



# Some Students are Left Behind: Despite Positive Attitudes, Learning is Modulated by Prior Academic Achievement

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## Research Questions

In our Introductory Psychology (Psych 100) program, 30 graduate TAs/faculty teach 2,700 undergraduates annually. While the program has received many accolades and TAs are often recognized for their teaching skills, we have not systematically investigated the program's strengths and weaknesses. Accordingly, in Fall 2009, we studied 3 questions:

1. What are students' attitudes toward the course?
2. Do students in Psych 100 learn the core psychological concepts?
3. Are there differences in learning based on students' characteristics?

## Assessment Model

In our first attempt to study these questions and improve undergraduate learning and graduate teaching training, we developed an assessment program based on past research (Dunn et al., 2004; Walvoord, 2004).

**Step 1: Identify goals of Intro Psych**  
Overlap with APA learning goals

**Step 2: Develop tools/gather evidence**  
Assess attitudes with indirect measures

**Step 3: Develop tools/gather evidence**  
Assess learning with direct measures

**Step 4: Apply results to improve...**

- Undergraduate learning
- Graduate teaching training

## Goals of Psych 100

We first defined 3 student learning goals for Psych 100, which are consistent with 6 APA learning goals:

1. **Content information**
  - Knowledge Base & Research Methods
2. **Skill development**
  - Critical Thinking & Communication
3. **Self-relevance of material**
  - Application & Personal Development

## Indirect Assessment of Attitudes

We revised Informal Early Feedback to assess attitudes on course goals and materials. It was given online for 2 weeks before midterm and was worth 2 participation pts.

**Subjects:** 806 students (49%)

**Attitude ABCs:** Affect: "Did you enjoy...?"

Behavior: "How often did you...?"

Cognition: "Did your ability to...?"

**Questions:** 3 attitude Qs on 6 goals = 18 Qs

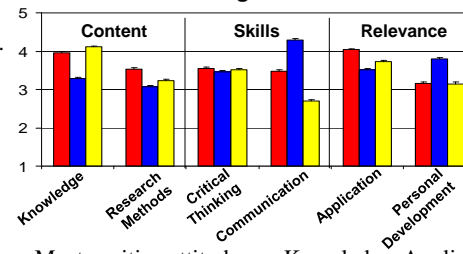
3 attitude Qs on 3 course materials = 9 Qs

**Scoring:** 5-point scale (1=negative/3=neutral/5=positive)

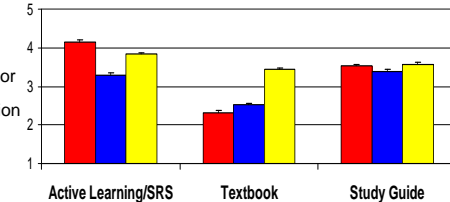
**Analysis:** Repeated Measures ANOVAs

- Goals: 6 goals × 3 attitudes
- Materials: 3 materials × 3 attitudes

### Learning Goals



### Course Materials



- Most positive attitudes on Knowledge, Application
- Least positive on Research Methods, Critical Thinking
- Thought writing assignments did not improve communication skills
- Most positive attitudes on Active Learning/SRS
- More positive attitudes for study guide than text

## Direct Assessment of Student Learning

Online tests, each worth 3 participation pts, were given during the first 2 weeks of term to directly assess learning.

**Pre-Test:** 50 MCQs on core topics

**Post-Test:** 50 MCQs on core topics (diff from Pre-Test)

**Final data:** Data used from 459 students

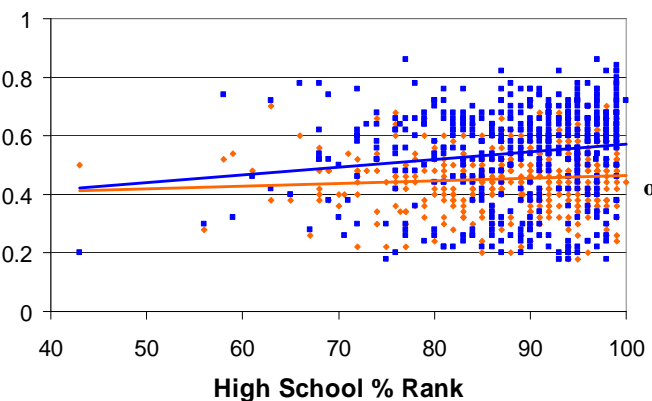
Exclude pre/post-test data  $\pm 2SD$  of mean  
**Analysis:** Mixed logit analysis create the best model for binomial data (correct/incorrect) based on predictors and statistically control random effects.

**Best-Fitting Model:** Excluded native language and ACT scores as they did not improve the model fit.

**Predictor:** High school percent rank

**Random:** Student; Question; Section

Each Student's Average Response Accuracy



**Finding:**  
Significant learning occurred, contingent on students' high school percent rank ( $z=3.37, p<.001$ ).

## Implications for Psych 100

**Attitudes indicate we must:**

- Better meet research methods/critical thinking goals.
- Develop course-level writing assignments to support communication skills.
- Investigate ways to support reading the text and active engagement with text material.

**Student learning indicates we must:**

- Better support learning in all students, including those with a history of lower achievement.
- Increase the self-relevance of the course content so students may feel more motivated to learn.

## Additional Research

We are also investigating whether:

- Certain pedagogical tools (e.g., SRSs) enhance student learning? (Luke et al., 2010)
- Certain techniques benefit at-risk populations of students? (Watson et al., 2010)
- Promoting active engagement with textbook enhances student learning? (Watson et al., 2010)
- Assessment research improves not only undergraduate learning, but also graduate training? (Buskist et al., 2008)

## References

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