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METHOD PAPER

Practice research network in a psychology training clinic: Building an infrastructure to foster early attachment to the scientific-practitioner model

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Abstract
Learning how to conduct clinically meaningful and actionable research while simultaneously training to be a competent clinician may be an optimal way to develop an early attachment to the scientific-practitioner model. In this paper, the transformation of a training clinic into a practice research network (PRN) is presented as a strategy to foster a seamless integration of clinical, training, and research facets of graduate training in psychology. With the hope of providing helpful guidance to trainers and trainees interested in building such an infrastructure, the authors describe the context in which they developed their training clinic PRN, its major components, and some of the studies that have been conducted in this network. Benefits earned and lessons learned (in terms of obstacles faced and strategies implemented to deal with them) are described, as well as general recommendations and future directions regarding the implementation and impact of training clinic PRNs.

Keywords: practice research network; training; psychotherapy; scientific-practitioner model

Becoming a competent clinician and researcher can be quite a challenge, both professionally and personally. It is our sense that in many doctoral programs in clinical psychology (but perhaps less so in other mental health professional training programs, such as PsyD programs and Masters degree programs in counseling psychology or social work), students can come to feel like failures if they decide or are strongly encouraged to "settle for a clinical career." Warnings about this can be expressed directly. For example, having questioned, during his first class of graduate school, the superior epistemological merit of logical positivism (as the only valid method of acquiring knowledge), the first author of this paper was summoned by his esteemed professor who let him know that he was not thinking like a scientist. He further told him that there were two types of psychologists: Those who love ideas and those who don't. Those who do, he said, "go into academia," "while those who don't," he pursued, "go into clinical practice." And so he was, from the first moment of his doctoral training, put onto notice of a clear and consequential line dividing the field. The same message can also be conveyed less explicitly, while still having a debilitating impact. Many practicing clinicians have painful memories of some members of their Masters or doctoral committees insisting on methodological procedures that may increase the internal validity of their study (and thus making it scientifically worthwhile in the eyes of these academicians), at the expense of the clinical relevance of the idea being pursued. In its extreme form, this could be viewed as an instance of idolatry of method and ignorance of substance.

Even for those who have entered graduate school primarily to become scientists in the field of mental health, doctoral programs do not always provide an optimal environment to learn how to develop into a skilled and knowledgeable *clinical* researcher (we note that the challenges discussed in this article are

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primarily in the North American context and that trainees in other locales may encounter different obstacles). First, it is not easy to find a research mentor who has extensive experience in clinical work. Working with a researcher who has continued to do assessment and/or psychotherapy after his/her training may well increase the probability of a graduate student conducting studies that reflect the complexity of or improve the impact of day-to-day practice. Furthermore, not all students have access to a structured setting where they can conduct studies with a substantial number of clients and therapists following standardized procedures of care. In addition, graduate students struggle with a paucity of time, which is imposed by the daunting challenge of having to become a scholar, researcher, and clinician, all within a few short years.

One way to address these problematic issues is to transform a clinic associated with a doctoral program into a practice research network (PRN) where students can simultaneously receive expert clinical training, have the opportunity to conduct scientifically valid and clinically relevant research, and work with professionals of different mental health backgrounds—many of them involved in all aspects of their graduate training (teaching, supervising, and mentoring). This type of training infrastructure is designed to foster a seamless and in vivo assimilation of the scientist-practitioner model. Based on the assumption that when students are given the chance to integrate what is learned in class and clinical supervision with what they investigate for their Masters and dissertation, they are more likely to see how research can inform their practice—and, in turn, how clinical practice can be a main source for the generation and implementation of research ideas. In this type of environment, students are less likely to have to choose between being a researcher or a clinician. They can contemporaneously learn to be both, which might be an optimal strategy to become a skilled and knowledgeable *clinical* researcher, as well as a competent evidence-based practitioner.

The goal of this paper is to describe the efforts made to establish and maintain such a clinic/research infrastructure at the psychology clinic associated with the adult clinical program of the department of psychology at Penn State University, referred to from now on as the PSU-training clinic PRN (PSU-TCPRN). We first present the context within which these efforts took place. After describing the major components of our training infrastructure, we provide a few examples of studies that have been conducted so far. We then highlight some of the benefits that we believe students (and others) have derived from accessing this type of infrastructure during their graduate career, as well as several of the challenges we have faced and lessons we have learned. We end this paper by presenting a few general recommendations for building a training clinic PRN, and by raising issues that might be worth addressing to fully maximize the promise that such an infrastructure can offer for the future of the scientific-practitioner model.

Context

A number of factors stimulated and facilitated the transformation of our clinic, from being purely devoted to training students in the provision of clinical services into an environment where trainees could also conduct research required by their degree and/or inspired by work in their classes. First, our efforts were sparked by the development of the Pennsylvania Psychological Association Practice Research Network (PPA-PRN). Originally conceived by Tom Borkovec (a faculty member in our department) and Stephen Ragusea (a full-time clinician practicing in the local community of our University), the PPA-PRN is aimed at creating an active collaboration between experienced practitioners and researchers into the determination, design, implementation, analyses, and dissemination of clinically meaningful and scientifically rigorous studies. As briefly described in one of the papers of this series (Koerner & Castonguay, in press), the PPA-PRN has so far led to three studies investigating several aspects of the process and outcome of psychotherapy. Over the last several years, the work conducted at the PSU-Training PRN and PPA-PRN has also influenced and benefited from the establishment of a third PRN infrastructure centered at Penn State University: The Center for Collegiate Mental Health (CCMH; also described in this series; see McAleavey, Lockard, Castonguay, Hayes, & Locke, in press). Although taking place in three different settings (training clinic, private practice, and university counseling centers), these infrastructures are all aimed at understanding and improving day-to-day clinical care via the involvement and shared ownership of various stakeholders.

Our efforts have also been facilitated by the deep and diversified commitment of the faculty members to the scientific-practitioner model. This is manifested by the fact that the majority of our tenure-track faculty in the adult clinical program are involved in research on assessment and/or psychotherapy. In addition, all of them have been hired in part because of their interest and skills in clinical supervision (all of the supervision at the PSU Clinic is conducted "in house" by the clinic staff or the tenure-track faculty members, with all of the core training provided by tenure-track faculty). With many of these faculty members having continued

their clinical practice since coming to Penn State, our program is composed of a group of scholars who are not only willing (for the growth of their own research program and the quality of their teaching) but also able to train and mentor *clinical* researchers—in all the expertise required by this challenging role. In addition, the faculty members represent, in non-dogmatic ways, a host of theoretical orientations (cognitive-behavioral, psychodynamic, interpersonal, humanistic, and integrative) and have collaborated on several research projects, within and across theoretical lines. In our experience, such an open-mindedness and collaborative attitude provide facilitative conditions for students to work in different labs (to learn different theoretical models, interventions, and methodology, as well as to investigate a variety of constructs and procedures), which in turn can help them to deal with the complexity of psychotherapy, clinically and empirically.[1]

The establishment and growth of the PSU-TCPRN has also been facilitated by several features of our clinical setting. Every year, the Psychology Clinic provides services to approximately 200 clients who, as a whole, experience a wide variety of psychological problems. The services are provided by more than 25 clinicians, most of them graduate students. This allows for relatively large samples of both clients and therapists for prospective and archival studies. While the majority of the students see clients as part of their clinical practica, some of them are offered clinical assistantships that involve larger caseloads. For those who are skilled enough to be selected, these assistantships not only allow them to accumulate more clinical and supervision hours (which can be very beneficial for internship applications), they also cover their stipends and tuitions—not a bad way to ease into the scientific-practitioner model! In addition, graduate students have been hired to help create or improve several aspects of the clinic's functioning that are crucial to its research infrastructure.

The clinic staff is composed of a director, two associate directors (one of them serving specific research functions), and several part- and full-time clinicians of different professional backgrounds (e.g., clinical psychologist, psychiatrist, psychiatric nurse). The same way that tenure track faculty members provide clinical supervision for all of the core practica, most of the clinic staff members (in addition to supervising clinical assistantships) are involved in teaching courses and serve as members of dissertation and Masters committees. With the goal of facilitating the integration of different sources of knowledge about psychopathology, assessment, and psychotherapy, students are trained by and work with some of the same people across their courses, clinical responsibilities, and research endeavors.

Structure

The structure of the PSU-TCPRN is composed of four major components: A core battery, standardized assessment procedures, a framework for the submission and evaluation of research projects, and an agreement with the Office of Research Protections (ORP) regarding the approval of studies by the Institutional Review Board (IRB) of our university.

Core Battery

The central assessment tool used in our clinic is the Treatment Outcome Package (TOP; Kraus, Seligman, & Jordan, 2005), which is processed by outcome referrals (OR). Briefly described in one of the papers of this series (Boswell, Kraus, Lambert, & Miller, in press), the TOP was designed for naturalistic settings and meets all of the recommendations of the Core Battery Conference (Horowitz, Lambert, & Strupp, 1997) convened by the Society for Psychotherapy Research and the American Psychological Association. We chose the TOP not only for its strong psychometric qualities (see Kraus & Castonguay, 2010, for review) but also for its clinical utility. In particular, because it includes 12 subscales measuring common symptoms of DSM psychological disorders (e.g., depression, panic, suicidal ideation, substance abuse, psychosis, and sleep difficulties) as well as important aspects of functioning (e.g., quality of life, social conflict, sexual and work functioning), the TOP allows for a broad measurement of client difficulties. Furthermore, a recent study has provided evidence for the TOP's ability to identify therapists' particular strengths and limitations (see Kraus, Castonguay, Boswell, Nordberg, & Hayes, 2011). Because it is short enough to be administrated repeatedly and the results can be available immediately, it is also optimal for monitoring the client's change (in terms of both progress and deterioration). Moreover, the clinicians working with the TOP have access to a list of evidence-based practices related to each of the domains measured; resources that can be helpful for both beginning and experienced clinicians (for a detailed description of the clinical utility of the TOP see Youn, Kraus, & Castonguay, 2012). We also chose the TOP to parallel the research pursued at the PPA-PRN. As described below, the TOP has provided us with the ability to compare the therapeutic effectiveness of our trainees with that of experienced clinicians in the local community.

Also included in our core battery is a slightly modified version of the Anxiety Disorder Interview Schedule, Fourth Edition (ADIS-IV; Brown, Di Nardo, & Barlow, 1994). Based on DSM-IV

symptomatology, the ADIS complements the self-report and dimensional nature of the TOP by providing a categorical and observer-rated assessment of psychopathology. This type of assessment, obviously, serves both clinical and empirical purposes: Specific diagnostics are important components of case formulations and treatment plans and can be valuable to select clients for both prospective and archival studies. The choice (and modification) of the ADIS-R was guided by the research experience of several of our tenure track faculty members and their students in various types of Axis I psychopathology.

Finally, our core assessment includes two instruments (one self-report and one interview) measuring interpersonal difficulties: the International Personality Disorders Examination (Loranger, 1995) and the Inventory of Interpersonal Problems—Short Circumplex (IIP-SC; Hopwood, Pincus, DeMoore, & Koonce, 2008; Soldz, Budman, Demby, & Merry, 1995). In addition to allowing our trainees to assess clients' problems beyond Axis I disorders, these instruments were chosen because research on personality disorders and interpersonal problems is conducted in many of our clinical labs (again across orientations). As our faculty members also teach graduate seminars and clinical practica specifically focused on these clinical issues, our training program provides yet another pathway to integrate theory, research, and practice, within the same environment of knowledge and action.

Standardized Assessment Procedures

A strategy that we use in conducting IRB-approved studies in naturalistic settings (at the PSU-TCPRN, but also at the PPA-PRN and CCMH) is to try, as much as possible, to confound research and practice into the same activities. With regard to assessment, this means that the core instruments that we use and the procedures that we follow in collecting some of our primary research data correspond exactly to what we want to assess clinically, as well as how and when we want to measure them for clinical purposes. At a basic level, *the research protocol is the clinical protocol*. This not only increases the external validity of our studies (because we are investigating practice as it is conducted) but it reduces one of the major concerns of the IRB, which is the potential effect of coercion that researchers can have on clients to provide data and/or the conflicts of interest that a trainee may experience between the needs of a client and the need to collect data. If, however, the data are collected as part of the clinical routine and for clinical reasons (as described above), then there are no possible conflicts between research and practice: They are confounded with each other. *Research becomes not only intrinsically relevant to clinical work, it becomes clinically syntonic* (Castonguay, 2011). As described below, other data than what are gathered as part of clinical routine are also collected at the PSU-TCPRN, and for those protocols the necessary procedures that protect clients are addressed within the context of an arrangement with the IRB.

All of the clients seen at our clinic fill out the TOP and IIP-SC before intake assessment. The TOP is also completed before every session over the Internet on Clinic-owned computers, a technology that permits OR to process the data immediately. This allows therapists to be informed, as they are getting ready to greet the clients in the waiting room, not only of their client's current scores on the subscales of the TOP but also of their scores at the previous administrations. In line with one of the major goals of practice-oriented research (see Castonguay, Barkham, Lutz, and McAleavey, 2013), the data collected by and for the therapists are immediately actionable. Repeated measurement of outcome data can not only lead to investigations of the patterns of change (as described below) but provides information that can be used clinically to address the needs of individual clients.

After the administration of IIP-SC and the first TOP and before the first therapy session, all clients are assessed with the ADIS and IPDE. To increase the efficiency of the assessment procedure, each new case is distributed to a specific trainee assessor, with the mandate of conducting the diagnostic assessment. This assessment is not conducted by the trainee who will eventually be assigned (in part based on the intake assessment) to be the client's therapist, which has the research benefit of improving the independence and standardization of the diagnostic procedure. This procedure was also chosen because it has some clinical benefits, notably to increase the efficiency of diagnostic interviews, as we observed in the past that it was difficult for clients and therapists to stay focused on the task of assessment if they knew that they will be working together in therapy. This procedure was implemented at the start of the PSU-TCPRN, and is made easier by the fact that there are a large number of therapists at this center. Smaller PRNs may not be able to efficiently use such a policy.

Review Committee and Procedures

Students, post-doctoral fellows, or faculty members who want to conduct a study in our clinic are required to write a proposal to be evaluated by the clinic research committee (CRC). To ensure a full representation of all stakeholders in the PSU-TCPRN,

as well as to benefit from the expertise and knowledge of full-time practitioners, the CRC is composed of (rotating) representatives of the faculty members, clinical staff members, graduate students, and a private practice clinician.

The proposal submitted to the CRC is different from an IRB application. It is short (maximum of two single-spaced pages) and focuses mainly on the potential utility and the feasibility of the study. Applicants are asked to provide a brief description of their project and answer four questions: *What is the clinical relevance of the investigation? How does the proposal reflect the essential goals/mission of doing research in the Psychology Clinic? What is the extent of invasiveness of the proposal to the business of running the Psychology Clinic? Why is the Psychology Clinic the best place to conduct this study?* Applicants are also asked to specify the sample size sought and the length of time expected to complete data collection. Proposals are accepted or given priority if they (i) address questions directly related to the understanding, assessment, and treatment of psychological problems; (ii) can lead to actionable findings (empirical results that can be used in the provision of clinical services, within and beyond our clinic); (iii) can contribute to the advancement of science regarding psychopathology and psycho-social treatments (by adding to the evidence base and/or practice-oriented research knowledge); (iv) add minimal time-consuming responsibilities to clients, staff, and therapists; and (v) can demonstrate that by being conducted at the clinic the study will foster a seamless and efficient (in terms of time and resources) integration of the training needs and requirements of our students.

Applicants are also informed of other guidelines used to evaluate proposals: (i) collaborative proposals are encouraged; the more labs, students, faculty members involved, the better; (ii) all proposals should include the involvement of at least one clinical graduate student or faculty member; (iii) the level of time involvement for clients is not a consideration; clients can presumably decide, given informed consent, whether they would like to participate in any given study; (iv) quality of the research design or human subjects issues are not directly evaluated; investigators are granted latitude to determine the appropriate research design and the IRB ensures that human subjects issues will be dealt with appropriately; (v) investigators should be judicious about the number of proposals submitted each year; if more proposals are submitted than can be implemented at any given deadline, priority will be given to those faculty and/or their graduate students who have not submitted a proposal in the prior year; (vi) priority is given to projects that are directly related to students' research requirements; (vii) part of the committee's responsibility is to avoid accepting projects that overlap; and (viii) the committee regulates the number of proposals ongoing at any given time to facilitate recruitment and avoid undue burden to clients, therapists, and clinic staff.

To increase the efficiency of our evaluation (especially considering the fact that many proposals are related to time-sensitive requirements such as Masters and dissertations), submissions are accepted the first week of every month. The review of each proposal is assigned a chair (who is a rotating member of the CRC with no conflict of interest with the proposal), who then provides the applicant with a report (typically within 3 weeks) based on the written feedback provided by each committee member.

IRB Agreement

Our pursuit of efficiency also led to us to negotiate a unique arrangement with the IRB at Penn State University. As we were encouraging our students to conduct studies at the clinic, we realized that some aspects of the IRB application for these investigations were more burdensome than for many other studies—not only for those conducted within the psychology department subject pool but also for large randomized clinical trials! Specifically, rather than simply requiring the consent of individuals targeted by a research protocol (e.g., clinic clients), studies that were conducted in the clinic, irrespective of their focus, required the investigators to list all potential assessors and therapists as project personnel (repeatedly for each new study), and obtain written consent from them, as they all could potentially be involved in the recruitment of participants and the generation of data, even if clients were the only targeted participants. Needless to say, such requirement interfered with our efforts to foster clinically actionable investigations in an accessible and naturalistic setting: "Why bother?" many students may have said. "It would be much easier to have undergraduate students filling out a questionnaire for course credits and be done with collecting data for my Masters!"

With the chair of the IRB sympathetic to our training goals, we embarked on a long process of meetings (discussing, over the course of 2 years, a wide range of ethical, legal, and organizational issues) with different IRB representatives (including one of their lawyers!) that paved the way to a legal partnership between the IRB and the CRC regarding the review, monitoring, and approval of studies to be conducted in the clinic. Specified in this partnership agreement are two types of studies, Type I and Type II. Type I studies refer to investigations that do not

require significant modification to the *standard operating procedures* for clinical care followed at the Psychological Clinic. These studies involve either the use of already collected data as part of the routine assessment protocol, or the collection of new data based on the addition of new instruments within the same scheduled protocol. Thus, if a student wants to conduct analyses on data that have been archived at the clinic, or if he/she wants some or all upcoming clients to fill out a new measure at pre-treatment, he/she does not need to submit an IRB proposal. He/she only needs to submit a proposal, as described above, to the CRC. If approved, this study becomes immediately and fully covered by the general informed consent that is being given at intake to all new clients. Archival data from the core battery (for specific diagnoses or general outpatient samples) are delivered in de-identified form through a Clinic staff person who serves as an *honest broker* functioning independently of all research projects. If a new measure is approved, for all intents and purposes, it becomes part of our routine core battery and, as such, does not represent a potential conflict between research and clinical needs of clinic stakeholders (clients, trainees, staff members, and supervisors). By allowing us to use an honest broker and granting the CRC the ability to judge whether a research instrument can be part of routine clinical assessments (i.e., if it addresses the need of clients, or if it is clinically syntonic), the IRB has made research in our clinic time- and cost-effective. At most, the CRC (not the student) merely submits a brief modification of the existing agreement, adding the additional instrument to the Clinic's core battery. Once in place, responses are available to the investigator *and* to patients' therapists as part of the clinical record to facilitate treatment planning. For the students pursuing a Type I study, getting IRB approval is about as easy as if they were going to collect data from an undergraduate subject pool.

Like all research with human participants at our university, the informed consent assigned to patients at intake is reviewed on a yearly basis by the IRB. As part of the continuing review process, the IRB is informed of changes in clinical staff, which primarily involves the addition of recently accepted first-year graduate students who are soon to serve clinical functions. When the continuing review is approved (which is contingent on all the new students and staff members having successfully passed required ethical training), the clinic is provided with a renewed IRB informed consent for the next year.

The clinic informed consent, however, is not sufficient for Type II studies. These are studies that involve substantial additions to our routine assessment protocol, for either some or all clients. These include laboratory-based, field, and other studies that recruit outpatients for participation in research protocols outside the Psychological Clinic, psychotherapy process and outcome studies examining patient and therapist variables in ongoing treatments, and studies investigating specific intervention procedures. These studies not only require approval from the CRC, but also need to be approved independently by the IRB (as part of the regular process) before being conducted at the clinic.

Studies

At this point in time, more than 20 proposals have been submitted to the CRC (all but one approved). Reflecting the wide range of interest of students and faculty members in our program (as well as others, such as the counseling program in the school of education), these proposals cover a broad array of issues related to psychopathology, assessment, and treatment. For the sake of the current paper, however, only a few studies on psychotherapy will be briefly described to give the readers a sense of the treatment research conducted in the PSU-TCPRN.

As a reflection of the diversity of evidence that could inform both clinical practice and training (see Beck et al., 2013; Castonguay, 2013; Castonguay, Boswell, Constantino, Goldfried, & Hill, 2010), the psychotherapy studies conducted by our students have investigated (quantitatively and qualitatively) factors related to client and therapist characteristics, process, and outcome. Within the context of his Masters thesis, for instance, Sam Nordberg wanted to examine whether the client's level of symptomatology before treatment could predict differential patterns of change in therapy (Nordberg, Castonguay, Fisher, Boswell, & Kraus, in press). As an example of a Type 1 study, this investigation made use of the TOP scores not only before the first session, but also during the course of treatment via the repeated administration of this instrument. In an effort to shed light on conflicting findings of previous research on pre-treatment symptomatology, this study also explored whether some characteristics of clients assessed in our core battery moderated the relationship between symptom severity and therapeutic responses. As predicted, the results showed that diverse groups of clients can be differentiated in terms of their patterns of change. Also consistent with previous studies conducted in different naturalistic settings and with different instruments (e.g., Stulz, Lutz, Leach, Lucock, & Barkham, 2007), the findings demonstrated that clients with a high level of symptoms before therapy divided into two groups once in treatment: Some rapidly improved, while

others maintained a high level of symptomatology. In addition to replicating previous findings, this study extended the results by revealing that diverse features of functional impairment (e.g., social conflict and suicidality) predicted the different treatment responses in clients with more severe symptoms before therapy. Such findings are not only relevant to therapists of different orientations but they also create a meaningful connection between science and practice. Both researchers and clinicians share the need to better predict (with more confidence and precision) which clients might and might not benefit from therapy, for instance in order to develop and use targeted clinical procedures that might improve the prognosis.

Studies related to two other Masters theses assessed the link between pre-treatment and process variables, as well as the relationship between process and session impact. As examples of Type 2 studies, they employed additional measures, before and during treatment. The focus of one of these two projects, completed by James Boswell, was on differences between interventions that are theoretically specific and those that cut across different orientations. In addition to providing information about their training experience and theoretical orientation, trainees agreed to fill out a 60-item questionnaire measuring therapeutic techniques (the Multitheoretical List of Therapeutic Intervention, MULTI; McCarthy & Baber, 2009) at the end of every session. Also at the end of every session, clients filled out the Session Progress Scale (SPS; Kolden, 1991), which is a four-item measure derived from the Therapy Session Report (Orlinsky & Howard, 1966) aimed at measuring the helpfulness of the session. Although neither training variables (e.g., trainees' years of in the program and their current theoretically driven practicum/supervision) nor the therapist's theoretical orientation predicted the use of techniques, Boswell and his colleagues found that "some techniques did relate to session outcome but in a complex way that involved multiple levels of analyses (therapist, patient, session) and both unique and common factors" (Boswell, Castonguay, & Wasserman, 2010, p. 720). The findings indicated, for instance, that when clients who typically received high levels of common factors techniques had sessions in which their therapist used a lot of CBT interventions, they perceived these particular sessions to be less helpful than others. The results also indicated that such potential interference with client progress was particularly stronger when CBT interventions were used by therapists who typically prefer to use relationship-enhancing (or common) interventions. These contextual and dynamic analyses serve to caution us that a haphazard combination of techniques may actually hinder the process of change. They also suggest that although CBT interventions are powerful, their implementation is not as simple as some have been led to believe ("I read the manual" or "I attended a 2-day workshop" is frequently heard to justify one's use of CBT, but this may not be sufficient to practice it competently). Needless to say, empirical evidence informing when and how to use empirically supported interventions (unique and common) is relevant for training, especially when such evidence has emerged from a training environment.

Building on work of Boswell, the data that Andrew McAleavey collected within the context of his Masters thesis have also included the MULTI (filled out by therapists after every session), trainees' current practicum/supervision and theoretical orientation, as well as impact questionnaires filled out by clients, again at the end of every session (the SPS and the Session Impacts Scale; Elliott & Wexler, 1994). So far, this research project has led to two published studies. Like Boswell's investigation, the first study (McAleavey, Castonguay, & Xiao, in press) examined the link between techniques and session quality, and also examined whether the use of particular types of technique is associated with a higher level of helpfulness if they are consistent with the students' theoretical orientation and/or if they are consistent with the trainee's current supervision. Exploring the interaction of these factors was driven by the goal of examining the effect of techniques as they are actually used (or should be used) in practice and training: We not only know that therapists do not restrict themselves to interventions associated with their preferred theoretical orientation (Thoma & Cecero, 2009), we also know that many trainees eventually receive supervision in approaches that are different than the theoretical models with which they currently identify. Interestingly, and perhaps providing support to one of the implications of Boswell et al.'s (2010) findings mentioned above, the results show that sessions high in cognitive therapy techniques were only associated with a high level of helpfulness when the theoretical orientation of both the therapist and the supervisor was cognitive.

McAleavey's multi-faceted data were also collected with the aim of better understanding how to facilitate a particular type of impact in psychotherapy: Insight, or the acquisition of a new perspective of self and others. Like many PRN projects, the study of insight represents an optimal point of juncture on the scientific-practitioner map of action and knowledge: Although clinicians of different theoretical approaches have recognized insight as a desirable effect (see Goldfried, 1980), researchers have deplored the paucity of research on insight (see

Castonguay & Hill, 2007). Surprisingly, and perhaps reflecting a lack of flexibility that has been suggested in other studies (e.g., Piper et al., 1999; Schut et al., 2005), the trainee's use of insight-oriented techniques was negatively related to insight (McAleavey & Castonguay, 2013). In contrast, the use of directive or behavioral change oriented interventions was associated with high levels of insight. Interestingly, however, the interaction effect of diverse techniques revealed a more complex picture, as the directive techniques happened to be predictive of insight only when they were used in sessions with high levels of common or relationship-enhancing interventions. By providing both surprising and complex findings, this type of study can increase our understanding of the process of change and, in turn, may expand and refine the repertoire of interventions (*what techniques, under what circumstances, and within what context*) that might be used in effective practice and could thus be emphasized in clinical training.

While McAleavey and Castonguay's study suggests that the use of CBT interventions can help achieve a therapeutic goal that is central to psychodynamic therapy (i.e., insight), Dana Nelson's dissertation has provided promising evidence that an intervention at the core of CBT may improve the efficacy of psychodynamic treatment. In another Type II study conducted in the PSU-TCPRN, Nelson explored whether therapists could be trained to systematically and seamlessly (without disruption of treatment process) integrate homework in psychodynamic treatment, and whether such an assimilation of a theoretically "foreign" technique might improve the already established impact of this form of therapy for depression (see Follette & Greenberg, 2005). Specifically, she trained three graduate students in the implementation of a well-known psychodynamic-interpersonal treatment manual developed and tested by a group of researchers based in Sheffield (Shapiro et al., 1994; Barkham, et al., 1996), as well as in another treatment manual (which she developed herself) guiding therapists in the assignment and monitoring of homework—that is, between-session activities that are consistent with the goals of psychodynamic therapy and the issues addressed in the treatment of a particular client. Although preliminary, the investigation of three cases (selected to meet the inclusion and exclusion criteria of the Sheffield studies) has provided support for the feasibility and efficacy of this integrative treatment (Nelson & Castonguay, 2012). Quantitative results indicated that homework was assigned and implemented almost every week, that homework was perceived as relevant and helpful, that homework did not interfere with the alliance, and that the integrative treatment based on the addition of homework led to larger effect sizes (in terms of depressive symptoms and interpersonal problems) than those obtained in the psychodynamic treatment tested in Sheffield-related studies. In addition, qualitative analyses of the written description of the homework revealed that they were addressing themes emphasized in the psychodynamic model of change (e.g., increased awareness of interpersonal dynamics, wishes, and fears; negative consequences of defense; engagement in new, more adaptive ways of relating to others).

Like the previously mentioned studies, this process-outcome investigation demonstrates how PRN projects can advance knowledge while serving both clinical and empirical purposes. Clinically, it suggests that clinicians might improve their interventions without drastic change in their practice, i.e., they can increase their repertoire of interventions without having to abandon their preferred theoretical orientation. Although this particular study pertains to assimilation of CBT techniques into a psychodynamic treatment, other types of interventions can be integrated in other forms of therapy (see Castonguay, 2013). Research-wise, this illustrates that in their quest to improve the efficacy of psychotherapy, clinical scientists do not have to create entirely new forms of therapy, especially when addressing disorders for which we already have a number of empirically supported treatments. As argued elsewhere (Castonguay, 2013), a particularly fruitful way to further improve mental health care is to enhance the efficacy and effectiveness of theoretically driven ESTs by incorporating the contributions of divergent conceptual approaches, process findings, and/or basic research.

Benefits

The transformation of our clinic into a PRN has led to several benefits, some of them already mentioned in or easily derived from the pages above. First, the PSU-TCPRN gives students access to a structured environment as well as a standardized assessment battery and procedures, which allows them to conduct externally valid studies with a relatively large number of clients and therapists. In addition to being guided by their own respective interests, these studies are frequently related to what they learn in class, in supervision, or in their research lab; in part because these learning experiences (and the research projects they conduct at the clinic) mainly take place within the context of the same group of individuals (faculty members, clinical staff and, of course, other trainees). Moreover, because these studies can be conducted to meet their academic requirements, at the same place (and often at the same time) in which

they fulfill their clinical training requirements, the PSU-TCPRN can help students to achieve their training goals in an efficient manner. Considering the advantages provided by the IRB agreement regarding Type I studies, our infrastructure can also protect students' most rare commodity—time. A number of other benefits that have emerged from our efforts are briefly described below.

This Is Ours Too

Very much in line with the goals of practice-oriented research, and especially PRN studies (see Castonguay et al., 2013), many students have developed a strong sense of ownership with regard to the daily functioning and growth of our research/clinic infrastructure. This is illustrated by the fact that many innovations that have taken place over the last few years have been generated and orchestrated via an active collaboration between students and members of the clinical staff (such as the administration of the TOP before every session and the digitalization of video recording of sessions). This sense of ownership helps attenuate a predominant feeling that many students have in graduate school: That most of everything they have to do during 5 to 7 years is imposed by and for the needs of faculty members!

"All for One, and One for All"

There is no doubt in our minds that the high level of therapist participation that we have observed in the studies conducted at the clinic is in part due to camaraderie—a collaborative attitude that could be expressed by many statements, including: "Graduate school is hell, but we are in together and we should do what we can to help friends get their degree" (a much more eloquent and well-known statement would be "Un pour tous, tous pour un"!). Naturally, the commitment of others to one's project tends to encourage reciprocity, which is both reflected in and increases the shared sense of community.

Making Things Count Double

Freud, Rogers, Skinner, Minuchin, and most therapists influenced by them, would agree that behaviors are multi-determined. Not surprisingly, therefore, the probability of students getting involved in clinic studies will increase if they can get many things out of it. For example, in addition to helping out a peer, the students who participated in Dana Nelson's study described above received expert training in psychodynamic therapy and CBT interventions. This not only increased their repertoire of evidence-based practice, but added to their clinical experience (in terms of hours and specific training), which helped with their upcoming internship applications. Interestingly, students have reported that internship sites where they interviewed are frequently impressed by our efforts to integrate science and practice, which can be welcome news in the midst of a very stressful and competitive application process.

Benefits to Faculty and Supervisors

Even with the co-leadership and sustained engagement of many students, the creation, maintenance, and further refinement of a clinic-training PRN require a lot of work for faculty members. "Why bother?" one might say, "I have enough service work already (for the department, college, university, professional organizations, and local community) to add another thing on my plate." Fortunately, our faculty members are gaining benefits from their contributions. In addition to fostering the careers of their students, several of them have submitted studies, including some with the main purpose of collecting pilot data aimed toward grant submissions. In addition, when conducting supervision, faculty members have access to the repeated measurement of symptoms, which allow them to integrate in their clinical teaching an established component of evidence-based practice: Outcome monitoring (Lambert, 2010).

Maintaining a Two-Way Connection with the Community

Having a full-time private clinician serving on the CRC has provided both the applicants and the members of this committee with a unique perspective on the feasibility and relevance of the studies proposed. The community-based colleagues who have volunteered their time and energy to reviewing proposals have knowledge and experience that are in many ways distinct but yet complementary to the researchers and clinicians that work within the walls of a University. As argued elsewhere (Boswell & Castonguay, 2007), such expertise can be tremendously helpful in training competent clinical researchers. At the same time, our colleagues from the other side of the same walls have gained new knowledge (in terms of topics and methods of investigations) from their exposure to new and cutting-edge research. They have also derived personal gratification and validation from their participation in the advancement of science and practice. It may well be that the optimal growth of our field, like society in general, will take a "village"—or at least an active connection between the Ivory Tower and the trenches.

Lessons Learned

All the stakeholders of our community have benefited from the PSU-TCPRN infrastructure, yet we have faced several challenges in our effort to build, maintain, and foster its growth. Next we discuss some of the lessons we have learned from the challenges we encountered along the way and some of the strategies we have used to deal with them.

You Can Never Communicate Too Much

The implementation and continued operation of major aspects of our infrastructure have required multiple and various types of meetings beyond those we initially had with the IRB and university lawyers (e.g., with all the students, faculty members, and clinic directors; between members of the CRC and student representatives; or between representatives of the CRC and every clinical practicum). Communications via these meetings and emails have involved the provision of procedural guidelines and manuals, as well as feedback from students about them. To help facilitate this communication process, we have found it helpful to identify specific times and places in our curriculum (e.g., pre-practicum course, first clinical practicum, annual meeting to discuss the TOP and its uses) to introduce the purpose and rules associated with our PRN infrastructure. We have also attempted to maintain a constant line of open dialogue, by encouraging trainees to contact (directly or via student representatives) members of the CRC about minor or major issues related to the implementation of any aspects of the infrastructure.

Miscommunications Will Happen

We have learned the hard way that providing corrective feedback (about the lapses or mistakes in adherence to assessment procedures, for example) can lead to resentment when it is perceived as blaming. Not informing students of research to be conducted in the clinic (whether or not it will require work on their part) can also create a feeling of being taken for granted by faculty members (even when the studies are related to students' Masters or dissertations). "It's the alliance, stupid," one could easily conclude from these experiences. A less harsh or self-blaming recommendation that could be derived from our experience is that one should be vigilant toward preserving the bond with trainees and be prepared to repair relationship ruptures when they emerge.

Collaboration Is a Juggling Task

Many decisions need to be made regarding the standardization of clinical and research issues, and it is often easier to work with a small group of individuals when addressing them. However, we have found that restricting input about implementation, modification, and operation of infrastructure to a few student representatives can at times lead to frustration and feelings of exclusion. Needless to say, acting within a small circle can also limit the ideas that could be generated to solve problems or improve things. Figuring how many students (let alone clinical staff and faculty members) should be involved in the decision-making process for particular issues, small or large, is a difficult juggling task. It is, however, something that all training clinic PRN structures are likely to face as they attempt to balance being efficient with enhancing the sense of engagement from the students.

Motivation Can Be Improved by Addressing Fears and Wishes

We have yet to meet a graduate student in our doctoral program who claimed (at least to our faces) not to be interested in getting data from their clients that can serve both clinical and research purposes. In fact, we would like to believe that the goals and structure of our PRN training infrastructure are selling points in the very competitive graduate student recruitment process that we are facing every year. Yet, we have at times been confronted with what we view as motivation problems in adhering to, or fully engaging in, different facets of the Clinic's dual mission. One of the sources of this motivational issue is fear. This was clearly expressed by a student in a group meeting who said something to the effect of: "I am just beginning to see clients and I am convinced that I have nothing to offer them, so I feel very uncomfortable when I ask them to fill out the TOP or when I tell them they would be eligible to participate in a study that is being conducted at the clinic."

Whether or not it is expressed in such a direct and explicit way, we believe that such fears, based on a very common impostor syndrome, need to be addressed. In our experience, we observed that research-based information can be helpful to normalize trainee apprehension, such as the fact that greater experience is not associated with better outcome. We have also observed that data can be more persuasive when they have been collected by novice clinicians just like them. Because the TOP is used in both our clinic and the PPA-PRN, we were able to compare the score of clients seen by our

trainees and experienced clinicians (Angtuaco, Castonguay, & Kraus, 2005). Although the data indicated that experienced therapists were particularly effective in improving patients' psychosocial functioning (such as sexual functioning), our trainees demonstrated notable success in decreasing patients' suicidal ideation, violence, and mania. Perhaps reflecting a corrective experience, our trainees were pleasantly surprised to see data suggesting that full-time psychologists could learn from them about how to work with clients in crises.

We also suspected that the motivational difficulties we observed were in part due to a feeling of being burdened by the tasks involved at the clinic (such as the structured interviews included in our assessment, let alone diagnostic reliability checks derived from these interviews that we have conducted at times). We came to see the source of this problem as being our responsibility. Specifically, we realized that we failed to remind students of their wishes. Although the cohort of graduate students who were part of the program when we developed the PSU-TCPRN were fully cognizant of why we (students and faculty) developed our standardized clinical routine, the next generations were not as aware of the goals underlying the established routines, let alone of the dream of providing them opportunities for making their research clinically meaningful and scientifically rigorous. To increase their sense of ownership and, hopefully, to remind them of why they decided to come to Penn State, we have now scheduled a yearly meeting where members of the CRC and advanced grad students describe in detail the origin and purpose of our shared dream to the first-year students. This description is driven by one message: It is not for us (faculty members), and not imposed by us. It is mostly for you and it has been driven in part by previous and current students.

Too Much of a Good Thing Is to Be Expected

While lapses of motivation are to be expected, so are binges of research proposals. To avoid burdening therapists and/or overwhelming clients with too many projects going at the same time, the CRC has had to make decisions about how handle the large number of projects that could be run simultaneously. A strategy that we have adopted is to set a time limit or request a hiatus in data collection. For example, if a new project is submitted from members of a particular lab that already recruits participants for other projects, the CRC has asked the faculty member overseeing this lab to delay, cease or interrupt the data collection for one of these studies.

Anticipate Ripple Effects

To maximize the operation of the PSU-TCPRN infrastructure, as well as to foster the integration of different facets of our training program, we decided to reorganize our curriculum and some functioning rules of our clinic. For example, we modified the content of introductory practicum (a year-long supervision course required for the first-year students). Whereas in the fall semester students are introduced to the DSM, the ADIS, and the IPDE, the same students primarily conduct intake interviews in the Spring semester, with few if any therapy cases assigned to this practicum. This training reorganization provides the students with an intensive and extensive learning experience in diagnostic interviewing, while also serving two empirical goals: Increasing or maintaining inter-rater agreement on diagnoses, and avoiding potential contamination when measurements of such agreement are conducted. To reduce redundancy in our teaching, we also moved our required course on psychopathology from the Spring to the Fall semester, decreased its emphasis to phenomenology (DSM criteria—now covered in the first year practicum), and increased its focus on etiology.

It's a Marathon, not a Sprint

This metaphor, which Marv Goldfried astutely uses to describe the pace of progress in academia, neatly reflects our experience in building and maintaining our PRN training infrastructure. Faculty members, clinic staff, and students interested in creating a similar project have to be ready for the long haul. Counting the time it required to put together the different pieces of our infrastructure, it took more than 4 years for the first studies to be approved and launched. In addition, we have found that our procedures can always be improved. For example, after implementing a systematic and extensive process to assess the inter-rater agreement on the client pre-treatment diagnostics, we were dismayed to observe low reliability estimates for many of the DSM diagnostic categories recorded. This, obviously, had serious clinical and empirical implications. To remedy the situation, we changed the instrument we used to assess Axis I disorders (replacing the Structured Clinical Interview for Axis I DSM-IV disorders [SCID; First, Spitzer, Gibbon, &Williams, 1994] with the ADIS), adopted a reliable measure to assess Axis II pathology (the IPDE), and agreed on an intense and comprehensive training on these new assessment tools. Specifically, all but one faculty member in our program (including all not-yet tenured faculty) and our students met

for 3 hours per week for most of one summer reviewing diagnostic criteria, watching tapes, conducting role plays, and comparing clinical judgments. Training continued for several months during the following academic year, followed by another wave of assessment of inter-rater agreement that revealed a substantial improvement for most diagnostic categories.

Other examples of improvements include the adoption of new laptop computers to ease the administration of the TOP, as well as the increased frequency of outcome monitoring to every session. It is noteworthy that both of these improvements were generated and orchestrated in close collaboration between students and members of the clinic staff. The fact that these changes, when combined, led to additional and self-imposed tasks in the assessment procedure is a reflection of the motivational forces generated by initiatives that recognize and foster a sense of ownership and expertise, and that facilitate the synergetic actualization of meaningful goals.

Conclusion

To complement some of the specific lessons that we have learned, we would like to conclude this paper by offering general recommendations and presenting what we believe are important issues that could be addressed in the future to facilitate the implementation and growth of training clinic PRNs.

General Recommendations

Some of our recommendations are in sync with those previously made for practice-oriented research in general, PRN or otherwise (Castonguay et al., 2013). In fact, the creation of a PRN in a training clinic could be viewed as an optimal strategy to address what may be the most important advice to foster and cement research by and with clinicians: Begin early. As noted elsewhere, "simultaneous, seamless, and repeated integration of science and practice activities as early as possible in a psychotherapist's career might create an intellectual and emotional (hopefully secure) attachment to principles and merits of the Boulder model" (Castonguay, 2011, p. 135). In addition, we believe that students are more likely engage in research (above and beyond the projects required for their graduation) if their studies have an impact at home and abroad. Faculty members and clinical staff should do all they can to encourage students to present their results in their respective departments and at professional meetings. Presentations and publications of clinically relevant studies, even for students not interested in academic careers, might be crucial for the field. At one level, professional recognition might incentivize students to continue doing research in their clinical practice. At another level, practice-oriented research needs to visible if it is to count as part of a robust empirical knowledge base and to guide our practice of psychotherapy. Evidence-based practice, in other words, should not be based solely on studies conducted in controlled environments (such as RCTs) but on a wide range of empirical investigations offering various advantages in terms of internal and external validity. Because many of them will be part of the next generation of leading researchers, trainees conducting research in a naturalistic environment have the opportunity to set a research agenda that reflects the needs and expertise of practitioners (Zarin, Pincus, West, & McIntyre, 1997).

Also reflecting a recommendation for practice-oriented research in general, we believe that students, clinically and/or academically oriented, will conduct more research in training clinic PRNs if they and their advisor design studies that confound practice and research. Described as clinically syntonic (Castonguay, 2011), this type of research involves the collection of data that simultaneously serve clinical and research functions. When students were being trained in and conducted the treatment protocol designed by Dana Nelson, for example, they were not doing clinical work or research—they were doing both at the same time. When contextualized at a more general level (with respect to development of our field rather than the growth of individual students) this type of research can move the scientific-practitioner paradigm beyond the building of bridges. Specifically, "rather than trying to connect science and practice, as if they stand on different river banks, we should strive to confound the two activities to create a new, unified landscape of knowledge and action." (Castonguay et al., 2013, p. 122)

In addition to the recommendations above, our experience leads us to make two suggestions that are specific to training clinic PRNs. First, those interested in building such an infrastructure should convey to administrators (at the clinic and departmental level) the necessity of financial and organizational support. It is easy to see the merit of the mission of combining science and practice, but investment of funds and resources are necessary. It is clear in our mind that many crucial tasks for the daily functioning and growth of our PRN (such as completing reports for continuing reviews of the IRB agreement, monitoring of ethics training required by the IRB, de-identifying of clinical information by an "honest broker" for confidentiality purposes, and orchestrating technological improvements) would have

imposed unreasonable burdens on both faculty and students if they had not been part of the responsibilities assigned to the assistant director of research, full- and part-time graduate assistantships, and administrative staff. In addition, the allocation of some of the profits earned by the clinic has been required for the purchase of clinic/research equipment (e.g., laptop computers). If a clinic is not large and/or profitable enough to be a (or the unique) source of such funding, faculty members, clinic staff, and students should jointly approach their department chair and/or dean to have them invest (as yet another stakeholder) in the training potential of a fully actualized scientific-practitioner model.

Our experience has also led us to conclude that it is best to share the leadership roles in building and maintaining a training clinic PRN. Our teamwork has allowed us to distribute the primary responsibilities for major building blocks of our project, as well as to collaboratively address challenges that we have faced along the way. We would thus suggest that if one individual, such as a faculty member, intends to take the lead in organizing a clinic PRN, she/he should request and obtain adequate support; this should be recognized as a major service commitment, and should be pursued within appropriate conditions (including course reductions), especially if undertaken by a faculty member who is not yet tenured.

Future Directions

Although the studies presented above (and several others not reviewed here) demonstrate that we have, in our own infrastructure, begun to harvest tangible results from our effort, we would like to point out three issues that we believe should be addressed in the future to foster the promise of training clinic PRNs. First, in order to conduct the best possible studies (in terms of providing adequate statistical power to test hypotheses and increasing generalizability of the results), large numbers of clients and therapists are needed. As noted elsewhere, however, studies conducted within one specific PRN will almost inevitably face limitations in terms of the sample of clients and therapists available (Castonguay, 2011). In line with Borkovec's (2002) dream of a large infrastructure of training clinics contributing to a common pool of data, what we need are networks of training clinic PRNs that share a basic core battery and assessment procedures. Each clinic, of course, could add to this foundational structure (in terms of measures and/or frequency of administration) in order to meet their specific treatment, training, and research needs. However, such networks of networks would allow students to mine major archival data and conduct large prospective studies across multiple sites. Put in different words, we should "work locally but collaborate globally" (Castonguay et al., 2013). Fortunately, a number of such connective networks have begun to emerged, spearheaded for example by university training clinics in Canada (e.g., McGill University, York University, Windsor University), across the USA (Penn State, Stony Brook, University of Massachusetts, Amherst), and others associated with the Association of Psychology Training Clinics Collaborative Research Network (e.g., Eastern Michigan University, Western Michigan, University of North Carolina).

As mentioned above, students (irrespective of their ultimate career plans) are more likely to conduct research above and beyond what is required for their degree if emphasis is given toward making their findings count. At a global level, practice-oriented (including PRN) investigations are likely to flourish "if there is clear evidence that the merit and impact of these studies will be fairly considered and duly recognized by scholars, researchers, and policy makers" (Castonguay et al., 2013, p. 122). At a local level, however, we believe that the best way to make training clinic PRNs count is to find ways to use them "in house": That is, in the actual training of current and future generations of students in the PRN clinic (or networks of PRN clinics) where those findings were obtained. Creative and effective strategies should be developed, above and beyond encouraging students to present their work in departmental meetings, to make the findings actionable—not only to possibly improve the process and outcome of therapy in the here and now, but also to foster a positive feedback loop between getting scientifically rigorous data from the clinic and feeding back clinically relevant information to trainees. For instance, if we take some of the studies conducted in our own infrastructure, how do we help supervisors and therapists in psychodynamic practica to systematically and skillfully use homework? How do we teach therapists who do not frequently use CBT interventions to be mindful of their potential negative impact, as well as to learn when and how to effectively implement them, especially when working with clients who typically receive (and benefit from) relational techniques? What should we do to encourage therapists and supervisors of various orientations to carefully observe how exploratory and directive interventions are used, so that they can best foster insight? What actions do we take based on reliable and pertinent data (specific to our core battery and clinical setting) showing that some particular clients with severe symptoms at pre-treatment are likely to benefit from therapy, while others are not? Although

we have in our program ample theoretical and empirical expertise to guide trainees in dealing with phenomena revealed by these findings, it is still unclear how to best communicate and learn from each other about this knowledge. Should we have annual "research practice days" to share findings and discuss implications? Should we have newsletters and/or a renewable web repository of research results? Should we systematically integrate these findings in our specific courses and practica?

Another issue that might be worth addressing in the future is how we can keep research programs generated in PRN training clinics alive and expanding. Most students leave the university where they graduate and many do not end up having the time and resources to conduct follow-up studies to all the investigations they conducted in graduate school. As a field, we should be concerned about creative and valid lines of research that go extinct just because they were started at an early phase in the career of the individuals who conducted them. This is perhaps a complement to the file drawer effect (referring to studies that have not been submitted or published because of null results), which one might call the "dusty piles in the lab" effect. Again using some of the previously described studies as cases in point, who might be able to conduct qualitative studies to shed light on the negative relationship between CBT interventions and session impact found by James Boswell? What circumstances would permit the implementation of an RCT based on Dana Nelson's outcome findings, potentially allowing her integrative treatment to become a promising new EST? Of course, this extinction problem is not specific to studies conducted in graduate programs that have transformed their training clinic into a PRN. However, as much as PRN infrastructures are currently viewed as a promising strategy to solidify the scientific-practitioner model in mental health, and because such PRN initiatives are only beginning to be adopted in training settings, this might be a perfect time to think about ways to build upon the scientifically rigorous and clinically relevant studies conducted by trainees. Perhaps open and continued exchange of information and long-term collaborations within large networks of clinic PRNs, during and after graduate school (representing yet another type of alumni), may provide optimal conditions for new landscapes of knowledge and action to be created and implemented by clinical researchers throughout their careers.

Note

[1] It should be mentioned that the faculty commitment to all aspects of the scientific practitioner model comes at a high price for our graduate students. Not only are they expected to become accomplished researchers, knowledgeable scholars, and skilled teachers, they also have to demonstrate high levels of clinical competence. Students who do not excel in research are not encouraged or allowed to "settle for a clinical career," and students who do not demonstrate the clinical ability of a skilled independent practitioner do not graduate from our program. They are all required to become good *clinical* researchers.

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