High-Challenge Gateway Courses CAIT

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High-Challenge Gateway CAIT

The High-Challenge Gateway Courses CAIT looked at some of the courses in the UO curriculum that can be a “barrier” for many students.

Many introductory courses in mathematics, science, computer science, and accounting have high non-success rates, which can dramatically impact student progress toward a degree, thus increasing the cost of their degree.

Graduation Rates

The average 4-year graduation rate for 2011-2015 graduating classes was 48%. What was the 4-year graduation rate for students who failed a course in their first quarter?

a. 53% ← Students who do *not* fail a course in their first term

b. 18% ← Students in underrepresented minorities

c. 17% ← All students who failed a course in their first quarter

d. 13% ← Pell-eligible students

What is a “High-Challenge Gateway Course”?

- Early in academic career
- Core-education or major prerequisite
- Non-success (DFNW) rate ≥ 20%

High-Challenge Gateway CAIT's Charge

Self-Efficacy	Student Success	Institutional Change
How can we boost students' sense of self-efficacy, relevance, and support?	Can these courses and the support services for them be configured, along with student intentionality, to enhance student success?	What institutional policies and practices could shift the culture to create a "student-ready" university?

T.B. McNair, et al., *Becoming a Student-Ready College: A New Culture of Leadership for Student Success*, Somerset:Jossey-Bass, 2016.

EAB *Course Completion Playbook*

Individual faculty

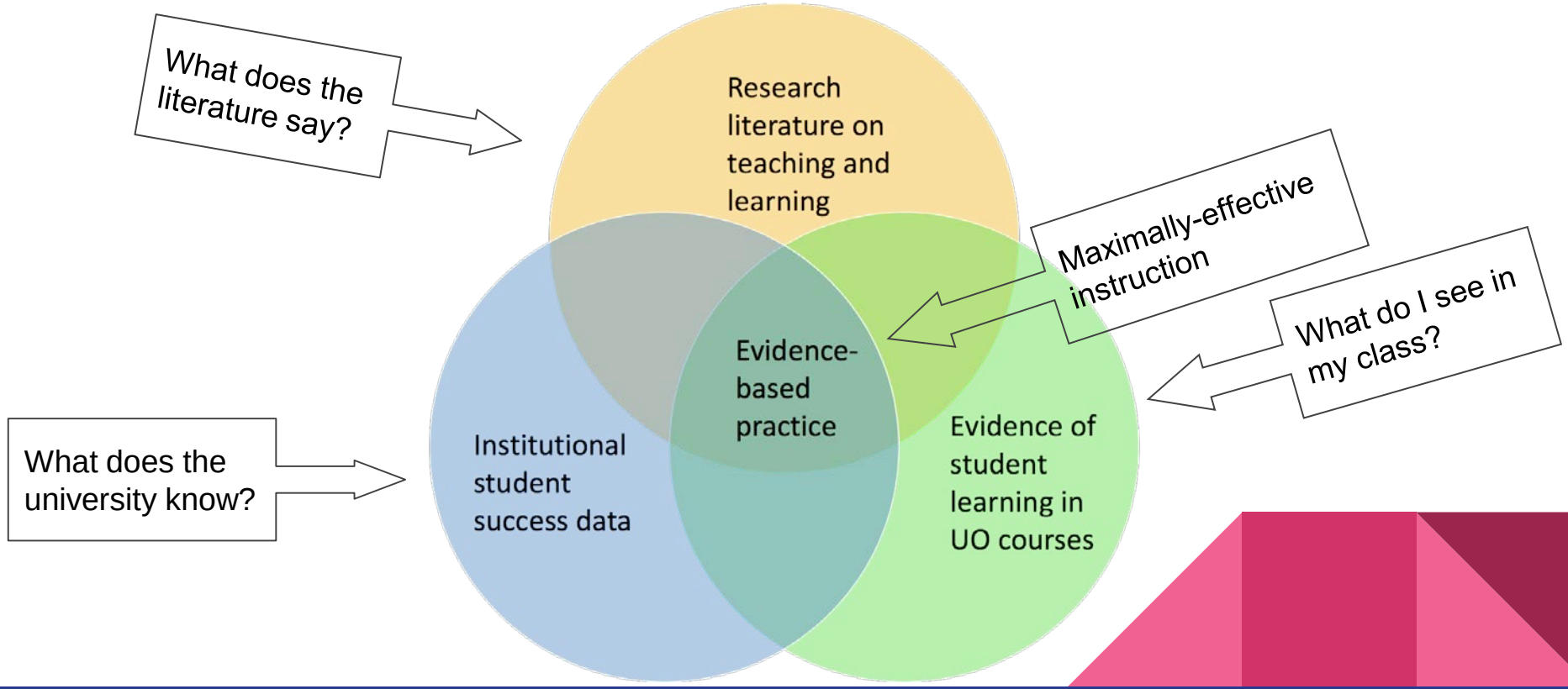
- Employ early, low-stakes (formative) assessments
- Implement active pedagogy

Institutional or departmental level

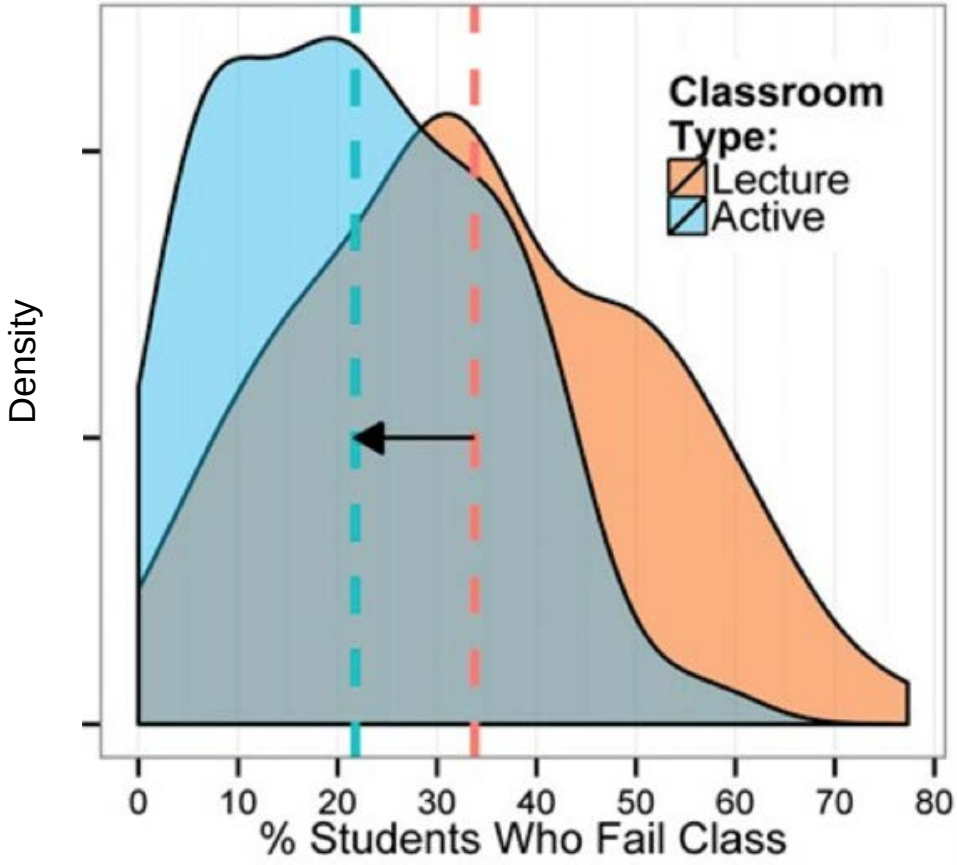
- Develop common exams to use across sections
- Encourage supplemental instruction
- Create a culture of the growth mindset
- Use an early warning system

D. Attis, et al., *The Course Completion Playbook: Analyses and Tools to Improve Student Outcomes in Critical Gateway Courses*, Washington, DC: EAB, 2017.

Evidence-Based Teaching Practices



Meta-analysis of 225 STEM Studies on Active Learning



Failure Rate

Lecture: 33.8%

36% decrease

Active Learning: 21.8%

+1/2 letter grade

S. Freeman, et al., "Active Learning Increases Student Performance in Science, Engineering, and Mathematics," *PNAS*, vol. 111, no. 23, pp. 8410-8415, 2014.

CAIT Fellow Instructional Examples

Active learning	Small group discussion/problem solving in all four courses
Metacognition and reflection	Class period on metacognition in CH 222, written reflections in MATH 242
Formative assessment	Clickers in MATH 242 and CH 222
Undergraduate-assisted learning	Class Encore in ACTG 211, CIS 210, MATH 242, and CH 222
Structured out-of-class learning	Homework due 3x per week in MATH 242

Handelsman et al, 2007; Cook et al, 2013; Chapin et al, 2014; Dawson et al, 2014; Eddy & Hogan, 2014; Heiner et al, 2014.

Recommendations for Individual Faculty

- Participate in pedagogical professional development.
- Implement evidence-based pedagogy.
- Include student metacognition and growth mindset activities.

Recommendations for the Institution

Pedagogy Support

Program Support

Campus Culture

Recommendations for the Institution

Pedagogy Support

- Fund and encourage pedagogical development for ALL faculty and GEs.
- Create team teaching opportunities with embedded educational experts.
- Develop and enforce common learning outcomes, aligned assessments.
- Build capacity for scholarship of teaching and learning.

Recommendations for the Institution

Program Support

- Grow undergraduate assisted learning programs with centralized support.
- Revise and expand first-year and targeted support programs.
- Build capacity for instructional program assessment and evaluation.

Recommendations for the Institution

Campus Culture

- Support a culture that reinforces student metacognition and growth mindset.
- Prioritize the development of students as intentional scholars.
- Institute a Senate “teaching and learning best practices” committee.

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