

Student Attitudes towards Partially Automated Peer Grading in Mechanical TA

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BACKGROUND

CPSC 430 – Computers and Society

- 4th year undergraduate course
 - focus on critical reasoning about social implications of computational advances
- focus on frequent short, frequent writing assignments
 - effective way to teach writing skills [Seabrook et al 2005]
 - provides many opportunities to practice
- students complete a 300-word essay every week
 - Problem: **inefficient** and **expensive** for manual TA marking
 - Solution: **peer grading**

BACKGROUND

Peer Grading and Mechanical TA

- in peer grading: students grade each others' assignments
- peer grading often **negatively perceived** by students
 - tend to believe **lower quality/less fair** than TA grading [Kaufman & Schunn 2011]
- a solution: **Mechanical TA** (see companion poster for details.)
 - software system for partially automated peer grading, developed by CPSC 430 course staff
 - TAs remain in the loop:
 - mark essays/reviews before students graduate to 'independent'
 - for 'independent' students: manage appeals and spot-checks
 - results over 3 offerings found evidence that MTA helped improve student learning and grading ability [Wright et al. 2015]

MEASURING PERCEPTIONS OF MTA

Research Questions

- what are the students' perceptions of the peer grading?
 - how do students perceive the **quality, appropriateness, fairness helpfulness and accuracy** of:
 1. reviews they gave their peers on their writing,
 2. reviews they received from peers...and how to did these compare to TA reviews?
 - how **helpful** was the calibration (built in practice reviewing) and peer grading and in MTA for learning?

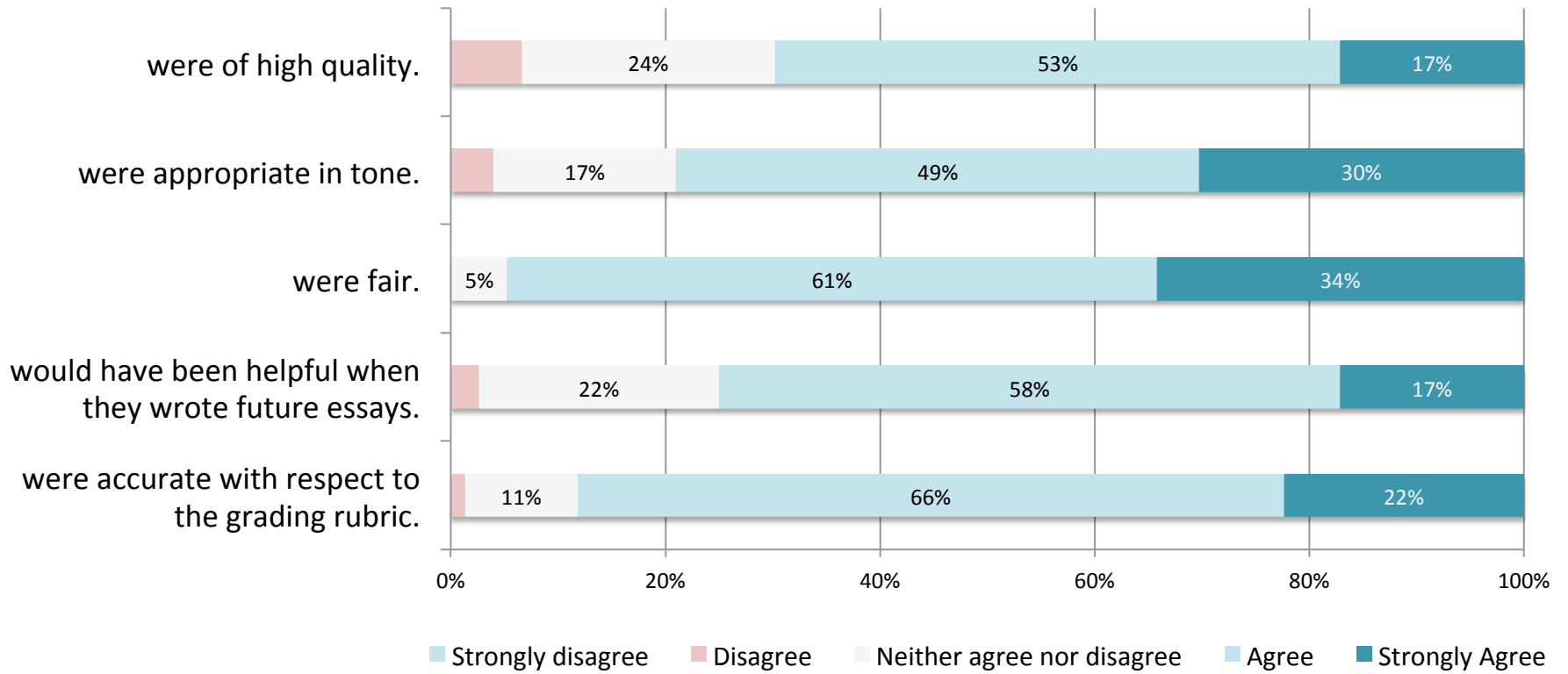
Data Collection

- End-of-term survey conducted in CPSC 430 (2014 W1)
- n = 76 (response rate 83%)

RESULTS

Reviews students gave their peers

Q: The reviews I gave my peers on their writing ...

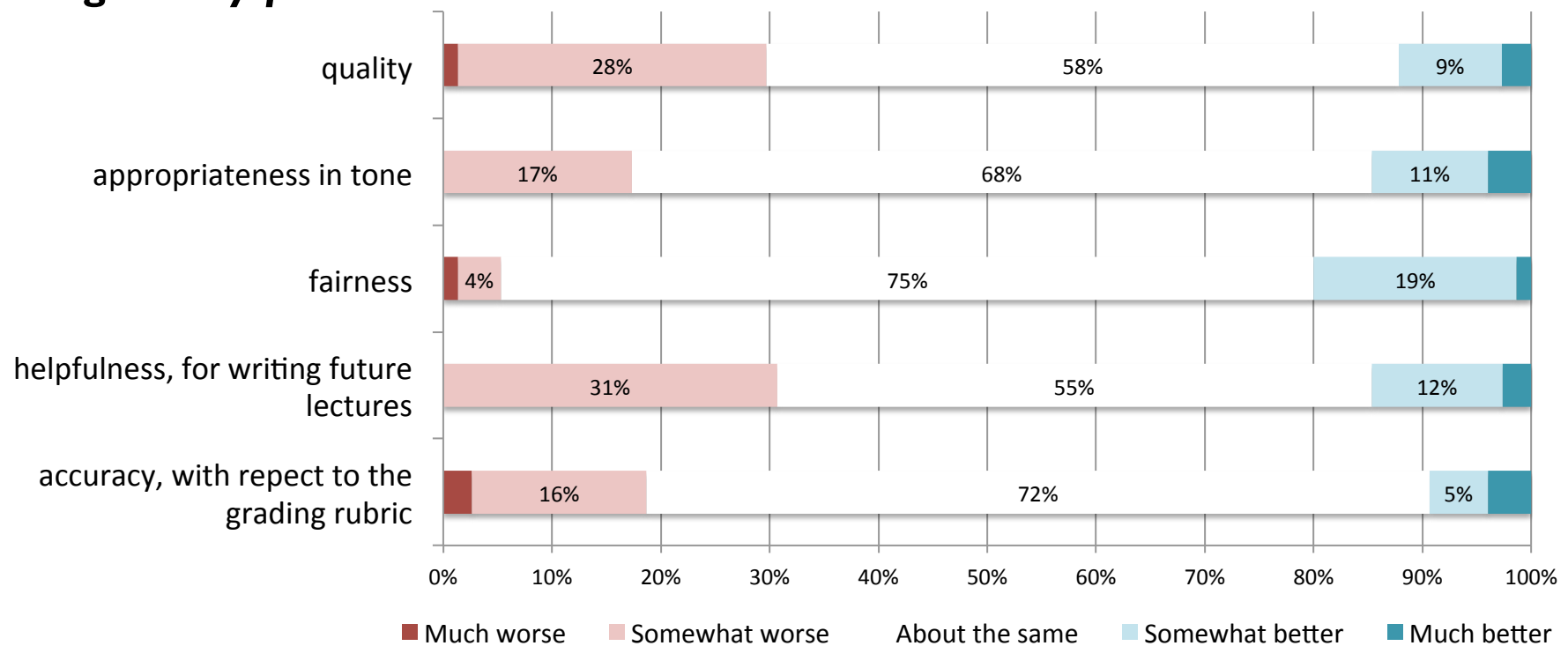


The majority of students rated the reviews they wrote favorably with respect to each factor.

RESULTS

Reviews students gave, compared to TAs

Q: Compared to a TA review, the _____ of the reviews that I gave my peers

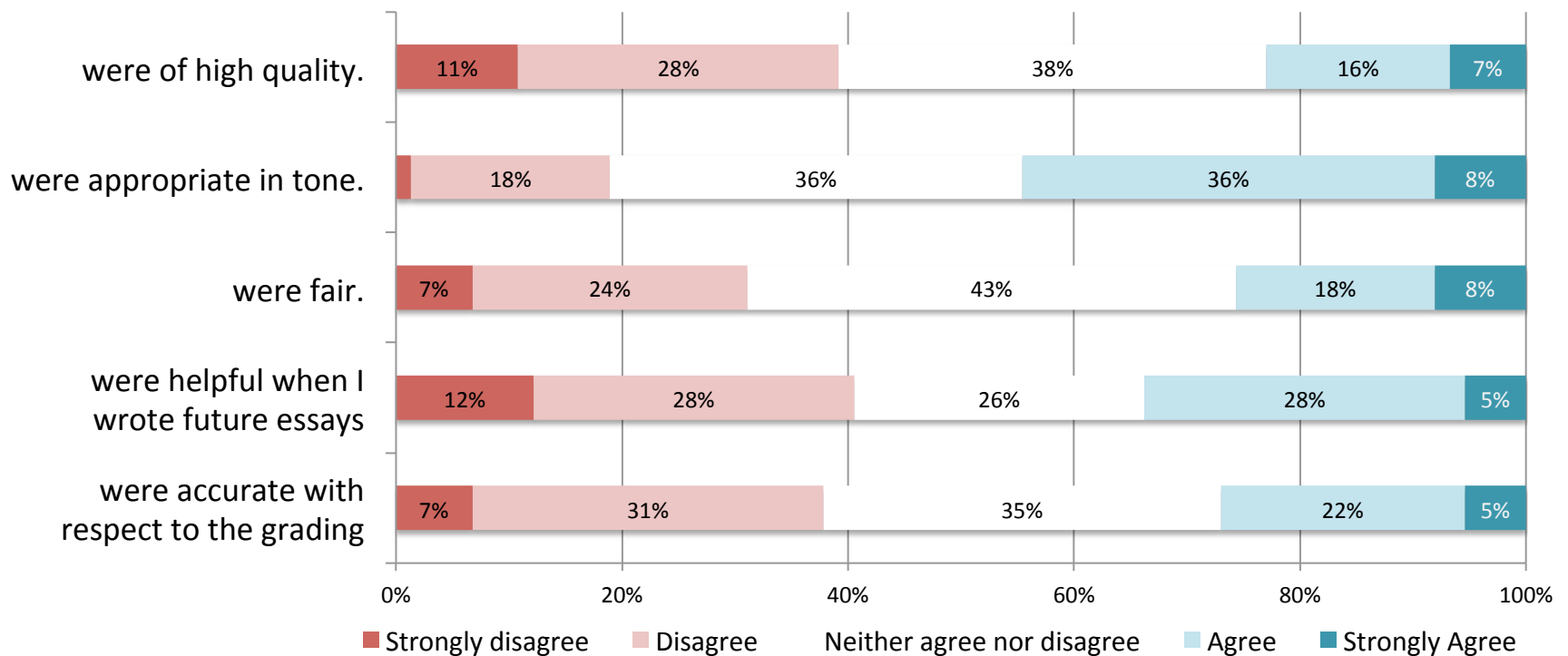


The majority of students the reviews they wrote were **about the same** as how a TA would have reviewed the same paper.

RESULTS

Reviews received from peers

Q: The reviews my peers gave me on my writing ...

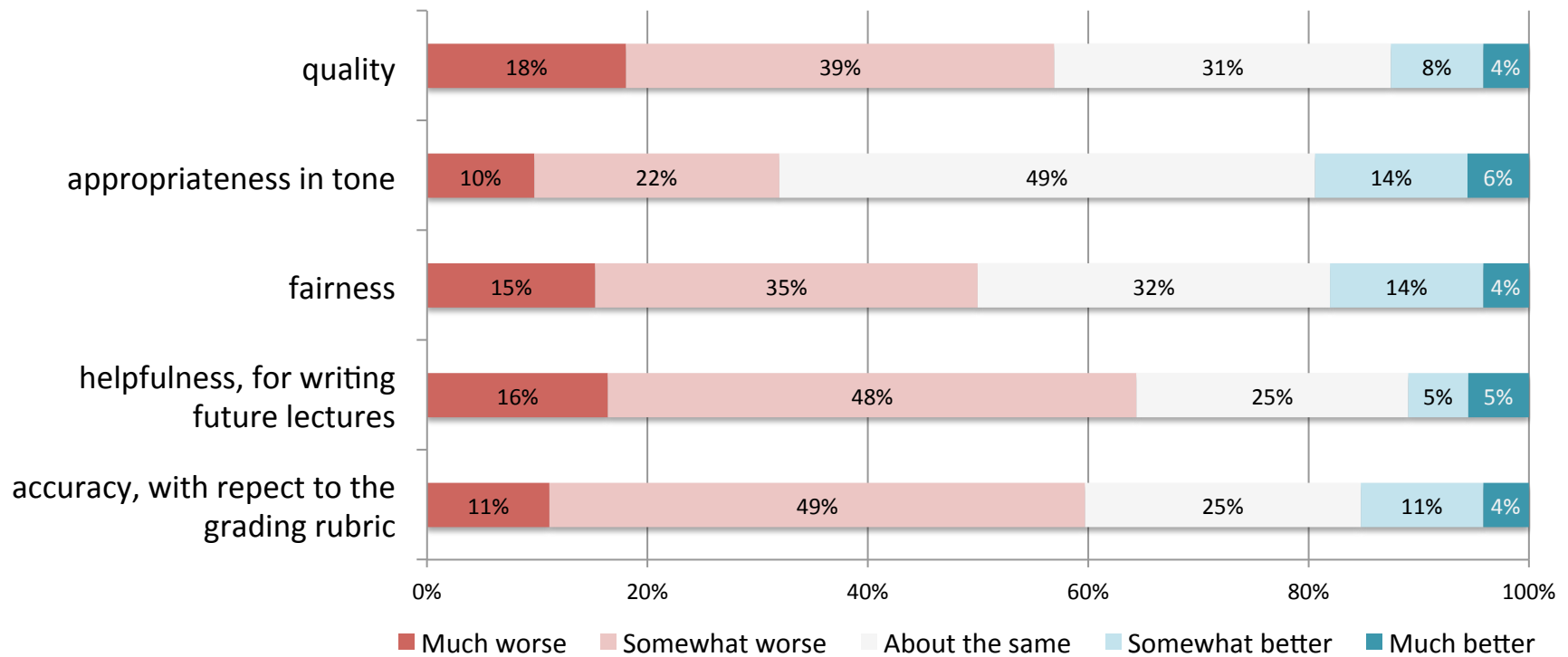


The students' perceptions of the reviews written by peers were more ***mixed***.

RESULTS

Reviews received, compared to TAs

Q: Compared to a TA review, the _____ of the reviews I received were

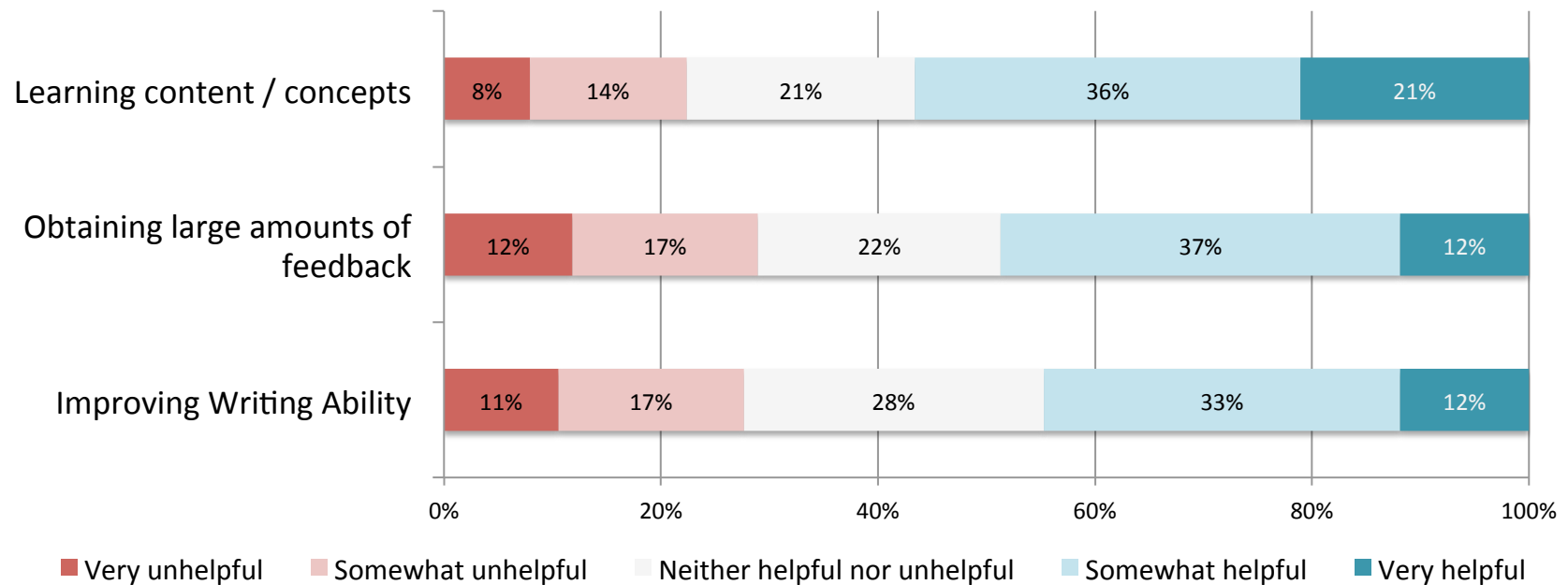


For most factors, majority felt their peers' reviews were **worse** than how a TA would have graded the same paper.

RESULTS

Helpfulness of peer reviewing for learning

Q: Please rate the extent to which you found peer reviewing helpful for the following activities:

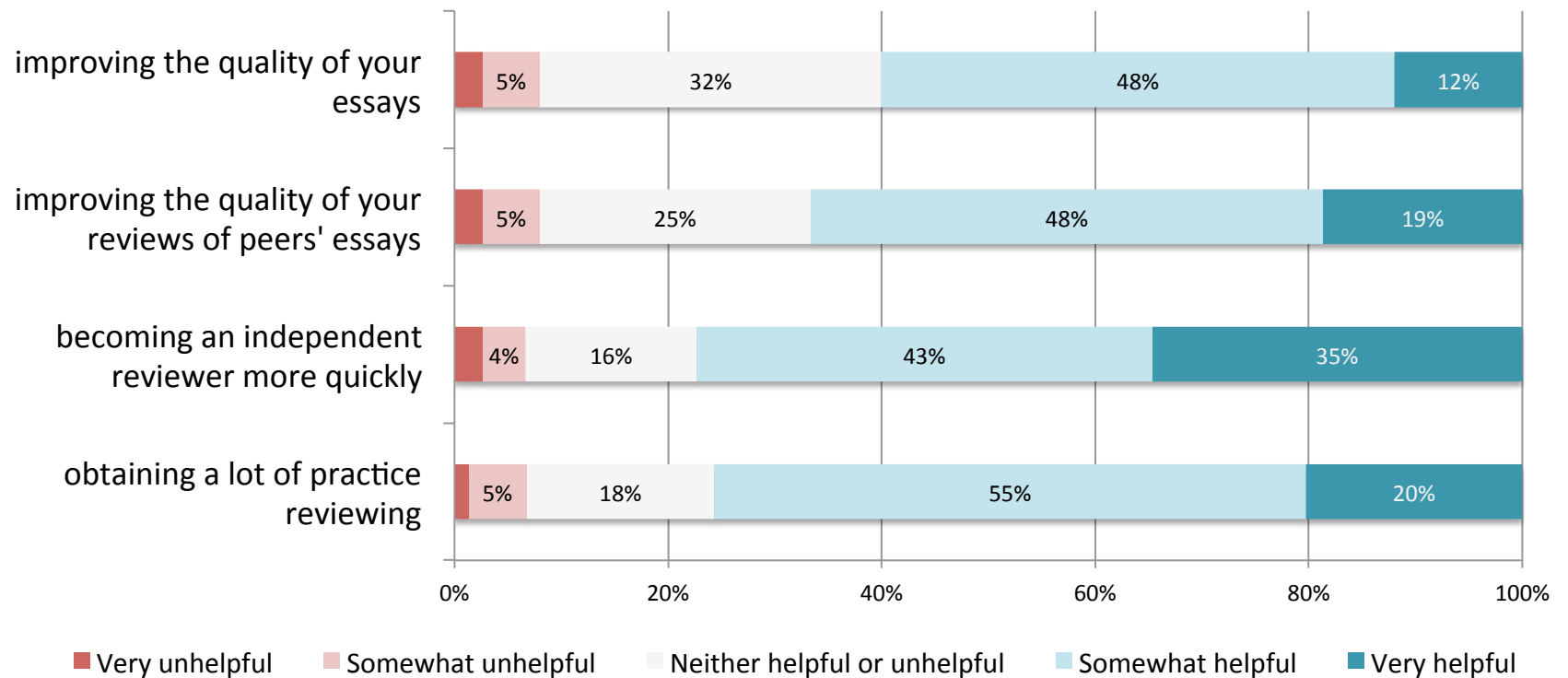


Perceptions of helpfulness were ***mixed*** for activities asked about. For learning content and concepts, a small majority found peer review somewhat or very helpful (57%).

RESULTS

Helpfulness of calibration for learning

Q. How helpful was calibration [built in practice reviews] for



Majority of students found calibration **helpful** for all activities asked about – considered most helpful for activities specifically tied to reviewing.

CONCLUSION

and possible next steps

- Students feel positively about their own reviewing ability, perceived to be similar to TAs.
 - calibration helpful as expected for learning how to review.
- But many still doubt peers' abilities.
 - even though course staff also satisfied with reviewing ability.
 - ➔ how can we bridge this gap?
- Perceived helpfulness of peer reviewing for learning and improving writing was mixed.
 - could adjust types of feedback reviewers expected to provide e.g., more qualitative and focused on writing skills.

References

- Seabrook, R., Brown, G. D., Solity, J. (2005). Distributed and massed practice: from laboratory to classroom. *Applied Cognitive Psychology*, 19(1):107–122.
- Kaufman J.H. & Schunn C.D. (2011). Students' perceptions about peer assessment for writing: their origin and impact on revision work. *Instructional Science*, 3, 387–406.
- Wright, J.R., Thornton C., Leyton-Brown, K. (2015). Mechanical TA: Partially Automatic High-Stakes Peer Grading. *Proc. SIGSCE 2015*, 96–101.