

Writing and Peer Review in Computer Science Education

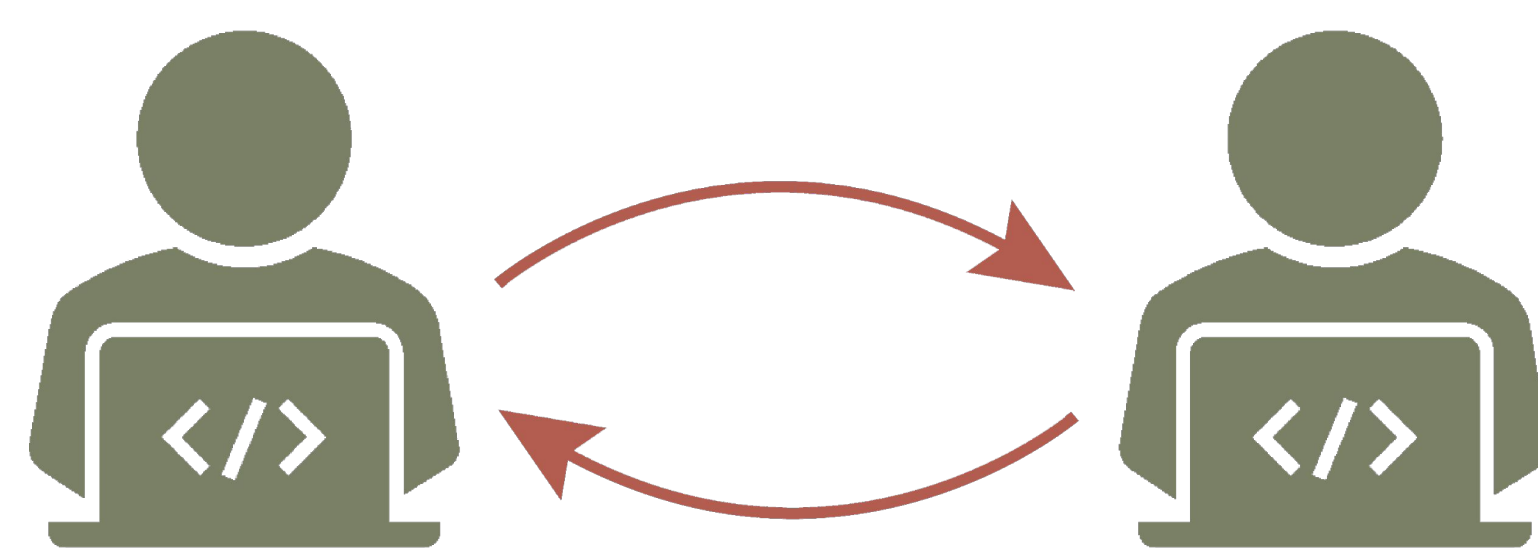
Writing is not typically a core focus of computer-science (CS) programs.

However, developers write prose and review others' work.

Reflective Writing with Peer review in CS

In addition providing writing practice, this reflective writing helps students

- learn to evaluate their learning experience and process
- develop the skills they need to learn on their own throughout their professional career



CMPUT 302 - Human Computer Interaction (HCI)

- Undergraduate elective course
- Taken in the 3rd or 4th year
- Three project reflections and peer reviews (each 2% of students' course grade; 12% total)
- Google Docs was used to write reflections
- Reflections were reviewed by two peers, using comments and suggesting mode
- Grading was done by a teaching assistant



Method

Design

Action research study (Winter 2018)

Participants

22 (3 female, 19 male)

Instruments (Three rubrics)

- writing quality [2],
- meta-cognitive aspects of reflection [3],
- qualities of the provided peer feedback [1]

Data Analysis

For reflection and writing quality rubrics,



For peer feedback rubric (categorical),



- Differences in students' writing quality and reflective writing scores: non-parametric Friedman tests.
- The relationship between grades by TA and peers: Pearson correlations.

Results

Reflective Writing and Writing Quality

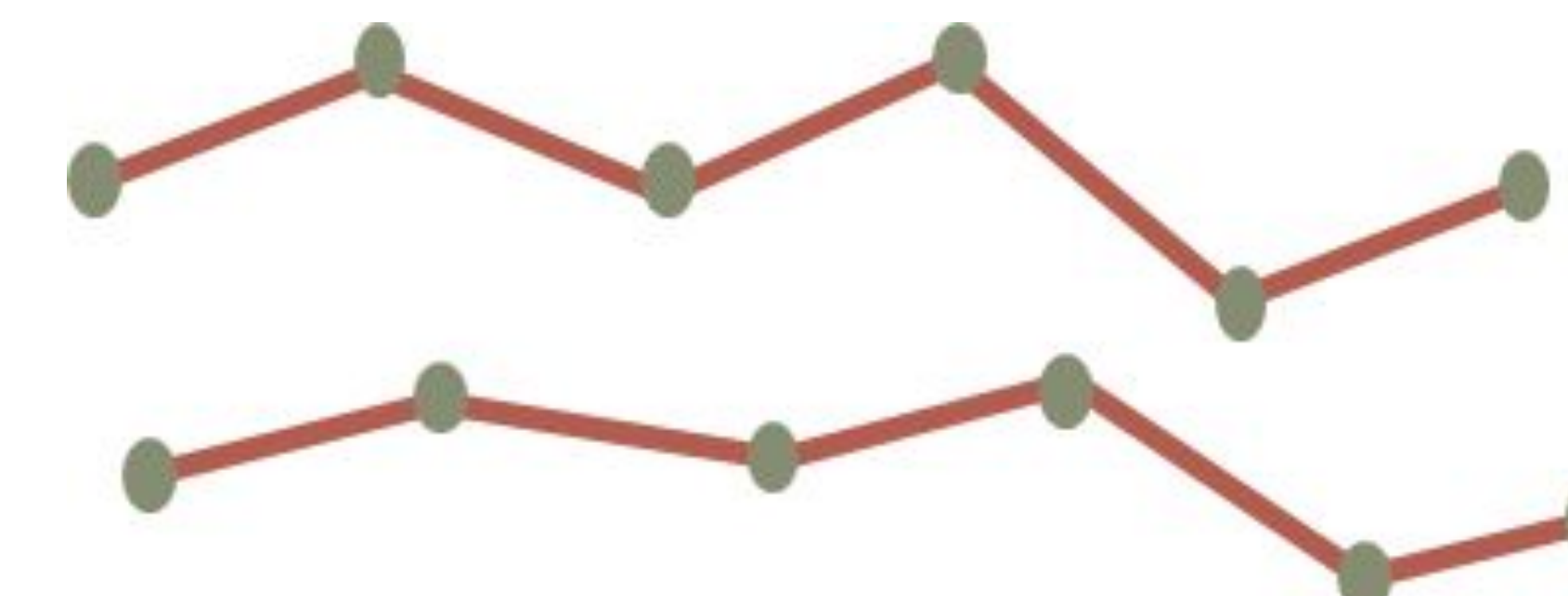
No significant difference was found over time across projects.



Students' Reflection Grades:

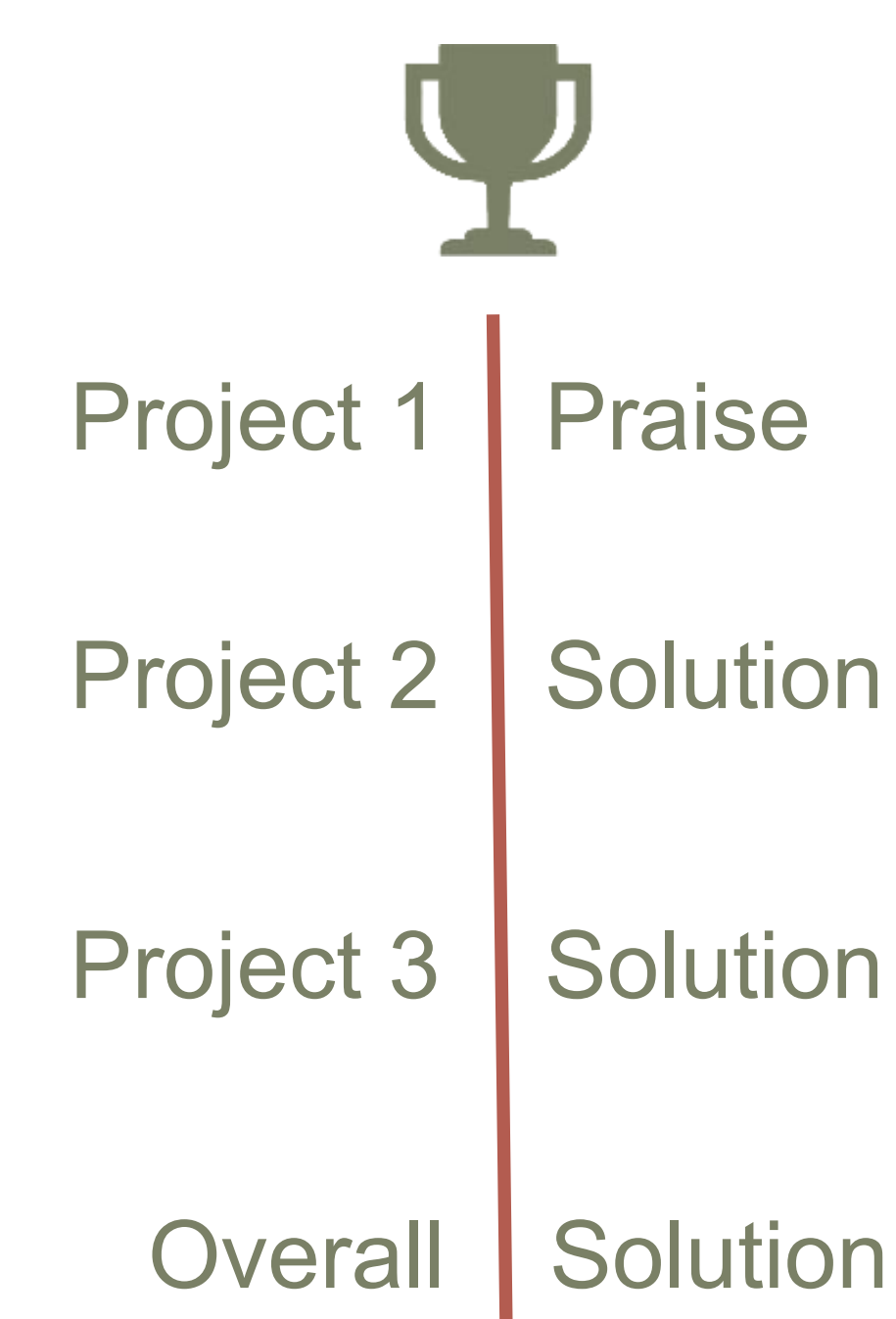
TA vs. Peers

A positive relationship between peer and TA grades was found for each project.



Peer Feedback

Most common feedback,



Conclusion

- Distributed reflection assignments with peer feedback **did not increase** students' reflective writing or writing quality.
- Peer feedback can be used to provide students with **more feedback without increasing the workload** of the instructional team.
- High number of 'praise' and 'solution' feedback shows students were actively **trying to support the improvement** of the artefact.

 Peer feedback

 Writing quality, Reflective writing

Future Directions

- Anonymous assignments and peer feedback to avoid possible biases from affecting the peer-review process
- Examining student perceptions about the feedback they received to discover how students respond to different types of feedback

References

- [1] Nelson, M. M., & Schunn, C. D. (2009). The nature of feedback: How different types of peer feedback affect writing performance. *Instructional Science*, 37(4), 375–401.
- [2] Patchan, M. M., & Schunn, C. D. (2016). Understanding the effects of receiving peer feedback for text revision: Relations between author and reviewer ability. *Journal of Writing Research*, 8(2), 227–265.
- [3] Phung, H. V. (2016). Portfolio assessment in second/foreign language pedagogy. *Hawaii Pacific University TESOL Working Paper Series*, 14, 90–107.