Do Teaching Assistants Know How to Teach?

How Teaching Self-Efficacy Affects How TAs Teach.

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Introduction

- Teaching assistants (TAs) are the backbone of modern teaching institutions[1].
- Student-centered teaching is being widely adopted because of the benefits to students[5].
- Professional Development (PD) has not been standardized.
- Student-centered curriculum combined with PD that models student-centered teaching practice has been shown to support TAs in student-centered teaching[2].
- The combined impact of TA self-efficacy and PD on student learning and TA's implementation of student-centered teaching practices has not been examined before now.

Research Questions

1. How are TA self-efficacy, content knowledge, and student-centeredness of teaching associated with student gain in content knowledge?
2. Controlling for PD, how are TA self-efficacy, and content knowledge associated with student-centeredness of teaching?

Data Collection and Analysis

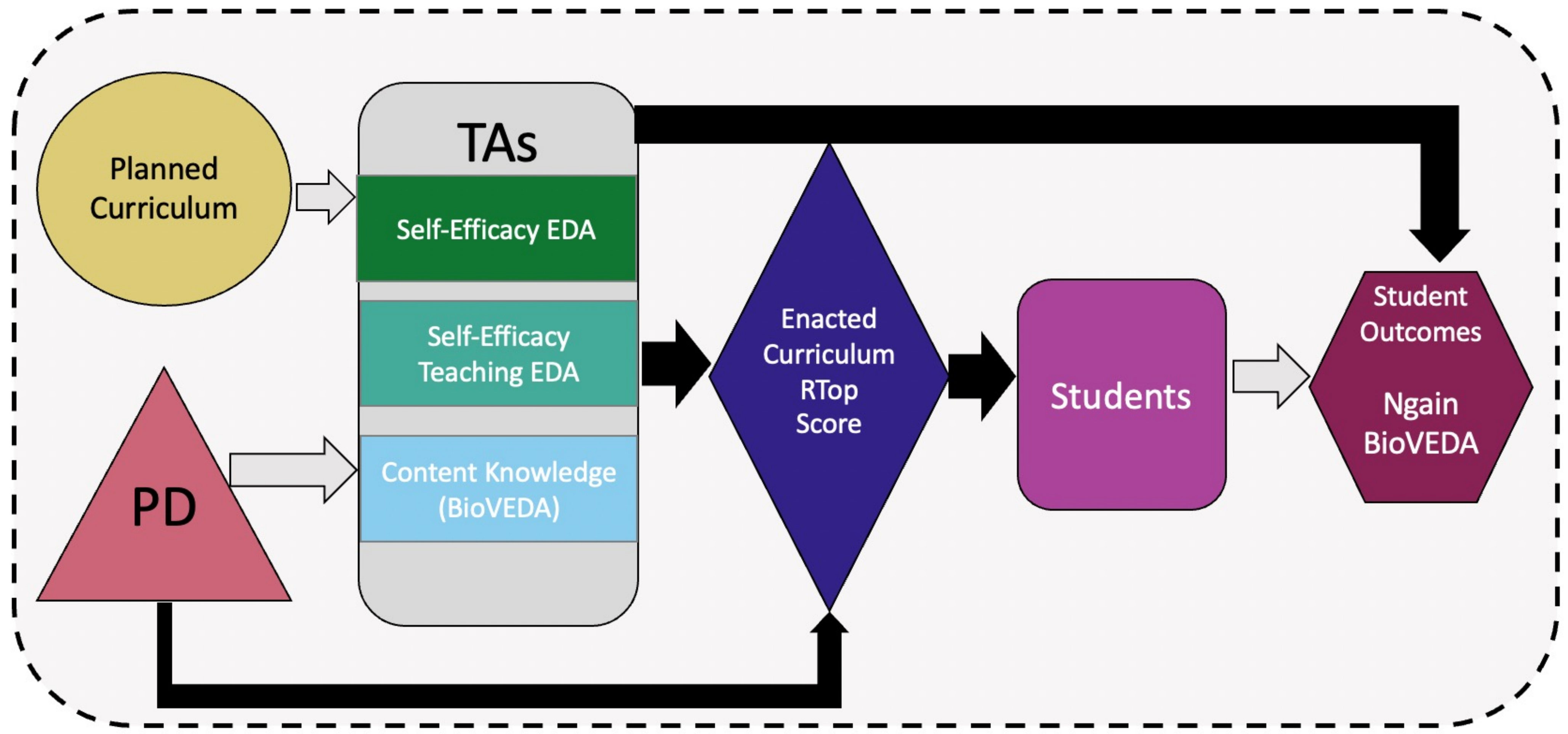
Context

- Required introductory laboratory course for biology majors.
- Participants: 61 TAs, 103 data points.
  -Approximately half received PD modeling student-centered teaching.

Instruments

- ***BioVEDA***: Measures content knowledge of experimental design and analysis[2].
  -TA: Before the semester started.
  -Student: pre and post (calculate Ngain)
- ***TA Self-Efficacy*** (5 Questions each, Likert Scale 1-4).
  -Experimental Design & Analysis (EDA)
  -Teaching EDA.
- ***RTOP***[4]
  -Audio-recorded 2 lessons per semester.
  -2 independent coders gave each lesson an RTOP score (ICC=.75).
  -Averaged scores for each semester.

Model of Student Learning



Results

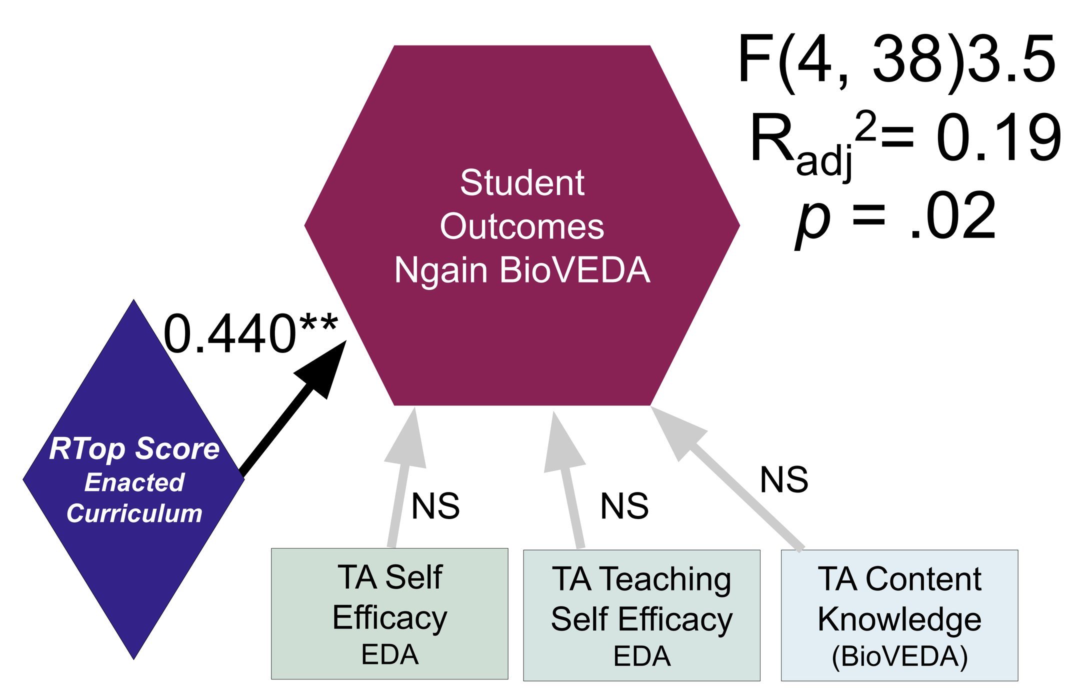


Figure 1. Student-centered teaching is associated with positive student gains

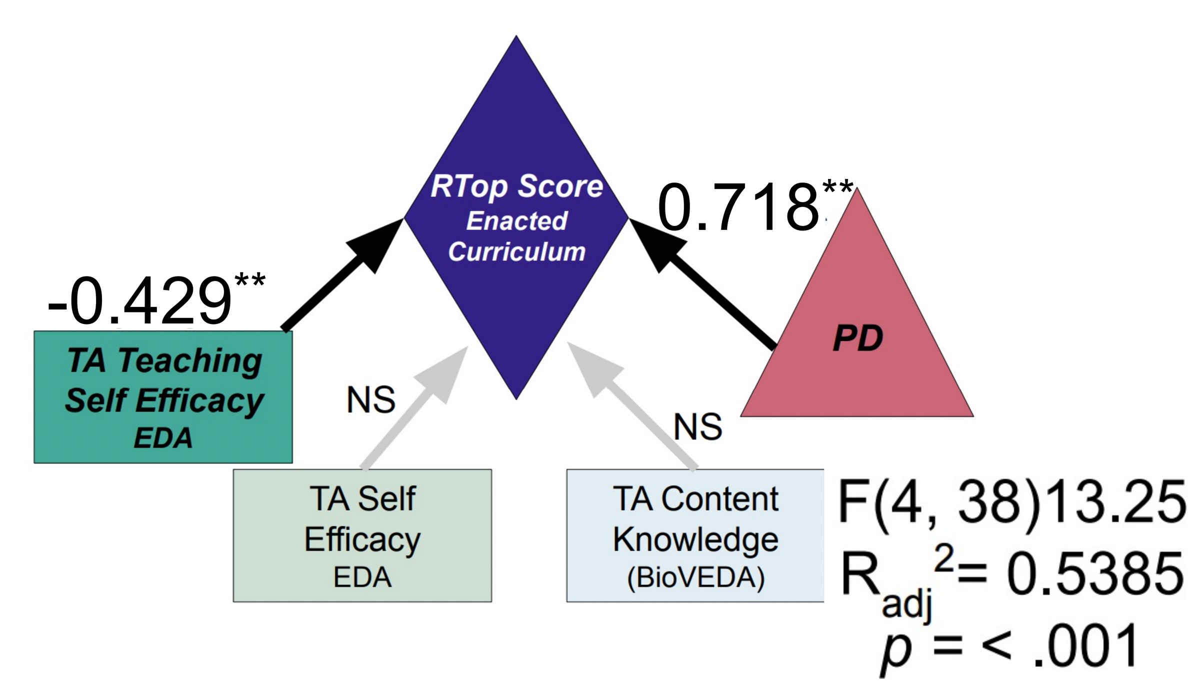


Figure 2. Having high efficacy is associated with decreased tendency to teach in student-centered way. PD is associated with increased tendency to teach in a student-centered way.

*p<.05; **p< .01; ***p<.001

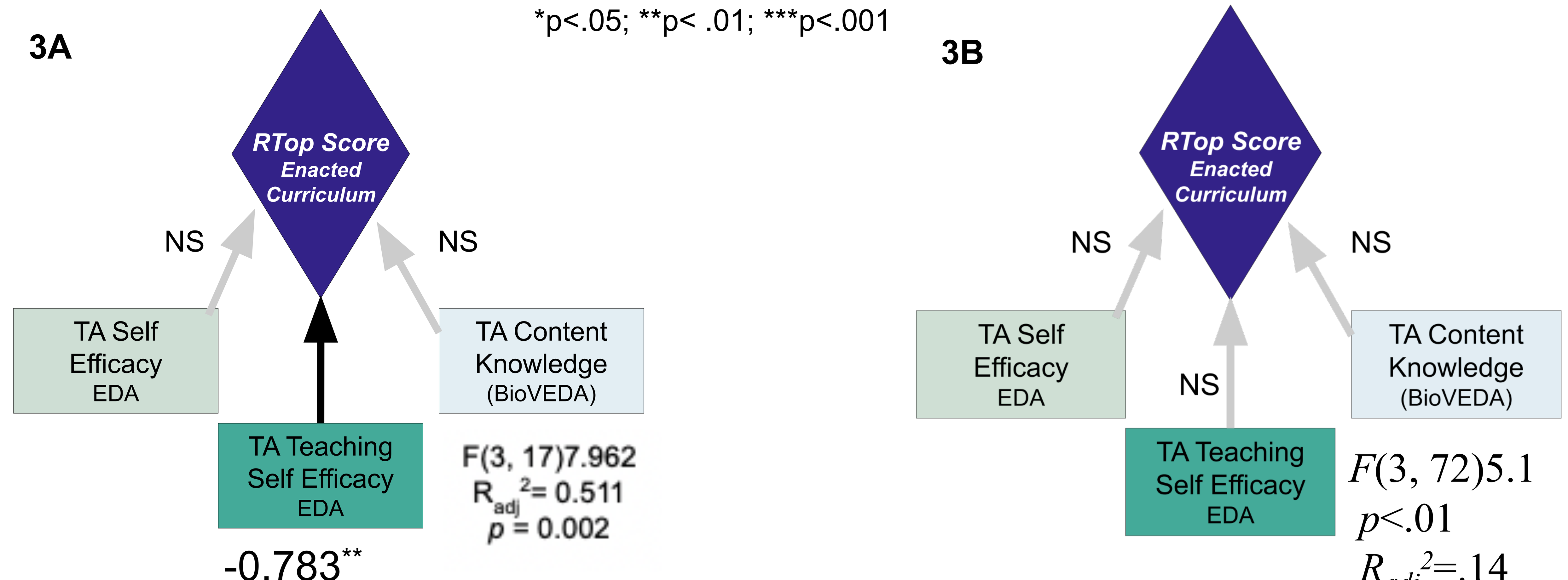


Figure 3. High teaching self-efficacy is associated with decreased tendency to teach in student-centered way for students that receive PD (3A) , but not for those who do not receive PD (3B).

Conclusions & implications

- Student-centered teaching is associated with student gains in experimental design and analysis.
- In the presence of PD that models student-centered teaching, TAs with high self-efficacy at teaching experimental design and analysis are less likely to teach in a student-centered manner.
- TAs who believe they teach well may be more resistant to improving their teaching during PD.
- Therefore, it may be necessary to provide TAs with feedback on their teaching at the beginning of PD so they can see where they can improve.

References & Acknowledgements

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