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# Evaluating Training Needs in Clinical Psychology Doctoral Programs

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## Abstract

**Objective:** Advances in clinical psychology must be accompanied by advances in training. This study assessed training content, quality, and needs during clinical psychology doctoral programs among current or past doctoral students.

**Methods:** Current or past clinical psychology doctoral students ($N$ = 343) completed an anonymous survey assessing training experiences and needs. A descriptive-focused exploratory factor analysis (EFA) also examined whether common subgroups of academic interests emerged.

**Results:** Most participants reported that they sought training beyond required coursework, primarily in clinical training, cultural competency, and professional development, and reported having taken one or more unhelpful course, including Discipline-Specific Knowledge requirements. Descriptive results from the EFA demonstrated common training areas of interest: diversity topics, biological sciences, clinical practice, and research methods.

**Discussion:** This study demonstrates that trainees and early career psychologists are aware of their nuanced and in some cases, unmet training needs.

**Conclusion:** This work foregrounds the need to adapt extant training opportunities to support the next generation of clinical psychologists.

### Keywords

clinical psychology; doctoral training; training needs

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Coursework in clinical psychology doctoral programs may be in need of redesign in order for the current generation of trainees to address the current mental health landscape they face. Discipline-Specific Knowledge (DSK) requirements (IR C-7 D, American Psychological Association, 2021), which comprise cognitive, affective, social, biological, lifespan development, and history courses, were originally proposed in the 1940s, and have largely remained unchanged since 1995 (American Psychological Association, 2015; American Psychological Association, 1949; Farreras et al., 2016; Norton et al., 2022; Shakow et al., 1945). As the field of clinical psychological science continues to evolve, skills needed in a variety of settings (e.g., academic, practice, industry, policy) also naturally evolve. Clinical psychologists entering the workforce will have the greatest impact in reducing the burden of mental health when they have been trained in their graduate programs using the most cutting-edge scientific approaches to research and practice. Clinical psychology programs should adapt to meet the needs of today's clinical psychologists, who are entering into a variety of settings in the field.

Many doctoral students, interns, postdoctoral fellows, and early career psychologists seek ad hoc training in skills they need in order to advance the field (Gee et al., 2022). This type of "on the job training" and lifelong learning are essential for any psychologist. However, training in common areas that early career psychologists collectively view as important to their career paths as part of graduate program curricula would make the most effective use of doctoral students' time in training and allow them to utilize these skills sooner. Indeed, time constraints are a major source of burden for clinical psychology doctoral students (Gee et al., 2022). American Psychological Association (APA) DSK requirements may exacerbate strain related to time constraints. Not all DSK requirements must be met with courses, but many doctoral programs use courses as the most straight-forward way to fulfill these APA requirements, and perhaps requirements could be updated, or more efficient methods could be adopted. Identifying the types of courses that graduate students and early career psychologists discover they need as they progress through their career (as well as those that they must take but find less helpful) can help to inform refinements to curricula, including recommendations to re-evaluate required coursework.

Moreover, even without changes to required curricula, this information can help faculty develop plans to update existing courses. For example, interest in consortia models has increased, in which separate training programs come together to teach a course across more than one institution, borrowing from the expertise of the others. In this way, expertise in a newer area of study, such as community participatory research or Bayesian analysis, can be more quickly disseminated without losing fidelity and without waiting to hire a faculty member with this area of expertise. Additionally, some populations may be less prevalent in the region where an institution is located; thus, offering opportunities to learn to provide clinical services or conduct research with a rural population, or a large LGBTQ+ population, could be achieved by partnering in a consortium. This is made all the more feasible with the recent large-scale adoption of online courses, virtual webinars, and teletherapy.

Recent interest has emerged in re-designing the clinical psychology doctoral program structure to meet the needs of the current field (Berenbaum et al., 2021; Gee et al., 2022). These conceptual articles present overarching barriers (e.g., training-job misalignment,

increasingly multidisciplinary approach) and solutions (e.g., provision of vocational scaffolding, restructuring and consolidating courses) to improving training, providing inspiration for important discussions to move our field forward. The present study takes the first concrete step toward re-imagining course curricula and informing consortium models by gathering input from current graduate students, interns, post-doctoral fellows, and early career psychologists.

The following needs assessment lays the foundation for making recommendations about streamlining coursework and updating our training programs to be at the cutting-edge, meeting the needs of the newest clinical psychologists in our field and thereby advancing the pace at which they can make progress in the current landscape of our field. We sought to examine training experiences and needs in clinical psychology doctoral programs and examine descriptive patterns in the data quantitatively. Specifically, we assessed whether participants took additional courses, webinars, workshops, or trainings in order meet training goals, and what the content of these training opportunities were. Next, participants were asked to both self-generate and identify from pre-selected options possible training content of interest. Courses taken that were unhelpful were assessed, as were training gaps that participants realized as they prepared for the internship or licensure process. Finally, preferred method by which to learn new content and barriers to seeking additional training opportunities were probed. Given the possibility that students with different interests and career goals may have unique needs, we also sought to assess whether particular subgroups of training needs and interests emerged. We expected that students would have diverse training needs that may be described by data-driven analyses and that not all needs are effectively addressed within the current framework. We also hypothesized that some extant coursework is perceived as unhelpful and may prevent trainees from seeking personally relevant training opportunities.

## Method

### Needs Assessment Development

This needs assessment was designed by members of the scientific quality committee in the Coalition for the Advancement and Application of Psychological Science (CAAPS), an umbrella organization that was formed in 2015 with the aim of providing an opportunity for organizations committed to clinical science to have a means for productively working together on shared goals. The scientific quality subcommittee of CAAPS functions to develop and carry out initiatives relevant to improving the quality of clinical psychological science, which includes initiatives intended to improve clinical psychology training models. The subcommittee that developed and implemented the needs assessment was convened with the goal of assessing current training practices to inform clinical psychology re-design recommendations, and was comprised of expert clinical scientists, all of whom graduated from clinical psychology doctoral programs, and several current clinical psychology doctoral students. The process of developing the needs assessment consisted of (1) initial discussions to identify areas of interest and content for the survey, guided by the diverse experience and knowledge of clinical psychology training curricula; (2) initial draft development by the subcommittee members, with opportunities to edit and add items; (3) presentation of the

draft to the larger scientific quality committee to get feedback and additional edits; and (4) finalizing the survey for distribution.

The needs assessment was implemented by researchers at the University of California, Los Angeles (UCLA), who were also CAAPS scientific quality committee members and developed the study concept as part of this committee's goals. The study was certified as exempt from Institutional Review Board review (UCLA, IRB #22–000451) and complied with the Helsinki Declaration.

## Participants

Graduate students, interns and early career psychologists (ECPs; e.g., post-doctoral fellows, early career researchers, private practice clinicians) who were either in the process of completing a doctoral degree or had completed a doctoral degree in clinical psychology within the past 10 years were eligible for the assessment. We opted to include participants at various stages of training given the possibility that current students may have new or unique needs as well as the possibility that clinical scientists who have completed their training became aware of gaps in their coursework as they transitioned into professional roles. Participants ($N = 343$) were recruited via emails from directors of clinical training (DCTs) at their respective graduate programs and through Twitter posts. The survey was sent to 259 DCTs affiliated with the Council of University Directors of Clinical Psychology (CUDCP) by the Chair of the Board of Directors of CUDCP.

With regard to race, the sample was 79.0% White, 9.0% Asian, 4.4% Black, 2.0% Multiracial, 1.7% Biracial, 0.9% American Indian/Alaska Native, 0.6% Native Hawaiian/Pacific Islander, and 2.3% race unlisted or unreported. With regard to ethnicity 87.5% were Non-Hispanic or Non-Latinx, 10.5% Hispanic or Latinx and 2.0% unreported. The sample was comprised primarily of cisgender women (80.8%; 14.9% cisgender man; 2.9% gender fluid; 0.3% nonbinary; 0.3% transgender; 0.3% agender; 0.6% gender not listed). Participants spanned graduate programs across the United States (32.9% Northeast; 27.1% Northwest; 20.4% Southeast; 16.0% Southwest; 2.6% Midwest) and various career stages (51.9% current graduate student; 29.7% early career psychologist; 9.9% current post-doctoral fellow; 7.6% current intern; 0.9% unreported).

## Measures

**Participants completed an anonymous survey via Qualtrics.—**The survey probed a variety of domains related to training needs and gaps in training experiences.

**Additional Courses Taken: Semester or Quarter-Long.:** The survey first probed whether trainees sought additional course content outside of program requirements in order to meet training needs. This question was framed broadly (i.e., have you ever taken a course (semester or quarter long) to gain skills relevant to your area of clinical science interest), to capture participants who may have realized training needs after completing their program (e.g., in preparation for licensure, grant writing). The next questions included an open-ended response inquiring about the subject of the course (i.e., What was the primary content of the

course that you wished to gain) and a question that assessed whether the additional course was provided by the student's department or was external.

**Additional Courses Taken: Webinar, Workshop, Training.:** Relatedly, the survey assessed types of additional training experiences received through other modalities, the content of these training experiences, and whether trainings were provided through the student's department or externally.

**New Content of Interest—Self-Generated.:** The survey also assessed interest in additional courses through an open-ended response option, where participants could self-generate courses or topic areas of interest (i.e., If you could have new courses in your program that would help you to gain additional skills or knowledge relevant to your area of clinical science interest, what would the content be).

**New Content of Interest—Committee-Generated.:** The survey subsequently assessed interest in additional courses through the presentation of topic areas generated by the CAAPS scientific quality subcommittee (e.g., community-based participatory research, critical race theory, disability issues, grant writing, machine learning, psychoneuroimmunology, setting up a private practice, etc.).

**Unhelpful Course Content.:** Next, participants were asked to report whether they had taken any courses during graduate school that did not help them gain skills or knowledge related to clinical science interests and relatedly, what the content of those courses was.

**Preparation for Internship and Licensure.:** Following, participants were surveyed about their preparation for internship and licensure and were asked to report any subject areas that they found were gaps in their training through the internship or licensure process.

**Preferred Content Delivery and Barriers.:** Next, participants were asked to report on their preferred method by which to learn skills needed, other than a semester- or quarter-long course (e.g., time-limited workshop, day-long conference). Participants were asked to respond to this question without respect to virtual vs. in person formats to capture broad interest in specific modalities (and since we did not want to confuse format preference with COVID-related social contact concerns). Finally, participants were asked what the primary barriers to seeking additional coursework outside of program requirements would be (e.g., time, finances, not valued by mentor).

Participants could opt to provide their email addresses if they wished to be included in a raffle to win one of two $100 gift card prizes for their participation. The full Qualtrics survey is available upon request.

## Analyses

Descriptive statistics are presented for forced-choice responses. Some questions required participants to submit a text response to an open-ended question (e.g., "If you could have new courses in your program (or have had a new course if you have already graduated) that would help you to gain additional skills or knowledge relevant to your area of

clinical science interest, what would the content be?"). For these open-ended questions, text responses were coded into the most commonly occurring categories (e.g., clinical practice, statistics, research methods, neuroscience, etc.) by two advanced graduate students in clinical psychology doctoral programs (authors J. S. Y. and C. M.). In the event that codes were discrepant, ratings were presented to author K. W. T.,, an associate professor and licensed clinical psychologist, who resolved the discrepancy. Code categories were data-driven, such that codes were developed upon reviewing the data and observing the most commonly occurring themes. Therefore, each area reported was endorsed by at least some of the participants. Of note, some participants responded to open-ended questions with a single type of training requested (e.g., setting up a private practice), and therefore their response was assigned a single code. However, some participants responded with multiple types of training goals (e.g., statistical methods, third-wave CBT, grant writing), and therefore, received multiple codes per response.

Given that students within clinical psychology doctoral programs may have divergent interests (e.g., grant writing vs. trauma therapies) and in turn, different training needs, we also sought to explore whether common groups of academic interests emerged in the study sample. An exploratory factor analysis (EFA) with promax rotation was conducted with R using the 'psych' package (Revelle, 2017) to examine which types of academic interests tended to co-occur. A combination of examination of the screen plot and formal parallel analysis was used to determine the number of factors to extract (Horn, 1965). We conducted the quantitative analyses in this paper purely for descriptive purposes, rather than for significant inferential value. We do not consider our chosen questions and indicators as exhaustive, and instead seek to characterize important, common interests among trainees to advance reform of graduate training. Factors derived were regressed onto group status (current trainees versus young professionals) using independent-samples t-tests.

## Results

### Additional Course Content Taken

Over half (58.6%) of survey respondents indicated that they had sought out or taken an additional course to further their training in clinical psychology. Text responses were coded into the following categories developed by authors J. S. Y., C. M., and K. W. T., to broadly capture the most commonly occurring themes: 1. Clinical (e.g., clinical assessment, intervention, practice, or supervision); 2. Cultural competency, diversity, or disability studies; 3. Healthcare and medicine; 4. Neuroscience; 5. Research methods; 6. Statistics; 7. Subfields in psychology (e.g., social psychology, implementation science, health psychology); 8. Other (e.g., computer programming). Additional courses taken that were most commonly reported were statistics (17.2%), clinical (13.7%), and neuroscience (9.3%). Fewer than 7.0% of participants reported having taken courses in other categories. Approximately half (51.3%) of participants indicated that they took the additional course they had sought through their department, while 48.7% of participants reported seeking the course outside of their department.

A majority of participants (91.5%) also reported having taken a webinar to gain additional knowledge or skills relevant to their training. Participants typically reported taking several

webinars. The most common topic areas were specific interventions, working with particular clinical populations, statistics, and professional development.

### New Content of Interest—Self-Generated

Participants responded to an open-ended question regarding new content of interest relevant to training needs. Responses were examined separately within groups such that graduate student and intern responses (i.e., trainees) were combined and post-doctoral fellow and early career psychologist responses (i.e., young professionals) were combined, reflecting the fact that career stage may impact knowledge about what additional training would be/have been helpful. Responses within the two groups (i.e., trainees vs. young professionals) were subsequently coded, again, using data-driven categories within each group matching that of the selection of content to retain from the other categories described in the methods, to understand training needs specific to each group.

For trainees, responses were coded into the following categories: 1. Clinical (e.g., clinical assessment, intervention, practice, or supervision); 2. Cultural competency or diversity studies; 3. Healthcare and medicine; 4. Neuroscience; 5. Professional development (e.g., academic writing, business fundamentals for private practice); 6. Research methods; 7. Statistics; 8. Subfields in psychology; 9. Other (e.g., consulting). The most requested area of additional training was clinical, with 50.9% of current students indicating interest. Among all students who expressed interest in additional training, many also reported interest in courses on cultural competency and diversity (24.0%), statistics (15.8%), professional development (13.5%), and subfields in psychology (12.9%). Less frequently requested subject areas were research methods (9.9%), healthcare and medicine (7.6%), and neuroscience (5.8%).

In terms of young professionals, the following data-driven categories were developed and used for coding: 1. Business and finance; 2. Clinical (e.g., clinical assessment, intervention, practice, or supervision); 3. Cultural competency or diversity studies; 4. Healthcare and medicine; 5. Neuroscience; 6. Professional development (e.g., managing a lab, mentoring, grant writing); 7. Research methods; 8. Statistics; 9. Subfields in psychology/science; 10. Other. Primary categories of interest for all ECPs were clinical (43.1%); professional development (29.3%), business and finance (26.7%), subfields in psychology/science (13.8%), cultural competency and diversity (13.8%), healthcare and medicine (13.8%), and statistics (12.1%). Subject areas less commonly requested were research methods (7.8%) and neuroscience (3.4%).

### New Content of Interest—Committee-Generated: Exploratory Factor Analysis

As a secondary exploratory question regarding new content of interest, the authors gathered ideas from various CAAPS scientific quality committee members about novel or essential course content that has infrequently been a focus of graduate training. In the survey, all participants (i.e., current students, interns, post-doctoral fellows, and ECPs) were asked to select areas of interest from a list of topics generated by the committee. Results are presented across all participant groups listed above (i.e., combining trainee and young professional responses). More than half of all survey respondents expressed interest in

each of the following subject areas: critical race theory/antiracism (63.6%); community-based participatory research (54.8%); data visualization techniques (52.5%); grant writing (54.8%); mentoring (55.4%); setting up a private practice (50.1%).

An exploratory factor analysis (EFA) assessed co-occurrence among academic interests. Results from a parallel analysis suggested that a four-factor solution be retained (See Table 1 for factor loadings). Factor 1, "Diversity Science," evidenced high loadings from six items (Disability Studies, Critical Race Theory/Antiracism, Queer/Feminist Theory, Alternatives to Policing, Community-Based Participatory Research, and Policy/Advocacy/Lobbying) with factor loadings ranging from .42 to .75. Factor 2, "Methodologies," included prominent loadings from seven items (Data Visualization, Machine Learning, Mixed Methods, Programming/Coding, Grant Writing, Qualitative Methods, and Scientific Communication) with loadings ranging from .38 to .65. Factor 3, "Practice Oriented," saw high loadings on five items (i.e., Setting up a Private Practice, Managing a Small Business, Telehealth, Working with Media, and Working in Educational Settings); loadings ranged from .41 to .68. Lastly, Factor 4, "Biological," evidenced its highest loadings on four items (i.e., Psychoneuroimmunology, Genetics, Immunology, and Neuroimaging); loadings ranged from .47 to .57. Results indicated that current trainees and young professionals did not differ on reported desire for Diversity Science ($t(338) = 1.62$, $p = .11$, d = .18) and Biological ($t(338) = 1.30$, $p = .19$, d = .14) classes, but current trainees wanted significantly more methodology classes ($t(338) = 3.03$, $p = .003$, d = .34), and there was a trend toward young professionals wanting to have taken more practice-oriented classes ($t(338) = 1.76$, $p = .08$, d = .20).

### Unhelpful Course Content

All participants were queried about whether they had taken a course that was unhelpful to their training and development. A majority of participants (63.0%) endorsed having taken a course that was unhelpful. Responses to open-ended questions were coded into the following data-driven categories: 1. Clinical assessment; 2. DSK requirements; 3. History and systems; 4. Intervention; 5. Neuroscience; 6. Research methods; 7. Statistics; 8. Subfields in psychology/science; 9. Other. Authors coded history and systems separately from DSK requirements more broadly due to the number of responses indicating that history and systems alone was an unhelpful course. The most frequently endorsed categories of unhelpful courses were DSK requirements (20.8%), history and systems (13.5%), and subfields of psychology/science not captured by DSK requirements (7.3%). All other categories were endorsed by 5% or less of participants.

### Preparation for Internship and Licensure

Participants who were on or had completed internships and those who had applied for licensure were surveyed about their preparedness for each experience. A minority of current or past interns (31.6%) indicated that there were gaps in training experiences that sites expected interns to have. Responses were coded into the following data-driven categories: 1. Assessment; 2. Breadth/depth of experience; 3. Diversity/multiculturalism; 4. Interventions; 5. Projectives; 6. Subfields of psychology/science; 7. Other. The most commonly reported gaps in preparedness for internship related to breadth/depth of experience (3.5%), specific

interventions (4.4%), and assessment techniques (2.6%). Less than 2.0% of respondents endorsed gaps in other categories.

As far as applying for licensure, 26% of all participants who had applied for licensure indicated gaps in training that were expected by licensure boards. Too few qualitative responses were reported to code. However, broad themes that emerged were gaps in specific clinical presentations or concerns (e.g., substance abuse, child abuse) or subfields in psychology (e.g., industrial/organizational, developmental, social).

### Preferred Method to Learn Skills

Besides adding a new course, all survey respondents were asked their preferred method for filling training needs, based on three provided options. A majority (60.6%) stated a preference for a time-limited workshop, with far fewer expressing interest in a day-long conference or community outreach (e.g., learning professional development or implementation through community-engaged participatory experiences).

### Barriers to Further Training

Finally, all respondents were asked to indicate the primary barriers to engaging in additional training. The most commonly reported barriers were time constraints (84.3%), financial constraints (61.8%), and other courses or course schedules precluding the opportunity to add additional training (46.4%).

## Discussion

As the field wrestles with developing new cutting-edge clinical psychology training (Berenbaum, et al., 2021; Palitsky et al., 2022), results from the present needs assessment demonstrate that clinical trainees and ECPs recognize the areas of additional training they need (See Table 2 for main study takeaways). Over half (58.6%) of survey respondents had taken an additional course to further their training. More than half of respondents from all stages of training expressed interest in each of the following subject areas, when given a list to choose from: critical race theory/antiracism; community-based participatory research; data visualization techniques; grant writing; mentoring; setting up a private practice. Given the overstretched schedules during graduate training (Gee et al., 2022), leading to an overwhelming proportion of respondents citing limited time and finances available to obtain additional training, it is notable that many participants felt it necessary to supplement their coursework regardless of barriers. Although no curriculum could cover all topics for which a student could desire additional training, the present study reports the subject areas most and least desired for programs that want to update their curriculum.

The present needs assessment also considered different stages of training/career separately. Just over 50% of current students and interns wanted additional training content in clinical topics (e.g., clinical assessment, intervention, practice, or supervision), and nearly a quarter wished for additional courses on cultural competency and diversity. On the other hand, after graduate training, for post-doctoral fellows and ECPs, the top three topics for which respondents needed additional courses included clinical content (over 40%); professional development, and business and finance. Professional development, which is not included

as distinct training courses in many programs, was desired by almost 30% and tended to encompass content such as grant writing, career planning, and training in teaching and mentorship. Perhaps most surprising, just over a quarter wanted more business and finance topics, comprising responses related to training in running a small business (e.g., private practice or consulting) and managing grant funding. Taken together, this needs assessment provides vital information for clinical psychology faculty as they design consortia models that could provide top-notch training in these areas to multiple programs. Similarly, for those programs who may be switching to accreditation through the Psychological Clinical Science Accreditation System (PCSAS), the opportunity to create new training curricula can use this needs assessment to inform priorities.

The exploratory factor analysis described identified co-occurrence in training interests and identified the following primary areas: diversity topics, biological sciences, clinical practice, and research methodologies. These categories may reflect different training foci required for distinct career paths and in turn support the development of different training pathways within a program to align coursework with career goals. This approach is in line with prior recommendations for re-imagining clinical psychology doctoral training (Berenbaum et al., 2022). An analysis in differences between students and ECPs suggested that students indicated more interest in methodology coursework, whereas young professionals indicated more interest in practice-oriented training, suggesting a need for flexible training that allows for developmental change throughout graduate school and beyond. Relatedly, current students' training needs differed from what ECPs reported as gaps in training received, highlighting the complexity with "pigeonholing" trainees into a specific focal area early on, when graduate students may not know exactly what kind of career path they desire, and may need greater exposure to a variety of topics. Therefore, these data point to both needs for tailoring curricula to meet the needs of specific careers *and* for providing opportunities for training that graduate students may not recognize they need until later. Likely, a balance of the two interests is optimal.

At the 2022 Academy for Psychological Clinical Science annual meeting, discussion of *breadth as a competency* model emerged. Rather than focusing on content in the areas of affective, behavioral, cognitive, developmental and social psychology, captured by DSK requirements, adopting a set of competencies that a graduate trainee must demonstrate would mirror clinical competencies, which is a familiar method for training and assessment in clinical psychological science. We have seen this model applied to the development of clinical competencies for supervision (Falender, 2004) and intervention (Sharpless, 2009). Breadth as a competency might include demonstrating the capacity to discover, value and apply broad knowledge outside of the subfield of one's expertise, awareness that one's own knowledge is not complete and curiosity about breadth of knowledge, and assessment could include developing a structured literature review in a new area, or developing a collaboration with an expert outside of your subfield. Addressing breadth in this way overcomes the limitation of continually outdated content and strengthens the capacity for the ongoing process of acquiring new knowledge instead. New coursework might reflect this rather than current methods of demonstrating discipline-specific knowledge (DSK), or this competency might be infused into current coursework as a method or assessment tool.

The present work offers several strengths. First, the assessment surveyed a breadth of clinical psychology doctoral programs. Second, the assessment incorporated feedback from current students and graduates of programs across career stages. Lastly, this work is the first to our knowledge to comprehensively assess training needs in clinical psychology doctoral programs, with a primary aim to improve the quality and relevance of training experiences for current and future students. However, our work was not without limitations. The survey did not assess the type of doctoral program students attended (e.g., Ph.D. vs. Psy.D.; clinical science vs. scientist-practitioner vs. clinician scholar), which significantly limits generalizability of findings. Students pursuing different types of degrees may have different training needs. Future work should examine this possibility, and the present findings should be interpreted with this caveat when used to inform curricula changes for an individual clinical psychology training program. Furthermore, this study did not assess other health service psychology programs, such as counseling and educational psychology, which follow similar training requirements but generally have greater representations of minority populations and a training focus on multicultural components. Consideration of training approaches through a broader array of health service psychology programs may inform adaptations which could be made to clinical psychology doctoral programs. The study also only assessed one aspect of training needs through coursework, although other factors, including research opportunities, mentorship, resources, and faculty characteristics are also certainly relevant to training needs. Additionally, due to sample size and patterns of missingness, we were unable to perform several more inferentially-focused quantitative analyses (e.g., latent profile analysis) on some questions that might elucidate whether there are typical profiles or factors that summarize training needs for different types of students. For example, it may be the case that one profile of students wants additional training in research methods, statistics, and neuroscience, while another profile views clinical interventions and cultural competency as a primary training need. However, the descriptive EFA on additional course content (where the full sample size was present) did suggest desire for additional courses of certain types tended to co-occur together. Importantly, this study also assessed perceived competencies and related training needs. While perceived competency is an important and relevant metric, recent work has found that perceived competency is only weakly associated with performance-based competency, suggesting a need for metrics which assess a scope of competency beyond self-perceptions (Bergquist et al., 2023). Additionally, this study did not assess the quality of training strategies more broadly. Before abandoning courses because students may not perceive them to be useful to their careers, it is important to explore ways in which improving pedagogy across courses (e.g., history and systems) and programs and modernizing courses could circumvent significant structural changes to training. Finally, this study was conducted within a sample of current or past doctoral students in the United States. As such, results pertain to perceptions of training programs in the United States and may not generalize to international training programs.

Broadly, results have practical implications for training models. Findings suggest changes to curricula may be needed, through altering or supplementing courses offered or through pedagogical shifts. Adjunctive training experiences could be provided through consortium models. It may also be that a re-design of APA requirements is warranted. Ideally, these

findings will be reviewed by regulatory and accreditation bodies which oversee training in clinical psychology and inform efforts to modernize and specialize training in the field, given students' unique needs and interests.

This study demonstrated that students in clinical psychology doctoral programs have diverse training needs, and that current graduate course offerings are unlikely to optimally prepare the next generation of clinical scientists to progress the field. It will be essential to continue to understand variability in students' needs and to critically assess the utility of current course offerings in order to fill extant gaps in training.

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**Ethics Approval Statement:**

The study was certified as exempt from Institutional Review Board review (UCLA IRB #22–000451)

## Data Availability Statement:

The data that support the findings of this study are openly available in OSF at DOI 10.17605/OSF.IO/8ET6D.

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**Table 1.**

Exploratory Factor Analysis: Items and Factor Loadings.

| | Diversity Science | Methodologies | Practice Oriented | Biological |
|---|---|---|---|---|
| *Group Difference (Trainee – Young Professional) in factor score (Cohen's d)* | −.18 | −.34 | .20 | −.12 |
| **Subject** | **Loadings** | | | |
| Community-Based Participatory Research | .43 | .36 | −.08 | −.09 |
| Critical Race Theory/Anti-Racism | .71 | −.04 | .01 | .09 |
| Data Visualization | −.05 | .65 | −.02 | .05 |
| Disability Studies | .75 | −.08 | .02 | .14 |
| Genetics | .09 | −.06 | .05 | .52 |
| Grant Writing | .17 | .44 | −.04 | .03 |
| Immunology | .12 | .01 | −.05 | .51 |
| Implementation Science | .32 | .35 | −.13 | −.13 |
| Machine Learning | −.30 | .62 | .05 | .18 |
| Managing Small Business | −.01 | −.09 | .63 | −.02 |
| Mentoring | .33 | −.02 | .25 | −.05 |
| Mixed Methods | .10 | .60 | −.03 | −.20 |
| Neuroimaging | −.09 | .32 | −.06 | .47 |
| (Alternatives to) Policing | .45 | .02 | .06 | .07 |
| Psychoneuroimmunology | .18 | −.04 | −.05 | .57 |
| Professional Development | .23 | .05 | .24 | .03 |
| Programming/Coding | −.10 | .50 | .08 | .24 |
| Policy/Advocacy/Lobbying | .42 | .14 | .10 | −.09 |
| Qualitative Methods | .27 | .43 | −.07 | −.21 |
| Queer/Feminist Theory | .73 | −.10 | −.07 | .26 |
| Scientific Communication | .15 | .38 | .16 | .02 |
| Setting up Private Practice | .00 | −.09 | .68 | .03 |
| Telehealth | −.02 | .02 | .55 | −.10 |
| Working in Educational Settings | .17 | .00 | .41 | .02 |
| Working with Media | −.05 | .17 | .54 | −.02 |

*Note.* Regression-based factor scores were extracted and regressed onto group status (current trainee versus young professional). Standardized differences in means (Cohen's d effect size) is presented in the second row. Current trainees wanted significantly more methodology-oriented classes than young professionals, whereas young professionals wanted more practice-oriented classes.

**Table 2.**

Study Takeaways

| Category | Takeaway |
|---|---|
| Course Content | Most participants sought additional courses or webinars to further their training, most commonly in statistics. |
| | The most requested areas of additional training were clinical and cultural competency for trainees, and clinical, professional development, and business and finance for ECPs. |
| | Trainees and ECPs reported a similar desire for Diversity Science and Biological classes, but a preference for additional Methodology classes and Practice-oriented classes, respectively. |
| | Most participants endorsed having taken a course that was unhelpful, most commonly DSK requirements (e.g., social aspects of behavior) and history and systems. |
| Internship & Licensure Preparedness | A minority of current or past interns indicated gaps in training experiences that sites expected interns to have. |
| | One quarter of participants who applied for licensure indicated gaps in training that were expected by licensure boards (e.g., specific clinical presentations). |
| Learning Modalities | Most participants indicated a preference for time-limited workshops over day-long conferences and community outreach for non-course-based skill development. |
| Training Barriers | Common barriers to engaging in additional training were time constraints, financial constraints, and interference from other courses/course schedules. |

*Note.* Abbreviations: ECPs = Early Career Psychologists; DSK = Discipline-Specific Knowledge.