

SCIENTIST-PRACTITIONER INTERESTS IN A PSYCHOLOGY COMMUNICATION COURSE

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Abstract

Students enrolled in two sections of an undergraduate psychology communication course (n=34) completed the Scientist-Practitioner Inventory at the beginning and end of the semester. As predicted, students showed a stronger preference for practice-related areas of psychology than science-related areas of psychology at both the beginning and end of the course. Changes in student interests were also investigated. Student interests in science and practice related areas and subareas remained relatively stable and were not significantly different from the beginning to the end of the semester. Future career path choices of students and undergraduate program curriculum are discussed.

Keywords: Student attitudes, communication, scientist, practitioner, psychology.

1 INTRODUCTION

The training model often adopted by graduate psychology programs for research and practice skill development dates back to the beginnings of clinical psychology in America [1, p. 240]. This scientist-practitioner model, more recently conceptualized as the Boulder model, adheres to the belief that students, perhaps especially clinical students, should be taught the fundamentals of behavior through explanations of psychology as a logical, positivist science [2,3]. That is, decision-making for research questions and for practitioner issues pertaining to development and application of counseling skills - best practices and choice of therapeutic techniques - is best served by rigorous adherence to the scientific method. In turn, the Boulder model is consistent with the emphasis of psychology graduate programs overall; students are taught, regardless of career direction, to trust in scientific principles above all else. Most graduate psychology programs offer a similar complement of required research foundation courses [4] and most graduate degrees in psychology are awarded based on completion of independent research projects.

The circumstances of undergraduate training and education in psychology are far less consistent, however, despite the ubiquitous reliance of graduate programs on science education [4]. Since most careers in professional psychology require graduate school preparation, and because psychology graduate programs typically emphasize and require students to conduct original research, it would seem that an understanding of the basics of research methodology is essential for the serious, undergraduate psychology major. Indeed, a concerted effort is being made within the field of psychology to instruct undergraduate students in research design and analysis. However, the degree to which undergraduate students actually participate in the overall research process varies [4]. For example, many undergraduate programs have senior research "capstone" courses, but the involvement of students in the research experience can be limited by class availability, such as when provision of the research experience is for "honors" students, students who choose the experience, or all students as a program requirement. Similarly, the degree to which a student is involved in critical decision-making processes of the research may vary considerably, and includes programs in which students are responsible for originating original research ideas as well as programs that limit student involvement to data entry or work on a faculty advisor's research idea. Finally, the extent of involvement of students in the entire research process may differ, to include programs requiring students to generate only research proposals to programs requiring students to generate original ideas, design research, collect and analyze data, and present research findings in written and/or oral reports.

Undergraduate psychology programs also differ in the emphasis given to preparation of students in math and lab courses for science disciplines other than psychology. A single or two lab science classes and college algebra are required in many programs, with students sometimes receiving a bachelor of arts degree (BA) in psychology, while four or more lab science classes and calculus are

often necessary in others, with the award often a bachelor of science degree (BS) in psychology. On the other hand, some universities have but a single degree designation – the BA – although an examination of curricula for these programs show little uniformity is required classes [4]. It is clear when looking at the broad range of undergraduate programs that there is no single model for best preparation of undergraduate students for the rigors of research at the graduate level.

The curriculum of the undergraduate psychology program at Coastal Carolina University (CCU) presents for students the choice of BA or BS requirements; both emphases, however, present psychology as a rigorous empirical science and require original research of all degree-seekers. Students in both instances are prepared for the research experience (and data presentation and interpretation in all content classes, as well) by a required, course sequence including: introductory psychology; science communication; statistics; research design; advanced statistics or tests and measurements; and the senior-level, original research project class.

The science communication class is a recent addition to the early portion of the research sequence and is considered writing- and oral-intensive. Goals of the class include introducing students to the APA-style format of psychology, through simultaneous instruction in database searches, research study interpretation and evaluation, and proposal writing, while preparing students to make written and oral presentations of science-emphatic aspects of the research process. Specific assignments of the class have been designed with later courses in the research sequence at CCU in mind, and it is hoped that accelerating the readiness of students for each succeeding course will allow courses to go deeper and further than possible before the addition of the science communications class and enable students to engage in independent research at an earlier point in their studies.

As determined by a cursory look at grades, many undergraduate students at CCU seem to have little or no trouble embracing the research component of psychology and the potential usefulness of the scientific method for decision-making in all areas of research and practice. These students do well and retain an apparent enthusiasm for their work through to the end of their research presentations and graduation. Indeed, it has not been uncommon over the years to receive notes (now emails) of thank you from students who have gone on to graduate programs and report that they “now understand” why science aspects of psychology were so rigorously taught in our program (J. Piroch, personal communication, May 2010). Other students in the program, however, including many who have been excellent students and learned their lessons with great facility have seemed reluctant to embrace psychology as a hard science, and instead focused on shortcomings of science as a tool of understanding. For many of these individuals, there seems to be a prevalent mindset that effective work in psychology practice does not require the strictest adherence to research and reporting guidelines of science [5,6]. When asked, many of the undergraduate psychology majors at CCU openly express interests in practitioner-related areas, and, indeed, informal observations (e.g., number of applications by program type) have suggested that practitioner interests are predominant over research interests for our undergraduates in their choices of graduate school programs. In fact, our estimate that 80-90% of psychology students at CCU choose a BA, with less math and science lab classes, is consistent with verbal reports of other heads of departments of psychology in the Southeastern United States (L. Gillis, personal communication, November 2009; B. Pope, personal communication, April 2010), and places the responsibility of cultivating science attitudes and behavior of students squarely on the shoulders of faculty of undergraduate psychology programs.

The issue of grounding students in science as they prepare to be professionals in psychology has been well examined at the graduate program level [7,2], but little research has addressed the appropriate balance of science and practice instructional interests at the undergraduate level. The research presented here is a first step toward that end.

The insertion of a science-communications class, as a first course in a sequence of required research classes at CCU has provided an opportunity for a psychology program to closely examine and possibly shape a student's worldview of psychology as a discipline firmly grounded in science. There are data suggesting that interests in science and practice issues of psychology go beyond education to personality differences among students [8]. Studies of distinctions of personality have led to such respective labels for scientists-practitioners as objective-subjective [8] and investigative-social [9] and have led to speculations that perhaps personality variables are too deeply ingrained to be more than slightly modified by education and training. That is, students who enter our program gravitate toward science or practitioner interests not because of a favorite teacher or the scaffolding of specific critical thinking exercises as much as preset personality variables minimally (at best) responsive to educational efforts to train or reshape the thinking of the student in directions contrary to the natural tendency. The alternate view, of course, is that the dichotomous conceptualization of interests in

psychology as “one or the other” is flawed [10]. This perspective does not rule out the concept of natural tendencies as much as it allows for the use of quantitative analyses to examine sub-interests and further define what students who profess interests in science or practice favor.

In summary, few studies have investigated the scientist-practitioner interests of undergraduate psychology students, although informal observations (e.g., number of applications by program type) suggest that practitioner interests are predominant over research interests for undergraduates in their choices of graduate school programs. This report describes and examines career specialty choices of students enrolled in a semester-long, science communication class before and after exposure to a series of assignments structured to present psychology as a thriving science- and research-based discipline. Consistent with previous research, we predicted undergraduate students enrolled in a psychology communication course would report stronger preference for practice-related areas of psychology over science-related areas of psychology at both the beginning and end of the course. In addition, we believed students would show increases in science-related interest areas at the end of the course.

2 METHOD

2.1 Participants

Students from a medium-sized, public university in the Southeastern United States enrolled in two sections ($n=34$) of an undergraduate communication course served as participants in this research investigation. Both course sections were taught by the first author. The racial distribution of the sample included 83.3% Caucasian, 14.6% African American, and 2.1% Hispanic. The average age of the participants was 20.5 years ($SD = 3.71$, range = 18-40) and all (100%) were Psychology majors. Most of students enrolled in the course were women (79.4%), with only seven males (20.6%), including freshmen (5.9%), sophomore (50%), and juniors (32.4%).

The psychology communication course explored the roles of psychology as a science in oral and written communication, including developing communication skills through examination of the literature in the field. Freshmen and sophomores typically complete the course after completing Introduction to Psychology and before embarking on statistics, research methods, and independent research through additional classes and with individual faculty persons. Assignments of the class are purposefully constructed to address specific issues of research and reflect a "reductionistic-positivistic causal paradigm" [11, p. 331] emphasis of the psychology department, as a whole.

2.2 Materials

The Scientist-Practitioner Inventory (SPI) [11] includes 42 questions pertaining to interests in the science and practice of psychology. The inventory is divided into sub areas of science (research activities, teaching/guiding/editing, academic ideas, statistics and design) and practice (therapy activities, clinical expert/consultant, tests and interpretation) interests. Validity and reliability of the SPI has been well documented [11]. Participants rated their interest in each scale item using a 5-point Likert scale (1=*very low interest*, 2=*low interest*, 3=*unsure*, 4=*high interest*, and 5=*very high interest*).

Participant age, class rank, and major were collected on a demographic questionnaire.

2.3 Procedure

Students completed the SPI [11] at the beginning and the end of the semester. All students verbally agreed to have their responses included in this investigation. We also used final earned course grade of the students to investigate how course performance and SPI score changes were related.

3 RESULTS

Scores for the SPI science and practice areas overall, and the sub areas, on both the pre and post measures were calculated.

At the beginning of the semester, the class reported a significantly greater interest in practice related activities over science related activities, $t(33) = 7.47$, $p < .001$, $d = 1.88$, $M_{\text{practice}} = 3.65$ and $M_{\text{science}} = 2.78$ ($SDs = .50$ and $.69$, respectively). At the end of the semester, the class continued to report a

significantly greater interest in practice related activities over science related activities, $t(33) = 6.18, p < .001, d = 1.54, M_{\text{practice}} = 3.56$ and $M_{\text{science}} = 2.76$ ($SDs = .57$ and $.76$, respectively).

From the beginning to the end of the course, students reported no significant interest change in science, $t(33) = .28, p = .78, d = .09, M_{\text{pre}} = 2.79$ and $M_{\text{post}} = 2.76$ ($SDs = .69$ and $.76$, respectively), or practice, $t(33) = 1.60, p = .12, d = .39, M_{\text{pre}} = 3.65$ and $M_{\text{post}} = 3.56$ ($SDs = .50$ and $.57$, respectively). These differences, as well as changes in sub areas within science and practice, are reported in Table 1. The only marginally significant change was found in the subarea of tests and interpretation.

We were also interested in how earned course grade was related to changes in SPI interest areas. Almost all students earned either an A or a B in the course. Difference scores (post-course minus pre-course) were used to determine the student interest changes in science and practice from the beginning to the end of the course. Students who earned an A in the course did not report greater changes in interests than those who earned a B in the course on either the scientist, $t(30) = .19, p = .85$, or the practitioner, $t(30) = .61, p = .55$, interest areas.

Table 1

Mean Pre and Post Scientist-Practitioner Inventory Responses by Science and Practice Interest Overall and Sub Areas

Area	Pre M (SD)	Post M (SD)
Science Overall	2.78 (.69)	2.76 (.76)
Research Activities	2.94 (.74)	2.94 (.81)
Teaching/Guiding/Editing	2.51 (.74)	2.54 (.91)
Academic Ideas	2.80 (.86)	2.67 (.92)
Statistics and Design	2.67 (.86)	2.60 (.96)
Practice Overall	3.65 (.50)	3.56 (.57)
Therapy Activities	3.80 (.57)	3.76 (.64)
Clinical Expert/Consultant	3.32 (.55)	3.37 (.63)
Tests and Interpretation*	3.21 (.61)	3.03 (.77)

Note. * = $p < .10$. 1=very low interest, 2=low interest, 3=unsure, 4=high interest, 5=very high interest.

4 DISCUSSION

The results supported the hypothesis that students enrolled in a psychology communication course would rate practice-related areas in psychology more favorably than science-related areas. However, we did not find any significant changes in science or practice-related interests from the beginning of the term to the end of the term. The only marginally significant change was found in the practice interest sub area of tests and interpretation, which was actually reduced interest. In addition, students who earned As in the course did not differ in terms of their interest changes from those who earned Bs in the course.

Students enrolled in our department heavily prefer the practice related-areas of clinical and counseling psychology, so it is not surprising to see such a strong preference for practice interest areas over science interest areas on the SPI. The current findings were consistent with Pettijohn and Ahmed's [12] investigation of a research methods course at CCU, finding greater student interest in practice than science overall and a more positive change in the science interest areas for those who earned high marks in the course. In addition, our majors, and the communication class distributions in this instance specifically, were predominately women. Whether and to what extent gender is related to

choice of career in psychology is controversial. It is true that the majority of clinical and counseling psychology doctoral applicants in recent years have been women [13]. It is also true that the entry of large numbers of women into practice areas of psychology has forced reevaluation of training and education models originally developed with male practitioners in mind [14,15]. It would not be accurate, however, to claim that practice areas of psychology have automatically become less scientific as women have moved in. Rather, the need for development of critical thinking skills in the science domain is typically reconfirmed, with continued need for research and evaluation competencies as the heart of a practical curriculum. Nonetheless, as gender-based data, supportive of a need for re-conceptualization of cultural assumptions guiding how psychology is practiced, continue to accumulate, divisions of science and practitioner issues along gender lines will likely continue [15].

It was somewhat surprising and even disappointing, to discover in the current study only minimal changes in interests in practice and science areas on the SPI from the beginning to the end of the semester. After greater exposure to the field of psychology, and an emphasis on the science of the discipline, we believed students would show increased interests in psychology overall, particularly in science. The issue of a small sample size comes to mind, and it is possible that undergraduates of the study may have had a difficult time understanding the terminology used on the SPI [16]. Also, it is the case that the exercises designed for the class provided more explanation for science sub areas (i.e., research activities, teaching/guiding/editing, academic ideas, statistics and design) than for practice sub areas (i.e., therapy activities, clinical expert/consultant, tests and interpretation). It seems possible that focusing on science sub areas did not provide appropriate examples of application of science techniques to practice issues. In other words, without dissection of practice issues students were allowed to maintain preexisting ideas about the dissociation of science from practice. For clarification purposes specific exercises can be used in the future to dissect the SPI instrument to provide explanations of practice areas in equal balance with those of science.

Additionally, psychology programs may want to measure interests in science and practice areas of psychology at multiple stages across the curriculum to follow changes from the freshman year, through the research sequence, to graduation, and to career choice. In fact, as at most universities, CCU is currently undergoing a top to bottom assessment of program and curricular issues, including tracking and relating career outcomes with meaningful student learning outcomes developed for psychology classes and the program overall in the department of psychology.

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