

Enhancing Oncology Infographic Evaluation: A Peer Calibration Approach

Elizabeth A. Hageman, Pharm.D., BCPS, BCOP¹ and Tracy A. Brooks, Ph.D.¹
¹School of Pharmacy and Pharmaceutical Sciences, Binghamton University, Binghamton NY

Introduction

- Incorporation of both self- and peer-evaluations is highly beneficial to learners to build confidence and promote critical thinking
- The peer-review process offers students a mechanism to provide their co-learners with formative and summative feedback
- It has been observed that students often score their peers higher than faculty members during peer review processes^{1,2}
- This discrepancy can be attributed to feelings of inadequacy, limited clinical experience, and concerns about negatively impacting peers' grades²
- The calibrated peer review process is a mechanism that enables students to engage in analysis and evaluation
- Training students to align their grading with faculty standards offers several benefits, including iterative learning opportunities, practice performing an assessment prior to completion of the project and aiding student understanding of an assignment
- This process offers students the opportunity to reflect on their own learning and apply critical thinking skills essential for professional development

Objectives

- The objective of the study was to evaluate the effect of student engagement in a peer calibration exercise on a drug infographic assignment in a third year hematology/oncology integrated pharmacotherapy class (IPT) class
- Students had been provided a rubric with clear parameters. However, it was uncertain if the students would appropriately utilize the tool when completing their assignment or when participating in the peer review process
- The calibrated peer review activity was introduced as a means to provide the student with familiarity of the grading process prior to submitting their assignment and their peer-review grades
- It was hypothesized that engaging in the calibrated peer-review exercise prior to attempting the assignment would lead to better alignment between students' grades for their peers, as observed throughout the semester, to those of faculty
- It was further postulated that participation in the peer-review exercise would enable learners to gain insight on the assignment and correlate with improved student scores

Methods

- Within the first week of each semester, students in the non-calibrated (2022) and the calibrated (2023) cohorts were each provided the infographic assignment rubric, a mini-lesson on expectations and sample infographics
- An online competency assignment was created containing examples of the infographic assignment from the non-calibrated cohort representing several grading brackets, as determined by faculty - 70-80, 80-90, 90-100. The calibrated cohort were required to complete this competency assignment
- Completion of the competency assignment required the learners to grade the infographic samples provided within 2 points of previous faculty grades. Learners were given unlimited opportunities to complete the competency assignment to achieve a passing score of 75% or above. Each rendition of the assignment contained 4 unique infographics
- Students in the non-calibrated and calibrated cohort were split into groups (n=20-22 per group) with assignment deadlines spread across the semester. Students from the non-calibrated and calibrated cohorts were assigned one or two peer submissions, respectively, to evaluate across the semester
- A comparative analysis of calibrated (n=66) and non-calibrated (n=80) cohorts was performed to ascertain whether the activity brought the peer grades into closer alignment to the professors, and if any improvement of grades were noted on the assignments, as graded by two faculty members

Results

Non-Calibrated (2022)

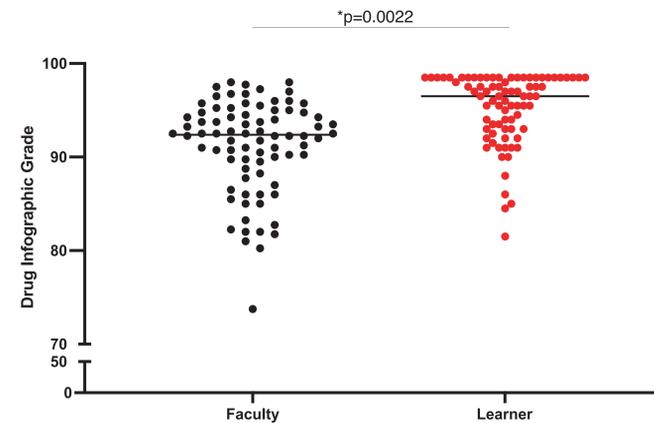


Figure 1. Overall difference of grading between faculty and learners in the non-calibrated cohort. Significance determined by paired, two-tailed, student t-test. *Key finding:* Learners grade significantly higher than faculty on the same assignment

Calibrated (2023)

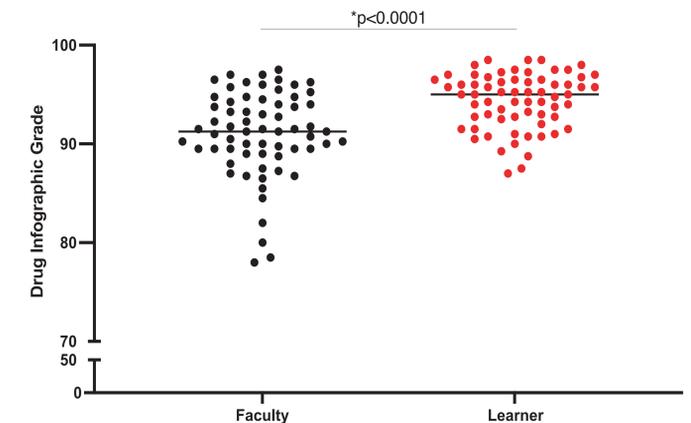


Figure 2. Overall difference of grading between faculty and learners in the calibrated cohort. Significance determined by paired, two-tailed, student t-test. *Key finding:* Learners grade significantly higher than faculty on the same assignment

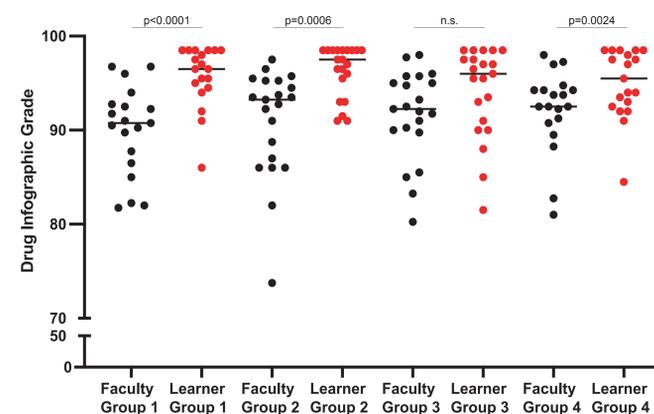


Figure 3. Difference of grading between faculty and learners in the non-calibrated cohort by groups across the semester. *Key finding:* Learner performance increased after access to completed infographics.

	Group 1	Group 2	Group 3	Group 4
Faculty	90.25	93.25	92	92.5
Peer	96.5	97.5	96	95.5
Difference	6.25	4.25	4	3

Table 1. Mean grades from faculty and peer-learners per group in the non-calibrated cohort. *Key finding:* Learner performance increased after access to completed infographics, and as a result the difference in means between faculty and learners decreased.

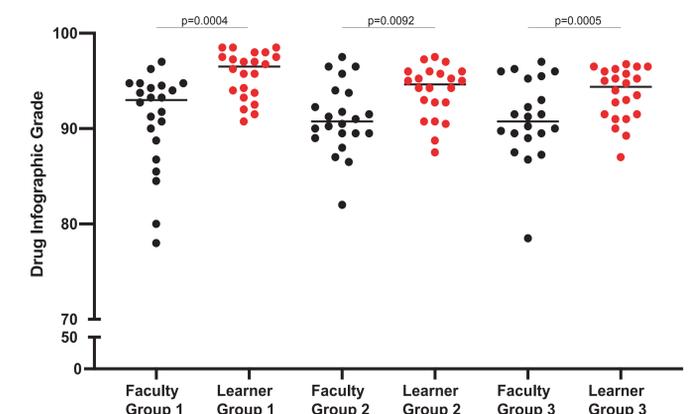


Figure 4. Difference of grading between faculty and learners in the calibrated cohort by groups across the semester. *Key finding:* Learner performance increased after access to completed infographics from the competency assignment.

	Group 1	Group 2	Group 3
Faculty	93	90.75	90.75
Peer	96.5	94.625	94.375
Difference	3.5	3.875	3.625

Table 2. Mean grades from faculty and peer-learners per group in the calibrated cohort. *Key finding:* Peer-review grading was consistently aligned with faculty grading across the semester.

Conclusions

- Introducing the peer calibration activity at the beginning of the semester was shown to be an effective tool that aligned learner and faculty grading
- Both the calibrated and non-calibrated cohorts demonstrated a learning process in understanding grading expectations. The non-calibrated cohort learned throughout the semester by having access to published infographics from their peers, whereas the calibrated cohort learned from the competency assignment
- Data support that learner exposure to peer infographics increased their understanding of the assignment, as indicated by higher faculty grades
- Continuing the use of such tools could potentially reduce time grading by faculty and increase learner baseline knowledge of the assignment
- Peer evaluation is a crucial profession development skill needed in the workplace and to advance scientific knowledge

Limitations

- The non-calibrated cohort reviewed one separate peer submission while the calibrated cohort reviewed two peer submissions
- As the semester progressed, the infographics were published in the learning management system to supplement learning for both cohorts. Therefore, learners completing the infographic assignment towards the end of the semester were able to view multiple previous submissions prior to completing their individual work
- The study was not able to account for cohort variances in overall academic performance

References

- ¹Austin Z, Gregory PA. Evaluating the accuracy of pharmacy students' self-assessment skills. Am J Pharm Educ. 2007 Oct 15;71(5):89. doi: 10.5688/aj710589. PMID: 17998986; PMCID: PMC2064887.
- ²Lundquist LM, Shogbon AO, Momary KM, Rogers HK. A comparison of students' self-assessments with faculty evaluations of their communication skills. Am J Pharm Educ. 2013 May 13;77(4):72. doi: 10.5688/ajpe77472. PMID: 23716740; PMCID: PMC3663626.