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Clinical PhD Graduate Student Views of Their Scientist-Practitioner Training

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Abstract

Objectives: The goal of the scientist-practitioner (S-P) training model is to produce clinical psychologists equipped to integrate and utilize both science and practice in the clinical and research domains. However, much has been written regarding the possible shortcomings of S-P training and whether clinical psychology graduate students are actually gaining the knowledge and skills to integrate science and practice during graduate training and beyond (Chang, Lee, & Hargreaves, 2008; Gelso, 2006; Merlo, Collins, & Bernstein, 2008; Phillips, 1993). *Methods:* As such, the present study assessed ratings of satisfaction, perception of ability, and use of the S-P training model within 653 clinical psychology graduate students enrolled in programs that are members of the Council of University Directors of Clinical Psychology. *Results:* Findings suggest that students are consistently trained in the integration of science and practice and have confidence in their abilities to apply the S-P integration to research and clinical work. However, despite understanding the ways in which science can influence practice, over one third of students reported that they rarely use science-based decisions when informing clients of the clinical services they will be providing. *Conclusions:* The implications

of these results support the need for a more detailed evaluation of clinical psychology graduate students as well as the use of research-informed practice and the process of providing clients with information they need to make informed choices about treatment.

Keywords: scientist-practitioner, training, graduate student perceptions, clinical practice

Since the Boulder Conference on Graduate Education in Clinical Psychology (1949) over 60 years ago, much has been written about its effect on training within clinical psychology. This 2-week conference, which comprised representatives from each of the then 75 university-based training programs, marked a notable shift in the training of clinical psychologists. The Boulder Conference was considered the beginning point of the scientist-practitioner (S-P) model of graduate training (McFall, 2006), having as its aim the integration of science and practice as the hallmark of future clinical psychology doctoral training. As a result, the goal was to establish an educational model that would integrate both science and practice within student's training experience (McFall, 2006; Raimy, 1950). The proposed outcome was to create an environment where equal emphasis was given to both the research (science) and applied (practice) aspects of clinical psychology, in order to develop a more well rounded clinical psychologist (Chang, Lee, & Hargreaves, 2008).

Indeed, this balanced approach to the learning environment has become the benchmark of the field. As defined by Division 12 of the American Psychological Association (Society of Clinical Psychology [Division 12]), clinical psychologists are "educated and trained to generate and integrate scientific and professional knowledge and skills so as to further psychological science, the professional practice of psychology, and human welfare." This definition captures the inherent purpose of the S-P model and highlights the positive results of a model that works efficiently. Since its inception, however, a debate has ensued regarding the degree to which the model actually results in integrated training and whether this final product can be deemed effective or adequate (Chang et al., 2008). Skeptics argue that one's interest in, and talents for, research may be incompatible with their interest and talent for clinical work (Frank, 1983).

However, support for this incompatibility is only inferred from the sparse publications and low grant attainment rates among a proportion of clinical psychologists postgraduation (Overholser, 2011; Steinhelber & Gaynor, 1981; Stewart, Wu, & Roberts, 2007). For clinical psychologists, both intrinsic (e.g., previous negative experiences, insufficient interest) and extrinsic (e.g., lack of physical resources, collaborators, financial incentive) contingencies are associated with the lack of clinical research. However, these low rates are often deemed logical, as research inherently requires both time and money, resources that are scarce or nonexistent when focusing on a clinically based career (Haynes, Lemsky, & Sexton-Radek, 1987).

As for the possible disparity between training and eventual outcomes as a clinical psychologist, a survey examining satisfaction and S-P training characteristics within a sample of over 600 clinical psychology graduate students demonstrated that students are generally satisfied with receiving a scientific based training model, and report good to excellent ratings of both the quality and quantity of S-P training (Merlo, Collins, & Bernstein, 2008). Arguments still persist, however, regarding how exactly clinical psychologists need to be

trained. A recent review of the current status of doctoral training stated that the main goal of graduate training should be in the development of research scientists rather than practitioners and that the development of competence as a practitioner should be grounded in research (McFall, 2006). While these training aspirations may be ideal for some, it is likely a difficult (or even impossible) goal to reach. Many students may enjoy conducting research, yet some may not be motivated to be involved in an extensive amount after the initial years of training; undeniably, many professional psychology careers also require little or no research productivity.

Additionally, clinical psychology training programs may be limited in the quantity of research opportunities that can be provided due to the increasingly high number of accreditation requirements that graduate programs continue to face (Craighead & Craighead, 2006). Although there is disagreement about the necessary depth of research training, it appears almost unanimous that a well-trained clinical psychologist must be proficient, if not expert, in research methods and research consumerism. Yet the extent to which graduate students are being trained to integrate science and practice and the utilization of these skills have not been formally assessed. It is also unclear as how to best train students so that the skill sets for both research and practice remain strong and have influence on each other.

One training possibility within a S-P framework is the concept of "indirect relevance," in which practice can influence research and research can influence practice (Gelso, 2006). As noted in this seminal paper on the making of a scientist-practitioner, it is suggested that science often holds the weight of indirect relevance to clinical work; that is, students may want to be competent in science and use it for their clinical work, without actually wanting to emphasize methods and statistics and research productivity during their graduate education (Gelso, 2006). A potential benefit for the implementation of this concept may be that it would increase the accessibility and relevance of research training for clinical psychology students who are aiming for a more clinically orientated career. This may also decrease the burden on training programs, since it would require a change in content rather than foundation. However, data are limited in this area and very few studies have examined the role of S-P training in shaping student ability and utilization of science-practice integration.

As such, the goal of this study is to explore how science and practice are integrated in clinical psychology doctoral student training. Our aim is to assess whether graduate students were satisfied with the training they were receiving and their subjective interpretations of their own abilities to integrate science and practice. More specifically, this project is designed as an extension of the recent work conducted within this area (Merlo et al., 2008). Within Merlo et al. (2008), Council of University Directors of Clinical Psychology (CUDCP)–affiliated doctoral students reported that their clinical programs were weighted more towards research than clinical practice; yet the implications of this conclusion are unknown as to how graduate students' research training impacts clinical practice and vice versa. Additionally, the present study sought to explore the various mechanisms used for training students in the integration of science and practice.

As demonstrated in the satisfaction ratings found within Merlo et al. (2008), it was expected that graduate students would report high levels of satisfaction about their S-P training. In accordance with Merlo's findings (2008), we expected students to express an affinity

for science training and to self-report average to above average abilities to integrate science and practice. Based on past studies' findings that didactic and hands-on training experiences are indeed valued by students (Merlo et al., 2008; Peluso, Carleton, & Asmundson, 2010), it was expected that self-reported ability level would increase in accordance with students' progression through the training programs. Finally, exploratory analyses were conducted to examine (a) the ways in which science and practice are commonly integrated within training, (b) the frequency and extent to which scientific data is used in clinical assessments and practice in training settings, and (c) whether S-P training influences career development.

Method

Participants and Procedure

To capture the clinical psychology graduate student viewpoint on the status of current S-P training, students enrolled in CUDCP affiliated programs were assessed. As described in the literature, CUDCP emphasizes the training of "scientifically minded psychologists" and was used as the recruitment source due to its concern with training-related issues in the field of psychology (Bieschke, Fouad, Collins, & Halonen, 2004). At the time of data collection, during the fall of 2009, CUDCP comprised 169 clinical psychology training programs that primarily adhere to the S-P model.

Of the 169 CUDCP member programs, 153 had identified CUDCP student liaisons that served as contact members regarding dissemination of survey-related materials. If a program was found to not have a student liaison, the Director of Clinical Training (DCT) for that program served as the contact individual for the survey. Each student liaison (or DCT) was then contacted by email with a request to distribute an email containing information and a link regarding the online survey to the students in their respective programs. Six weeks after initial contact was made, a follow-up e-mail was sent to all liaisons with a link to the survey and a request to send a reminder e-mail to students to complete the survey. All survey responses were collected using SurveyMonkey online survey software (Portland, Oregon) and analyzed using SPSS.

Seven hundred and sixty-five students consented to the study by endorsing a required survey question indicating their consent. Out of this original sample, however, there was a substantial amount of missing data (> 50%) from 112 students. As a result, data from 653 (85.4% of the original sample) students were used in a portion of the final statistical analyses. In order to assess differences in satisfaction-related and confidence-related variables among those from different years in the programs, participants were asked to state the number of years that they have been enrolled within their program. Consistent with previous CUDCP student surveys (Bangen, VanderVeen, Veilleux, Kamen, & Klonoff, 2010; Kamen, Veilleux, Bangen, VanderVeen, & Klonoff, 2010), students reported that they were enrolled in their respective programs for 1–2 years (38.1%), 3–4 years (35.8%), or 5th year and above (26.0%). Additionally, and in line with recent research and national averages (Bangen et al., 2010; McFall, 2006), participants in this final sample were predominantly female (81.6%) and their average age was 27.56 years (range 21–60). Participants self-identified their race as Caucasian (84.2%), Hispanic/Latino (3.8%), Asian/Asian American

(3.5%), African American or Black (2.9%), biracial (2.6%), Native American/Alaskan (.2%), or Other (1.8%). Respondents represented programs in 39 states, the District of Columbia, and three Canadian provinces.

To protect their confidentiality, students were not asked to provide the name of their program on the survey. However, to obtain an additional variable potentially related to S-P training, participants were asked to note their program's rating from the *Insiders Guide to Graduate Programs in Clinical and Counseling Psychology* (Norcross, Sayette, & Mayne, 2008).The *Insider's Guide* publishes programs self-ratings of research/practice emphasis on a 1 (*practice-oriented*) to 7 (*research-oriented*) scale, where a 4 indicates an equal emphasis on practice and research. In order to give access to these ratings for the students sampled, a hyperlink was set within the survey text that provided students with a document comprising the appropriate program-specific ratings. In addition to the *Insider's Guide* primary function, this scale has also been used in previous research as an indicator of a program's self-appraisal of training (Neimayer, Rice, & Keilin, 2007). For the present study, the mean *Insider's Guide* rating was 4.82 (standard deviation [*SD*] = 1.07), with 9.2% of participants residing in programs who were identified as a 3, 32.9% from 4-rated programs, 26.5% from 5-rated programs, 24.0% from 6-rated programs, and 5.1% from programs that identified as a 7.

Measure

For the purpose of the present study, a survey was developed based on the findings of Merlo and colleagues (2008), in addition to Gelso's (2006) discussion regarding the indirect relevance model related to S-P training. Thus, the goal of this measure was to capture clinical psychology graduate students' perceptions of their training as well as their perspectives of their programs' integration of science and practice through academic coursework, clinical experiences, and research development. Items within this measure also included questions asking about demographics, students' subjective perceptions of their own ability to integrate science and practice, and the effect of S-P training on career development.

Survey questions assessing level of student satisfaction prompted participants to rate the degree to which they were currently satisfied with various aspects of the S-P training that they were receiving, on a 5-point Likert scale ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). Using an additional 5-point Likert scale, ranging from 1 (*extremely poor*) to 5 (*excellent*), on a new survey page, students were then asked to rate their ability to integrate science and practice through (a) the use research findings and literature to inform clinical work and (b) the use of clinical experiences to form research questions or gather data.

Students were also provided with forced-choice response questions on a variety of topics (e.g., coursework, readings, supervision), which sought to measure the different ways in which science and practice were integrated within their program (see tables 2 and 3). Moreover, students were asked to indicate the degree by which their S-P training had an influence on their career development while in graduate school. Finally, students were asked to identify the ideal percentage of time they hope to conduct research and engage in clinical work when they graduate.

Results

Graduate Student Satisfaction

In line with the findings from Merlo et al. (2008), clinical psychology graduate students in this sample reported neutral to satisfied levels of contentment with their S-P training (i.e., neutral = 3, satisfied = 4). Specifically, student's ratings of satisfaction with research experience were a 3.99 (*SD* = .98), while similar levels were also found for clinical training (mean [*M*] = 3.92, *SD* = .98) and clinical experiences (*M* = 4.02, *SD* = 1.00). As displayed in table 1, a variety of additional S-P training components were also rated for satisfaction as well. At least 60% of students reported being satisfied or very satisfied with their current levels of advising, autonomy, and relationships with faculty members.

To assess the relationship between satisfaction ratings and program emphasis, correlations (see table 1) were conducted between satisfaction items and *Insider's Guide* ratings. Not surprisingly, higher satisfaction for research training was associated with higher *Insider's Guide* ratings, reflecting a greater program emphasis on research ($r = .31$, $p < .005$). Conversely, higher *Insider's Guide* ratings were negatively correlated with satisfaction of clinical training ($r = –.19$, $p < .005$) and clinical experiences ($r = –.18$, $p < .005$), indicating that students are more satisfied with their clinical training when coming from programs that have a more equal emphasis and/or emphasize clinical work to a higher degree. Taken together, it does appear that a satisfaction divide does exist for research and clinical experiences and that this split is often determined by the training emphasis of the student's graduate program.

Table 1. Graduate Student Satisfaction toward Scientist Practitioner Training (N = 653)

Training mechanism	Very dissatisfied N (%)	Dissatisfied N (%)	Neutral N (%)	Satisfied N (%)	Very satisfied N (%)	Mean (*SD*)	Correlation with *Insider's Guide Ratings*
Research experience	10 (1.5)	56 (8.6)	88 (13.5)	272 (41.7)	226 (34.6)	3.99 (.98)	.31[a]
Clinical training	17 (2.6)	50 (7.7)	90 (13.8)	304 (46.6)	192 (29.4)	3.92 (.98)	–.19[a]
Academic courses	11 (1.7)	76 (11.6)	113 (17.3)	372 (57.0)	80 (12.3)	3.67 (.90)	–.06
Clinical experiences	13 (2.0)	57 (8.7)	72 (11.0)	276 (42.3)	235 (36.0)	4.02 (1.00)	–.18[a]
Professional development	15 (2.3)	53 (8.1)	145 (22.2)	289 (44.3)	149 (22.8)	3.77 (.97)	–.02
Advising	30 (4.6)	68 (10.4)	117 (17.9)	235 (36.0)	200 (30.6)	3.78 (1.13)	.05
Autonomy	10 (1.5)	28 (4.3)	84 (12.9)	309 (47.3)	221 (33.8)	4.08 (.88)	.05
Relationship between students and faculty	29 (4.4)	64 (9.8)	99 (15.2)	286 (43.8)	170 (26.0)	3.78 (1.08)	.003

Note: SD = standard deviation; a. $p < .01$

Table 2. Graduate Student Self-Reported Percent Frequency of Using Science to Inform Clinical Practice (N = 652)

Percent of clinical cases	N/A	0%	25%	50%	75%	100%
Administer objective assessment measures to assist with diagnostic and treatment decisions	15.5	2.3	11.5	11.2	21.3	36.6
Do a literature search prior to providing intervention	18.8	9.6	26.0	18.7	14.9	10.1
Inform your client of more than one treatment option for the specific problem	22.1	15.5	20.1	17.2	14.9	8.3
Inform your client of the research findings and outcome data related to the treatment(s)	20.4	12.1	21.3	15.9	17.0	11.1
Inform your client of how the treatment compares with alternatives on the bases of efficacy and cost-benefit analysis	22.4	35.5	17.9	10.4	7.5	4.0
Client makes a research-informed choice of treatment	25.6	29.4	17.5	9.6	10.6	5.4

Table 3. Graduate Student Self-Reported Effect of Scientific Data on Clinical Assessments and Decisions (N = 642)

	N/A N (%)	Almost never N (%)	Sometimes N (%)	Usually N (%)	Almost always N (%)
How often does scientific data and evidence impact clinical assessments and decisions	91 (13.9)	14 (2.1)	113 (17.3)	221 (33.8)	203 (31.1)
How often do you find the available scientific evidence to be uninformative or irrelevant to your actual clinical cases	115 (17.6)	224 (34.3)	248 (38)	34 (5.2)	21 (3.2)

Science and Practice Integration

The second expectation within this study was that clinical psychology graduate students would report an above average ability level for the integration of science and practice. It was further expected that this ability level would increase as students completed more years of training. Indeed, the results revealed that over half of the sample considered themselves either above average (n = 328; 50.2%) or excellent (n = 127; 19.4%) at integrating science and practice. Only 13 students (2%) reported they were below average and no students reported beliefs that they were extremely poor at the integration of science and practice. Analysis of variance indicated marginally significant differences in students' perceived abilities to integrate science and practice based on numbers of years of training. A trend towards significance was found for years of training predicting self-reported science and practice integration ability, $F(2,647) = 2.78$, $Mse = .54$, $p = .06$. Post hoc analyses indicated that students with fewer years of graduate experience (1–2 years) rated themselves significantly lower in terms of ability to integrate science and practice ($M = 3.79$, $SD = .75$) when compared with their more experienced (3–4 years) graduate student counterparts ($M = 3.92$, $SD = .72$). However, no significant differences existed when examining self-reported ability between students with 3 or 4 years of training and those with 5 or more years of graduate training ($M = 3.94$, $SD = .73$).

Examples of Science and Practice Integration

In the first exploratory analysis examining ways in which science and practice are integrated within clinical psychology doctoral training, students were asked about specific areas of training they may have received. Overall, 95% of this sample reported an integration of science and practice in their coursework, clinical practicum, and research experiences. For each domain, the large majority of students reported their training programs almost always integrate science and practice (71.4%, 66.8%, 61.6% for coursework, clinical practicum, and research experiences, respectively), while approximately one third of them endorsed that science and practice are somewhat integrated (27.4%, 31.4%, 34.1% for coursework, clinical practicum, and research experiences, respectively).

To further explore the pragmatics of integrating science and practice in training, a second exploratory analysis examined the extent to which scientific research and knowledge is actually used by graduate students during clinical assessments and practice. More than half of the students reported that they administer objective assessment measures to assist with diagnostic and treatment decisions for at least 75% of their clinical cases. However, more than one-third of respondents indicated they rarely (for 0% or 25% of their clinical cases) do a literature search prior to intervention, inform client of treatment options, inform the client of research findings, provide efficacy information for clients, or let the client make a research-informed choice of treatment (see tables 2 and 3).

Influence of Scientist-Practitioner Training on Career Development

The final portion of this survey asked students to indicate their ideal breakdown of how they would spend their time after graduation in terms of (a) percent of time doing clinical work and (b) percent of time doing research. These data give an approximate measure of students' eventual career goals. On average, students expect to spend 53.91% of time doing clinical work (SD = 27.20) and 35.03% of time doing research (SD = 25.25), with a strong negative relationship between the two career goals, $r = -.77$, $p < .001$. Interestingly, students at different levels of training report varying differences related to career goals in terms of research, $F(2,650) = 13.48$, $p < .001$, and clinical work, $F(2,649) = 6.74$, $p < .01$. Specifically, first-year and second-year students report a desire to devote more of their time to research (M = 41.37, SD = 25.64) than third-year and fourth-year students (M = 31.96, SD = 24.96), who did not differ from fifth-year and beyond students (M = 29.98, SD = 23.20). The opposite was evident for clinical work; fifth-year and above (M = 56.68, SD = 27.00) and third-year and fourth-year students (M = 57.16, SD = 26.65) reported wanting to spend a greater percentage of time doing clinical work, when compared with 140 first-year and second-year students (M = 48.99, SD = 27.21). These data suggest a possible shift in priorities as students progress through the program.

Last, we assessed the degree to which graduate students believe the integration of science and practice will influence their careers. Ninety-two percent of students indicated they anticipate that S-P integration will have a moderate (n = 258) or strong (n = 340) influence on career, while only 8% of students indicated they anticipate that S-P integration will have an influence that is neutral (n = 33), slight (n = 19), or none (n = 2).

Furthermore, to assess for differences among varying clinical psychology programs on the basis of greater emphasis of clinical training versus that of research training (i.e., *Insider's Guide* ratings), we dichotomized the sample to reflect this divide. Findings indicated that those from more research-focused clinical programs reported a higher level of anticipation that science and practice integration will have on their career, $F(1,463) = 14.45$, $p < .001$.

Discussion

The overarching goal of the S-P model is to educate and train graduate students through the generation and integration of scientific knowledge and skills (Society of Clinical Psychology [Division 12], 2010). The primary aim of this study was to gain a clearer understanding of how graduate students perceive this training and whether it influences their practice throughout their graduate careers. This study also explored student's perceived ability to integrate science and practice and to gain an understanding as to how these skill sets were being utilized. As an attempt to replicate the findings of Merlo and colleagues (2008), students were also asked to rate how satisfied they were with their S-P training and whether they anticipated that this model would influence their career development.

Consistent with the previous findings, over 60% of graduate students in this sample reported being satisfied or very satisfied with the S-P model of training their doctoral program offered. Outside of satisfaction levels with the S-P training being offered, over half of the graduate students within this sample perceived themselves as possessing an average to above-average ability to integrate science and practice. Not surprisingly, students at the earlier training stages rated themselves lower in science and practice integration ability. This stands to reason, given that students who have more years of training should accumulate a wider range of abilities and self-confidence in their perceived abilities when compared with those who have recently begun their training.

As a whole, clinical psychology graduate students within CUDCP-affiliated training programs reported a satisfaction in their training and perceived themselves as possessing the ability to integrate science and practice. However, while the majority of the students surveyed reported the use objective assessment measures to assist with diagnostic and treatment decisions, almost one third of them indicated that they rarely make an effort (for 0% or 25% of their clinical cases) to (a) do a literature search prior to intervention, (b) inform client of treatment options, (c) inform the client of research findings, (d) provide efficacy information for clients, or (e) let the client make a research-informed choice of treatment. While these skills are not necessarily examples of the use of science-based practice per se, these findings do support the need for a more detailed evaluation of the use of research-informed practice and the process of providing clients with information they need to make informed choices about treatment, both of which are essential elements of S-P training (Belar & Perry, 1992). This is perhaps especially important given that 92% students indicated a moderate to strong belief that their S-P training will influence their career.

As such, it can be concluded that while students may be taught the appropriate science and practice integration skills within a S-P training model, there are still areas of science-

based training that need to be strengthened. A potential reason for this weakness may be because of how the dissemination of research and clinical training objectives are being delivered among S-P training programs (Merlo et al., 2008). Consistent with this are findings from Peluso and colleagues (2010), which demonstrated greater graduate student desire for a training emphasis more on science in the context of practica. However, and as demonstrated through the findings reported, programs with a lower emphasis on research may be producing clinical psychologists who are less invested in a career based on science and practice integration.

Moreover, given the breadth of supervisors that may exist within each department of psychology clinic as well as throughout external practica sites, students may be receiving inconsistent supervision and directions that are not in line with the S-P framework. Supervisors may also lose focus on S-P training goals as a result of the additional demands (i.e., teaching, developing research, mentoring, administrative duties) of their faculty appointment or practica site (Overholser, 2010). The lack of continued clinical work or even licensure among faculty supervisors may also lead to shortcomings in training ideals.

It is plausible to suggest that competency development in clinical psychology graduate training needs further developing to reflect potential deficits in specific areas of clinical practice. In line with this, it would be beneficial for institutions to adopt more structured and focused competency requirements for their clinical psychology graduate students. One example of this could be the adoption of the Practicum Competencies Outline (Hatcher & Lassiter, 2007), which provides a model for enhancing the quality and quantity clinical competencies at the graduate level.

Moreover, an increasing number of training programs are also beginning to emphasize the evidence-based practice (EBP) movement in psychology (DiLillo & McChargue, 2007). As defined by the American Psychological Association, the purpose of EBP is to promote effective psychological practice and enhance public health by applying empirically supported principles of psychological assessment, case formulation, therapeutic relationship, and intervention (APA Presidential Task Force on Evidence-Based Practice, 2006). Outside of the promotion of more effective therapeutic roundedness, the dissemination of EBP also illustrates how indirect relevance can be successfully implemented. However, the potential importance of this movement and its influence on the fortification of S-P training within clinical psychology is dependent on the (a) research being conducted (b) clinicians applying the results found through the research, and (c) clients who accept its approach and application (Luebbe, Radcliffe, Callands, Green, & Thorn, 2007).

In other words, future clinical psychologists (i.e., graduate students) need to be exposed to the importance of research and research development, as well as its implications for clinical practice. Yet while some research has demonstrated that students have an interest in this form of training and would like EBP to play a larger role in their future research and clinical endeavors (Luebbe et al., 2007), there is limited data on the extent to which this training model is being used across doctoral training programs (Pidano, Kurowski, & McEvoy, 2010).

Limitations and Future Research

This study used an Internet-based survey to facilitate ease of study participation and access the largest possible sample size to best capture the clinical psychology graduate student viewpoint of S-P training. However, there are some important limitations that merit consideration when interpreting or generalizing findings from this study. First, the experiences and viewpoints of the graduate students in this sample were made up of students enrolled in CUDCP member clinical psychology doctoral programs. Thus, it can be expected that the training characteristics for these students may differ from those who are enrolled in other types of clinical, counseling, or school psychology graduate programs. Moreover, due to the substantial amount of missing data described in the methods, one must use caution when interpreting the results from the final sample. It is possible that a self-selection bias may exist among the students that completed this measure and that these students may hold differing perceptions of their competencies and training. Therefore, the present findings may not generalize to non-CUDCP–affiliated graduate students or studies using more objective outcome measurements.

An additional limitation of this study was the format of this survey and the limitations that were imposed on the variations of response options and question types. To maximize student response, restrictions were placed on the number of items used to assess each training dimension (e.g., ability and decision making). Also, because of the self-reported nature of this study and questions designed to assess ability levels and confidence, a superiority bias, or desire to see oneself in a more positive light (Hornsey, 2003) may have interfered with our measure's ability to examine actual ability levels. While this may represent a good starting point, future studies wishing to replicate or build off these findings may look to use more objective data collection procedures. This may allow for a greater variety of responses as well as the inclusion of multiple unique viewpoints.

Finally, future research may also look to gather faculty insight into issues regarding science and practice integration. This type of assessment may allow for a more sophisticated and well-rounded viewpoint addressing the degree to which students integrate research practices into their clinical work. If a disconnect between science and practice integration does exist, gathering perceptions of faculty and supervisors on these same issues may provide additional information on how training improvements may be made. This would be a particularly important data point given that clinical psychology graduate students are being trained to become the future of clinical psychology. These will be the individuals that are conducting the research, treating new patients, and training the next round of students. Thus, to further develop the training that is being disseminated, a better integration of student and program may be needed.

Summary

Little research has been published that assesses how clinical psychology doctoral students integrate science and practice during their graduate school training. As a result, this study examined the perceptions of a S-P training model among a group of graduate students enrolled in CUDCP-affiliated doctoral programs. As a group, the students within this sample indicated that they were satisfied with the training they were receiving and that they were developing the ability levels needed to successfully integrate science and practice.

However, over one third of the students surveyed indicated a lack of consistency between the knowledge that they had learned and their subsequent behaviors within their clinical practice. Implications of this and suggestions for future research and training development have been offered.

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