes to form working models of reality. As such, we think that clinical psychologists should retain their core focus on psychological analyses.

Spirituality. Two of the founding fathers of psychology, G. Stanley Hall and William James, viewed spirituality as being central to human existence (Pargament & Mahoney, 2002). Nevertheless, spirituality today remains a relatively unexplored topic for clinical psychologists. In this context, we distinguish spirituality from religion, with the former representing the various forms of belief in higher powers intervening in the lives of humans, whereas religion represents the formal systems of worship (defined differently
across specific religions), including specified rules for practice. Therefore, although we
do not advocate becoming more involved with religion per se, we do see spirituality as
being a worthwhile topic for our field.

Among Americans, 95% believe in God and 86% say that religion is important or
very important in their lives (Gallup Poll Organization, 1995). Nevertheless, from an
international perspective, the practice of spirituality in terms of religious views and the
attendant differences in premises and policies are great sources of misunderstanding,
tensions, and conflicts between people both within and across cultures. Despite these
differences, we see spirituality as a wellspring of strength for helping people in coping. In
the past decade in clinical psychology, for example, some empirical literature has appeared
on the meaningful roles of spirituality in the lives of people. Our view is that we would be
wise to acknowledge and study the needs of people to connect to the perceived forces that
transcend their personal powers.

Wielding the Blade of Science

Statistical tool box. Additional statistical tools may be necessary to help us move
beyond the overused correlation procedures, particularly in situations in which we need
to develop active partnerships with research participants. Qualitative assessment devices
can be useful in this regard, and other new techniques may be tailored to identify the
unique needs of our consumers. Statistics now include advanced structural equation-
modeling procedures for obtaining an inferential picture of how several variables relate.
Also, there are multilevel-modeling techniques for understanding intrapersonal trajec-
tories of growth and adjustment. Moreover, many of these new techniques handle dichot-
omous, ordinal, and missing data points. These statistics thus can help us to understand
individual rates of change unencumbered by group averages. Likewise, as startling as it
may sound, mean group comparisons in prospective and longitudinal designs may become
obsolete in the 21st century.

There also are important implications of these statistics for program evaluation. Instead
of the previous tedious and piecemeal data analytic procedures, these new techniques can
handle many variables in a comprehensible “all-at-once” framework. Moreover, these
approaches to data analyses should help to promote better theorization in the coming
decades. These newer statistics should be useful with large, archival data sets that are
common in service delivery systems. This type of research often is crucial in determining
policy decisions, service effectiveness, and the allocation of resources. Finally, these
increasingly sophisticated statistics should facilitate accurate inferences.

Hypothesis disconfirmation. We have concerns that our present research programs
have grown rather stilted in their strict adherence to traditional templates. More training
is warranted on the testing of hypotheses so that nonconfirmation becomes plausible. In
other words, we need to work against the present biases in gathering data so that the
confirmation of the proposed hypothesis is virtually assured. As an example of teaching
aimed at more robust hypotheses disconfirmations, consider psychotherapy outcome
research. A crucial issue in testing the effectiveness of a therapeutic treatment is to ascer-
tain whether persons who have undergone a treatment have superior outcomes (on vari-
ous markers of coping) relative to those who only have had a placebo experience in
which they expect to change. Unfortunately, in many outcome studies, researchers have
selected placebo experiences that did not elicit truly active expectancies for change (see
Barker, Funk, & Houston, 1988). Thus, if in actuality the comparison placebo is inert,
then the fact that the persons in the experimental treatment condition had better outcomes
relative to the placebo is scientifically meaningless. This particular example and related problem often are seen in psychotherapy outcome studies involving a pill placebo (Fisher & Greenberg, 1997). In the authors’ roles as journal editors, we have found that problems with incorrectly conceptualized and operationalized comparison conditions are widespread in submitted manuscripts. We can and must do better in educating our 21st century students about methodologies that truly yield robust possibilities of hypotheses disconfirmations.

**Within-group similarities.** Clinical psychology researchers also should give more emphasis to the huge overlap in within-group behaviors, instead of focusing solely on the less powerful between-group differences. Although it is true that the null hypothesis cannot be proven, large probability values do confirm the hypotheses that group differences are either nonexistent or small in magnitude. By paying attention to these similarities, along with the present approach of looking at the differences between groups, clinical science of the 21st century would attain a more complete understanding of our data. Also, instead of the 20th century approach of concluding that any obtained group differences are solely due to our labels, we suggest greater attention to the differences in the life circumstances (and myriad of other factors) of the two groups. Thus, more must be done in therapy outcome research to understand the comorbidity of the people who are assigned to supposedly distinct experimental groups.

**Linking Practice to Academia and Vice Versa**

Although clinical psychologists have been successful in obtaining grants (Elliott & Shewchuk, 1999), we have been criticized for the “disconnect” between our academic research and the applied clinical arenas (DeLeon, Hagglund, Ragusea, & Sammons, 2003). As such, we must broaden our scholarship in the 21st century to do a better job of addressing clinical applied issues. We will give some examples of how this can be accomplished in the ensuing paragraphs.

It is essential that future service delivery systems in clinical psychology identify cost-effective programs for meeting consumers’ needs. Our research expertise can be used to “triage” persons who require the services of high-cost, doctoral-level service providers such as clinical psychologists or psychiatrists, as compared to those persons who may fare well on their own recognizance or with relatively low-cost service providers (Hayes, 1997). This example illustrates at least three issues involved in clinically relevant and policy-relevant research. It highlights the need to: (a) think beyond professional boundaries to actively collaborate in meeting societal needs; (b) listen actively to others and be facile at forming alliances; and (c) conduct meaningful research that addresses shared priorities.

Added emphasis also should be given to theory development in educating future clinical psychology graduate students. Generally, we hold that clinical psychology places less emphasis on theory than do the other subareas of psychology. Perhaps this is due to the problem-solving, applied nature of many clinical psychology activities. Whatever the cause, however, it places our present students at a disadvantage in developing programmatic, model-based research and, to some degree, probably weakens attempts to secure grants. By securing such grants, clinical psychologists potentially can influence policy, along with shaping future priorities and policies (Weiss & Weiss, 1996).

Clinical psychology research expertise also may impose unintentional barriers for translating our experimentation into practice. For example, intervention research uses the
“gold standard” of randomized clinical trials, which, as a logical extension of experimen-
tal methods, represent the “. . . the closest science has come to a means for demonstrating
causality” (Haaga & Stiles, 2000, p. 14). This clinical trials model may not translate very
well, however, to the often-messy worlds in which applied clinicians conduct their inter-
ventions. Indeed, real-world therapeutic interventions are replete with confounds, medi-
ators, outliers, and covariates, which cannot either ethically or practically be dismissed
by the exclusionary criteria used in the typical psychotherapy outcome research protocol.
Furthermore, the evidence from randomized clinical trials often lacks external validity,
particularly in light of the comorbidity issues of people with multiple diagnoses and
health conditions (Levant, 2004; Seligman & Levant, 1998).

Our intervention research may benefit by examining existing clinic practices (Horn,
1997). We advocate improving clinical practice methods that integrate the “in the trenches”
therapists in determining research questions, data collection, and measures. Such scient-
ist and practitioner collaboration would help move away from simplistic, reductionism
views of linear causality. Instead, we suggest the plotting of multiple, reciprocally inter-
acting constructed realities (consonant with our previous notion of systemic construc-
tivism). Practically, this approach would unite academicians and the practicing
psychotherapists in joint scholarship and program evaluation pursuits. Any “bashing” by
academicians of practitioners, or vice versa, needs to cease because both groups depend
on each other. Accordingly, new clinical psychology curricula should emphasize mutu-
ally rewarding arenas for frequent interactions.

Preparing Graduates for Strategic Service Delivery

Our traditional commitment to the “. . . psychotherapy office and the 50-minute hour”
(Hayes, 1997, p. 522) needs rethinking. Modern health care systems are fast evolving
“. . . away from strict jurisdictional boundaries that separate each profession” toward
environments in which “flexibility and teamwork” are valued in the pursuit of cost-
effective services (Schneller & Ott, 1996, p. 127). Several future areas of opportunity for
clinical psychology reflect collaborative roles in the development, provision, and evalu-
ation of services in prison and forensic settings, interventions and support for at-risk
families, and the use of telecommunication technologies in developing long-distance,
home, and community-based services (DeLeon et al., 2003). Family educational and
support services and long-distance technologies are likely to be primary features of emerg-
ing chronic disease management programs (Drum & Sekel, 2003).

In our program evaluation efforts, we need to determine those who can be assisted
effectively with low-cost services, and those who need or prefer doctoral-level service
providers (Elliott, 2002). Our future graduates also will need to have skills in developing
programs that target persons in high-risk groups who are unwilling to change their behav-
iors. To develop such programs, 21st century clinical psychologists must understand
community and public health strategies (Frank, Farmer, & Klapow, 2003). We are heart-
ened that some clinical psychologists are involved in community-based programs, and
that our profile in policy formation has increased recently. Our roles in actually develop-
ing, administrating, providing, and evaluating long-distance services within these sys-
tems, however, have yet to be achieved. Additionally, we have not realized our roles in
the “participatory ethic” model (Mechanic, 1998), which builds partnerships with per-
sons who live with chronic conditions, and acknowledges individuals’ needs to operate
competently and independently in managing their health (Wagner, Austin, & Von Korff,
1996). For such partnerships to be effective, the expertise of future clinical psychologists
will be essential in assessing, evaluating, and constructing written materials and counseling strategies.

We are becoming a female dominated discipline, with a 4:1 ratio of women over men in the educational pipeline (Snyder, McDermott, Leibowitz, & Cheavens, 2000). We foresee the growing number of women in clinical psychology as being drawn toward these interactive and participatory activities. As we move to that time where persons of color form the majority in our society, many more Latinos, African American, Asian American, and Native Americans must be recruited into our profession. Contrary to the Caucasian males who previously formed the majority in our field, we anticipate that women and minorities will be more favorably disposed toward such cooperative, strengths-based mental health approaches.

Future doctoral-level expertise in clinical psychology may be better suited for administrative, program development, supervisory, and evaluative roles in various programs at the four levels of the matrix model. Individual interventions, as performed in traditional settings, are limited to persons who seek these services and live nearby. Moreover, such interventions are costly and labor-intensive (Leviton, 1996). Community-based service programs, on the other hand, can reach more people and be more cost-effective in their applications (Schneiderman & Speers, 2001). For example, low-cost professionals have provided effective telephone counseling to chronic health patients (Grant, Elliott, Weaver, Bartolucci, & Giger, 2002), and assisted such people in obtaining employment (Bond et al., 2001).

**Positive Ethics**

Ethics as presently conceived in graduate education teaches would-be clinical psychologists how to prevent bad things from happening. With the matrix model influence throughout the curriculum, we would have more attention being paid to the positive ethics of how to foster the greater good for others (Handelsman, Knapp, & Gottlieb, 2002). Part of our suggested ethics changes also relate to exposing our future students to the institutional and the societal–community levels. One example of how ethics would apply at these latter levels would pertain to the “tragedy of the commons” (Hardin, 1968), which involves people behaving so as to pursue individual, short-term gains, thereby depleting the scarce resources for the group in the long-term. Our students, therefore, would be taught in ethics about forming shared goals and balancing personal and group needs (Tversky & Kahneman, 1981).

Ethics lessons also would apply to HMOs, where short-term economic profits should be balanced more by considerations of the long-term implications for people (and even, sometimes, the long-term financial profits of the HMOs). Part of these ethics lessons, therefore, would involve an understanding of how zero-sum situations with an advantaged winner and a disadvantaged loser (Morgenstern, 1953) can be supplanted by nonzero-sum situations, where all parties profit either financially or psychologically (Wright, 2001). Such positive ethics could be taught through formal coursework, or via an implicit curriculum in which ethics are modeled by faculty as part of the teaching atmosphere (Branstetter & Handelsman, 2000).

**Changing the Accreditation Process**

The notion of accreditation is to insure minimal educational standards, especially when the graduates’ work pertains to human welfare. As the APA applied this accreditation idea
to clinical psychology programs over the past three decades, an increasingly restrictive set
of required courses and experiences were mandated and “policed.” We understand the need
to have standards, but the degree of oversight by the APA has reached a level where the abil-
ity to craft a creative curriculum has become almost nonexistent. Likewise, in the interpre-
tation and application of their accreditation guidelines, the APA has been rather rigid in
applying one viewpoint—typically the majority perspective existing for many years.

The conundrum is that we do need standards for educating our students, but how can
we have this without them becoming unduly restrictive? First, we would have the accred-
itation process handled by a representative subset of the directors of all clinical programs.
Second, we would ask the directors to develop a small set of core courses and experiences
that define the “basics” of education in our field. This would allow students to have more
latitude with their electives in forming their graduate education to prepare them for 21st
century jobs.

There is one aspect of our proposed changes that should be clarified. Obviously, we
have suggested several additions of courses and experiences. Concerning these various
“add-ons,” we believe that programs should allow students to select subsets of these that
reflect their projected career trajectories. Our field has become far too large to absorb all
of these topics at the predoctoral level. We believe that accreditation should allow stu-
dents to acquire a base of knowledge, and then provide flexibility for more specialized
coursework. Beyond the matrix model and its four associated levels, we view our other
suggestions as content issues to be resolved via contracts between students and their
faculties. In this process, creativity and flexibility will be crucial in defining the course-
by-course curricula of our future students.

Our view is that the curricula and student evaluations of clinical psychology faculty
at the predoctoral level are but a portion of the overall “checks and balances” that must be
surpassed by future clinical psychologists. Namely, for students wanting an applied career,
in most states they still would be required to have 2 years (or a comparable amount of
hours) of post-PhD supervised work. These applied clinical psychologists also would
have to meet the standards of state licensure boards, including a passing cut-off score on
a national examination.

Finally, we suspect that our profession will be compelled to accommodate changes
reflecting the real and substantive differences between programs that are grounded in a
scientist–practitioner heritage, and those that have little investment and limited identity
in this scholarly heritage. From our perspective, this scientific lineage demands a dynamic
response to the expanding and evolving knowledge base. Programs that obviously are
invested in the maintenance of traditionally defined professional roles probably will be
disinclined to entertain our recommendations. More specifically, freestanding (not uni-
versity affiliated) professional training programs (PhD or PsyD) will be concerned with
advocating for expanded and well-compensated roles for their graduates. The graduates
of these latter programs enter the work force with little interest in using science to address
the larger issues of policy and service delivery. They also often may have high financial
debts incurred for their graduate educations.

Many of these programs have pecuniary interests in preserving therapeutic activities
at the individual and interpersonal levels. Thus, they may oppose an empirical agenda
that would include the use of low-cost, multidisciplinary, and efficacious services to meet
the pressing needs of our society. Furthermore, we do not see these programs preparing
their graduates for scientist–practitioner roles at the higher levels of activity where expert-
tise is required in program evaluation, empirically based resource allocation, and collab-
oration with multidisciplinary teams in service delivery systems. Nor do we expect
advocates of these professional programs to be receptive to moving beyond a pathologically
oriented model of mental health so that future clinical psychologists can have balanced, theory-driven, and clinically practical views of human behavior. Our emphasis on science, empiricism, and theory probably will be antithetical to the thrust of many PsyD programs. Perhaps the consequences and ramifications of a scientist-practitioner identity eventually will help to define different professions that are characterized by their reliance on scholarship and science, and others that are characterized by a set of service and technical skills. Accreditation procedures should recognize and acknowledge the distinctions between these different training models.

Concluding Thoughts

We firmly believe that the ideas presented in this article are doable, and that they are necessary if we are to reach our potential as a scientific and applied profession. Noted researcher Paul Baltes (Baltes, Gluck, & Kunzmann, 2002) has concluded that, as a group, clinical psychologists manifest a sense of wisdom about human nature and human existence that is unmatched by any other professional group. We interpret this to mean that clinical psychologists are facile at identifying key issues and finding good answers to chart more favorable futures. If indeed we are good at finding answers, the matrix model should help future clinical psychologists in training to apply their capacities to understand the strengths and weaknesses in working with people. As such, it is time to unleash the talents of clinical psychologists on the full spectrum of positive and negative human actions.

Although clinical psychologists may be “filled with wisdom,” our entrepreneurial propensities to apply this wisdom need improvement. On this point, many clinical psychologists are rather passive. Such passiveness may relate to our history of listening to others, the luxury of having clients come to our offices, the intrapsychic roots of our field, etc. Whatever the reasons for this passivity, it is time to change our approach to clinical psychology. As is obvious in this article, we advocate greater involvement by clinical psychologists in various aspects of society. Educating and reinforcing clinical psychologists for the widespread study and application of their knowledge at several levels for the betterment of humankind would accomplish this.

Clinical psychology in America also needs to broaden its horizons to interact more with the health professionals in other countries. Although the United States trains more clinical psychologists than any other country, we still could greatly expand the number of people from other countries who receive their educations in the United States. Moreover, we should be careful not to take a paternal or matriarchal perspective and conclude that we are the best place for the education of clinical psychologists. In this regard, we need to work with other countries so that they can increase the numbers of clinical psychologists whom they train themselves.

The present suggestions, in part or whole, may elicit disagreements from our colleagues. Some readers may stridently defend the status quo. Yet others may disagree because they have different visions for future education in clinical psychology. Whatever these objections may be, they are for the good. An in-depth and extensive exchange of ideas is precisely what our field needs right now. There should be no sacred or taboo topics as we contemplate other paradigms for a “new” clinical psychology of the 21st century.

We salute our clinical psychology ancestors who implemented a workable educational system for meeting the challenges of the 20th century. In considering the 21st century education of clinical psychologists, therefore, the central question is, “Will we be able to do the same?”
References


