

# Use of an online Q&A forum to enhance learning and community in an asynchronous quantitative class

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## Introduction

Developing meaningful online learning communities is critical for student engagement and retention in asynchronous online courses.[1,2] This can present a challenge in quantitative classes due to the technical nature of the material.

We explored whether using an online discussion board as a student question and answer (Q&A) forum in an asynchronous epidemiology course had an impact on peer-to-peer learning and online community engagement.

## Methods

Yellowdig™ is a social media-style online discussion platform that integrates with the Blackboard learning system.

We intentionally promoted using Yellowdig™ as a Q&A forum in an asynchronous graduate epidemiology class of 33 students. The Q&A forum simulated the “hallway conversations” that happen before or after an in-person class.

- Use of Yellowdig™ comprised 15% of the final course grade. Students did not have to participate specifically in the Q&A component, and could instead discuss any material relating to the course content.
- We highlighted the benefits of Q&A (quick response, peer-to-peer learning) at the start of and throughout the course
- Students were encouraged to collaborate on problem sets but not on quizzes, which were taken independently
- Students were encouraged to @tag the instructor in a discussion post for help as opposed to emailing

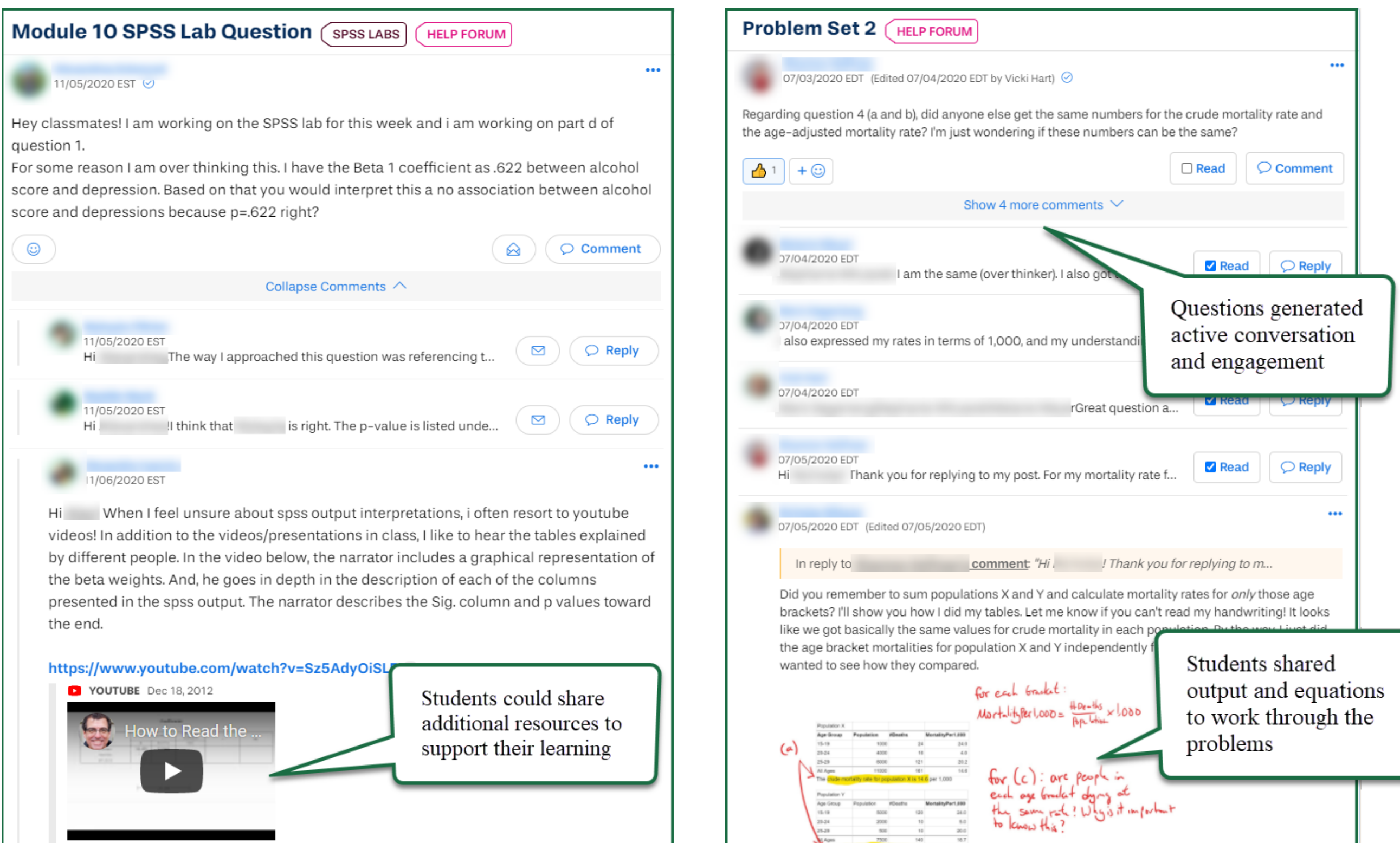
## Statistical methods

We used linear regression to determine if asking and/or answering a question in the Q&A forum was predictive of final, problem set or quiz grades, controlling for overall discussion participation and previous coursework in the online public health program.

We compared community engagement metrics, including the average number of responses per discussion post and average number of discussion interactions per student, to the previous semester that used Yellowdig™ but not as a Q&A forum.

## Results

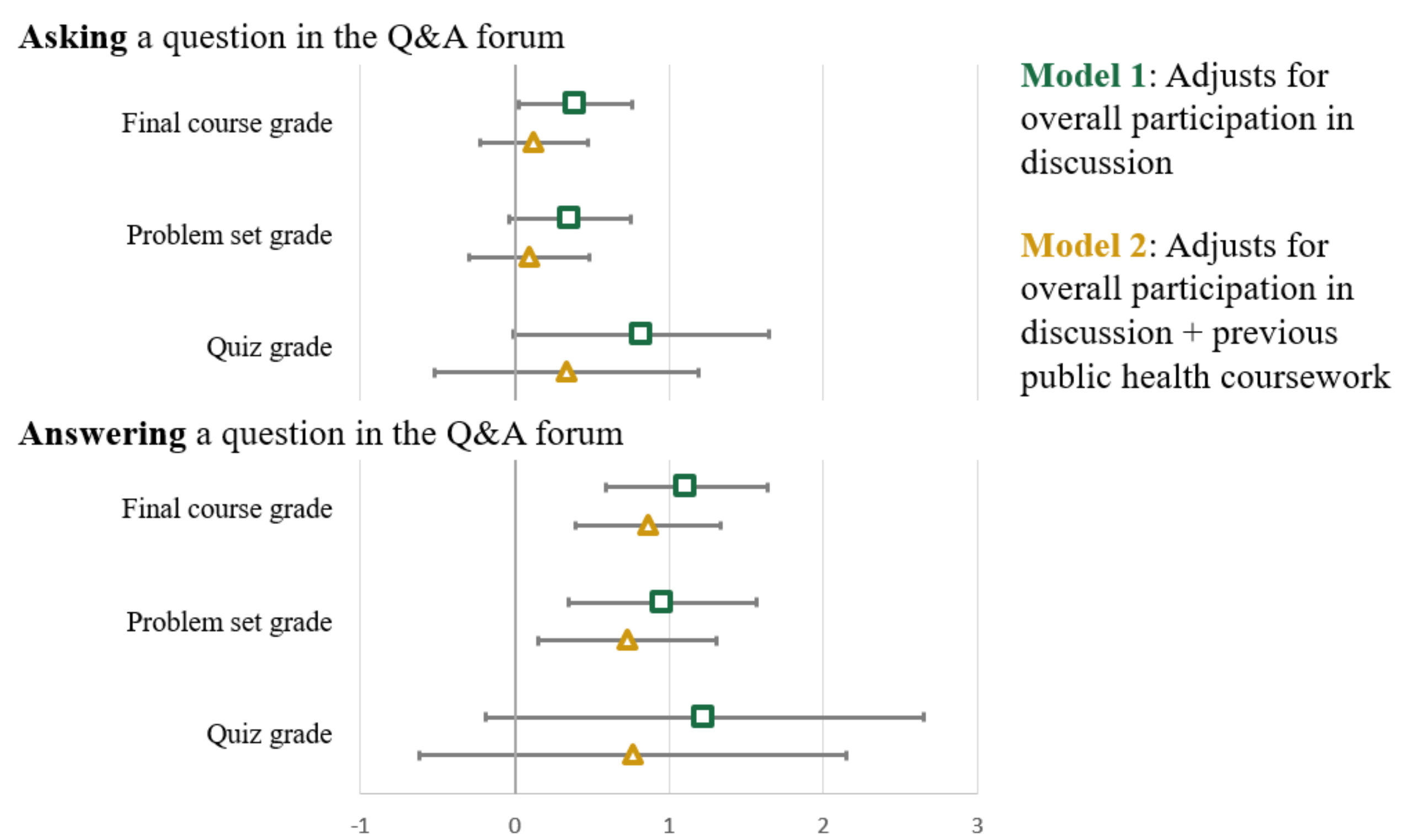
Students actively used Yellowdig™ to ask and answer questions. Example posts:



## Peer-to-peer learning

In fully adjusted linear regression models, answering a question in the Q&A forum was predictive of a significantly higher final grade and problem set grade, but not quiz grade.

After full adjustment, no significant associations were seen between asking a question in the Q&A forum or the number of questions asked or answered in the Q&A forum and course grades.

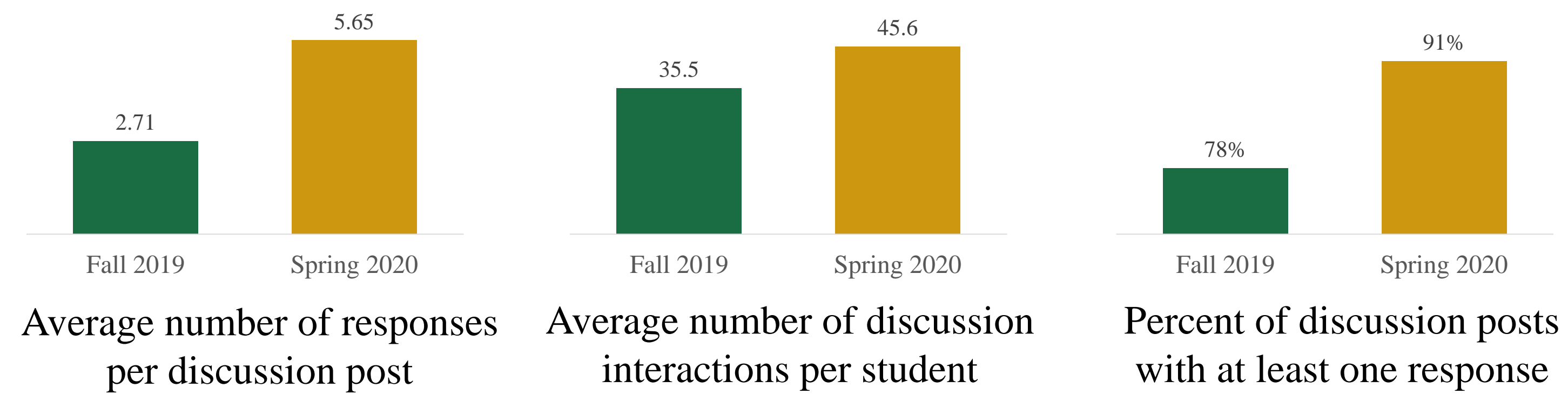


**Figure 1:** Adjusted difference in final, problem set, and quiz grades between students who did and did not use the Yellowdig™ Q&A forum to ask and answer questions during the semester

## Community engagement metrics

Three community engagement metrics are identified by Yellowdig™ as primary indicators of student interaction and engagement.[3]

Each primary indicator improved significantly over the same course in the previous semester that used Yellowdig for discussion but did not promote a Q&A forum ( $p<.001$ ).



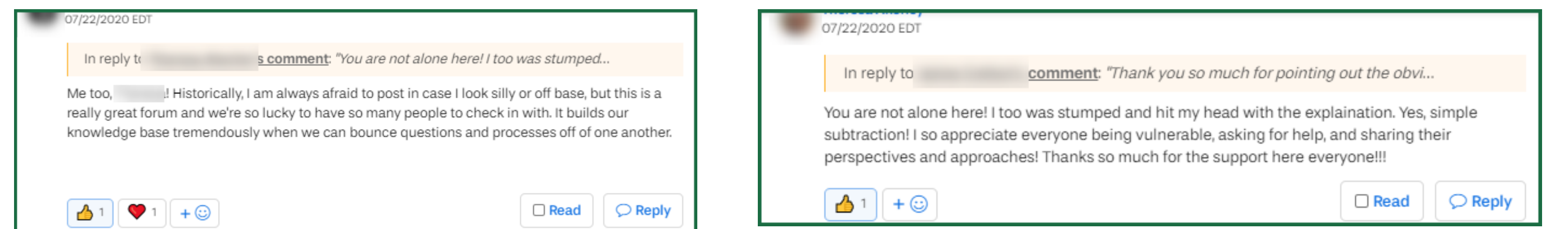
**Figure 2:** Key community engagement indicators, Fall 2019 and Spring 2020

## Conclusions

In this case study of an asynchronous online epidemiology course, the use of a student Q&A forum may have conferred some benefit on assignments that allowed collaboration. However:

- Replication in other online quantitative courses is required
- Further replication among different instructors could isolate the specific impact of using the Q&A forum
- The study was underpowered to detect differences in grades using the number of questions asked or answered in the Q&A forum, which would give a more nuanced indication of impact

Community engagement metrics suggested a more connected online community than the previous semester. Subsequent investigations should consider a qualitative assessment of the students’ perceptions of the Q&A forum. Anecdotal evidence from this case study appears positive:



## References

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2. Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, 115, 1-47.
3. Yellowdig. Introduction to the Best Practices Guide: <https://help.yellowdig.com/hc/en-us/articles/360022216614-Introduction-to-the-Best-Practices-Guide>. Accessed on 12/30/2020.