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Assessing the Effects of a Teaching Course on Biology Graduate Student Teaching Assistants

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Assessment of biology graduate teaching assistants enrolled in a teaching techniques course.



Caralyn B. Zehnder
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BIOL 5050: Teaching Techniques

- First taught fall 2009.
- Offered every fall semester.
- Now required for all graduate teaching assistants.
- Our graduate students earn their MS in Biology, our school does not have a PhD program.

Course Activities & Assessment

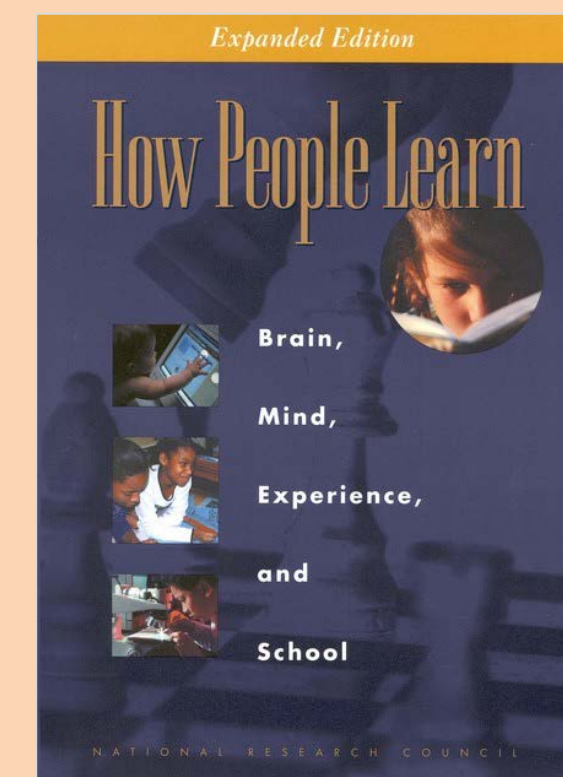
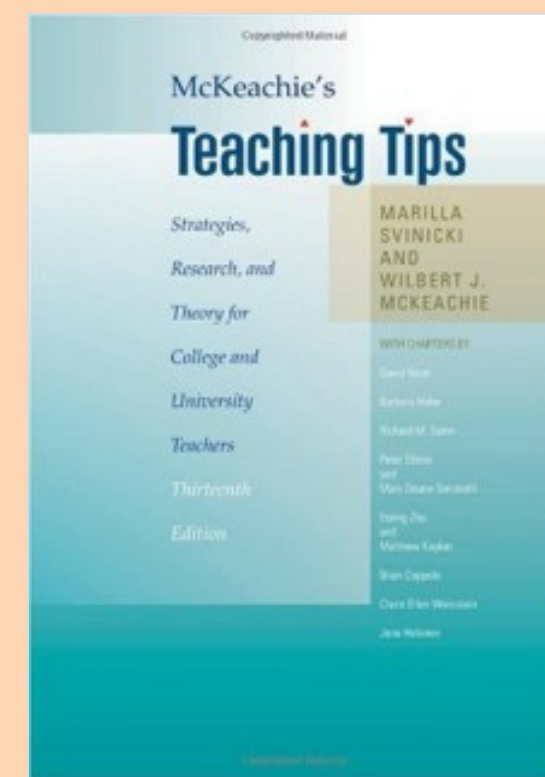
Teaching demonstrations

- Two by each student.
- Peer and instructor feedback.
- Students design and conduct an active learning exercise during the second teaching demo.



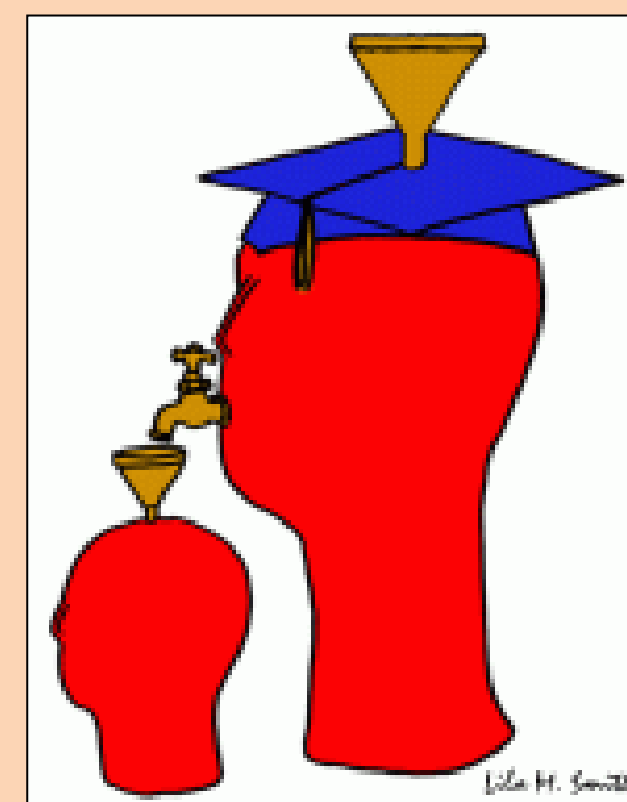
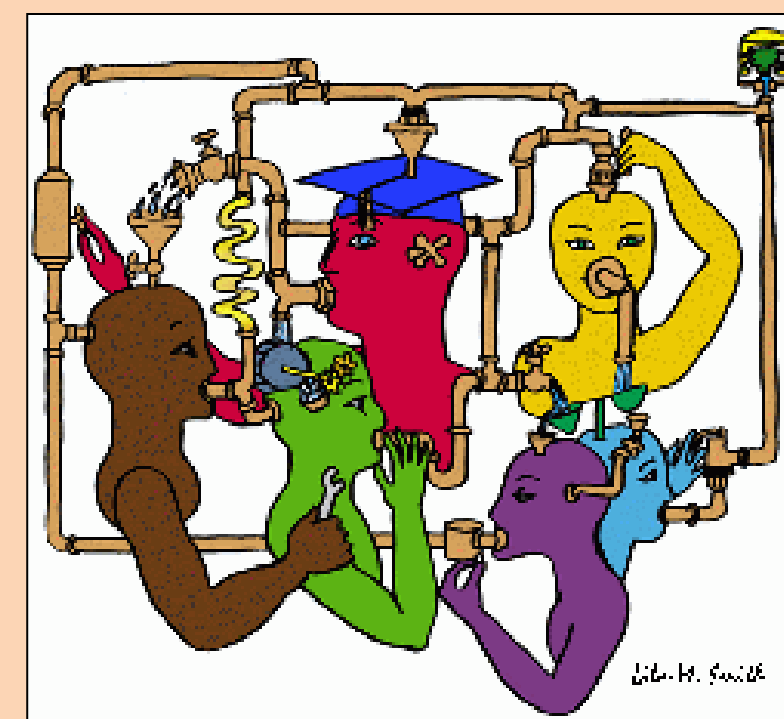
Class discussions

- Online and face-to-face.
- Student-led.
- Discussion topics:
 - Diversity in the classroom.
 - Managing problem students.
 - How to work with students with disabilities.
 - Writing tests and giving feedback.



Written assignments

- Faculty interviews
- Reflective essays



Methods

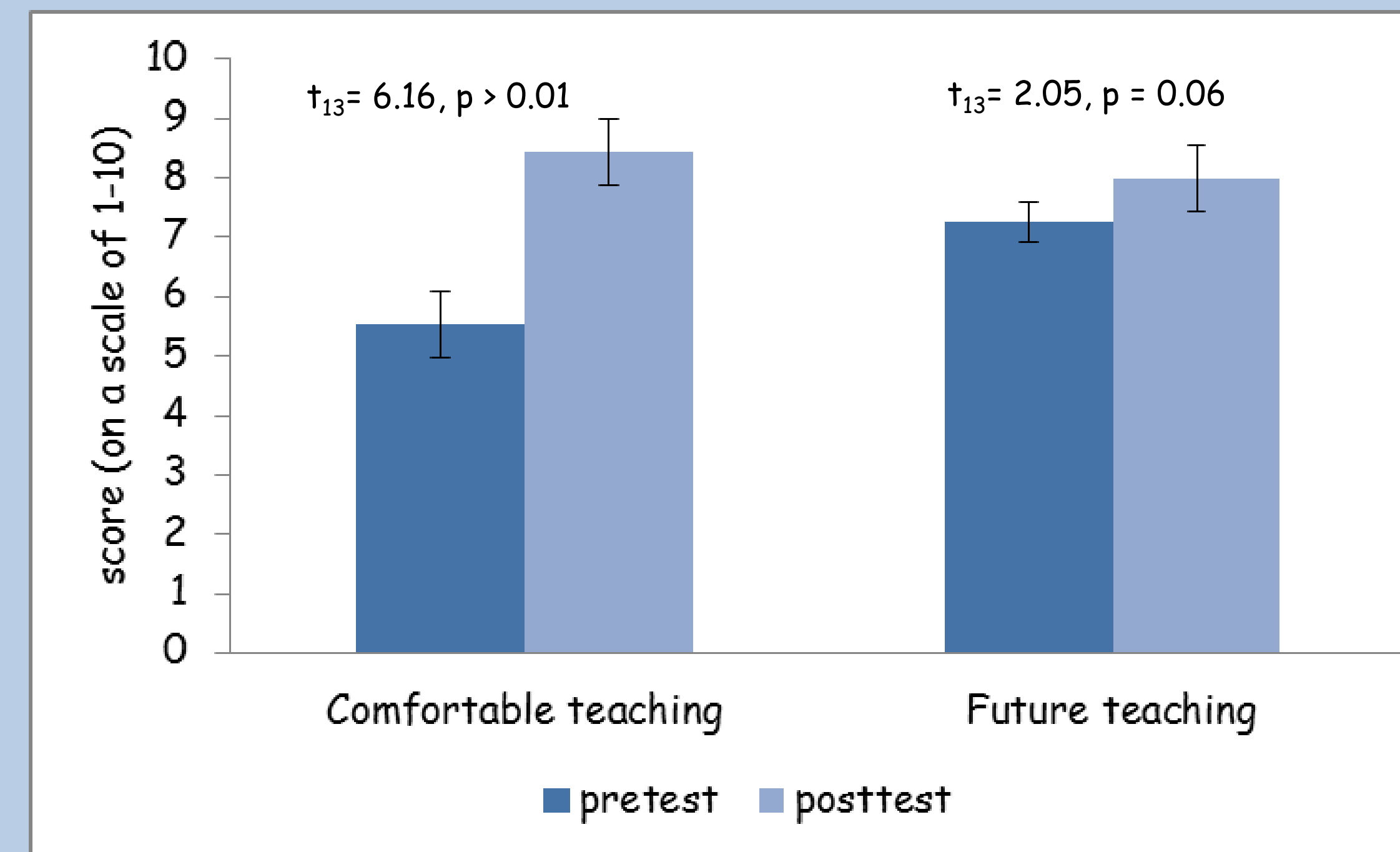
I measured the impact of this course on students' knowledge of innovative teaching techniques, science education pedagogy, and assessment techniques.

In 2012, I assessed the learning gains of 14 students enrolled in this course.

- Pretest - posttest
- Students completed an online, anonymous student assessment of their learning gains (www.salgsite.org).

Results

Students described themselves as more comfortable teaching and slightly more likely to teach in the future after taking this class.



When asked to describe a lab where students are learning, graduate students were more likely to describe the instructor as interacting with students rather than lecturing after taking this course.

Discussion

- Students gained confidence in their teaching ability and learned ideas and techniques that can help them improve their teaching.
- There were changes in students' perceptions of what a teacher can do to help students learn.
- Students felt that they learned the most from the teaching demos and faculty interviews.
- Multiple students commented on the benefit of meeting with peers to exchange ideas and discuss teaching.
- Students thought that in-class discussions and activities helped their learning while online discussions did not.
- Not a good course to move online.
- Activities need to focus on directly applicable concepts, not abstract ideas about teaching and learning. Because of our student population, this class cannot be a future-faculty development course.
- Students expect this course to be an easy 'A'.
- Most of the students were also teaching for the first time over the course of this study, so changes in attitudes or ideas about teaching could also be related to that experience.

This work was supported by Georgia College STEM Initiative, funded by the USG.

This research was approved by the Georgia College IRB.

As a result of your work in this class, what gains did you make in the following? (1 = no gains, 5 = great gains)

	average	standard error
Enthusiasm for teaching	3.4	0.33
Confidence that you can be an effective science teacher	3.7	0.32
Willingness to seek help from others when developing class content	4.0	0.24

As a result of your work in this class, what gains did you make in your understanding of each of the following? (1 = no gains, 5 = great gains)

	average	standard error
Teaching practices that facilitate student learning	3.4	0.29
Factors that motivate students to learn	3.8	0.26
Diversity in the classroom	3.7	0.29
Experiential learning (Problem-based learning, case studies, reacting to the past)	2.9	0.38

After taking the class, students could correctly identify a constructivist view of learning, and define both formative and summative assessment.

Half of the students were able to provide an example of a formative or summative assessment.