Redesigning Introduction to Psychology:

Applying New Frameworks and Assessing Critical Thinking Outcomes

Onna Brewer and Joel Lynch
Rockford University

Introduction

As teachers of Introduction to Psychology (PSYC 100) at a small, liberal arts university, we began exploring new frameworks for assessing and enhancing methods of teaching PSYC 100 in the Fall of 2018 to more closely align our introductory course with recent trends and strengthen the learning experience for students. Our initial conversations focused on the manner in which we were teaching the course, which was to include an overwhelming amount of content as is often done in a survey course. This often left us with little time to explore many topics in-depth with our students and help them connect their learning to everyday life experiences. We were also dissatisfied with students falling short of our expectations related to developing and utilizing critical thinking skills when evaluating psychology-related claims in their daily lives. We have attempted to redesign PSYC 100 to reflect recommendations put forth by two recent initiatives through the American Psychological Association (APA) and the Association for Psychological Science (APS).

New Course Format

The content components of the redesign were based on the Five Pillars model (APA, 2014; Gurung, Hackathorn, Enns, Frantz, Cacioppo, Loop, & Freeman, 2016), which recommends the introductory course be comprised of content derived from five general domains of the discipline and foundational principles (See Figure 1). The process components of the redesign were informed by the "Reinventing Introductory Psychology" materials available through the APS website. The model is designed to address the assertions that: (1) students will likely forget the majority of what they learn in their introductory course; and (2) the typical introductory course falls short of altering misconceptions about human behavior and cognition (Bernstein, Chew, Hardin, & Kowalski, 2018). The model encourages instructors to challenge introductory students with more in-depth evaluation of findings in psychological science as compared with common misconceptions perpetuated in popular culture. Our overall goals were to emphasize critical thinking, scientific reasoning, and deeper understanding of the interconnections among the major domains of psychological science through the combination of these 2 models. At the start of each new pillar-based course module, students were invited to consider selected "claims" about human behavior related to psychology in the form of assigned "Evidence Worksheets." These worksheets were based on suggested lesson plans and materials available through the APS website and asked students to select a claim and to identify and critique sources for evidence for the claim with increasing rigor across the semester.

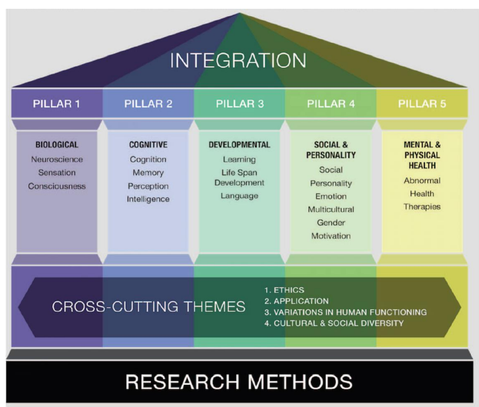


Figure 1. A new model to guide content coverage for the intro psych course (APA, 2014; Gurung et al., 2016).

Assessment Method

- Within the three-semester assessment period, 4 sections of PSYC 100 were taught using a traditional Format (TF), involving 14-16 discrete textbook-based topics surveying a myriad of concepts in psychology, followed by 2 sections of the new format (NF).
- At the start and end of each semester, we administered the Misconceptions Test developed by Jane Halonen listed in APA's Project Assessment as a tool for assessing the undergraduate psychology major goal "Scientific Inquiry and Critical Thinking" with the specific indicator, "use psychology concepts to explain personal experiences and recognize the potential for flaws in behavioral explanations based on simplistic, personal theories" (Halonen, n. d.).
- The Misconceptions Test asks respondents to rate the extent to which they believe 20 statements about human behavior to be true or false on a 4-point scale. Several of these statements correspond to topics emphasized in the redesign of PSYC 100 and the assigned Evidence Worksheets.
- Within TF courses, 78 students completed the survey at the start of the semester, a response rate of approximately 80%, while 48 students completed the post-assessment, a response rate of approximately 40%. Within NF courses, 48 students completed the survey at the start of the semester, a 100% response rate, and 39 students completed the post-assessment, a response rate of approximately 80%.

Figure 2. Total Correct Beliefs by Course Format (Mean and 95% CI)

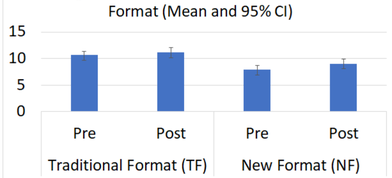
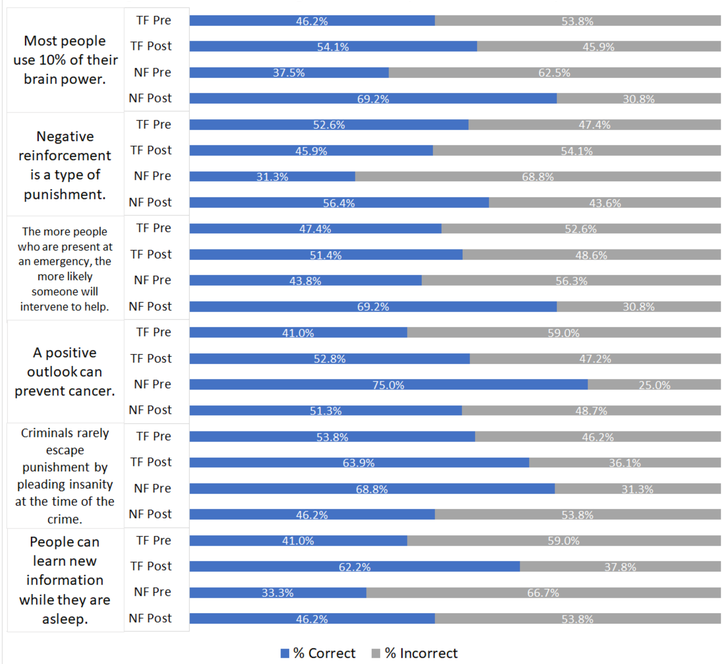


Figure 3. Item-Level Changes in Misconceptions Test Results by Course Format



Results

- To examine the extent to which the New Course Design resulted in a greater ability of students to evaluate and reduce their belief in commonly held misconceptions about human behavior and cognition, we compared pre-post results on the Misconceptions Test across course formats.
- Of the 20 items on the Misconceptions Test, TF students endorsed a mean of 10.67 (SD = 2.99) correct beliefs at the start of the semester and 11.19 (SD = 2.75) correct beliefs at the end of the semester, a non-significant increase (t (113) = .90, p = .37). NF students began the semester with significantly fewer correct beliefs than TF students (M = 7.94, SD = 2.45; t (124) = 5.31, p < .001), and the NF students showed a small but statistically significant increase at post-assessment to a mean of 9.05 (SD = 2.60) correct beliefs (t (85) = 2.05, p = .04). See Figure 2.
- A series of chi-square tests showed a significant increase in the proportion of TF students endorsing correct responses from pre to post-assessment for 1 of the 20 items: "People can learn new information while they are asleep" (x^2 (1, N = 115) = 4.49, p = .03). The proportion of NF students endorsing correct responses increased for 3 of the 20 items: "Most people use only about 10% of their brain power" (x^2 (1, N = 87) = 8.68, p = .003); "Negative reinforcement is a type of punishment" (x^2 (1, N = 87) = 5.57, p = .02); and, "The more people who are present at an emergency, the more likely someone will intervene to help" (x^2 (1, N = 87) = 5.65, p = .02). However, a greater proportion of NF students at post-assessment also endorsed incorrect responses for 2 items: "A positive outlook can prevent cancer" (x^2 (1, N = 87) = 5.28, p = .02) and "Criminals rarely escape punishment by pleading insanity at the time of the crime" (x^2 (1, N = 87) = 4.53, p = .03). See Figure 3.

Conclusions

- This introductory psychology course redesign, based on APA- and APS-recommended models emphasizing depth of selected content and critical thinking, was partially effective compared to the traditional format and needs further development to be effective across various critical thinking outcomes.
- Differences in the baseline proportion of false beliefs between formats may be related to differences in course credit offered by instructors for completing the assessment survey; TF students were either offered extra credit or no credit for completing the pre and post misconceptions survey, while NF students received assignment course credit. These procedural differences may have contributed to selection bias and limited response rates, particularly within the TF sections. The overall sample size of TF sections was also much larger than that for the NF sections, and additional assessment data for the new format is needed.
- As they more deeply explore selected topics throughout introductory psychology courses, instructors may need to further emphasize skills for evaluating empirical evidence and understanding complex constructs (e.g., the mediating role of healthy behaviors in the relation between optimism and specific health outcomes).
- Additional assessment methods (e.g.,self-assessment, indirect assessment, qualitative) could help instructors understand students' reasoning behind endorsing false beliefs at the beginning and end of the semester. Such techniques would also provide additional insight into how students at various points in their academic development use evidence to reach conclusions about human behavior and mental activity.

References

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