Exploring the Benefits of Collaborative Two Stage Exams in a Large Introductory Biology Course

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Individual exams

• Allow students to demonstrate their individual understanding of the material.

• Provide an opportunity for students to work independently and develop critical thinking skills.

• Encourage thorough preparation and understanding of the material on an individual level.

Individual exams with a group discussion

• Promote collaboration and teamwork skills among students.

• Foster a sense of community and shared learning experience.

• Decrease test anxiety.

• Can generate long-term concept retention.

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Logistics for 75 min. session

Individually
25 questions
50 minutes
Logistics for 75 min. session

Individually
25 questions
50 minutes

5 minutes
Logistics for 75 min. session

Individually
25 questions
50 minutes

5 minutes

Group
10 questions
20 minutes
Survey BIOL 151 Fall 2023

- **Helped to improve my grade**: 52.1% Strongly agree, 38.9% Agree, 4.2% Disagree, 4.8% Strongly disagree
- **The group discussion increased understanding in the group**: 46.4% Strongly agree, 44.6% Agree, 6.6% Disagree, 2.4% Strongly disagree
- **I benefited from immediate feedback from my group**: 43.4% Strongly agree, 48.2% Agree, 6.0% Disagree, 2.4% Strongly disagree
- **Attempting questions a second helped me to learn from mistakes**: 51.7% Strongly agree, 42.4% Agree, 4.1% Disagree, 1.7% Strongly disagree
- **The two stage exam reduced my test anxiety**: 38.8% Strongly agree, 38.2% Agree, 16.4% Disagree, 6.5% Strongly disagree
I felt I did not have enough time for the individual portion

I felt anxiety and/or fear of judgment when sharing ideas with the group

I feel like I perform better individually than in my group

I prefer to choose my groupmates rather than being assigned by the professor
Does it help with retention?

EXAM 3

☐ 
☐ 
☐ 
☐ 

5 Qs. Individually

5 Qs. Groups
Does it help with retention?

EXAM 3
- 5 Qs. Individually
- 5 Qs. Groups

Vs

EXAM 4
- 5 Qs. Individually
Does it help with retention?

EXAM 3
- 5 Qs. Individually
- 5 Qs. Groups

Vs

EXAM 4
- 5 Qs. Individually
Does it help with retention?

EXAM 3

- 5 Qs. Individually
- 5 Qs. Groups

Vs

EXAM 4

- 5 Qs. Individually

Questions?
Answered only Individually

Correctness, %
Discussed in Group

Correctness, %