

Scholarly and Professional Development in Psychology

Scholarly and professional careers are marked by a series of achievements measured in publications, grants, awards and teaching. These accomplishments are the products of an ongoing process involving the gradual accumulation of knowledge and the development of scholarly and professional skills. The skills and knowledge are critical to career development as they form the foundation for the later accomplishments and are described in the first section of this document under the categories of *Academic* and *General*. As the scholar's career matures, the development of skills receives less attention, as they become manifest in and are superseded by cumulating scholarly achievements. The second section describes indicators of these achievements.

This document may be used in two ways. First, students and their supervisors may use it as a guide in planning the development of the student's scholarly and professional career. The descriptions of skills and related indicators of achievements should be helpful in providing a basis for reaching agreement on the areas of expertise to be developed. Students are encouraged to discuss the nature, quality, quantity, and appropriateness of the skills and indicators with their supervisory committees at each stage of their careers. Examples are provided throughout the document on how the skills and indicators apply to graduate students.

Second, the document may be used as an aid in evaluation, initially of the student's skills and later of indicators reflecting scholarly and professional development. Thus, in the first two pre-doctoral years, progress would be discussed in the acquisition of skills and related knowledge. These skills are often noted in student's letters of reference and in resumes prepared for non-academic employers. Subsequently in the career, the indicators of accomplishments would be the focus of the evaluation.

The list of indicators is quite comprehensive as it reflects the full range of accomplishments seen in the career of a mature individual. As such, it provides a long term context for the early stages of development. Publications, presentations and awards would be the main focus for evaluation of the senior pre-doctoral student and postdoctoral fellow. Such achievements are the principal criteria for assessing candidates in hiring and promotion.

Skills and Knowledge Related to Scholarly and Professional Development

These skills are generic areas of personal development, some of which are scholarly and some of which are more obviously applicable to any walk of life. Even though they may not be listed in a Curriculum Vitae (CV), the beginning scholar may find it helpful to mark career progress by noting the acquisition of these skills as indicators of relevant expertise.

I. Academic

Observations and Concepts: Distinguishes observations from concepts or generalizations based on observations. Creates or identifies and applies abstract terms and constructs to events. Through induction, deduction, and analogy derives and applies statements of relations, i.e., theorems, principles. Visualizes the significance of a concept in its broader theoretical and historical context.

Topic Development: Conducts a comprehensive search for archival knowledge in a familiar or an unfamiliar topic, and identifies the basic concepts and outstanding issues. Efficiently finds the earliest or latest relevant archival knowledge on a topic or by a person. Organizes a means of selectively retrieving and modifying the collated information.

Experimentation: Applies empirical and methodological principles to the design of experiments, the control of variables, and the demonstration of effects. Collects data through interviews, surveys, questionnaires, behavioral observations, computer simulation, and biological instrumentation.

Analysis of Results: Applies statistical or other analytic methods, based on appropriate assumptions, to various kinds of data, e.g., qualitative, case history, retrospective, correlational, within- and between-group studies. Prepares tables and graphs.

Evaluation of Studies and Development of Proposals: Assesses the reliability and validity of statistical methods, methods used to control variables, concepts, and generalizations. Determines the practical consequences of the relative validity of an observation or concept. Identifies the critical issues in an unfamiliar topic and develops a basic research plan or an applied plan of action for resolving them.

Presentation: Prepares persuasive visual, oral and written submissions in observational and conceptual support of either side of a scientific issue. Demonstrates mastery of various forms of articles found in the discipline (see *APA Manual*, Section 1.04), especially reports of empirical studies, and review and theoretical articles.

Training Experiences: Gains experiences in the form of supervised course work, work-study experiences, laboratory rotations, research internships, postdoctoral studies.

II. General

Communication Skills: Effective oral and postural communication, for example, understanding others and expressing oneself well through prosodic and semantic speech, gestures, body posture, and facial expression. Types of written communication include formal correspondence, keeping a daily log, writing case reports, precis writing,

composing arguments on both sides of an issue, rebutting criticism, and writing proposals for funding, for action plans, for policy change.

Computer Skills: These include, word processing of text, tables and figures, use of software for thesaurus, grammar check, bibliographic organizers, data bases, statistical packages, graphics (manuscript and poster), preparation of slides and overheads, library searches, programming, Internet browsing, and web posting.

Critical Thinking Skills: An essential ingredient of critical thinking is the matching of belief to evidence. This approach avoids global skepticism, which maintains that nothing can be believed because nothing can be established with certainty, as much as it avoids dogmatic skepticism, which refuses to consider contrary evidence. Establishing the veracity of evidence, covered in the previous section (*I. Academic*), is central to critical thinking. The critical skeptic withholds belief and considers alternatives while gathering all valid, reliable evidence. In the end, belief is apportioned in measure to the evidence.

Independence, Initiative, and Perseverance: Ability to develop and defend original observations and conceptions notwithstanding prevailing points of view. Motivation to self-start, to seize an opportunity and pursue it in spite of adversity.

Ability to Estimate Risks: Awareness of one's personal tolerance for taking risks, and ability to assess risks and to adopt effective strategies for dealing with risk.

Choosing Personal Goals: Setting congruent short and long term goals. The goals and related strategies should be compatible with the individual's resources and acceptance of risk.

Project Management Skills: Examples include the ability to plan a project, to gather the necessary material and personnel resources, to manage a planned sequence of steps, and to conclude the project on schedule.

Time Management Skills: Ability to set and maintain priorities, ability to handle more than one project at a time, ability to realistically gauge the time required to complete a project, ability to maintain high standards of quality and accuracy while responding to tight deadlines, ability to balance personal and job demands.

Team Work Skills: For example, the ability to carry out designated duties in a collaborative project. As a team leader, the ability to select the appropriate team members, to marshal resources, organize and lead a group project.

Interpersonal Skills: Ability to deal empathetically with delicate situations, awareness of the viewpoint and sensibility of others, ability to criticize constructively, ability to respond constructively to criticism, ability to compromise and negotiate and to respond assertively when appropriate.

Awareness of Ethical and Legal Issues: Knowledge of issues, including plagiarism, source attribution, copyright, client confidentiality, experimental subject deception and debriefing, animal care and welfare, corporate proprietary rights, patents, scientific misconduct, and liability regarding professional service.

Sensitivity to Subcultural Differences: Knowledge of issues based on differences in age, gender, sexual orientation, disability, religion, ethnicity, and socioeconomic status. Awareness of the concept of social distance, the biases of one's own subculture, the manner in which culturally-dependent attitudes differ regarding: mental illness, seeking help from professionals, privacy, reaction to questionnaires, group dependency, aging, and sensitivity to problems associated with recent immigration.

Volunteer Experience: Many employers expect employees to engage in community volunteer work. This is not necessarily an altruistic exercise, as it may result in improved applied and social skills, greater self confidence, a better appreciation of one's career options and the development of important contacts. The same benefits may apply to part time work.

Indicators of Scholarly and Professional Development

Indicators of scholarly and professional achievements are typically described in the CV. They are usually organized into four categories: research and publications; scholarly and professional recognition; teaching; and scholarly and professional service.

I. Research and Publication

This category is of primary importance to graduate students seeking employment at an institution where research is a central focus. A new scholar will likely need several publications at the doctoral level; the number will depend on the subspecialty. More publications would definitely be required in areas where post-doctoral experience is common. Publications should be of good quality and reflect movement from apprenticeship to independence and leadership. Progress is usually indicated by movement to first authorship and then to solo authorship. Some characteristics of authorship are listed below.

Categories of Publications: These categories include articles in refereed journals, writing books or monographs, chapters in books or review articles, articles in conference proceedings, and technical reports. This order roughly approximates one of decreasing rigor of peer review and hence of scholarly significance. For this reason, peer reviewed publications usually are listed separately in the CV. Scientific articles in the lay press, conference abstracts, letters to the editor, book reviews, and commentaries typically receive little consideration in the evaluation of the CV.

Publication Quality: This measure is assessed by the significance of the content, status of the organ of publication, authority of scholars citing the publication, frequency of citation by others, commentary in letters of reference, and less frequently, editorial reviewer's commentary.

Quantity and Regularity of Publication: Dilatory publication or a gap of several years without publications will invite requests for explanation. Unfortunately, granting agencies and employers with a surfeit of job applicants seldom accept extenuating circumstances.

Singularity and Ordinality of Authorship: Sole versus shared authorship and first authorship usually reflect the importance of the author's contribution. This accomplishment is more significant for the young scientist than for the established researcher because it is a mark of independence.

Thematic Focus: Thematic focus is not a concern for students because of the brevity of the graduate student's publications list. An enduring versus variable thematic focus of issues addressed across publications is desirable. The development of expertise in an area is an important part of making a significant scientific contribution to a field. However, thematic focus should not be confused with dedication to one methodology. Being able to cope with several methodological paradigms permits the researcher to assess the generalizability of the thematic issue, and gives credence to a claim of interdisciplinary potential and scholastic breadth.

Theoretical Versus Experimental Balance: A publication record evincing a balance between theory-driven and experimentally-driven issues is preferable. This balance avoids the polar extremes of empty theorizing and trivial paradigmatic experiments. This index is not a concern for graduate students in their publications but it is regarding their thinking.

Intellectual Independence: Evidence of creative independence is especially critical for young professionals and is the reason many employers want to see the candidate perform in a postdoctoral setting. For example, a student could apply an imported methodology to issues congruent with the objectives of the host's program.

Invention: Development of a scientific methodology which is patentable or marketable or development of a scientific model which is a significant innovation. Many scientific breakthroughs have been made by young scientists.

Collaboration: Successful collaboration on a large interdisciplinary research project is significant, e.g., centres of excellence. Students may engage their peers or several faculty members in a project involving team work.

Psychology Graduate Policy Documents
Scholarly and Professional Development in Psychology

This category is also of importance to graduate students seeking employment at institutions where research is focal. Several refereed presentations at national and international meetings indicate recognition of a graduate student's work. Such presentations provide opportunities to develop personal contacts and awareness of important issues in the research community. Solicited awards, in the form of scholarships, reflect productivity and development of grantsmanship skills. Other indicators of recognition listed below would be unusual at the graduate level, and are thus less important at that stage.

Solicited Awards: These include awards of research grants, contracts, fellowships, and year-long or summer studentships. Students may obtain experience in grantsmanship through special course assignments, in the preparation and evaluation of their supervisor's grants as well as in filing scholarship or studentship applications.

Presentations: They are an essential first step professionally, as is participation in local research seminars and study groups. Non-invited but refereed presentations at scientific meetings are considered routine for the postdoctoral CV but important for the pre-doctoral resume. Later in a career, a scholar may be invited to deliver addresses at conferences, summer or winter schools, workshops, and other institutions.

Unsolicited Awards for Excellence: Such awards are conferred in recognition of merit in academic or scholarly work. Students should include awards conferred in high school, undergraduate and graduate studies. Examples of recognition later in a career include honours awarded by professional societies, honorary degrees, and research chairs.

Invitations to Organize: Invitations may be received to chair or organize conferences, symposia, or panel discussions. Students may begin by accepting invitations to serve in the organization of meetings held locally.

Invitations to Consult or Evaluate: Student representatives are regularly sought for many departmental, faculty and university committees with evaluative functions. The young researcher's best opportunity to be asked to consult may follow the acquisition of expertise in a new methodology. This is often the basis for postdoctoral appointments. Later in a career, requests for consultation may take the form of invitations to assess the scholarly quality of programs of institutions and more frequently to evaluate the careers or performance of fellow scientists. Invitations to membership on grant selection committees and tenure or promotion committees would be an example.

Editorial Responsibility: Students may obtain experience in their supervisor's evaluation of others' work. Many publishers welcome offers to edit scholarly books. Most journals have editor-in-chief(s), associate editors for research areas, and a number

of article reviewers. A researcher with several leading publications may be invited to become a reviewer.

Election to Office or Committees: This is a significant adjunctive function to membership in scholarly and professional organizations. Most organizations offer special opportunities for young scientists to serve. Postdoctoral candidates are routinely expected to have memberships in national and international organizations.

Letters of Reference: The impact of letters of reference depends, in part, on the professional status of the writer and the degree to which the writer's career is linked with that of the candidate. Letters from unaffiliated but well-known referees weigh heavily in considerations of employment and career advancement.

III. Teaching

This category is critically important to graduate students seeking employment at an institution where teaching is focal. The potential for excellence in teaching, however, is also important at research-intensive universities. The graduate student would be advised to develop his or her skills by assisting in varied aspects of the preparation and presentation of course materials and the supervision of undergraduates both in the laboratory and in the classroom. Gradually this would lead to a broad repertoire of pedagogical skills and greater instructional independence and responsibility.

In the later stages of a career, the teaching section of the CV typically contains lists of courses taught, theses supervised, and special contributions such as the preparation of manuals and other classroom materials. More extended documentation may also be presented in a separate teaching dossier.

Instruction at Several Course Levels: Organize and present lectures at a level appropriate to the course. Demonstration of an ability to handle courses at several levels is important, as is the ability to conduct courses in one's specialty as well as generic courses, e.g. introductory psychology, statistics, and experimental design.

Course Content: Develop course materials, e.g., syllabi, assignments, lecture notes, manuals, textbooks, problem sets, PowerPoint presentations, videos, web postings, CD ROMs, Internet discussion groups. Evaluation of course content should be by experienced teachers, not students, and should focus on: development of course content and objectives congruent with a philosophy of education; appropriateness of course objectives, and assignments with respect to the course prerequisites, knowledge to be acquired and skills to be taught; appropriateness of course content for students in the class with different backgrounds; comprehensiveness and currency of course material; and demonstration of the relation between course content and conducting research.

Instructional Style: Evaluation of instructional style in the classroom should be by students taking the courses as well as by experienced teachers. Abilities would

include: Ability to communicate effectively with students; Ability to utilize a variety of classroom techniques appropriate to class size and level of knowledge, e.g. class-wide open discussions, discussion groups, debates, demonstrations, in-class problem solving; Ability to stimulate intellectual inquiry and foster learning and critical thinking in students.

Supervisory, Advisory Responsibilities: Research supervision is evidenced by theses and dissertations supervised or consulted and the subsequent scholarly achievements of the students. Students may engage in the co-supervision of undergraduates on research projects. Participation in activities related to teaching such as evaluation of instructional programs, advising students in selecting courses, and assisting them in defining their long range goals.

IV. Scholarly and Professional Service

This category is placed last in the list of categories because it is considered less important materially. The indicators have greater significance for those with established records of productivity. Nevertheless, engaging in these activities benefits the graduate student in providing challenges to newly developed skills of communication and organization, in developing personal contacts, in conveying a degree of maturity, in indicating a generosity of spirit, and in instilling a sense of well being through contributing to a broader community.

Serving Professional Organizations and Local Committees: See sections on *Scholarly and Professional Recognition* and *Teaching*.

Advocacy: Supporting a discipline-related cause in public forums is valued whether the scholar becomes involved personally or as a group member. Examples include lobbying government, serving on legislative advisory bodies, promoting interdisciplinary action on issues of concern, fund raising, and developing openings for students in the job market.

Public Presentations: Disseminating scientific knowledge and explaining the scientific approach to the lay public through the news media, network postings and exchanges, and special interest groups such as the Alzheimer Society.

Education: Contributing to continuing education by working with the public schools, colleges, and organizations such as the Regional Science Fair and Science Hotline to stimulate interest in science.

Open House Functions: Supporting Science Open House presentations, representing the activities of students in a course, and researchers in the department, faculty, or university.

Psychology Graduate Policy Documents
Scholarly and Professional Development in Psychology

Facility Operations: Assisting in the operation of facilities visited regularly by the public, such as the Provincial Museum, and the John Janzen Nature Centre.

Working Abroad: Assisting developing countries to establish a research or teaching base.

Psychology Graduate Policy Documents
Scholarly and Professional Development in Psychology

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