The Thrill of Teaching in an Active Learning Classroom

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Any opinions, findings, conclusions, or recommendations expressed in this presentation are mine alone, based on my work as a professor at the University of Minnesota. These views do not necessarily reflect the views of the National Science Foundation, where I now serve as director of the Division of Undergraduate Education.
Learning objectives

Prelude: setting the stage for thinking about active learning classrooms

1. Consider some principles for effective use of active learning spaces
2. Examine strategies for helping instructors find their "teaching legs" in these spaces
3. Imagine the future of college classrooms
Prelude
Setting the stage for thinking about active learning classrooms
When books became readily accessible to non-experts, why didn’t universities become obsolete?
Will the internet make universities and professors obsolete? Or has it already done so?
Social presence theory/Community of Inquiry

Teacher
Social & Cognitive Presence
- Classroom Climate
- Subject knowledge
- Pedagogy, Cognition

Student
Social Presence
- Focus
- Motivation
- Emotion

Student
Cognitive Presence
- Focus
- Active inquiry
- Metacognition

Figure 1. Elements of an Educational Experience
Outcome 1: Consider principles of effective use of active learning classrooms
The thrill of the unexpected
You must embrace (and manage) unpredictability.
The thrill of learning something new
Your students will know things you don’t know.

The thrill of new relationships
Your students will become colleagues.

You can shift from a telling to a mentoring relationship.
The thrill of connecting novices to your discipline
You will seek ways to motivate each student to care about and learn the concepts you choose.

Share the humanity of your discipline. Share your emotional connection to it.

The thrill of making a long-lasting difference
You will help students become better independent learners.
The thrill of hope
You will learn that your students have an amazing capacity for learning and creativity.

The thrill of seeing through new eyes
Using different activities promotes equity and inclusion.
Pause for reflection

Outcome 2: Examine strategies for finding your "teaching legs" in these spaces (or helping others find their teaching legs).
Teaching effectively in active learning spaces

Team teach.

Teaching effectively in active learning spaces

Use undergraduate learning assistants who can be advocates between instructor and student.
Teaching effectively in active learning spaces

Use time-saving strategies (grading rubrics, mail merge for student communications).

Teaching effectively in active learning spaces

Apply the “rubric” of effective learning activities

- Accommodate differences
- Represent authentic work of the discipline
- Require high level of cognition
- Promote discussion around different potential solutions
- Require community
- Have high potential for motivating
- Encourage metacognition
Teaching effectively in active learning spaces:
Start with your lectures.

Convert the “punch line” into an activity.
Ask complex questions (e.g., What would the graph look like if...)
Give students a chance to talk to each other.
Debrief.

Work up to open ended projects that allow students to tackle unanswered questions in your discipline.

Teaching effectively in active learning spaces

Publish active learning materials. (CourseSource)
Engage in discipline-based undergraduate research.
CourseSource is an open-access journal of peer-reviewed teaching resources for undergraduate biological sciences. We publish articles that are organized around courses in biological disciplines and aligned with learning goals established by professional societies representing those disciplines. Please let us know what you think as you explore the articles and other information in the journal. We also welcome comments, questions, and/or suggestions. You can also follow us on Twitter (@CourseSource) to receive notifications about newly published articles and announcements.

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Did you know?

NSF Research Coordination Networks in Undergraduate Biology Education (RCN-UBE) program solicitation
November 13, 2017

NSF has released a new solicitation (NSF 18-510) for the Research Coordination Network in...

ASBMB Special Symposium on Transforming Undergrad Education
May 08, 2017
Outcome 3: What should the college classroom become?

We need to move toward an active learning ecosystem.
What would an active learning ecosystem be like?

Toward an active learning ecosystem

Students develop sophisticated strategies to find and evaluate the information they need; they will be able to write their own learning objectives.
Toward an active learning ecosystem

Students and teachers understand and use cognitive science to improve learning.

Students find support for the social and emotional aspects of learning.

Students are empowered, trained, and supported to ask important, unanswered questions.

Students develop sophisticated strategies to find and evaluate the information they need; they will be able to write their own learning objectives.

Students do the authentic work of the discipline.

Students contribute to human knowledge.

Students move toward becoming the best version of themselves as human beings.
Each class in an active learning ecosystem will be an idea incubator/maker-space, where students and teachers collaborate, challenge, and inspire one another to solve real problems.