Interdisciplinarity and the Cross-Training of Clinical Psychologists: Preparing Graduates for Hybrid Careers

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"I feel more contented when I remember that I have two professions, and not one. Medicine is my lawful wife and literature my mistress. When I am bored with one I spend the night with the other. Though this is irregular, it is not monotonous, and besides neither really loses anything through my infidelity." Anton Chekov, 1888

The practice of clinical psychology in traditional settings may provide less career satisfaction and opportunities than in the past. Many psychology graduates have pursued specialization and sub-specialization in reaction to an unfavorable supply/demand ratio of clinical and counseling psychologists in the job market, attempting to compete with other psychologists by achieving highly focused expertise. An alternative solution is to expose psychology graduate students to interdisciplinary education and cross-training that allows them to pursue hybrid careers. Six tracks are outlined for interdisciplinary preparation and the potential development of hybrid careers: psychology-nursing/allied health professions; psychology-complementary and alternative health; psychology-administration/management; psychology-information technology; psychology-public policy; and psychology-public health. A brief description of each of the fields identified for interdisciplinary education and cross-training is presented. Each description is followed by the potential advantages to psychologists of cross-training in that field, and common prerequisites for advanced study in the field are listed. The need for significant changes in graduate education and promotion of diverse leadership in clinical psychology is discussed.

There is a growing realization that the practice of clinical psychology in traditional settings may hold less professional promise than in the past. The rapid development of managed care in medical and mental health settings has resulted in diminished rewards and liberty for many clinical psychologists. As predicted over a decade ago, economic, social, political, and internal forces have contributed to decline in the earning potential of solo private practice (Cummings & Duhl, 1987, p. 85). Furthermore, the traditional practice of psychology in medical settings

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North American Journal of Psychology, 2001, Vol. 3, No. 1, 139-170.

has been beset with difficulties due, in part, to the turbulence of health care in general, as well as the implicit perception of psychologists as "guests" in a domain dominated by physicians who, themselves, are experiencing significant upheaval.

Despite the constriction and downsizing that is occurring in traditional clinical settings, however, clinical psychologists retain an enormous advantage over many other disciplines. First, a distinction must be made between the profession of psychology, some areas of which are suffering, and the discipline of psychology, which continues to provide the potential for significant advantages to those educated in it. More than many other applied disciplines, education in clinical psychology, in addition to technical abilities, involves very broad concepts and skills that lend themselves to versatile application. Knowledge of such domains as behavioral health, group processes, and principles of motivation has a vast range of utility beyond the traditional mental health clinic or inpatient medical setting (Hayes, 1996). Likewise, the ability to conduct and analyze research, accomplish team goals despite differing individual perspectives, and recognize environmental as well as intra-personal contributions to behavior is a significant advantage in virtually any work setting (Hayes, 1996). This knowledge and these skills, stemming from education in the discipline, can be applied in innovative ways that extend professional opportunities and enhance career trajectories for clinical psychologists. In order to capitalize upon the potential versatility of the clinical psychology discipline, however, career tracks must be significantly diversified and new work settings must be entered. One way to achieve greater diversification of psychologists' professional roles and career opportunities is to increase interdisciplinary education and cross-training of clinical psychologists at the graduate and post-graduate levels.

The Need for Alternatives to Psychological Sub-Specialization

The profession of psychology has been undergoing two paths of development. On the one hand, the "sphere of legitimacy" for the application of psychology, in terms of what is studied, where it is practiced, and how it is delivered has expanded significantly in recent decades (Kohout, 1993; Schneider, 1981). This trend towards professional breadth and diversification is particularly evident in industrial/organizational (I/0) psychology, which has gained influence in management, education, research, and policy (Keita & Jones, 1990; Offerman & Gowing, 1990). On the other hand, another path of development, one most closely associated with clinical psychology, could be conceived as emphasizing specialties and subspecialties (Matarazzo, 1983; Mattis, 1999). This path has involved apportioning

intellectual territory, distinguishing between "types" of clinical knowledge, and emphasizing partially separate identities within the profession. These separate identities, commonly identified as sub-specialties within the field of clinical psychology, are built upon a meritocracy of appropriately identified post-doctoral training and subspecialty board diplomas. This professional development has particularly been advocated for clinical and counseling psychologists in medical settings (e.g. Roberts, 1998; Wiens, 1993).

There has been a continuing debate regarding how to accurately define specialties and subspecialties within psychology (Belar,1995; Krauss, Ratner, & Sales, 1997; Zilberg & Carmody, 1996). One definition set forth by the Division of Clinical Psychology (Division 12) of the APA and the Council of University Directors of Clinical Psychology (CUDCP) identified clinical psychology as a "field" (Resnick, 1991) that provides the foundation for specialties such as health psychology or neuropsychology (Wiens, 1993). These specialties, in turn, presumably, provide the foundation for newly developing subspecialties such as pediatric neuropsychology (Mattis, 1999).

It remains unclear from an empirical standpoint whether the emphasis on developing highly specialized areas of clinical psychology has resulted in improved clinical services (e.g. Faust, Guilmette, Hart, Arkes, et al, 1988) or whether this emphasis, by itself, realistically prepares students for the actual professional landscape (Prieto & Avila, 1994). It must be acknowledged, however, that some clinical specialties and subspecialties have allowed for crucial development of the field (Belar, 1997), particularly in terms of identifying how psychological principles can be applied in new and previously underserved health care settings. Furthermore, knowledge within the discipline of psychology has become vast enough that few people can master all of it, particularly for clinical application. On an intuitive level, if not an empirical one, specialized clinical knowledge and skills seem necessary for the increasingly sophisticated clinical settings in which psychologists find themselves (Belar, 1997). The question arises, then, as to how clinical psychologists will be able to pursue sophisticated specialties and sub-specialties in the field, continuing this intuitively valuable development in psychology, while remaining versatile and adaptable professionals. The answer may lie with a new model of graduate education that allows for the development of hybrid careers, so that one is able to adopt clinical specialization without sacrificing career versatility.

Re-incorporating All of Psychology's Educational Levels

In addition to an alternative to subspecialization, a new model of education is needed to address the needs of terminal masters degree

graduates in clinical psychology. George Miller (1969) noted thirty years ago that "We are not physicians; the secrets of our trade need not be reserved for highly trained specialists. Psychological facts should be passed out freely to all who need and can use them" (p. 1070). His point was that it is the discipline's potential to contribute to diverse areas and interests that makes it most valuable, not its ability to cordon-off an area of practice which, as evidenced by the increasing presence of other professions in traditional psychological practice areas, is not really cordoned-off at all. Despite such admonitions, the profession of psychology has increasingly tried to protect clinical practice through gatekeeping: attempting to reserve the practice of clinical service for doctoral level clinicians by eliminating or restricting licensure at the masters level in many states (Kohout, 1993; Sleek, 1996). However, unlike medicine, which has historically succeeded in establishing sharp boundaries around its professional activities (Starr, 1982, p.225), clinical activities engaged in by psychologists are highly permeable, and other independently licensed professionals, such as social workers, nurses, or rehabilitation counselors, have successfully assumed clinical responsibilities while some of psychology's own practitioners, such as masters level clinicians, have been denied professional access (Kohout, 1993; Sleek, 1996).

The restriction and denial of professional access for masters level psychology clinicians has occurred despite there being no definitive empirical evidence suggesting masters level clinicians are less effective than doctoral level psychologists in many clinical activities (Faust et al, 1988; Goldberg, 1968; Leli & Filskov, 1981, 1984). Furthermore, this development within psychology of denying state licensure to masters level practitioners, despite the lack of empirical support for such differentiation, could be considered inconsistent with other initiatives in the field: it is occurring at the same time many doctoral level psychologists are trying to obtain prescription privileges, arguing there is clinical and empirical evidence that doctoral level psychologists are as effective in prescription skills as medically trained psychiatrists (Resnick, DeLeon, & VandenBos, 1997). What is needed at this time is a new educational model in clinical psychology, one that: 1) does not disrupt the existing scientist-practitioner model of clinical psychology education; 2) allows continued pursuit of specialties and sub-specialties without sacrificing employability; and 3) allows both masters and doctoral level graduates to benefit from education in the discipline. These three objectives can be accomplished by developing a new model of graduate education that uses the discipline of clinical psychology as one half of a professional hybrid, incorporating the knowledge and skills from other

fields in order to create a truly adaptive collection of professional abilities.

Interdisciplinarity and Cross-Training: Specializing in Breadth

A recurring theme in humanities education is interdisciplinarity (Boyer, 1990, p. 21; Klein, 1990, p. 5;Kockelmans, 1979, p. 26), and in health care settings there is a growing emphasis on cross-training (Brauzer, Lefley, & Steinbook, 1996; Cordes, Rea, Rea, Vuturo, & Kligman, 1996; Moss, 1996;). Interdisciplinarity refers to the education of individuals across broad domains of knowledge, similar to the goals of a liberal arts education. Interdisciplinarity involves unifying domains of knowledge to address larger questions (Mourad, 1997), not discouraging the pursuit of specialized knowledge, but expanding the *context* of any specialization. This can be accomplished by fostering education in more than one field, preparing students of psychology to become educated in other disciplines at an advanced level. With an interdisciplinary approach to education and training, there is an emphasis upon joining together typically separate or isolated areas of knowledge for the purpose of cross-fertilization of ideas, research, and application:

> Today, interdisciplinary and integrative studies, long on the edges of academic life, are moving toward the center, responding both to new intellectual questions and to pressing human problems. As the boundaries of human knowledge are being dramatically reshaped, the academy surely must give increased attention to the scholarship of integration (Boyer, 1990, p. 21).

Interdisciplinarity also incorporates empirical efforts as well as clinical knowledge. In fact, interdisciplinary inquiry is increasingly perceived as complementary to highly specialized and focused clinical research:

> New knowledge, represented in the category of original research, is of limited usefulness if it is not integrated into a larger body of concepts and facts. For this reason, the integration or synthesis of knowledge is as valuable and as difficult as the generation of original data. A quality synthesis will reveal new patterns of meaning and can advance the field by creating new knowledge based on the integrative framework. (Halpern, Smothergill, Baker, Baum, et al, 1998).

Associated with interdisciplinarity, "cross-training" has a more technical connotation and refers to the acquisition of specific skills garnered from separate disciplines, such as learning both nursing skills and psychotherapy skills, or psychological consultation skills and personnel management, rather than specializing in just one of these areas. The emphasis on interdisciplinarity and cross-training is not necessarily counter to the emphasis on specialization, since it does not preclude specialization as one component of a broad, interdisciplinary education:

specialized knowledge can still be sought, but it can be sought in conjunction with education and training in other disciplines and skills.

The Task Force of the Society for the Teaching of Psychology recently proposed changes to the very manner in which scholarship in psychology is conceived and judged, calling for a broader view of what constitute scholarly activities, consistent with Boyer's (1990) proposals in his seminal book, *Scholarship Reconsidered* (Halpern et al, 1998). Interdisciplinary innovations within the larger academic community are already occurring. For example, an arrangement at Tulane University called the Interdisciplinary Scholars Network focuses on creating an interdisciplinary network of graduate and professional students who can interact and share knowledge through organized meetings and a lecture series. Students participating in this network do not sacrifice their areas of specialized interest, but have the opportunity to reframe these interests in an interdisciplinary context among students from related and distant disciplines. Within the discipline of psychology, the psychology department of Seattle Central Community College developed a Coordinated Studies Program based on a collaborative-learning model that links the discipline of psychology to multiple other disciplines in order to promote breadth of knowledge (Finley, 1995). Similarly, Industrial/Organizational (I/O) psychology in general has been successful in achieving an interdisciplinary educational mission while preserving its own identity as a field within the broader discipline of psychology (Arthur & Benjamin, 1999, p. 100). These innovative and adaptive approaches to education herald a new era in preparing students for the world of work. In a time of rapid change in health and mental health settings (Broskowski, Marks, & Budman, 1994,p.1; Wheatley, DeJong, & Sutton, 1997), interdisciplinarity and cross-training may represent one of the most adaptive and constructive approaches to the education of clinical psychologists in graduate programs.

A Proposal for Hybrid Careers in Psychology

There has been a growing and persistent call for clinical psychologists to become more familiar with other disciplines in order to become more versatile and extend the influence of the profession more broadly (i.e. Bray, 1996; Cox, 1997; Haley et al, 1998; Kohout, 1993; Wiggins, 1994;Yung, Hamond, Sampon, & Warfield, 1998). There have been few accounts, however, of actual interdisciplinary or cross-training models linking psychology to other disciplines at the graduate level. Notable examples of graduate interdisciplinary education in psychology are the psychology and law programs, such as those at the University of Nebraska's interdisciplinary graduate program in which students can gain a Ph.D. or masters in psychology as well as a law degree, or the

interdisciplinary programs in law and psychology at Simon Fraser University in British Columbia (Ogloff, 1999). Despite the greater versitility of psychology as a discipline, medical education has actually more aggressively pursued interdisciplinary educational options: many medical schools have offered interdisciplinary and dual degree programs for many years (e.g. Raymond, 1999). Some innovative proposals and published anecdotal examples of interdisciplinarity and cross training in psychology include: interdisciplinary study of psychology and government policy (Walley, 1995); uniting psychology with nursing (Thomas, 1996); psychologists learning to conduct physical examinations (Folen, Kellar, James, Porter, & Peterson, 1998); and training psychologists in psychopharmacology for the purpose of prescription privileges (i.e. Brentar & McNamara, 1991).

Rather than pursuit of highly specialized clinical post-doctoral training as the *only* form of post-graduate professional education encouraged in clinical psychology, it is proposed here that interdisciplinarity and cross-training in other fields, in lieu of subspecialty post-doctoral residencies for some individuals, can potentially serve the profession of clinical psychology, its graduates, and the public very effectively. The cross-trained psychologist would be able to enter more than one professional arena, bringing with her the knowledge and professional title of a clinical psychologist as she influences and shapes other fields that are usually beyond the direct influence of most psychologists. Equally important, her own career options would be enhanced during a time of increasing constraint in many clinical psychology roles.

If clinical psychology graduate students were exposed to coordinated interdisciplinarity as part of their graduate curriculum, they could subsequently pursue cross-training in another field upon completion of their degree program in psychology, thereby receiving what would functionally be post-graduate training in another independent profession and achieving a hybrid education. The psychologist-public health specialist, psychologist-nurse practitioner, psychologist-massage therapist, or psychologist-business manager would be in a position to pursue a greater diversity of professional opportunities and avoid temporary recessions in any one field. Furthermore, like the psychologist-attorney educated in one of the M.A./ J.D. or Ph.D./J.D. programs, these additional hybrid professionals would bring a synergistic knowledge to both fields and to the public.

In order to be prepared to enter advanced education in another field upon completion of masters or doctoral education in clinical psychology, graduate programs facilitating this cross-training model would need to incorporate the other discipline's prerequisites into the graduate

psychology curriculum. For example, a graduate psychology student might be taking courses in computer programming, management information systems, and engineering, in addition to psychology core courses, in order to qualify, upon graduation, for advanced post-doctoral study of a technological field like Information Technology.

What follows are brief outlines of six broad hybrid paths for interdisciplinary learning and cross-training, linking clinical psychology to other professional fields. The six hybrid paths outlined are: psychology-nursing/allied health professions; psychology-complementary and alternative health; psychology-administration; psychology-information technology; psychology-public policy; and psychology-public health. The psychology-law hybrid has not been included here, since that particular model has been covered extensively elsewhere (e.g. Bersoff, Goodman-Delahunty, Grisso, et al, 1997). Likewise, the cross-training necessary for psychologists to obtain prescription privileges is not included here, as that model has been given extensive consideration previously (e.g. DeLeon, 1993; Resnick, DeLeon, & VandenBos, 1997) and, until laws are changed, does not presently constitute a career option for psychologists.

The emphasis of each of the six outlines is on: 1) a brief description of the field proposed for cross-training; 2) the advantages to psychologists of pursuing cross-training in that specific field; and 3) the prerequisites or recommended course work that would have to be incorporated into the graduate psychology curriculum in order to facilitate post-graduate cross-training in the outside field. Such prerequisites or recommended course work (beginning accounting, for example, for those students wishing to prepare for both psychology and business; or anatomy and physiology for those wishing to pursue both psychology and nursing) would likely not be gained within the psychology department, but would be fulfilled by students engaging in interdisciplinary education by taking such courses in other departments of the university. The model, therefore, is one of interdisciplinarity at the graduate psychology level, with advanced cross-training and education in another field following completion of the graduate psychology degree. At the completion of such an interdisciplinary and cross-training program, many graduates would hold dual degrees, such as a masters or Ph.D. in psychology and a nursing degree or masters in business administration. *All* graduates, though, with or without dual degrees, would have achieved an extensive interdisciplinary graduate education, with hybrid skills and advanced knowledge of more than one field.

SIX HYBRID PATHS FOR THE EDUCATION OF CLINICAL PSYCHOLOGISTS

Psychology and Nursing/Allied Health Professions

Allied health professions have traditionally been all of those in which the clinicians assist, facilitate, or complement the work of physicians. In the past, such professions typically included nursing, physical therapy, occupational therapy, speech language pathology, audiology, physicians assistants, and others. The focus here is on nursing, occupational therapy (OT), and physical therapy (PT), though conceivably many of the disciplines comprising allied health could provide opportunities for interdisciplinary education and cross-training of clinical psychologists. The current growing independence of many of these allied health professions from physician dominance is now resulting in a need to reconsider the term "allied health" entirely. Advanced practice nurses (APNs), for example, are gaining independent prescription privileges on par with medical personnel (Segal-Isaacson, 1998), and OTs and PTs are actively ad- dressing how to monitor and manage their own clinical treatment hierarchies over which they have significant control (Holland, 1998). The former College of Health Related Professions at the University of Florida in Gainesville changed its designation to the College of Health Professions in 1995 to more accurately reflect the role of disciplines such as OT, PT, and SLP ("Changing Name", 1995). What follows are specific definitions and descriptions of the three health professions proposed here for cross-training psychologists: nursing, OT, and PT.

Nursing

There are multiple levels of nurses. The Registered Nurse (RN) is the recognized standard of practice and the RN constitutes the most common educational level for nursing. There are generally four routes to becoming an RN: 1) a diploma program offered directly through a hospital (approximately two to three years following high school); 2) an associates degree through a junior college (a two year associates degree following high school); 3) a baccalaureate nursing degree through a four year college or university program which frequently results in either a bachelors degree in nursing (BN) or both a non-nursing bachelors degree accompanied with a nursing diploma; and 4) a *pre*-nursing background within a baccalaureate program followed by a post-baccalaureate diploma program or two year RN program.

Education beyond the RN or BN degree, usually a masters degree, frequently results in one of four types of advanced practice nurse (APN): nurse practitioner (NP), clinical nurse specialist (CNS), nurse midwife (NM) , and nurse anesthetist (NA; Pearson, 1999). While the four types

of advanced practice nurses frequently differ with regard to practice specialties, practice settings, and emphases, what they share, in addition to a foundation in the nursing philosophy, is rapid advancement and growing influence in the contemporary health care environment despite the reticence and objections of organized physicians' groups (Cooper, Laud, & Dietrick, 1998).

Occupational Therapy

Occupational therapists work to restore the highest possible level of independence of those individuals limited by physical injury, illness, cognitive impairment, psychosocial function, or developmental or learning disability (Neistadt & Crepeau, 1998, p. 897). Occupational therapy does not focus exclusively on physical function or rehabilitation, but rather the development of whole activities of daily living. Occupational therapists, therefore, address the physical and cognitive aspects of recovery or adjustment.

Occupational therapists are educated at either the bachelors or masters level. Occupational therapy is recognized as a crucial discipline within medical and rehabilitation settings, though it is often not well understood by the public. Occupational therapy is rapidly moving into areas of clinical treatment and program administration that significantly impact and overlap with clinical psychology in medical and mental health settings.

Physical Therapy

Physical therapists (PTs) evaluate and treat the physical capacities and limitations of individuals with illness or injury (Neistadt & Crepeau, 1998, p. 793). Physical therapists are often primarily focused on patients' ability to increase strength, balance, and mobility (APTA, 1995). Unlike OT, PT tends to focus more on physical functioning and recovery rather than broad activities of daily living.

The Benefits to Psychologists of Cross-Training in Nursing/Allied Health Professions

The mutually beneficial alliance between the fields of psychology and nursing has been emphasized in the past (DeLeon, Kjervik, et al, 1985), and the advantages of being cross-trained in clinical health psychology and nursing have been outlined (Thomas, 1996). Increasingly, greater responsibility for patient care is being given to RNs and APNs in hospital and clinic settings in order to reduce health care costs (Brink, 1999). The result is higher profiles and greater potential clout for the nursing field within managed care settings.

Median starting salaries for some APNs now frequently exceed that for clinical psychologists in many markets (Fisher 1997, p. 481). NPs have been particularly successful in lobbying for prescription privileges in a large number of states (Sharp, 1999). Clinical psychologists educated in and holding a license as an NP would likely be in an optimal position to assume highly sophisticated and dynamic positions in a wide variety of clinical settings. Additionally, the National Institute for Nursing Research (NINR), within the National Institutes of Health (NIH), is already conducting some areas of research focusing on psychological variables (Sheridan, 1999). Cross-trained clinical psychologist-nurses would be well positioned to contribute to and lead such empirical efforts in a wide variety of health care and research settings.

While the health professions of occupational therapy and physical therapy have recently suffered constricting job markets and slowed employment and financial growth due to reformed Medicare reimbursement associated with the Balanced Budget Act of 1997 (Schaffer, 1998), future projections for these fields are very positive (U.S. Department of Labor, Bureau of Labor Statistics, 1998, p. 194). The United States demographic composition is a harbinger of heightened need for such rehabilitation and geriatric care professionals in the future (VandenBos & DeLeon, 1998, p. 19). Clinical psychologists cross-trained in one of these other health care fields would be particularly well suited for clinical-administrative roles and team leadership in inter-disciplinary rehabilitation settings. Clinical psychologists possessing hybrid skills and dual licenses would also have the advantage of expanded employment opportunities and versatility in a volatile health care job market.

The fields of clinical psychology must begin to consider that current needs in health care might best be served by advanced, cross-trained professionals with multiple clinical capabilities. Psychologists, in order to continue developing influence in health care settings, will need to incorporate a much broader repertoire of clinical skills and functions (Holland, 1998; Troy & Shueman, 1996, p. 67). Ideally, clinical psychologists in medical settings will begin receiving education in the clinical knowledge and skills of other successful health care disciplines, achieving a more holistic function as providers. The psychologist-nurse practitioner, psychologist-OT, or psychologist-PT, for example, would be in a posi- tion to 1) address both physical and psychological needs in an integrated manner; 2) take advantage of career opportunities in either profession; and 3) conduct particularly sophisticated interdisciplinary research.

Clinical psychology need not wait only for legislation that will allow for prescription privileges for psychologists in order to expand their

health care role. Multiple opportunities for expansion of clinical health care abilities are currently available for those psychologists willing and able to pursue post-graduate education in one of the closely related, but independent, health professions. Furthermore, as noted above, some health professions, like nurse practitioners, have already gained prescription privileges. Interdisciplinary education that allows students to subsequently pursue post-graduate training in one of the allied health fields may facilitate psychologists gaining prescription privileges through the legislative progress made by the *other* profession.

Frequent Prerequisites for Nursing/ Allied Health Professions Programs

Each of the health fields reviewed above has its own set of prerequisites or recommended courses prior to advanced study. Some of the health professions, such as Advanced Practice Nursing, have prerequisites that would necessitate a great deal of navigation in order to integrate them into a graduate clinical psychology curriculum. In the case of any of the Advanced Practice Nursing specialties, for example, one must already possess an RN degree in order to pursue a masters degree. The interdisciplinary preparation in a graduate psychology program would ideally involve course work and clinical rotations that would result in an RN degree as well as a masters or Ph.D. in clinical psychology. Graduates of such an interdisciplinary psychology-nursing program could subsequently go on to pursue advanced study in nursing resulting in Advanced Practice Nursing status and the contemporary liberties that come with it.

Fulfilling the prerequisites for advanced study of OT or PT would likely be less strategically challenging than for nursing, since the traditional graduate curriculum in clinical psychology often significantly overlaps with common prerequisites for advanced study of OT and PT. For OT, many graduate programs require both social science and natural science didactic background. Common social science prerequisites include Abnormal Psychology, Developmental Psychology, and Sociology. Natural Science prerequisites include Physiology, General Anatomy, Physics, Chemistry, Introductory Statistics, and computer literacy.

Common PT prerequisites include those listed above for OT, but with frequent additional prerequisites of microbiology and exercise physiology. Many PT programs do not emphasize a substantial social science background that most OT programs prefer.

Psychology and Complementary and Alternative Health

Complementary and alternative health (CAH) refers to a range of healing and wellness methods that complement conventional biomedicine and

broaden health care options (Berger, Hawley, & Pincus, 1992). Many CAH practices have been drawn from traditional Eastern systems of health (such as Indian Ayurvedic approaches to health, Chinese medicine, and Tibetan medicine) and native Western approaches to health (such as Native American healing practices). CAH tends to have three broad areas of focus: biophysical modalities (e.g. acupuncture, Alexander Technique, massage, subtle energy, yoga, meditation, qiqong) biochemical modalities (e.g. herbs, nutrition, and some aspects of acupuncture) (Wu, Bandilla, Ciccone, Yang, Cheng, Carner, Wu, & Shen, 1999), and spiritual practices (e.g. meditation, yoga, prayer, pilgrimage). The emphasis of most complementary and alternative health is holistic, so there is a great deal of intentional integration and overlap among these three broad modality domains.

The Benefits to Psychologists of Cross-Training in Complementary and Alternative Health

Complementary and alternative health (CAH) has experienced dramatic growth due to increased demand over the past decade (Eisenberg, Kessler, Foster, Norlock, Calkins, & Delbanco, 1993; Rosellini, 1999). The Office of Alternative Medicine (OAM) of the National Institutes of Health (NIH) was recently elevated to a free-standing center within the NIH (Muscat, 1999). Now called the National Center for Complementary and Alternative Medicine (NCCAM), the center is now able to fund its own research grants independent of other NIH institutes or centers (Muscat, 1999). Over the past five years, new empirical peer-reviewed journals, such as Alternative Therapies in Health and Medicine, focusing exclusively on CAH, have emerged. International, interdisciplinary conferences in topics like traditional Eastern medicine have also begun to take place.

CAH may represent one of the most promising interdisciplinary and cross-training opportunities for contemporary clinical psychologists, though little has been proposed regarding how psychology might interface with CAH in terms of educational preparation or practice. CAH is projected to continue to grow rapidly (Boucher & Lenz, 1998) and certain practices within CAH like massage therapy (Thomas, 1999), acupuncture, and naturopathic medicine (Cassileth, 1998, p. 52) are increasingly being incorporated into mainstream Western medical practice. A number of medical schools have begun to incorporate CAH into the curriculum (Rosellini, 1999). While clinical psychology and other non-physician health care professionals have experienced resistance from the American medical establishment with regards to prescription privileges and other avenues for growth (Klusman, 1998; Starr, 1982, p. 27), such resistance does not exist in areas of complementary and

alternative health. In fact, a number of CAH leaders have called for increased collaboration with and inclusion of clinical psychology (Horrigan, 1998; Menkin, 1999). It is also worth noting that, at a time when psychology is experiencing increased difficulty with reimbursement for clinical services, CAH is slowly beginning to experience increased coverage and inclusion (Goleman & Gurin, 1993, p. 17; Cassileth, 1998, p. 52). Since many principles and practices being attributed to CAH are, in fact, traditional psychological concepts and methods (relaxation training, meditation, biofeedback, hypnosis, etc.), the opportunity for clinical psychologists to contribute to and benefit from involvement in the fields comprising CAH is already evident. Some CAH practices have been criticized on the grounds that they lack empirical support (McCutcheon, 1994; 1995) or have not yet been subjected to randomized clinical trials (Angell & Kassirer, 1998). Clinical psychologists cross-trained in CAH could bring research skills and a demanding empirical perspective to CAH that could help strengthen the field. As health care professionals, it could be said that psychologists are obligated to become more involved in CAH, particularly given the public's growing pursuit of services subsumed under this designation, and the need for empirical influence. It is notable that the public has been very vocal in its pursuit of CAH and has advocated for the inclusion of CAH in health maintenance organizations (HMOs) and insurance coverage (Moore, 1997). The field of clinical psychology, by becoming more closely involved with CAH, may be able to better identify and incorporate those qualities possessed by CAH and its practitioners that have resulted in such strong public appeal.

Frequent Prerequisites For Complementary and Alternative Health Programs

The array of complementary and alternative health practices is so broad that identifying prerequisites for entry into educational or training programs is somewhat arbitrary, particularly since some training opportunities in modalities like meditation or yoga are not academic and do not have prerequisites. There are a number of formal educational opportunities in complementary and alternative medicine, however, that do have specific course requirements. A large number of free standing institutes of acupuncture and oriental medicine offer degree or certificate programs in oriental medicine or acupuncture. Many such programs have a small number of prerequisites highly relevant to graduate education in CAH. Even when training programs do not impose specific academic prerequisites, knowledge of human biology, anatomy, and physiology would clearly provide useful foundation knowledge before entering any rigorous training program in holistic health, particularly since such

training programs are not likely to be remedial and may assume such background knowledge. Therefore, clinical psychologists pursuing CAH cross-training opportunities that do not have prerequisite academic courses could still clearly benefit from interdisciplinary graduate psychology education that incorporates the courses listed below. These courses are drawn from some of the most common prerequisites or suggested courses for programs in Oriental Medicine and complementary health (American Association of Oriental Medicine, 1998) and Naturopathic Medicine: Anatomy and Physiology; Pharmacology; Comparative Religion/Eastern Spirituality; Human Biology; Organic Chemistry; General Chemistry; and Physics.

Psychology and Public Health

Public health is a social institution, a discipline, and a practice (Millbank Memorial Fund Commission as cited in Last, 1995, p. 134). Public health involves community-centered endeavors, the goals of which are to protect the community against threats to its health (Fairbanks & Wiese, 1998, p. 5). The discipline of public health, like the concept of health itself, has evolved towards a "process" definition (Fairbanks & Wiese, 1998, p. 4), involving efforts across health care, science, and social science disciplines, government agencies, and national boundaries. The most common setting for public health professionals is still in government agencies, though the need for public health knowledge in managed health systems and community prevention programs is well known (Fairbanks & Wiese, 1998, p. 28).

The Benefits to Psychologists of Cross-Training in Public Health

A decade ago, it was noted that there were few clinical psychologists working on macro-level public health issues (Winett, King, & Altman, 1989, p. 5). The rapid growth of clinical health psychology (Belar, 1997; Sheridan, 1999), however, has resulted in a great deal of overlap between public health and the discipline of psychology. Clinical health psychology is often closely allied to the field of public health in its mission (Koop, 1983), and the scientific knowledge base deemed important to clinical health psychology overlaps much of what is central to the field of public health (Sarafino, 1998, p. 19).

A number of proponents for the specialty of clinical health psychology have advocated for interdisciplinary education in both psychology and public health (Winett, King, & Altman, 1989, p. 26). Given the current clinical and financial incentives for prevention in the contemporary managed health care environment, an interdisciplinary background in these two areas would fill a growing need (Lasker & The Committee on Medicine and Public Health, 1997, p. 44). There are a

number of dual degree MA/MPH or Ph.D./MPH programs available, uniting psychology and public health; the potential to join the two disciplines, however, has yet to be fully realized.

There is a growing call for the expansion of public health knowledge and application worldwide (World Bank, 1993, chap. 7). This knowledge and these skills are likely attainable by clinical psychologists without additional formal public health didactics or an additional degree program, though formalized education such as that in an MPH degree program would likely provide the greatest professional validity and recognition for those psychologists who wish to pursue public health endeavors. Furthermore, as a health profession, clinical psychology has not pursued international service the way the fields of medicine, nursing, and, particularly, public health have. The clinical psychologist-public health professional could more readily enter into causes like international health that might not be as accessible to a traditionally educated clinical psychologist.

Professional success will be achieved by those who possess valuable knowledge and combinations of skills that are in greater demand than supply. Those who unite knowledge of both clinical psychology and public health, similar to physicians who have sought public health knowledge, will likely represent valued and unique professionals able to address health concerns, policy, and prevention efforts in ways others cannot (Lasker & The Committee on Medicine and Public Health, 1997, p. 36).

Frequent Prerequisites for Graduate Study in Public Health

Many graduate programs in public health prefer that applicants have a background in both natural sciences and social sciences, consistent with the discipline's focus upon both the biological and social factors underlying health risks. Natural science courses including biology, physiology, and microbiology; and social science courses including sociology, anthropology, and economics, in addition to psychology, are frequently identified as providing important background knowledge for the graduate study of public health.

Psychology and Administration/Management

Peter Drucker (1990) claims the job of a good leader is not simply to capitalize on charisma, but to formulate problems and organize others in the pursuit of a mission, and to rally and lead others in the pursuit of well defined goals (p. 3). The most important skills needed for administration or management are often debated, but there are some core skills and fundamental areas of knowledge that consensus suggests do, in fact, inform administrative functions. These areas of knowledge and skill

frequently involve understanding personnel issues, organizational behavior, finance, operations, organizational strategy, accounting, quantitative analysis, and marketing (Silbiger, 1993,p. 5). Some of these skills are closely associated with those learned in clinical programs (personnel issues, for example), while others are further afield (e.g. accounting). It is, however, such partially overlapping professional domains that may offer some of the most promising hybrid career opportunities and are the focus here.

The Benefits to Psychologists of Cross-Training in Administrative/ Management Skills

Administrative and management skills are not currently a core component of the graduate psychology curriculum in most clinical programs (Cox, 1997; Maddi, 1997), though a number of authors in a number of health care fields have emphasized that clinicians could benefit significantly from greater exposure to such skills, preparing for positions as clinician-managers in a variety of settings (Cordes, Rea, Rea, & Vuturo, 1996; Holland, 1998). A survey of psychiatrists found that those in health care administrative positions reported performing a greater variety of tasks and experiencing greater job satisfaction than staff psychiatrists (Ranz & Stueve, 1998). Learning such administrative and management skills can be accomplished in a number of different ways and through a number of different disciplines. Exposure to I/O psychology at the graduate level is one of the most efficient and readily achieved means of gaining such skills for most clinical psychology students in departments that also offer an I/O specialty. Business school, public administration programs, and health management programs within schools of public health also offer opportunities for the graduate or post-graduate clinical psychologist looking to cross-train in administrative skills. The hybrid clinical psychologist-manager would conceivably have two career paths from which to choose: one would constitute entering traditional health or mental health settings as an administrator who also possesses first hand knowledge of clinical service provision; the alternative would be to pursue a career outside traditional clinical settings entirely, in an area such as corporate management or consulting, where a clinical background and knowledge of psychology would broadly inform one's work activities, but not determine one's primary professional identity.

The professional educated in both clinical psychology and management would be in a position to manage both the financial challenges of an organization and personnel challenges in a highly sophisticated manner. Given the professional success of I/O psychologists (Erffmeyer & Mendel, 1990; Schippman, Hawthorne,

Schmitt, 1992) clinical psychology could likely gain significantly by integrating management skills into the graduate curriculum and preparing some students for post-graduate pursuit of management degrees.

Frequent Prerequisites for Administrative/Management Programs

There are a number of different genres of graduate administration and management education, each with its own emphasis and, as a result, its own set of common prerequisites or suggested background knowledge. Many administration and management programs do not have specific course prerequisites for admission, but clearly some background knowledge would be advisable, if for no other reason than to orient the student to the kind of management program she might prefer. Administrative skills gained through a masters of public health (MPH), for example, are likely to be those needed for health services management, relief organizations, or Federal health agencies, and warrant background in the biological and quantitative sciences that are likely already fulfilled through the curriculum of most traditional clinical programs. Administrative skills gained through a masters of business administration (MBA) program, on the other hand, are likely to have a corporate emphasis, a greater focus on finance and e-commerce, and require competencies in areas like accounting and budgeting that are not common content in most clinical programs. For those pursuing administrative and management skills through post-graduate study in masters of public administration (MPA) programs, which are primarily concerned with leadership in the non-profit sector (McCormick, 1994, p. 1), background coursework in accounting, finance, government policy, and legislative process might prove helpful. Below are common prerequisites for graduate programs in business administration and public administration. Although many schools of public health also provide programs in health management, prerequisites for entry into public health programs have been covered above.

There are an enormous number of MBA programs and no universal set of academic prerequisites. Some programs, however, do either require or strongly favor applicants with two to three years of work experience. Some of the additional common academic prerequisites or suggested competencies include: College Algebra, Integral and Dif- ferential Calculus, and Basic Accounting. Since MBA programs tend to emphasize economics, finance, accounting, and marketing (in addition to statistics and organizational behavior which most psychology graduate students would know well), students possessing familiarity with some or all of these areas would make a ready transition into a business curriculum. Furthermore, some business schools offer accelerated degree programs for incoming students possessing significant background

coursework in business. Graduate clinical psychology programs could readily integrate business school prep courses into the traditional curriculum, and some programs could likely achieve a dual degree program in clinical psychology and business that would significantly enhance the career options of graduates.

MPA programs offer education for the management and administration of public and non-profit programs (McCormick, 1994, p. 1). They therefore tend to emphasize knowledge of the social sciences, much of which a graduate program in psychology is likely to satisfy. Suggested, though frequently not required, background courses for admission to graduate public administration programs include: Economics, Anthropology, Political Science, and Statistics.

Psychology and Information Technology

Information technology is a term that refers to a broad spectrum of functions and applications, ranging from record-keeping activities to the interaction of human factors with computers. In the most practical sense, information technology refers to computer applications aimed at capturing, transmitting, and recording information for use by an entire organization (Griffith, 1995, p. 418). Information systems are often networked in complex ways, and this complexity requires specialized knowledge and skills in order to engineer, organize, and integrate these systems within organizations. For example, an integrated system of information in a health care setting might involve combining patient accounting and medical records (Griffith, 1995, p. 419), two distinct functional units that must continuously share information. Those who engineer and construct these integrated networks of information constitute critical resources within an organization dependent upon such coordinated processes.

The interaction of human factors with computer science is also subsumed under information technology and incorporates a great deal of psychological and cognitive principles along with those of information technology. Similar to the way in which ergonomics addresses the physical relationships between people and machines (Barlow, 1990, p. 59; Quick, 1999), parallel concerns now focus on the interaction between human cognitive factors and computer technology. This domain of information technology is interdisciplinary in nature, frequently concerned with identifying the most productive and "user friendly" applications of technology, and offers promising opportunities for students with advanced knowledge of clinical psychology.

The Benefits to Psychologists of Cross-Training in Information Technology

There is an increasing need for clinical psychologists to become more engaged with technology and computer science (Berry, 1996). While other specialties within psychology have sought further collaboration with technological fields and computer science, giving rise to new and innovative hybrid disciplines, clinical psychology has remained less technologically invested. The area of artificial intelligence, for example, is a discipline entrenched in both cognitive psychology and technology (Wagman, 1998, p. 12), though the contribution of applied clinical knowledge to this area has yet to receive full attention. Nevertheless, the involvement and productivity of other fields of psychology in technology and computer science suggests promising opportunities for clinical psychologists as well. The School of Information at the University of Michigan, for example, has a specialization in Human-Computer Interaction which specifically emphasizes organization theory and behavioral science along with computer science, and a number of faculty in this specialization have backgrounds in cognitive psychology. A number of other universities have programs in information technology and computer science that are highly accessible for interdisciplinary education. The University of Arkansas at Little Rock is in the process of developing a new College of Information Science and Systems Engineering that, in addition to an academic major, will offer an academic minor in information systems and will encourage students with a variety of career interests to adopt this minor.

Clearly, the potential for psychology in general to contribute to the field of information technology has begun to be realized. The opportunity for clinical psychology specifically to become involved also seems very promising. For example, graduates with a knowledge of both behavioral health and information technology would be well positioned to help design or maintain management information systems (MIS) in managed care or health insurance settings. Unified knowledge of clinical psychology and information technology would also result in hybrid professionals capable of designing distance learning methods and computer software that educates the public, students, or professionals in matters related to behavioral health. Psychologists at the Missouri Institute of Mental Health, for example, designed an educational software program that introduces the lay public to mental health and behavioral health concepts in a very accessible and user-friendly format (Epstein, Sage, & Wedding, 1995). Furthermore, clinical psychology graduates who are crossed-trained in information technology might be best positioned to help design and influence the production of computer-based approaches to psychological assessment and treatment, including

telehealth technology (Stamm, 1998), computer administered cognitive testing, and computer-generated reports.

Frequent Prerequisites for Graduate or Advanced Study of Information Systems

Programs of study in information technology are frequently free of uniform prerequisites, though background experience or course work in some areas is advised. For example, the graduate degree program in the School of Information at the University of Michigan does not have strict prerequisites, but reviews applicants on a case-by-case basis for fit with the goals and demands of the program. A clinical psychology student applying to the program would be considered most competitive if he had: 1) a psychology background that included cognitive courses; 2) a foundation in technology, preferably with some programming experience; and 3) an interdisciplinary background that might include anthropology, economics, library or information science, architecture, sociology, engineering, and/or mathematics (G. Furnas, personal communication, March 30, 1999). Furthermore, a formal degree program in Information Technology may not be necessary for many psychology graduate students wishing to unite clinical psychology with Information Technology skills, though a very strong foundation of knowledge in technology, however acquired, is critical.

Psychology and Public Policy

Public policy is ultimately that for which the government exists (Davidson & Oleszek, 1998, p. 349). It is what the government says and does about perceived problems (Ripley & Franklin, 1991, p. 12). Public policies may be explicit, authoritative statements of what the government is doing about a specific issue, written down in the form of laws or rules (e.g. financing social security or naming a federal building); or they may be far less formal (e.g. a stated mission in the President's State of the Union Address) (Davidson & Oleszek, 1998, p. 350). Policies may emphasize substance (e.g. building the defense system or highway infrastructure) or procedure (e.g. mandating program management standards) (Davidson & Oleszek, 1998, p. 350). Policies emerge through a Darwinian-like process of selection, determined by a host of factors and inputs. Understanding the complex process of policy formation can be difficult, but such an understanding is imperative for professional psychologists, if they are to successfully contribute to the shaping of major policy decisions.

The Benefits to Psychologists of Cross-Training in Public Policy

Professional psychology has a long history of interest in social issues and public policy. Social psychology and community psychology are fields that clearly represent this investment. In 1969 the theme of the APA Annual Convention was "Psychology and the Problems of Society" (Korten, Cook, & Lacey, 1970, p. xi). Despite this consistent interest, however, few clinical psychologists have been actively involved in policy making (DeLeon, 1988). It has been stated with increasing urgency that psychologists must begin to realize the role they can have in the process of making public policy if they are to influence legislation and political actions (DeLeon, 1988; Lee, DeLeon, Wedding, & Nordal, 1994).

One way to foster greater involvement of clinical psychologists in the public policy sphere is to encourage interdisciplinary education at the graduate or post-graduate level that specifically emphasizes public policy, government, and the legislative process. Graduate programs in clinical psychology have not typically encouraged development of high level public service professionals (DeLeon, 1988). Partially correcting for this situation, since 1974 the APA has promoted and financed a congressional fellowship program in order to facilitate the involvement of psychologists in the legislative and policy-making process (Lee et al, 1994), which provides an opportunity for psychologists to interface with the political world. This APA fellowship program is small, however, and only a handful of applicants are chosen for the opportunity each year. At this critical point in the development of the profession, when policy makers are directly influencing the day-to-day functions and livelihoods of clinical psychologists through decisions affecting health care finance, mental health access, patients' rights, children's health, and health research funding, the time has clearly arrived for education in clinical psychology to promote advanced knowledge of the legislative process and public policy on a larger scale.

A number of options exist for clinical psychologists to learn a great deal about the legislative process and public policy. One option would be the equivalent of "executive education" in legislative and policy studies. Such options are available through programs like that offered by the Government Affairs Institute at Georgetown University, where individuals can earn a certificate in legislative studies by attending intermittent weekend and week long intensives on Capitol Hill. Other options include continuing education through local universities or state government agencies, where courses and seminars on government policy and the legislative process are frequently open to those who are interested.

The most intensive option would involve interdisciplinary and/or post-graduate study of public policy, possibly resulting in dual degrees in psychology and a masters in public policy (MPP), but more importantly resulting in a thorough understanding of the workings and functions of government and legislation. Regardless of the specific means of gaining education in public policy, however, what currently remains essential is for graduate education in clinical psychology to foster accessibility to public policy knowledge, since without such knowledge the field as a whole will have a diminished voice on the national scale.

Frequent Prerequisites for Graduate Study in Public Policy

Graduate programs in public policy, like the development of public policy itself, draw from a diverse collection of educational and professional backgrounds. Many masters of public policy (MPP) programs prefer a history of employment or volunteer work that involved some aspect of policy or legislative knowledge. Most programs assume an understanding of the structure of American government and the legislative process. Specific didactics that are frequently required or preferred for the advanced study of public policy include micro- and macro-economics, American history and political science, and college algebra or statistics.

Discussion

The proposal to begin developing hybrid career tracks for clinical psychologists through interdisciplinary graduate education and post-graduate cross-training is likely to generate controversy. Such a model of graduate education necessarily requires a certain relaxation of professional identity, a willingness to advocate for collections of skills, rather than membership in a profession per se, as a new approach to a career for some graduates. This represents a radical departure from the historical emphasis of clinical psychology, which adopted and perpetuated a guild approach to professional identity (Kiesler, 1987, p. 57), emphasizing adherence to the specific and traditional roles of a clinician-researcher in order to maintain professional salience. Any controversy raised by the proposal to educate graduates for hybrid careers, however, would be productive at this time, since the need for dramatic change in graduate psychology education has clearly arrived, and dialogue is needed.

If graduate study in clinical psychology continues to result only in job choices among traditional clinician-researcher roles, clinical psychology programs will lose talented students to other graduate disciplines and professional programs that promise graduates clear career trajectories. The job market for traditionally educated and trained clinical

psychologists is no longer a selling point for the discipline. What graduate education in clinical psychology must now do is redesign graduate programs so that students can continue to gain the knowledge and skills of the discipline, but have career opportunities than transcend the traditional professional boundaries.

While debate and argument are healthy for any large profession, there is at this time a significant amount of divisiveness within clinical psychology. This divisiveness is largely a result of an oversupply of traditionally educated clinical psychologists in a limited scientist-practitioner job market. The oversupply of clinical psychologists results in a reduction of professional and personal rewards due to competition for shrinking resources (Robiner, 1991; Wiggins, 1994). As a result of this unfavorable supply/demand ratio, members of the profession are engaging in turf battles over traditional practice areas, attempting to claim certain clinical activities or clinical populations for subspecialties designated by board certification (e.g. Malec, 1992). Subspecialization will not provide an antidote to diminishing professional resources. Factionalism is a frequent response within an organization or profession when the environment within which the organization functions suddenly changes (Balser, 1997). It is a response that must be met with increased leadership, communication among the splintering groups, and a re-focusing upon a unified mission.

In order for new models of education, practice, and theory in clinical psychology to develop and thrive, new leaders in the field will need to be actively fostered. The profession of psychology tends to recycle its leadership, with a small number of individuals repeatedly garnering the decision-making and policy-making positions (Cummings, 1996, p. 7). New leadership is not visibly fostered. This may be due to the lack of a career ladder in psychology (Sheridan, 1999). Political advancement within the bureaucracy of the profession is one of the few clearly outlined means of professional advancement, a situation that could contribute to a recycling of leaders and bottlenecking of new ideas. The profession's leadership must begin to actively promote and develop upcoming generations of innovators if new ideas are to be heard and tried. Without such encouragement of a larger number of new leaders, the pace of change within the profession will continue to stagnate. One advantage of developing hybrid professionals is that they can bring back to psychology successful ideas and professional strategies learned from other professional affiliations, possibly resulting in a very diversified and broad leadership.

The interdisciplinary and cross-training model of developing clinical psychology graduates capable of hybrid careers may be particularly well suited for terminal masters programs in psychology. The masters level

clinical psychologist has been virtually disowned by most national and many state psychological associations (Kohout, 1993). Masters level psychology graduates have little to gain from exclusive adherence to, and identification with, traditional clinical roles within the profession. The masters level psychology graduate who is well prepared to pursue other career paths, however, will be able to benefit from advanced psychological knowledge and skills, free from the constraints of a profession in which he has little control. In fact, terminal masters level programs in psychology, because they have less regulated curriculum requirements, may be able to adapt their curricula more rapidly to facilitate interdisciplinary programs.

The robust achievements of the discipline of clinical psychology must be preserved. One way to do this is to allow the discipline to be applied in innovative ways and in new professional settings. By creating hybrid professionals with expanded career opportunities, graduate education in clinical psychology will achieve a new model of professional preparation that is consistent with the needs of the contemporary job market. It is the ultimate act of "giving psychology away" (Miller, 1969). By creating employable graduates, psychology will be able to retain its claim as a helping profession, since adaptation will have been made for the benefit of those students who entrust a significant portion of their time and resources to study the discipline. By educating students to address diverse problems, rather than adhere to a profession or "guild" (Kiesler, 1987, p. 47), professional clinical psychology will actually prevail, since education in psychology will have conquered the limits imposed by academic disciplines and professional borders in order to serve the broader community.

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