Facilitating Psychology Students’ Understanding of Primary Research: a Delta Internship Project
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Introduction
The problem: Undergraduates benefit in cognitive and affective domains from exposure to primary scientific literature (Hoskins, Lopatto, & Stevens, 2011). However, students have difficulty understanding and communicating information from primary psychology literature.

Teaching-as-Research Question: Will reading and discussing original psychology research in an active learning context improve students’ ability to understand and communicate about research, and 2) change their attitudes about reading original research?

Hypotheses:
Psychology students will benefit in knowledge, skills, and attitudes regarding research by completing a jigsaw classroom journal article activity.

Research Context
Students in introductory psychology will benefit more than students in an upper-level course due to less prior exposure to primary scientific literature.

Participants and Learning Activities
Participants were 52 students at Madison Community College enrolled in Introductory Psychology (N = 25, 50% female; 33% racial minority) or Abnormal Psychology, a 200-level course (N = 27, 89% female, 22% racial minority). Only Introductory Psychology students completed pre- and post- activity surveys of student attitudes, abilities, and beliefs (SAAB).

Project Timeline

Project Overview

Evaluating Self and Partner’s Articles

Changes in Student Attitudes About Research (SAAB)

Could Students Communicate Primary Research Content to Others?
Students in the 200-level course were better able to evaluate their partner’s article than students in the Intro courses, suggesting that more advanced psychology students could more effectively communicate the content of empirical research to others.

Did Students’ Attitudes Toward Research Improve?

Students’ Completed a Pre- and Post-Activity Survey of Student Attitudes, Abilities, and Beliefs (SAAB). Sample items (Likert Scale, R = Reverse Scored)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Item</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decoding Primary Literature</td>
<td>I am not intimidated by the scientific language in journal articles.</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Interpreting Data</td>
<td>It is easy for me to relate the results of a single experiment to the big picture.</td>
<td>3.0</td>
<td>3.2</td>
</tr>
<tr>
<td>Visualization</td>
<td>When I read scientific material it is easy for me to visualize the experiments that were done.</td>
<td>2.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Thinking Like a Scientist</td>
<td>I enjoy thinking of additional experiments when I read scientific papers.</td>
<td>3.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Beliefs About Scientific Knowledge</td>
<td>Results that do not fit into the established theory are probably wrong. (R)</td>
<td>3.2</td>
<td>3.5</td>
</tr>
<tr>
<td>Attitudes Toward Science</td>
<td>I do not have a good sense of what motivates people to go into research. (R)</td>
<td>3.0</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Based on their final summaries, students in both courses answered most questions accurately about their own article. No differences were observed between Intro and Abnormal courses in students’ evaluation of their assigned article.

Could Students Effectively Evaluate the Content of Primary Research?
Students were asked to answer the following questions about their assigned article: 1) Which conceptual variables were the researchers interested in? 2) How did they operationalize/define these variables? 3) What were the independent and dependent variables? 4) Was random assignment/random selection used? 5) What type of study was this (e.g., experimental, correlational, quasi-experiment) and how do you know? 6) What types of research methods were used (e.g., survey, laboratory, observation)? 7) What did the researchers find, and what inferences did they make?

Students in the Intro course showed marginally significant gains in attitudes toward research. Students in the Abnormal course showed no change, but higher pre-test scores than Intro students.

Students were asked to answer the following questions about their assigned article:

Changes in Student Attitudes About Research (SAAB)

Evaluation Accuracy

Evaluating Self and Partner’s Articles

Could Students Communicate Primary Research Content to Others?
Students in the Intro course showed significantly improved attitudes toward research. Students in the Abnormal course showed no change, but higher pre-test scores than Intro students.

Lessons Learned
Although performance on final summaries was good, students in both courses struggled with the Day 2 homework and extra in-class discussion was needed to scaffold students’ understanding. Based on student evaluation data, the assigned articles were difficult to understand due to multiple experiments and/or complex data analysis. Future iterations of this activity should start with simpler articles.

Intro Psych students’ difficulty communicating research findings to classmates suggests that may need extra scaffolding in this area. This could be incorporated into the activity.

Despite communication struggles, Intro Psych students’ attitudes toward science and research improved, suggesting that the approach used here is effective in engaging more naive students with scientific research.

Acknowledgements

References

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