



2-Stage Assessments: Teach while you test

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Alice Cherestes, McGill University

Jaclyn J. Stewart, University of British Columbia

Martha Mullaly, Carleton University

Phoebe Jackson, John Abbott College



Overview

- Basics (~20 min)
- Panel (~25 min)
- Discussion & action (~30 mins)
 - How/when will you implement two stage assessments?
 - What are the challenges & how can you overcome them?
- Wrap up & resources (~15 mins)

2-stage assessments

- Stage 1: Individual Test
 - Any format
- Stage 2: Group Test
 - Immediately after individual
 - Similar or same as *all or part of* individual stage
 - If not identical, then more challenging



Out of Class (Instructor)



In Class (Instructor)



In Class (Students)

Begin Here.

1. Instructor prepares two levels of assessment - individual and group.

2. Instructor (or TAs) distribute the individual assessment.

3. Individually, students complete the assessment.

4. Students form small groups (ideally of 3-4 students) immediately following the individual assessment.

5. Instructor (or TAs) collect the individual assessments and distribute the group assessment.

6. As groups, students work together to answer the new questions a prepare a group solution.

7. Instructor (or TAs) collect the group assessments.

Produced by SALTISE Courseflow
<https://www.saltise.ca/innovations/courseflow/>

	Individual Work
	Work in Groups
	Problem Solving
	Discussion
	Instruction

Grading

- Group grade cannot lower mark

	Individual	Group
Low stakes	50%	50%
High stakes	85%	15%

- If allowing multiple group tries

# of tries	Individual	Group
1	100%	100%
2	n/a	50%
3	n/a	25%
4	n/a	0%

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT®)

Name _____ Test # _____

Subject _____ Total _____

SCRATCH OFF COVERING TO EXPOSE ANSWERS

	A	B	C	D	Score
1.					2
2.					4
3.					4
4.					2
5.					1
6.					4

T. Kelley, UBC

Timing

- Common choices:

	Individual	Group
Low stakes	$\frac{1}{2}$ of time	$\frac{1}{2}$ of time
High stakes	$\frac{2}{3}$ of time	$\frac{1}{3}$ of time

- Allow time for grouping & double distribution

Benefits

- Summative → Formative
- Increased learning gains for all
- Immediate feedback
- Develop collaborative skills
- Stress reduction

Benefits

- Important identity work
 - Using discipline's language
 - Forming coherent justifications & arguments
 - Taking role of expert & learner
 - Receiving recognition from others

Phoebe: Daily review quizzes

- 3 conceptual multiple choice
- Beginning of class
 - permanent teams
 - start next activity when done
- LMS (e.g., Moodle)
 - automates timing & marking

	Individual	Group
Time	15 mins	15 mins
Grade	50%	50%

The best answer for Question #1 is:

- A
- B
- C
- D
- E

Submit Answer

Tries 0/99

The best answer for Question #2 is:

- A
- B
- C
- D
- E

Submit Answer

Tries 0/99

The best answer for Question #3 is:

- A
- B
- C
- D
- E

Submit Answer

Tries 0/99

Phoebe: Key idea

- **Pay attention to the questions**
 - Must stimulate useful discussion
 - Not too easy
 - Not purposefully tricky

Alice: Term tests

- IF AT cards used in term tests in Cell Biology
 - multiple choice
- 2-stage exams as term tests in Organic Chemistry
 - not multiple choice
 - used Visual Classrooms as a preparation tool for the group part of the exam
 - evening exams - did not give up class time
 - course failure rate was reduced

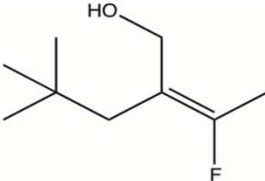
Alice: Student perspectives

- “Working with group members allows me to learn something and see mistakes I made”
- “Group part great idea- joining forces to combine strengths”
- “Very nice and realistic to work in groups. LOVE IT!”
- “Learn how other students think and how they approach problems, good study tips”

Alice – More on Visual Classrooms



Visual Classrooms Teacher Dashboard ▾ About ▾ Help Chapter 5 Assignment Dr. Chere

Assign the configuration of the double bond as either E or Z.






[New Idea](#)

[Edit Prompt](#)


Navigate  


Question 1

Layout   Names

Text 


All Sections


Notifications 

Sarah C 

It is an E configuration because there is a higher priority on the F and the OH


10/04/2020


 3

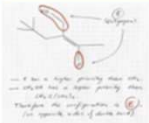
Diane E 

Hi Sarah! I got the same answer and E configuration is correct :)


10/06/2020


Madison S 


Diane E 

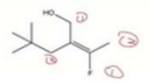


10/06/2020

Madison S 




Yishuo Z 




(See attachment)

This molecule is in E configuration because the priority groups are on the opposite sides.

10/08/2020

 1

Noel E 



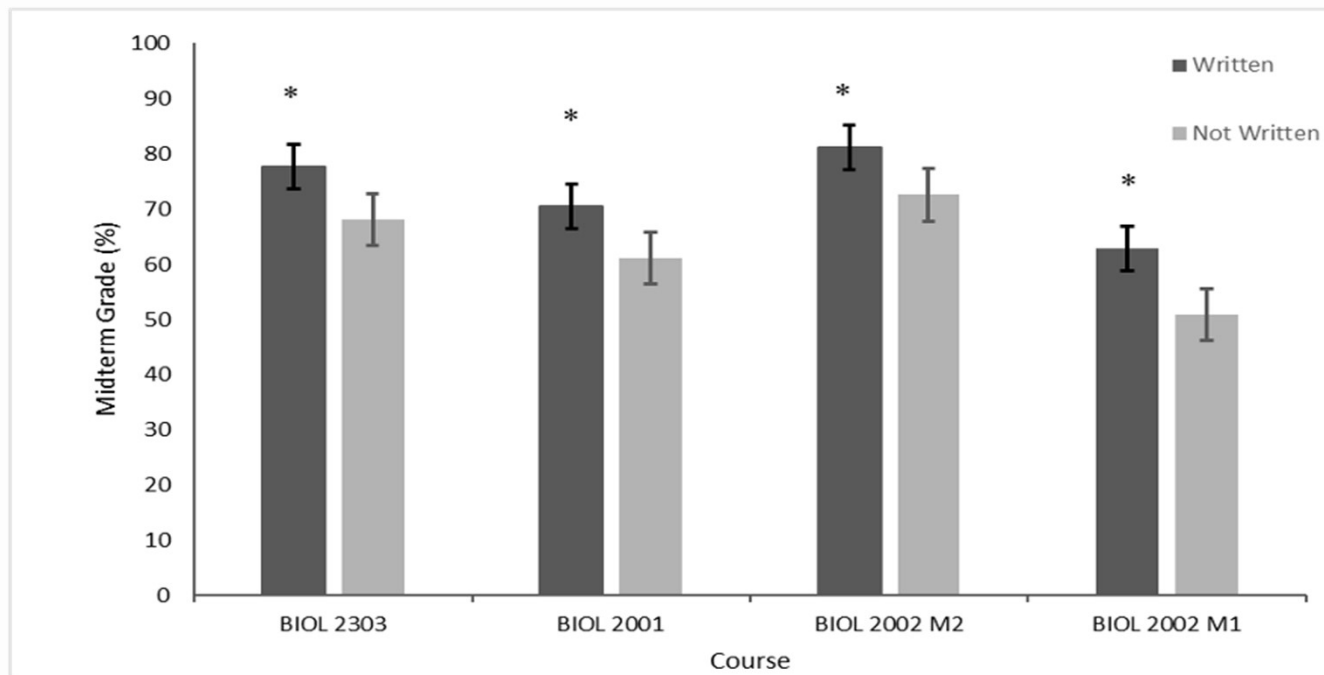
Biology
Carleton University

Martha

1. In-person summative assessments (midterms)
 - Marks 85/15
 - Short answer questions
 - Student perspective survey
2. In-person diagnostic quizzes (pre-exam quizzes)
 - Determine/clarify understanding, focus exam studying, activate metacognition
3. This term: diagnostic quizzes online
 - LMS quiz (indiv) + GRAT (online group IF-AT tool)



Martha: Three 2nd-year foundational courses



Comparing average midterm grade for students who completed the pre-diagnostic quiz versus those who did not.

Martha: Student perspectives

- “It gave me a clearer image of **what type of questions to expect** on the midterm making my study process more detailed and precise.”
- “Idea of **how well I knew material and how much other people knew** (and how I need to step up!)”
- “ Yes, **some topics I thought I knew well, I struggled with on the diagnostic quiz.** I made sure to put some extra time into studying those before the midterm.”

Jaclyn: Final exams and more

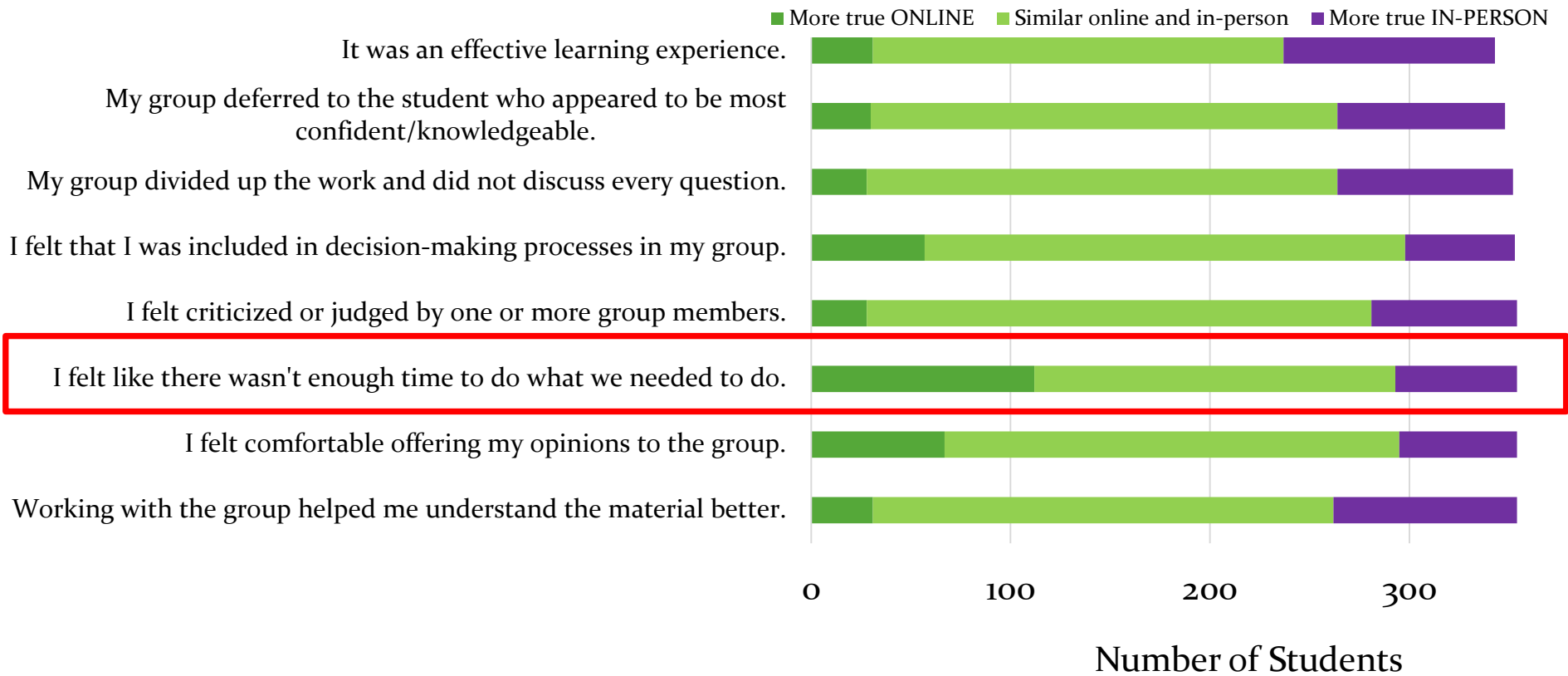
- Start-of-term review*
- Midterm exams, quizzes
- Online midterms and final exams
 - Midterm ~1200 students in org. chem with Dr. J. Wickenden
 - LMS “quiz” & Gradescope PDF, multiple Zoom sessions. We have tried random and self-selected groups.
 - Midterm and Final Exam ~110 students in Intro chemistry
 - Zoom, Microsoft Teams (Word file). Instructor-assigned groups. Teams allows for a "Google Doc"-like experience.

*Maxwell, E. J., McDonnell, L., & Wieman, C. E. (2015). An improved design for in-class review. *Journal of College Science Teaching*, 44(5), 48-52.

Jaclyn: Online 2-stage exams

- Survey research study to identify students' experience in online two-stage exams during remote instruction.
- Most students were experienced with two-stage exams and generally positive about group work.
- Technical issues were reported by about 8% of students.

Jaclyn: Online vs in-person



Jaclyn: Student perspectives

- *“One of the key things I think was that the exam was on Zoom which allowed us to communicate with each other like we would on an actual face-to-face exam. I think overall, this exam was administered really well considering this is the first term being online in summer!!”*
- *“My group took like 10 minutes just deciding who was going to submit the exam and then there were multiple technical issues. People always talked over each other so it took way too long to explain questions and validate our opinions. I believe a couple extra minutes would be a little more fair for online group exams.”*



Jaclyn: Considerations for online

- Cognitive load of the technology
- Facilitating productive dialogue
- Timing

Discussion

- **Questions to discuss:**
 - What value do you see in using 2-stage assessments?
 - How do you envision using them in the future?
 - What barriers may prevent you from using them
- **To bring back to main meeting:**
 - The biggest challenge to implementation.
 - One or more possible solutions to this challenge.

Resources for support

- SALTISE
 - <https://www.saltise.ca/strategy/two-stage-exam/>
- UBC blog with some great links:
 - <https://blogs.ubc.ca/eoassei/two-stage-exams/>
- GRAT: Group Readiness Assurance Testing
 - <http://www.tipel.net/news-1/2016/10/26/39k3fco3ixt548knonmzq2yp06r1wh>
- Colleagues with experience

Continue the discussion?

Name	Department
Jaclyn Stewart	<i>jstewart@chem.ubc.ca</i>
Martha Mullaly	<i>marthamullally@cunet.carleton.ca</i>
Alice Cherestes	<i>alice.cherestes@mcgill.ca</i>
Phoebe Jackson	<i>phoebe.jackson@johnabbott.qc.ca</i>



Supporting literature 1/2

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Supporting literature 2/2

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