

Students Perform Faster and Obtain Better Results When Working Together on a Two-Stage Exam

Introduction

The traditional classroom model, the most common method of teaching, primarily employs a passive learning style in which a professor lectures directly to the class. While this method certainly has its advantages, it often involves little or no participation from the students. Although an active learning style leads to better learning, often students feel like they learn less, particularly due to the increase in cognitive effort required giving the perception of poorer learning (Deslauriers et al., 2019).

It is typical for undergraduate classrooms to have students with a myriad of backgrounds and interests. Capitalizing on this diversity and employing a collaborative learning environment allows for a greater exchange of diverse information and a greater likelihood of solving complex problems while having fun (Gray & Purdy, 2020; Martins et al., 2021; Phillips & Loyd, 2006). Additionally, a collaborative environment is often a requirement in many workplaces. One way to have students work together through active learning is by using two-stage exams. Students first take the exam on their own, and then, after all students finish the exam individually, students work in groups to complete the same exam. Because the length and content of the discussion will vary from group to group when performing a given task (e.g., exam), the task might take longer than doing it individually. In this teaching tip, we describe how to assess students' performance regarding time using the two-stage exam.

Procedure

The metric used in this study was the time to complete the two-stage exam. In stage 1, students completed the exam individually and received an individual grade worth a certain percentage of their final grade. When everyone had completed stage 1 the entire class continued on to stage 2 in which they broke up into self-selected groups of four based on their proximity to one another and completed the same exam in their respective groups. Exam questions consisted of multiple choice, open ended, and matching terms. Both the individual times and the group times were recorded and compared to the grades earned. Students were aware that their timing was being recorded but were not given a time limit to how long they could take. At the end of the exam students were asked to respond to a reflection questionnaire, where questions regarding the two-stage exam were asked (Table 1).

Table 1. Open-ended questions employed in the reflection in this two-stage exam study.

Question number	Question
1	What did you think about doing the test individually as compared to in a group?
2	Did you learn anything from your colleagues that was not clear before or did you already know the topic?
3	Did you find it faster to do the test in a group than by yourself? If yes, why? If no, why?
4	Did you find it easy to collaborate with your peers? If yes, why? If no, why?
5	Were there any problems when doing the test in groups? Please explain your answer.
6	Did any of the questions you created show up on the test? If yes, do you think you remembered the answer?
7	Explain why you agree or disagree with the following statement: Creating questions helped me to learn the subject.
8	Do you have any preference regarding answering quiz questions made by your peers as compared to your instructor? Why?
9	Do you have any preference between Biology or History? Do you like one better than the other?
10	Any additional comments?

This was a lower-level course, containing a mixture of all student levels (freshman to senior), across diverse majors. All activities conducted did not revolve around a specific field. All activities conducted in this research were approved by the Institutional Review Board of the University of Florida, with the service survey number IRB202100054. For the statistical analysis, Pearson's correlation coefficients (r) can be applied to evaluate the strengths of the

relationships between the student's time to complete the two-stage exam and their grades both individual and in group. The grades can be expressed in percentage and time in minutes.

Conclusion

This study demonstrated that a collaborative learning environment using two-stage exams allows students to reduce their time to complete the exam in groups while obtaining better results in a more enjoyable way.

References

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