

Engaging Students Through the Process of Self-grading

Introduction

Case studies are commonly integrated learning activities used in nutrition and dietetics education to teach students clinical knowledge and skills before interacting with real patients (Harman et al., 2015). One goal when implementing multiple case studies on various topics is to see improvement in student clinical skill development over time. Faculty provide detailed feedback on case study assignments, providing guidance on improving skills, but there is no guarantee that the feedback will be reviewed or applied. Often students repeat the same mistakes and can lack consistent improvement from one assignment to the next. The concept of student self-grading allows students to immediately see and process how their answers compare to the answer key providing the opportunity to understand and justify their clinical approach and apply similar concepts to future assignments (Deslauriers et al., 2019). Self-grading is useful in asynchronous courses as an alternative approach to engagement similar to peer evaluations (Jackson et al., 2018).

Program Overview

Utah State University offers several dietetics programs, including a dietetic internship that trains students nationwide. Students complete a combination of online asynchronous didactic coursework in addition to experiential learning in hospitals, clinics, school districts, and community-based centers. Students work with designated preceptors on-site, but it is also essential for faculty to assess and provide feedback on student skill development. As part of the program, students complete course work in community and clinical nutrition. One of the assignments included in both courses is a series of patient case studies. Students complete three clinical case studies (diverticulitis, diabetes, and malnutrition) and two community nutrition studies (pediatric anemia and a pregnant mother). These assignments provide students additional experience working on patient cases but also allow faculty to evaluate application and improvement of skills.

Assignment Instruction

Students are assigned a case study every other week of supervised practice, and all case studies are posted in Canvas. Students review a case study prompt and access a provided template to complete and submit the finished case study. Previously, only the faculty had access to the answer key. Under this new self-grading protocol, students complete the case study, submit the completed assignment on Canvas, and immediately receive the answer key. Students can then evaluate their work against detailed rubrics to identify which topics they understand and specific areas for improvement. Next, the graded assignment is re-submitted to Canvas, and the

faculty provide additional feedback and final assignment scores (Jackson et al., 2018; Wagner et al., 2011). Faculty have found that the self-grading of students vary and some students are very rigid following the answer key and other student are much more lenient. Therefore, it is beneficial for faculty to provide the final grade.

Items needed to implement self-grading case studies:

1. Case study prompt
2. Student worksheet or template to complete case study
3. Specific instruction to complete case study and complete self-grading process. (These are included in the assignment template, and a sample is included in Figure 1.)
4. Answer key
5. Self-grading rubric (Example included in Figure 2.)

Case studies are submitted every other week and cannot be completed until the faculty scores the previous one. Evaluation of the new protocol shows an increase in the average score of case studies and an increase in individual interns' scores by approximately two points (out of ten points) from the first to the last case study, compared to an increase in 0.60 points previously. In addition, students include comments on their thought process, justification, or additional questions. The comments provide teaching opportunities that did not occur with traditional grading. Students also mentioned the self-grading on open-ended course evaluations:

- "The case studies were good practice, and I liked grading our own but also getting feedback from instructors." – Student course evaluation
- "I enjoyed the practice case studies with the self-grading aspect. I thought that was a great way to learn the process." – Student course evaluation

Future Considerations

Including the students in the grading process did not result in less grading time but did not extend grading time.

Could self-grading work in other courses and with different topics? Maybe best for assignments that:

- Students struggle with learning and applying concepts
- Concepts build upon each other
- Involve repeated tasks or practice
- Receive detailed feedback

The students are more engaged in the outcomes of their assignments. The grading rubric continues to evolve with every course, as including additional details makes the process easier for students to apply. It is beneficial to provide detailed instructions or even video instructions since this approach is new to students. The students adapt to the format after completing the first case study.

References

Deslauriers, L., McCarty, L. S., Miller, K., Callaghan, K. and Kestin, G. 2019. Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. Proc Natl Acad Sci USA, 116(39), 19251-19257.

Harman, T., Bertrand, B., Greer, A., Pettus, A., Jennings, J., Wall-Bassett, E., and Babatunde, O. T. (2015). Case-based learning facilitates critical thinking in undergraduate nutrition education: students describe the big picture. J Acad Nutr Diet, 115(3), 378-388.

Jackson, M. A., Tran, A., Wenderoth, M. P., & Doherty, J. H. (2018). Peer vs. Self-Grading of Practice Exams: Which Is Better? CBE Life Sci Educ, 17(3), es44.

Wagner, M. L., Suh, D. C., & Cruz, S. (2011). Peer- and self-grading compared to faculty grading. Am J Pharm Educ, 75(7), 130.

Figure 1. Example of instructions for completing step 2 of case study.

Step 2: Nutrition Diagnosis (there will be at least one)

Directions:

- Identify and select the most appropriate nutrition diagnosis (or diagnoses) by choosing the nutrition problem that best describes the nutrition issues that the dietitian can address.
- The etiology should be selected from the etiologies related to the nutrition problem found in the eNCPT.
- The signs and symptoms should be selected from the nutrition assessment.
- Tip:* Remember the etiology is what is causing the problem; try to avoid using the medical diagnosis as the etiology when possible. The signs and symptoms should prove your problem exists.
- Tip:* use the eNCPT to verify your PES and use the standardized terminology.
- Tip:* Is the diagnosis that you have identified the *main concern* for this patient based on the information you gathered in the assessment? Have you identified a problem that has not already been addressed?

Nutrition Diagnosis Statements		Score/Comments
Nutrition Dx #1		
Nutrition Dx #2 (if appropriate)		
Nutrition Dx #3 (if appropriate)		
5 points possible in this section. Points subtracted (Step 2):		

Figure 2. Example of self-grading rubric for step 2 of the case study.

Scoring Directions:

- Compare your case study answers to the answer key provided and highlight or note each error in the Diagnosis Score/Comment Box. Only one diagnosis is required as long as it addresses the primary concern.

Rubric:

- Subtract ½ point for each (1) minor error (-1/2 pt x 1 minor error); minor errors include:
 - Etiology vague or not specific enough, does not use standardized terminology
 - Missing pertinent signs and symptoms that support the diagnosis and/or etiology
 - Includes signs and symptoms information in the etiology rather than an etiology from the eNCPT or that were not included in the nutrition assessment.
- Subtract 1 point for each (1) major error (-1 pt x 1 major error); major errors include:
 - Only the secondary diagnosis is listed and not the primary diagnosis
 - Nutrition problem is not addressed at all or diagnosis is targeted at a problem that has already been treated
 - Etiology is not appropriate to support the problem or it does not make sense
 - Signs and symptoms do not support the problem and/or etiology
 - The primary diagnosis from the answer key is not included

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