Psychology Majors' Views of Science: The Role of Research Experience

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Introduction

- Promoting science understanding is an important goal of contemporary education
- Being a responsible citizen in the 21st century requires an adequate understanding of science and its methods.
- The Department of Psychology at ISU has increased efforts to provide students with hands-on research experience.
- As a discipline, psychology suffers from having two identities. Many undergraduates enter the major with the impression that psychology is only about "helping people."
- It takes a concerted effort on the part of the faculty to change students' conceptions about psychology's status as a *science* and what it means to do psychological science.

Research Questions

- Does participation in hands-on research experiences influence attitudes towards science and scientists, and endorsement of myths about science?
- Which myths of science do students endorse at different levels of the curriculum?

Method

Participants (*N* = 142); 86% female

- Underclass students without research experience (*n* = 57)
- Upperclass students without research experience (*n* = 47)
- Upperclass students with research experience (*n* = 38)

Method (cont.)

Instruments

- *Psychology as a Science Scale*: 20 item scale (Friedrich, 1996) (alpha = .74)
  - *Sample item: "The study of psychology should be seen primarily as a science."*
- *Myths of Science*: 10-item scale created from myths described by McComas (1996)
  - *Sample item: "A general and universal scientific method exists"*
- Select items from the *Survey of Public Attitudes Toward Science & Technology* (NSF, 2001)
- Demographics

Results

Psychology as a Science

- One-way ANOVA on mean PaSS scores revealed significantly different scores between groups of students, $F(2,139) = 7.55$, $p < .00$
- Upperclass students with research experience viewed Psychology as more scientific than underclass and upperclass students without research experience

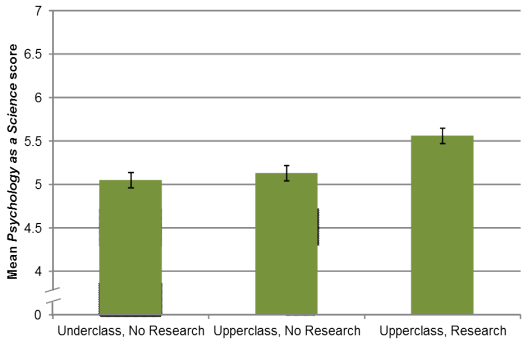

Figure 1. Mean scores on the Psychology as Science Survey as a function of class standing and research experience

Results

Myths of Science

- Omnibus one-way ANOVA on Myths of Science item mean scores revealed significantly different scores for two myths of science

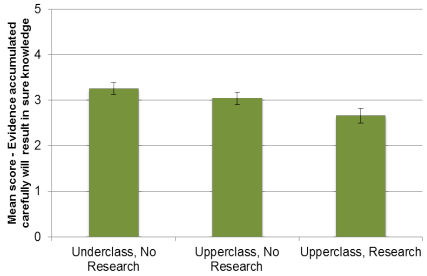

Figure 2. Mean scores on the Myth "Evidence accumulated carefully will result in sure knowledge." Significantly different scores were found between underclass students with no research experience and upperclass students with research experience, $F(2, 138) = 4.14$, $p = .018$.

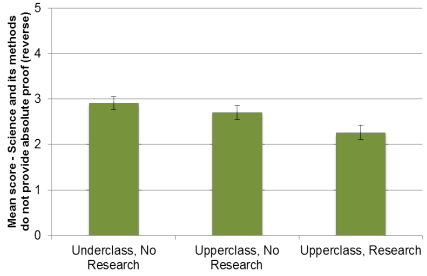

Figure 2. Mean scores for "Science and its methods do not provide absolute proof" (reverse scored). Significantly different scores were found between underclass students with no research experience and upperclass students with research experience, $F(2, 138) = 4.66$, $p = .011$.

Discussion

- Matriculating through the ISU psychology curriculum with at least one hands-on research experience provides additional benefits that are not observed in students who do not take advantage of out-of-class research experience opportunities.