SCIENTIST-PRACTITIONER INTEREST CHANGES AND COURSE PERFORMANCE IN AN UNDERGRADUATE RESEARCH METHODS PSYCHOLOGY COURSE

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Abstract

Some psychology students are more interested in the science of the field, while others are more interested in the practice of psychology. These interests have implications for career choices and program performance. In the current study, we predicted that undergraduates enrolled in a psychology research methods class who reported an increased interest in science related areas on the Scientist-Practitioner Inventory would earn higher scores in the course. Results revealed a positive relationship between final course grade and interest in science scores and a negative relationship between final course grade and interest in practice scores, although these results were not statistically significant. Career path choices and undergraduate program performance are discussed.

Keywords - Student attitudes, research methods, scientist, practitioner.

1 INTRODUCTION

The field of psychology involves interests and skill development related to science and conducting research, as well as counseling and interpersonal interactions. While some models of graduate training have combined these areas as the scientist-practitioner model (i.e., the Boulder model), others argue that scientists and practitioners have different interests, personalities, and theoretical world views and acceptance of one view often leads to the rejection of the ideals of the other. Differences in these mental frameworks have recently been investigated empirically to determine how individual interests and personality function within different training programs and influence career path decisions. Few studies have investigated the scientist-practitioner interests of undergraduate psychology majors and the influence of these interests on performance in science and practice themed courses. In order for science and practice to integrate and for psychology to expand as a discipline, educational programs need to be established to support the advancement of scientific and counseling skills. By doing so, one can determine what combination of student and program attributes are most important in achieving the combination of a scientist-practitioner [1].

Leong and Zachar [2] designed the Scientist-Practitioner Inventory (SPI), an instrument that measures the preferences for the career-related activities of the scientist and practitioner in the psychological discipline. Leong and Zachar [2] considered shifting from “initial career choice” to assessing a “career-specialty choice” in order to better comprehend the stages of career development. Students who were enrolled in experimental programs scored higher in scientific-related interests and lower in practitioner-related interests when compared to the students enrolled in counseling and clinical programs. The researchers followed up with the investigation of personality in relation to the scientist and practitioner differences in graduate students and argued that these differences can be formed within a framework of personality [3].

Other researchers have investigated other variables with the SPI. Horn and colleagues [4], evaluated the interests of scientist and practitioner domains by examining student’s temporal steadiness after undergoing a doctoral-level scientist-practitioner model-based training program in school or counseling psychology. The graduate students pre-interests and post-interests were measured in the scientist and practitioner areas and the results from this investigation support the idea that scientist-practitioner interests are relatively constant over knowledge acquired from training programs [4]. A similar study [5] evaluated scientist-practitioner interests of doctoral students based on gender effects and interaction in the area of school, counseling, and educational psychology programs. Within-group differences were observed between scientist and practitioner interests among students enrolled in all

three areas within the same department to determine if the scientific and practitioner interests would distinguish between students specializing in counseling from students specializing in school psychology and educational psychology. Additionally, Aspenson and colleagues [6] used a combination of qualitative interviews and quantitative measures to evaluate the stability of scientist and practitioner interests for training professional psychologists. The researchers studied the perceptions of graduate students enrolled in counseling, school, or clinical psychology programs toward the scientist-practitioner model of training in relation to environmental or individual factors. More specifically, the researchers were interested in looking at the manner in which graduate students express their insight of the scientist practitioner model, and to the extent in which they felt the model was applicable to them and to their careers [6]. Furthermore, Geisler [7] measured the variables research self-efficacy and students' perceptions of the dissertation progress and research training environment of counseling psychology programs, in relation to scientist-practitioner interests. The results indicated there was a positive relationship between dissertation progress and research self-efficacy; as a graduate students' progress in the dissertation increased, so did the usefulness and effectiveness of research. Another interesting finding was that research self-efficacy and scientist interest were positively related. However, perceptions of the research training differed based on the programs' focus on more practitioner or scientific related material [7].

Other research has discussed the use of scientist-practitioner preferences within an undergraduate setting. Kenney and Rohrbaugh [1] observed preferences for scientist versus practitioner occupations among undergraduate psychology majors and did not find strong differences among undergraduates with different planned career paths as had been found within graduate students and professionals in different areas of the field. The researchers argue that comprehension of terminology may be a problem for undergraduates and therefore, measures of scientist-practitioner preferences should be organized based on the varying levels of knowledge undergraduate students have about the field of psychology.

The current investigation specifically focused on how the science and practice interests of psychology majors at a public university in the United States would change after completing a research methods course, and how these changes were related to student course performance. We predicted that students who earned higher scores in the research methods course would report an increased interest in science-related areas and a decreased interest in practice-related areas.

2 METHOD

2.1 Participants

As a class exercise, 28 students enrolled in an undergraduate research methods psychology course, taught by the first author, participated in this research. Students attended a medium-sized, public university in the Southeastern United States. The majority of students identified their race as Caucasian (77.8%), while 16.7% were African-American, and 5.6% selected "other." The average age of the student participants was 22.97 years (*SD* = 6.96, range = 20-61) and all (100%) were Psychology majors. The majority of students were women (91.7%), with only three males (8.3%) enrolled in the course. The course was comprised of juniors (52.8%) and seniors (41.7%) primarily, with one sophomore (2.8%) and one post-bachelor (2.8%) student.

The research methods course was a major requirement with a lab component (a course syllabus is available from the first author). The course covered experimental design, ethics of research, experimental control, validity and reliability of measures, as well as a student assigned research project involving literature review, hypothesis development, data collection, statistical analysis, and required a research paper, poster, and oral presentation. Course grade was an overall percentage of points earned from assignments, tests, lab activities, and research project.

2.2 Materials

The Scientist-Practitioner Inventory (SPI) [2] was comprised of 42 questions related to interests in the science and practice of psychology. The inventory was further 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. The validity and reliability of the SPI has been documented [2]. Participants rated their interest in each item using a 5-point Likert scale (1=*very low interest,* 2=*low interest,* 3=*unsure,* 4=*high interest,* and 5=*very high interest).*

We also assessed participant age, race, class rank, and major on a demographic questionnaire at the end of the term.

2.3 Procedure

Students completed the SPI [2] at the beginning and end of the semester. All students agreed to have their responses included in this study. We also used final earned course percentages of the students to investigate how course performance and SPI score changes were related.

3 RESULTS

We calculated scores for the science and practice areas overall and the sub areas on both the pre and post SPI measures.

We were most interested in how earned course grade was related to changes in these interest areas. We computed difference scores (post-course minus pre-course) to determine the student interest changes in science and practice from the beginning of the course to the end. Final course grade was then correlated with science difference score changes and practice difference score changes. We found a positive relationship between final course grade and science scores, r (26) = .14, p = .24, and a negative relationship between final course grade and practice scores, r (26)= -.25, p = .10. Final course grade was not related to pre or post science or practice scores, all ps > .20.

We were also interested in general course trends in interest changes in the science and practice of psychology. At the beginning of the course, the class reported a greater interest in practice related activities compared to science related activities, t (27) = 5.88, p < .001, d = 1.58, $M_{practice}$ = 3.58 and $M_{science}$ = 2.75 (SDs = .69 and .82, respectively). At the end of the course, the class continued to show a greater interest in practice related activities compared to science related activities, t (27) = 4.44, p < .001, d = 1.21, $M_{practice}$ = 3.30 and $M_{science}$ = 2.43 (SDs = .75 and .86, respectively).

From the beginning to the end of the course, students reported significant interest reduction in science, t (27) = 3.89, p < .001, d = 1.06, M_{pre} = 2.75 and M_{post} = 2.43 (SDs = .82 and .86, respectively), as well as significant interest reduction in practice, t (27) = 2.62, p = .01, d = .71, M_{pre} = 3.58 and M_{post} = 3.30 (SDs = .69 and .75, respectively). These differences, as well as changes in sub areas within science and practice, are reported in Table 1.

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*	2.75 (.82)	2.43 (.75)
Research Activities*	2.92 (.84)	2.69 (.97)
Teaching/Guiding/Editing*	2.57 (.90)	2.33 (.87)
Academic Ideas*	2.56 (.99)	2.18 (.86)
Statistics and Design*	2.64 (1.06)	2.11 (.98)
Practice Overall*	3.58 (.69)	3.30 (.75)
Therapy Activities*	3.74 (.73)	3.49 (.82)
Clinical Expert/Consultant	3.21 (.81)	3.15 (.91)
Tests and Interpretation*	3.09 (.78)	2.79 (.85)

*Note. *= p<.05. 1=very low interest, 2=low interest, 3=unsure, 4=high interest, 5=very high interest.*

4 DISCUSSION

Although we found support for the hypothesis that students who earned higher scores in the methods course would report an increased interest in science-related areas and a lower interest in practice-related areas, these relationships were not statistically significant. Small sample size was a limitation and directionality was another concern. Did students who showed more of an interest in the science of psychology perform better in the research methods course, or did those who performed better in the class show more of an interest in the scientific areas of the field? It is important to note that final course grade was not related to pre or post science or practice scores by themselves, but interest change scores were related to final course grade.

It was not surprising that interest in practice-related areas on the SPI were rated higher than interest in science-related areas in our sample. Many of our students express an interest in the counseling and clinical applied fields, and their SPI interests appear to be more aligned with these future goals. In addition, the majority of students in the research methods class (and majoring in psychology at our university in general) are women. In recent years, approximately two-thirds of applicants to doctoral programs in counseling and clinical psychology years were also women [8]. Gender difference and emphasis on practice related careers may explain the greater preference for practice-related interest areas observed on the SPI in our sample.

We were surprised to find reductions in interests in the science and practice of psychology from the beginning to the end of the term. We would have predicted greater interest in the field after exposure to research methods topics and an opportunity to conduct an individual research project, a hands on science experience. To explain these negative interest changes, we suggest students may feel additional pressures and stress at the end of a semester in college than in the beginning. Several papers, projects, and tests all occur around the same time, which could make students less interested or focused on future career directions and more interested in doing well in their current courses. In addition, Kenney and Rohrbaugh's [1] argument that the SPI terminology may not be easily understood by an undergraduate population may be an important consideration. For example, students may not be sure what all is involved in writing a grant or creating an individualized treatment program until they are actually completing these activities in the field. While these SPI interest changes were statistically significant, it is important to realize that average changes were less than half a point on a 5-point scale.

Many other future expansions of this research are possible, using different classes and implementing different instructional techniques. It would be interesting to investigate changes in SPI scores in courses with a greater practice orientation, such as a counseling psychology class or an applied practice course, at the undergraduate level. Another potential research idea could be to compare different undergraduate programs that emphasize science or practice. SPI interest differences between the different programs could be compared and annual interest changes could be determined as students progress from entry into the program through graduation.

Most undergraduate psychology programs require a research methods course, and many of the students in these courses find the topic challenging and experience anxiety about the class. Those with practitioner orientations may have more difficulties in the course than those with scientific orientations and the current results show how an enhanced scientific interest is related to improved course grade. Students can use this information to develop more positive attitudes about the science of psychology to determine if this is an area they want to pursue as a career choice.

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