University of California STEM FACULTY LEARNING COMMUNITY

HHMI-UC STEM Faculty Learning Community Workshop

Today's Topic: Effective Use of Student Response Systems in Large Lecture Halls

Host: Rolf Christoffersen, Dept of MCD Biology, UCSB & Excutive Director, HHMI-UC STEM FLC

Sponsors

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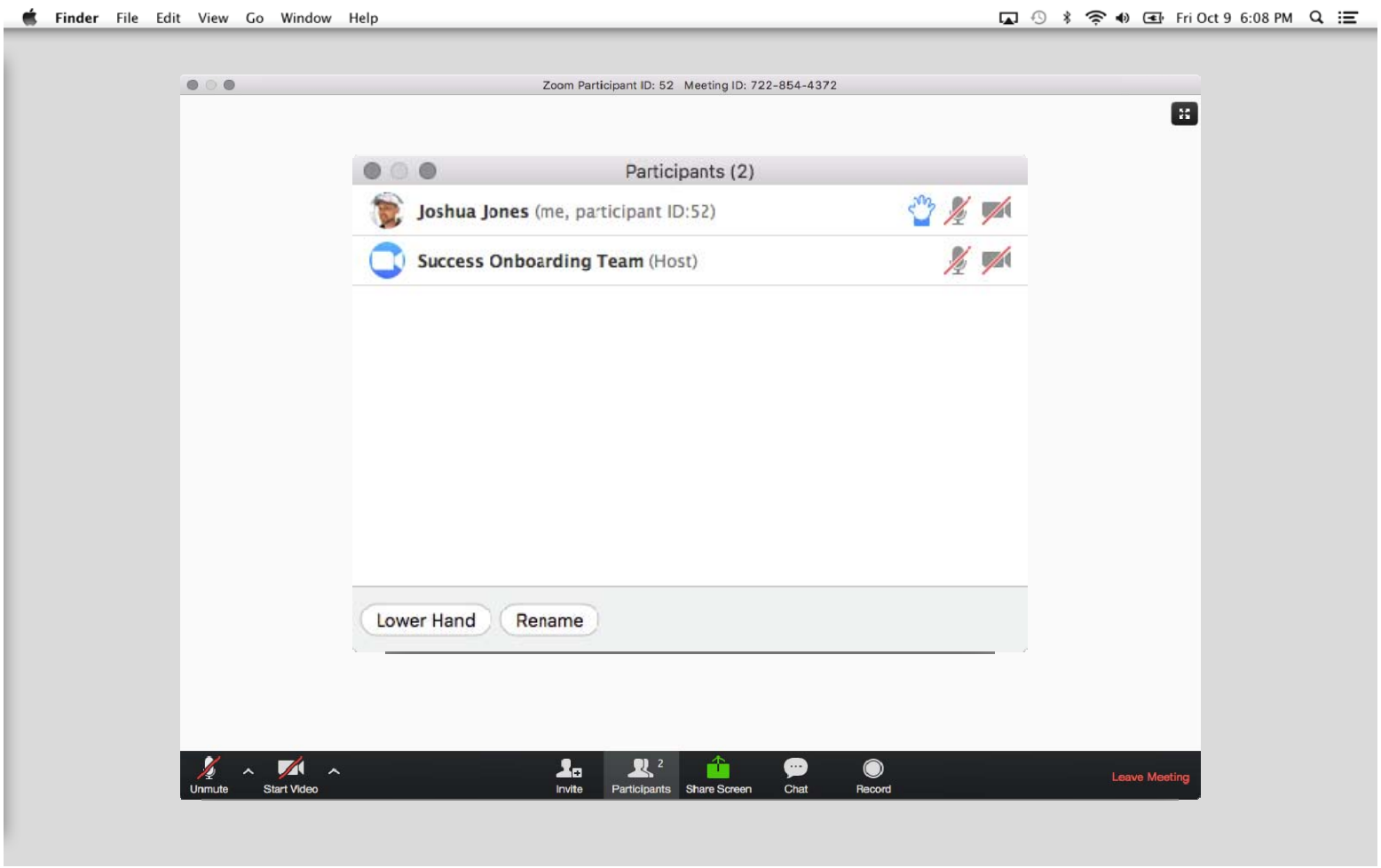

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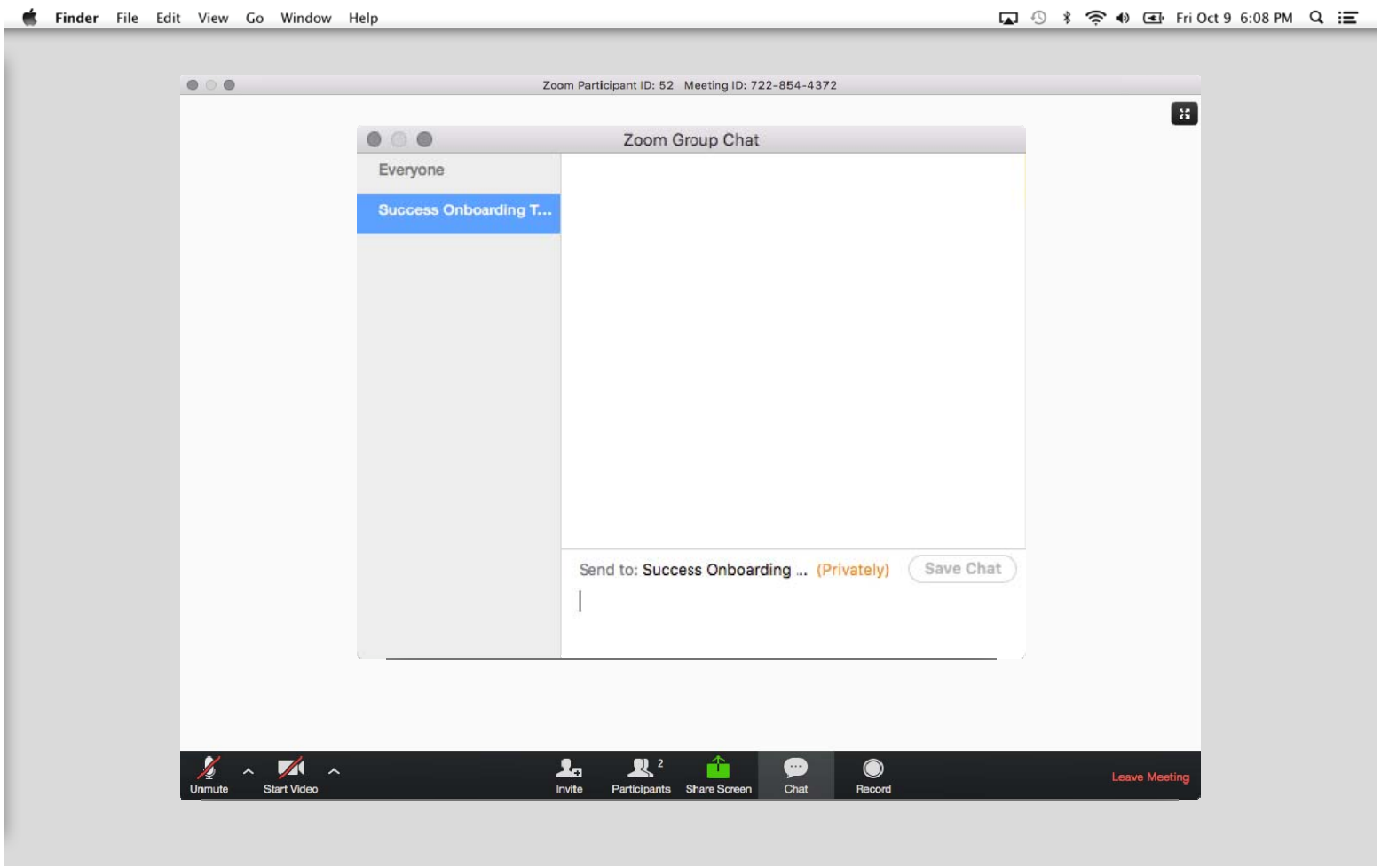

Housekeeping – Zoom Meeting viewer interaction

University of California
STEM FACULTY LEARNING COMMUNITY

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UC STEM Faculty Learning Community

The UC STEM Faculty Learning Community in Biology and related Sciences is composed of chapters from our respective campuses with the overarching goal of disseminating best practices in science teaching and to provide a venue for launching new projects and programs.

Project Goals

1. Designate an implementation team of respected faculty and staff from each campus.
2. Host annual meetings with representatives from the major programs engaged in the transformation of STEM teaching in the UC system to share information on facilitating change in teaching, learning objectives for similar courses, effective strategies for involving students in research, and other topics.
3. Establish an intercampus exchange program for individuals who wish to travel to or among the UC campuses supported by the HHMI Research Universities program

Join the UC-FLC

Become a member of the UC STEM Faculty Learning Community.

Join Today

Recent News

- Gordon Conference on Undergraduate Biology Education Research
- SABER National Meeting July 21-23, 2017
- UC-FLC meeting @ UCR

View All

Upcoming Webinars

Online Workshop: Effective Use of Student Response Systems in Large Lecture Halls

March 16, 2017 2:00pm to 3:00pm PDT

Workshop Host: Rolf Christoffersen,
MCDB Faculty, Excutive Director, UC STEM FLC, UC Santa Barbara

Register Now

Organizing Committee

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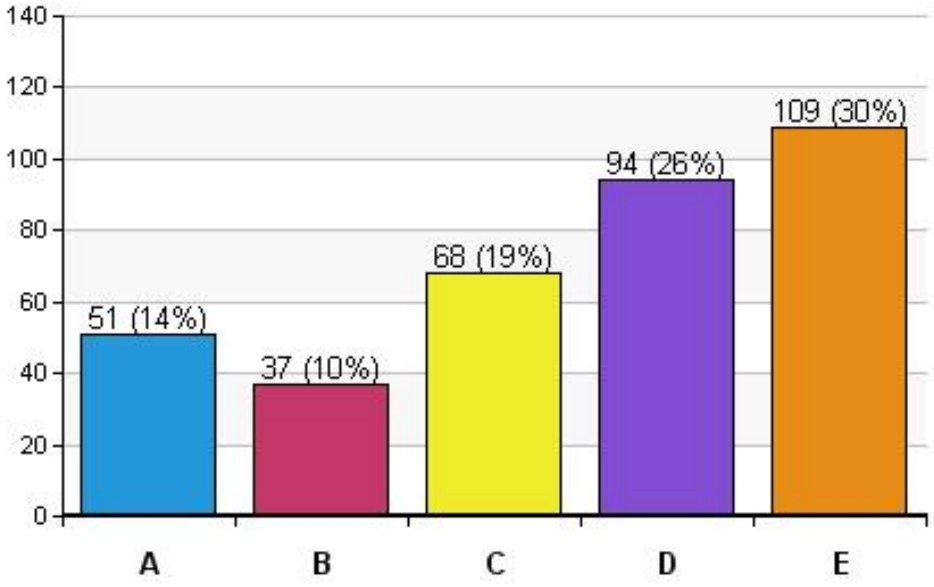
Student Response Systems at UCSB

- Standardized on i>Clicker solution
  - Used in introductory chemistry, physics, and biology
- Lectern computers are equipped with i>Clicker receivers
- Integration with Moodle course management system
  - iGrader roster is synchronized with Moodle course roster
  - Daily clicker score easily synchronized to Moodle gradebook

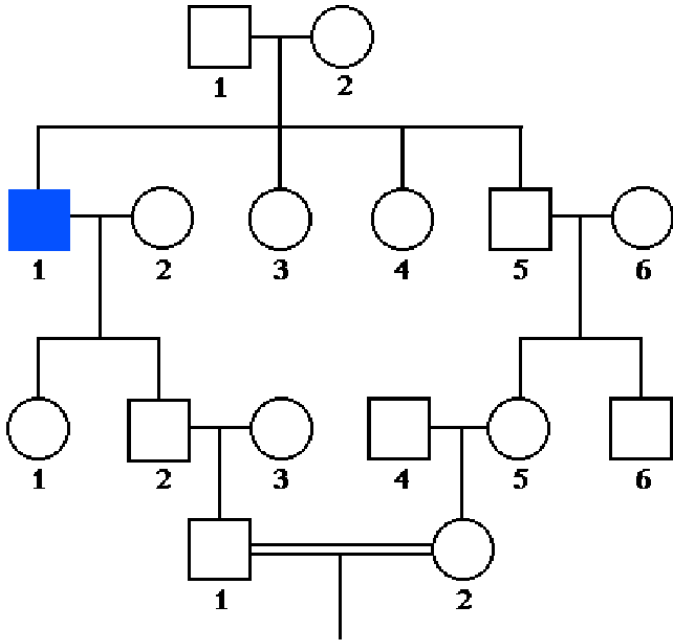
UCSB Introductory Biology: MCDB 1A

- Sophomore level course
- Lecture in Campbell Hall (860 seats) + video stream to overflow room (300 seats)
- No discussion sections.
- 680 - 1,000+ students
- Multiple choice Scantron exams
- Team taught by 3 different faculty
- Biochemistry, Molecular Biology, Cell Biology and Genetics

iClicker Question



)iting a rare autosomal
born child indicated by



C. 1/24

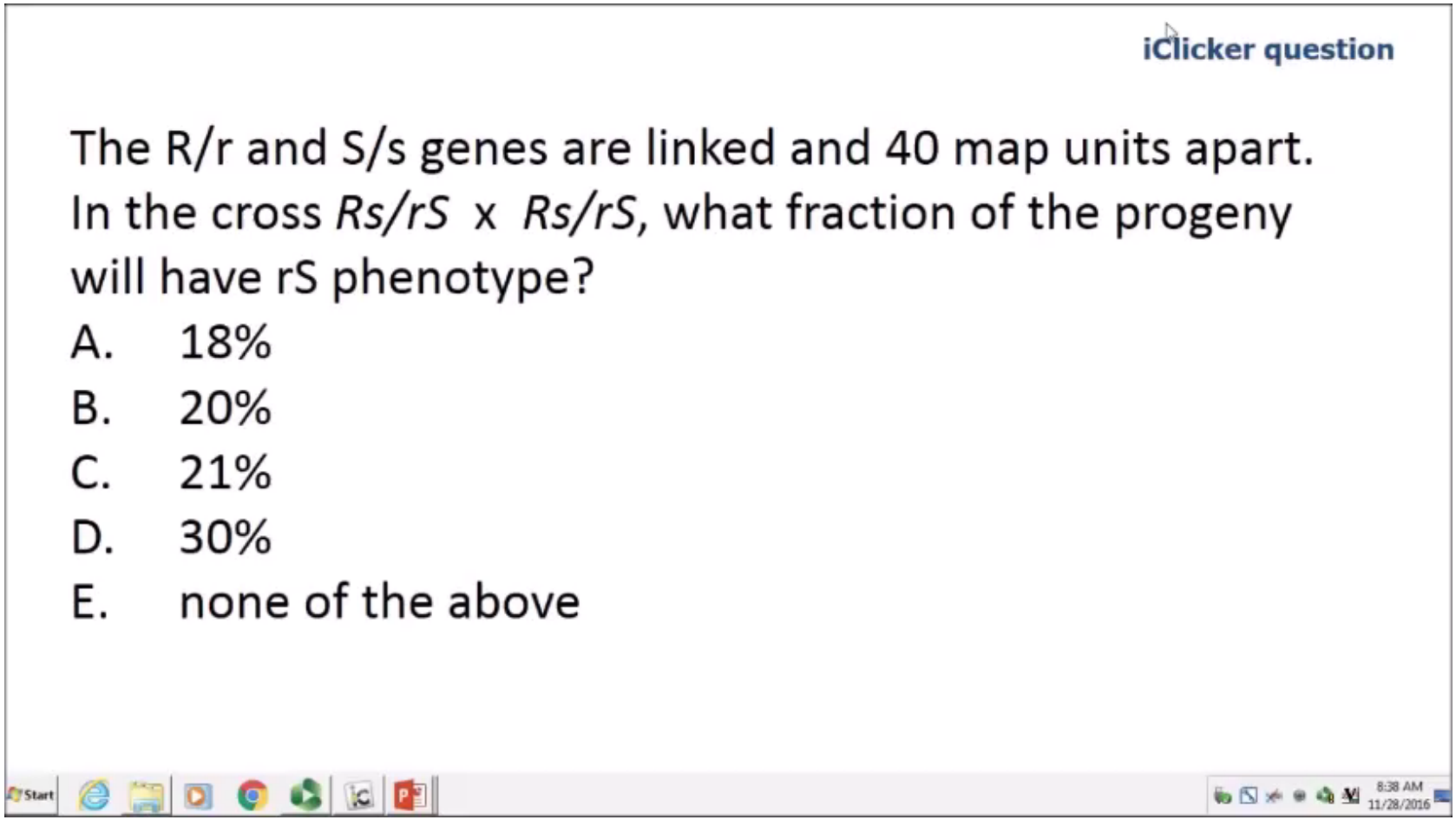
D. 1/48

E. 1/64

? 1/2 x 1/6 x 1/4 = 1/48

think – pair – share

Using iClickers To Teach Problem Solving in Genetics

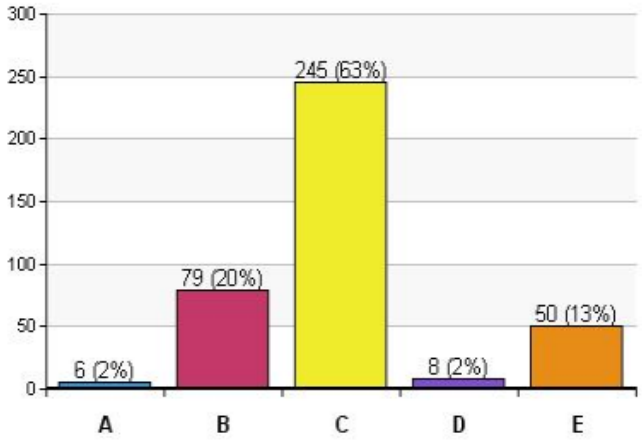


Question Type: **Multiple Choice** Significant Characters: **16** Time Started: **8:38:07 AM** Correct Answer(s): **C**	Maximum Score: **2.00** Number of Responses: **388** Number Missing: **0** Class Average: **1.63**

Answer	#	%	Performance Points
A	6	2%	1
B	79	20%	1
C	245	63%	2
D	8	2%	1
E	50	13%	1

The R/r and S/s genes are linked and 40 map units apart. In the cross *Rs/rS* x *Rs/rS*, what fraction of the progeny will have rS phenotype?

A. 18%
B. 20%
C. 21%
D. 30%
E. none of the above



When during a lecture should clicker questions be used?

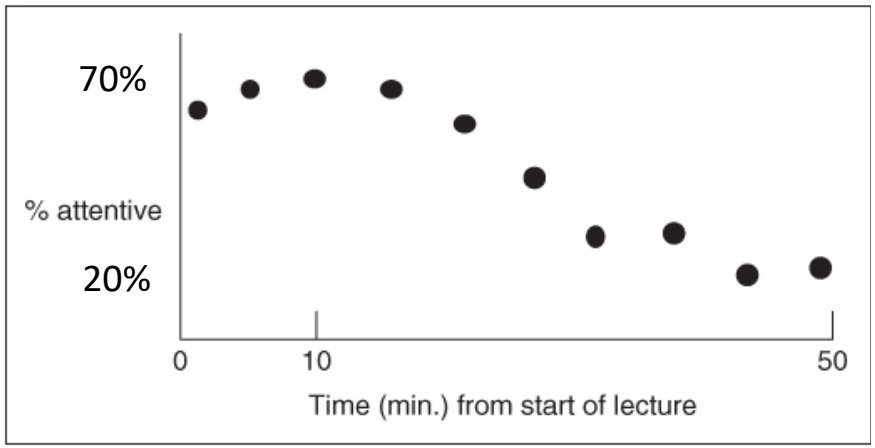


Figure 6.3–1 Attentiveness versus Time in Lecture—No Activities

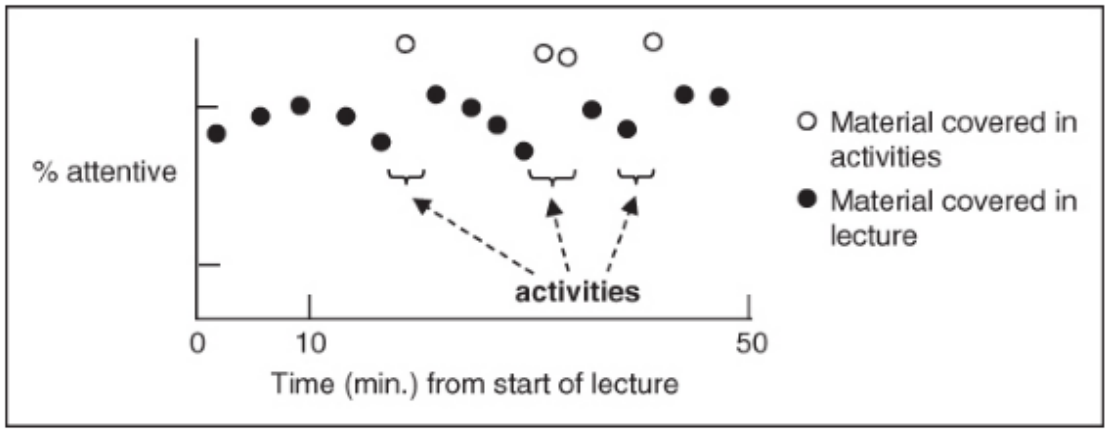


Figure 6.3–2 Attentiveness versus Time in Lecture—Activities Interspersed

Learning requires attentiveness. It is difficult or impossible for students to pay attention to anything for very long while they are passive. Several researchers have measured the percentage of students paying attention to a lecturer at different times during the lecture (Bligh, 1998, Ch. 2; Bunce et al., 2010; Middendorf & Kalish, 1996; Penner, 1984; Stuart & Rutherford, 1978).

From: Felder, Richard M.; Brent, Rebecca. Teaching and Learning STEM: A Practical Guide. Wiley.

Suggested Topics for Discussion

- Course credit for clicker responses?
- How many clicker questions in a 50 minute lecture?
- When is the best time during a lecture to ask a clicker question?
- What Bloom's level for clicker questions?
- Content coverage versus formative assessments - What is the right balance?

Table 6.5–1 Six Common Active Learning Mistakes

Mistake	How to Avoid the Mistake
1. Plunge into active learning with no explanation.	First explain what you're going to do and why it is in the students' best interests.
2. Expect all students to eagerly get into groups the first time you ask them to.	Be proactive with reluctant students in the first few group activities you conduct.
3. Make activities trivial.	Make active learning tasks challenging enough to justify the time it takes to do them.
4. Make activities too long, such as assigning an entire problem in a single activity.	Keep activities short and focused (five seconds to three minutes). Break large problems into small chunks.
5. Call for volunteers after every activity.	After some activities, call randomly on individuals or groups to report their results.
6. Fall into a predictable routine.	Vary the formats and lengths of activities and the intervals between them.

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