



The Training of Doctoral Students of Psychology in the United States

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Abstract: *This article describes both formal and informal aspects of doctoral training of psychology students in the United States. We first describe admission procedures and the financial support of doctoral students and then discuss the various milestones in a typical doctoral program. There follows an overview of what is expected of doctoral students and a description of the working environment (e.g., faculty and fellow*

students) in doctoral programs. Finally, we provide a brief analysis of the doctoral training system in the United States. One question of particular importance is whether the close supervision associated with many doctoral programs prepares the student adequately for supervising researchers and developing a research program of his/her own after graduation.

Keywords: *Graduate student, higher education, student supervision, admission, doctoral degree*

This article describes the nature and content of doctoral studies programs in psychology in the United States. Because of the backgrounds of the authors, the article focuses on relatively high-profile research institutions; specifically, the descriptions herein revolve primarily around the authors' own first-hand experiences with the psychology programs at the University of Michigan, the University of Minnesota, the University of Texas, and Harvard University. This might seem to present a biased perspective of the US doctoral system, but there are a few issues that attenuate this potential difficulty. First, many universities and colleges in the United States do not offer doctoral programs at all, and the vast majority do not offer doctoral programs in psychology. There is a tendency for doctoral programs in psychology to be offered primarily by the largest and best-known universities, and thus the institutions emphasized in this article are probably more representative of "typical" doctoral programs than it might seem. Second, colleagues at "lower-tier" doctoral programs have generally indicated that their programs are similar to those described herein. The primary differences appear to be that lower-tier universities have more liberal admission requirements, provide less financial support overall and are much more likely to provide this support in the form of teaching assistantships, and have less demanding expectations concerning research production.

Furthermore, the focus of this article will not be on the training of clinical psychologists within the scientist-practitioner model that is a basis for accreditation by the American Psychological Association (for recent reviews and critiques of this model see, e.g., Albee, 2000; Belar, 2000; Nathan, 2000), but rather on research training based more on a purely scientist model that is prevalent in domains such as cognitive, social, and biological psychology. Nevertheless, discussions with colleagues in clinical psychology indicate that research-oriented PhD programs in clinical psychology are in most respects very similar to the PhD programs described in this article. Practically oriented clinical PhD programs and PsyD programs, however, are likely to differ from research-oriented PhD programs in many respects, perhaps most notably with regard to higher acceptance rates (Mayne, Norcross, & Sayette, 1994), reduced financial assistance

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(Mayne et al., 1994), and poorer access to faculty mentors (Clark, Harden, & Johnson, 2000). In addition, PsyD programs generally require less time to complete than PhD programs do (Gaddy, Charlot-Swilley, Nelson, & Reich, 1995).

The article begins with a discussion of the admission process, followed by a description of the work requirements and learning environments of graduate students. Finally, we present a brief analysis of the benefits and risks associated with the American doctoral student training process.

Getting Started in Graduate School

Admissions

Prior to entering a doctoral program, students have invariably completed a Bachelor's degree (normatively 4 years of education after high school), and many have completed a Master's degree (one to three additional years) as well. Admission to a doctoral program in psychology at most universities does not require that earlier degrees are in psychology, although that is the case for most students. The vast majority of doctoral programs in psychology require the following information from applicants: (a) Graduate Record Examination (GRE) verbal and quantitative scores; (b) Grade Point Averages (GPA) for previous college work; (c) letters of recommendation from persons familiar with the applicant's capabilities (typically university faculty who have taught the applicant or who have supervised undergraduate research performed by the applicant); and (d) a letter of intent indicating the type of research that interests the applicant. The GRE is a standardized test that ostensibly measures a student's intellectual aptitude (although the validity of this measure has often been questioned; see, e.g., Sternberg & Williams, 1997), whereas GPA and letters of recommendation are measures of actual performance in academic settings. The letter of intent serves primarily as a way of determining the degree of fit between the applicants' interests and those of the faculty in the doctoral program. Some universities have additional requirements that measure the same conceptual variables; some universities also require the GRE Psychology test as a measure of the applicant's knowledge of psychology. In addition to the above requirements, foreign students typically have to pass a standardized test on English language proficiency such as the Test of English as a Foreign Language (TOEFL).

The acceptance rate for accredited clinical psychology programs is approximately 6% (Norcross, Sayette, Mayne, Karg, & Turkson, 1998). This figure is likely to be somewhat higher in more theoretical areas and substantially lower at especially prestigious universities. In any case, given the low acceptance rate together with the fact that most students interested in doctoral programs are among the better undergraduate students, doctoral students are a very highly selected group.

Financial Support

Once accepted to a doctoral program, most students get some form of financial support. This support typically comes in one of three forms:

- 1) Teaching assistantships (or lecturer positions), which involve pay in exchange for work related to teaching other students, typically undergraduates;
- 2) Research assistantships, which involve pay in exchange for conducting research for one or more faculty members;
- 3) Fellowships, which award the student an annual stipend without stipulating any requirements beyond those of the doctoral program.

Fellowships are competitive based on the student's personal qualifications and/or aspects of the project he/she is doing. Teaching assistantships are the most common form of financial support at most universities. Whatever the funding source, the amount of support tends to be quite low (seldom more than \$16,000 and often much less). Doctoral students are typically expected to pay tuition, but in many cases the funding support they receive is accompanied by tuition discounts or waivers.

Milestones

In addition to coursework and research, most doctoral programs require some kind of qualifying examination, and all traditional doctoral programs require a dissertation.

Qualifying Examination (Comprehensive Examination)

Many programs require an examination to confirm that students have adequate knowledge of their primary field. This examination typically takes place approximately midway through the doctoral program. In some cases, students are not given any information to prepare

for the exam and are “on their own” to investigate literature that they think might be relevant. In other cases, students are given a reading list for the qualifying exam, but still with the understanding that they are expected to know the “important” material from outside the reading list as well. In still other cases, students are asked to write a review paper or a mock grant proposal that serves as the basis for the examination. The examination can be oral or written and might take anywhere from a day to a week to complete.

Dissertation

The final barrier to completing a program of doctoral studies is, of course, the student’s dissertation. Specific requirements for the content of the dissertation vary substantially across programs. Dissertations usually include one or more empirical studies, with the empirical work perhaps equivalent to what might be found in an article in a reasonably good professional journal. The theoretical background and analysis of the findings are likely to be broader in scope than would be found in such an article so that the student can demonstrate his or her knowledge of scientific material related to the dissertation. Some universities allow or even encourage dissertations that are a collection of related published articles that are simply bound together.

Nearly all doctoral programs require a formal dissertation defense. In the majority of cases, the defense involves the student plus a committee composed of his/her advisor and a small number of faculty members (i.e., 3–5) with expertise in areas related to the defense. Typically, this committee includes at least one member from outside the psychology department. The committee questions the student on relevant theoretical, empirical, and methodological issues related to the dissertation and normally gives a pass/fail result. In many cases, the committee will accept a dissertation with the provision that the student make some specified additions or corrections. Doctoral defenses are typically public, although they are often not widely publicized or attended.

It is not uncommon for the doctoral student to interact with his/her dissertation committee prior to the formal defense. For example, some programs allow regular meetings to facilitate the generation of a high-quality dissertation, and some programs have a scheduled meeting where the dissertation work is evaluated as a research proposal to make sure the student is “on the right track.”

The nominal time to complete a doctoral program is generally agreed to be 4 years. However, the actual time to completion is often longer. The mean duration of

doctoral study programs in clinical, counseling, and school psychology has been reported to be 6.44 ($SD = 1.27$) years, with a range from 3.50 to 10.15 years (Gaddy et al., 1995). This figure was consistent across the three reported psychological fields, and is likely to be similar in more theoretically oriented fields as well.

Failure

Failure to satisfy coursework requirements or failure to successfully complete milestones has variable consequences depending on the student’s progress within the doctoral program. Unsatisfactory coursework before the qualifying examination typically results in the student’s expulsion from the program with no degree. Failure on the qualifying examination or unsatisfactory coursework after the examination typically results in the student’s expulsion from the program with a Master’s degree in psychology. If the student has not yet written a Master’s thesis, under these circumstances he or she will typically be retained for a year to complete the thesis. Failure to complete the doctoral dissertation is perhaps the most common and has the most ambiguous outcome. In most cases, students who fail to complete their dissertation are retained in the doctoral program but no longer financially supported after the nominal time to graduation (4–5 years). Some programs have a maximum time limit after which students are terminated, but most programs do not have such limits. Thus, at many universities there are students who have technically been in the doctoral program for 10 or even 20 years.

Doctoral Student Work

Coursework

Most doctoral programs require a significant amount of coursework. Nine units per semester (approximately 270 course hours per academic year) is typical throughout the nominal 4-year study period, with little or no additional coursework for students who remain beyond that period. The majority of required coursework is generally taken early in the doctoral program. Relative to undergraduate curricula, doctoral coursework generally places less emphasis on traditional lecture-based courses. Courses that deviate from the traditional format include:

- 1) Symposia, in which a relatively small number of students are involved in a mix of lectures and discussions;

- 2) Research courses, which essentially give course credit for a more formalized version of the advisor-student relationship;
- 3) Colloquia, which involve research presentations (often from renowned scholars from outside the department or the university);
- 4) Tutorials, which typically have a discussion-only format involving one or very few students and a faculty member.

Doctoral programs vary widely in specific course requirements, but most require a substantial number of courses within the students' primary field (e.g., cognitive psychology) and many require a moderate number of courses in a related "minor" area (e.g., statistics). Doctoral students are also permitted, and sometimes encouraged, to take elective graduate level courses in related disciplines other than psychology and statistics. Students are generally required to maintain a satisfactory, minimum GPA in their doctoral courses.

Responsibilities and Expectations

In addition to their coursework, students generally have some teaching responsibility. The degree of training required of students prior to teaching their first course can vary widely. At some schools, this training might be limited to informal discussions with the advisor; at other schools, short workshops or even semester-long courses might be required. In many cases, students are expected to either serve as an instructor or teaching assistant for one or more courses every semester. In better-funded or more research-oriented institutions, students might have as little as one semester as a teaching assistant and one semester teaching a course of his/her own.

The student's main responsibility is research, however. Students are informally expected to spend 50 to 60 hours per week on their doctoral work and every hour of that time that is not specifically required for either courses or teaching should be spent doing research. Doctoral students are typically involved in study design, do the majority of work in creating experimental materials, do all the data collection and data entry (sometimes with the help of undergraduate research assistants), and do most of the data analysis. In addition, students are generally expected to do independent reading on topics related to the research they are conducting.

Some universities require either written or oral student presentations of research results to their fellow students and faculty, in some cases as often as once per semester. In addition, some universities require or strongly

encourage students to present their research at regional or national conferences. Some universities provide travel stipends for conference presentations.

Resources

In most cases, doctoral students share an office with one or more other doctoral students, in addition to which they have access to laboratory facilities and equipment depending on how well funded the faculty and/or the university are. Doctoral students also have access to the university's library facilities and sometimes have a privileged status relative to other students (e.g., longer loan periods, better facilities for recalling books, offices in libraries, etc.).

In many universities, doctoral students have one or more undergraduate research assistants working with them. Access to research participants can vary dramatically: Some universities have a "subject pool" system in which undergraduate students (typically those enrolled in Introductory Psychology courses) are required to participate in research; other universities have resources to pay research participants, and still others rely exclusively on participants who volunteer for research projects.

Doctoral Learning Environments

Interaction with Faculty

One of the most important elements of the doctoral process is how the student interacts with the faculty, especially with his/her supervisor. There is a great deal of variance in these interactions based on the personal characteristics of students and faculty members, but some structural determinants exist as well. Doctoral programs in the United States typically rely on some form of mentor/apprentice model to define faculty/student research relationships. It is also fairly clear that the objective of doctoral training is to develop the student's skills for a research job after graduation. With these points in mind, faculty often take substantial responsibility for developing students' skills related to research and for defining the research projects that students undertake. The degree to which students are expected to take the initiative in defining research projects varies across universities, but it is not unusual for students to be little more than undergraduate research assistants when they start the program, with increasing responsibilities as they gain experience. Ideally, this

evolves to a point where the student and his/her primary advisor are close to equal collaborators at the end of the doctoral study period. At the least, a student would be expected to be primarily responsible for research questions related to his or her dissertation. Many students have a substantial amount of freedom prior to the dissertation, but it is also fairly common for the dissertation to be the first project that is clearly the student's "idea." In terms of ownership of output, it is typical for faculty members to have primary writing responsibilities and to be first authors early during the program and for students to be first (or sole) author on the dissertation. It is not unusual for students to write one other article (typically with a faculty coauthor) during their time as a doctoral student.

Faculty supervisors sometimes also take responsibility for integrating their students into the research community. For example, supervisors might introduce their students to colleagues at professional conferences, encourage them to join professional associations, and ask them to review articles for professional journals. This "professional integration" function is almost always completely informal and varies widely across students, supervisors, and institutions. This function is also supported to some extent by professional conferences themselves, as especially regional conferences often explicitly provide opportunities for graduate students to mingle with premier researchers in their fields.

Faculty are often less interested in students' coursework and let the student decide on his/her courses, subject to the constraints imposed by the doctoral program. Perhaps the only exception to this general lack of interest is coursework that is useful or necessary for conducting research (e.g., methods and statistics courses). Of particular importance is the fact that faculty often view coursework with a degree of ambivalence—the student is expected to do reasonably well in his/her courses, but not to work so hard on courses that they might interfere with research productivity.

Another issue is the degree to which faculty other than the primary advisor are involved with the student. This can range widely, from all faculty having equal responsibility for students prior to the dissertation to a designated primary advisor from the first day of the doctoral program.

In most programs, it is possible for students to change advisors during the course of their doctoral studies. This could happen for a variety of reasons, ranging from a discovery that other faculty members had more "interesting" research topics to personality conflicts between students and their advisors.

Colloquia and Lab Groups

In addition to regular coursework, many universities have colloquia (typically weekly) where students and faculty members within a particular area (e.g., cognitive psychology) present their research. Attendance at such colloquia is typically either required or strongly encouraged for doctoral students in the area and also encouraged for faculty members with relevant research interests. After the research is presented, discussion of the research can vary from unconditional encouragement to constructive suggestions for improvement to argumentative, challenging discourse. If anything, a more argumentative format is more common. Usually, faculty members generate most of the discussion questions and especially newer students tend to be rather cautious in joining discussions. In some cases, students making presentations might be treated more gently than faculty members, but it is also common to view colloquia as a "proving ground" where students must demonstrate that they can respond to difficult questions and harsh criticisms. Lab groups are more informal and tend to involve smaller "research groups" (often including undergraduate assistants) than colloquia. Lab groups also tend to have a more supportive atmosphere.

Interaction with Other Students

Often students learn more from their fellow students than from faculty members. Especially procedural knowledge is generally obtained from other students informally. This can vary substantially with the culture of the particular university (e.g., some universities deliberately create "cutthroat" environments in which students view each other as rivals), but in most universities the students try to help each other with problems. In many ways, older students act as informal advisors to newer students.

Analysis

In principle, a theoretically based doctoral program in psychology should be expected to teach at least the following skills to students:

- 1) Theoretical knowledge related to the field of study;
- 2) Theoretical knowledge related to methodology and statistics;
- 3) Teaching skills;
- 4) Practical knowledge of research design and statistics;

- 5) The ability to independently develop a research program of their own.

Doctoral programs in the United States seem particularly well-suited for providing training in the first two skills. The coursework is relatively extensive in most doctoral programs, and this, together with a relatively high frequency of colloquia, certainly facilitates the acquisition of theoretical knowledge. One can question the adequacy of training with regard to teaching skills, however. Many doctoral students graduate without ever having taught a course of their own. Almost all graduating students have worked as teaching assistants and given at least a few lectures, but this might not be adequate preparation for designing their own courses after graduation. Perhaps more importantly, very little attention is given to training students to become good research supervisors (Lumsden, Grosslight, Loveland, & Williams, 1988).

An important issue to consider with regard to practical training in research is the closeness of supervision in the United States. Compared to many other countries, supervision is relatively close: A faculty supervisor is generally closely involved in all of the student's research projects, and in many cases that faculty supervisor is responsible for all or most of the background conceptual work associated with these projects. This closeness is undoubtedly beneficial in helping students to understand the mechanics of research design. It remains an open question, however, whether this understanding is sufficient to ensure that the student is capable of developing his or her own research program after graduation and of writing proposals to obtain financial support for such a research program from granting agencies.

Another important issue is the extreme power difference between faculty supervisors and their students. This power difference is supported not only by the structure of doctoral programs in the United States but also by the fact that students are generally highly dependent on their supervisors to help them obtain jobs after graduation. Letters of recommendation carry a great deal of weight in hiring evaluations for academic jobs and informal conversations between faculty members (i.e., "the old-boy network") can be equally important. Because of this, students are potentially vulnerable to abuses from faculty members. In particular, because of their dependence on faculty supervisors, students are likely to be unwilling to report abuses such as racial or sexual discrimination and/or inappropriate demands or requests from faculty members (e.g., picking up clothing from a dry cleaner or making coffee).

In short, the doctoral system in the United States does an excellent job of generating scholars with good technical skills and expertise in research design. However, a number of flaws in this system should also be noted:

- There are many more doctoral students than there are academic jobs. Even though graduating students are usually able to find good jobs outside of academia, many students do not know what kind of job they will have after graduation and they may not receive the kind of preparation they need for a nonacademic job.
- Many students spend a great deal more than the nominal 4 to 5 years completing their degrees, which can be especially problematic because of relatively poor economic support of doctoral students.
- Teaching skills are often neglected by doctoral programs.
- It could be argued that doctoral training is too narrowly focused and overspecialized (Murray, 2000).

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