

Evaluate Sessions and Win!



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Enhancing Instruction through the use of Adaptive Courseware and Research-based Teaching Practices

OLC Innovate June 17, 2020

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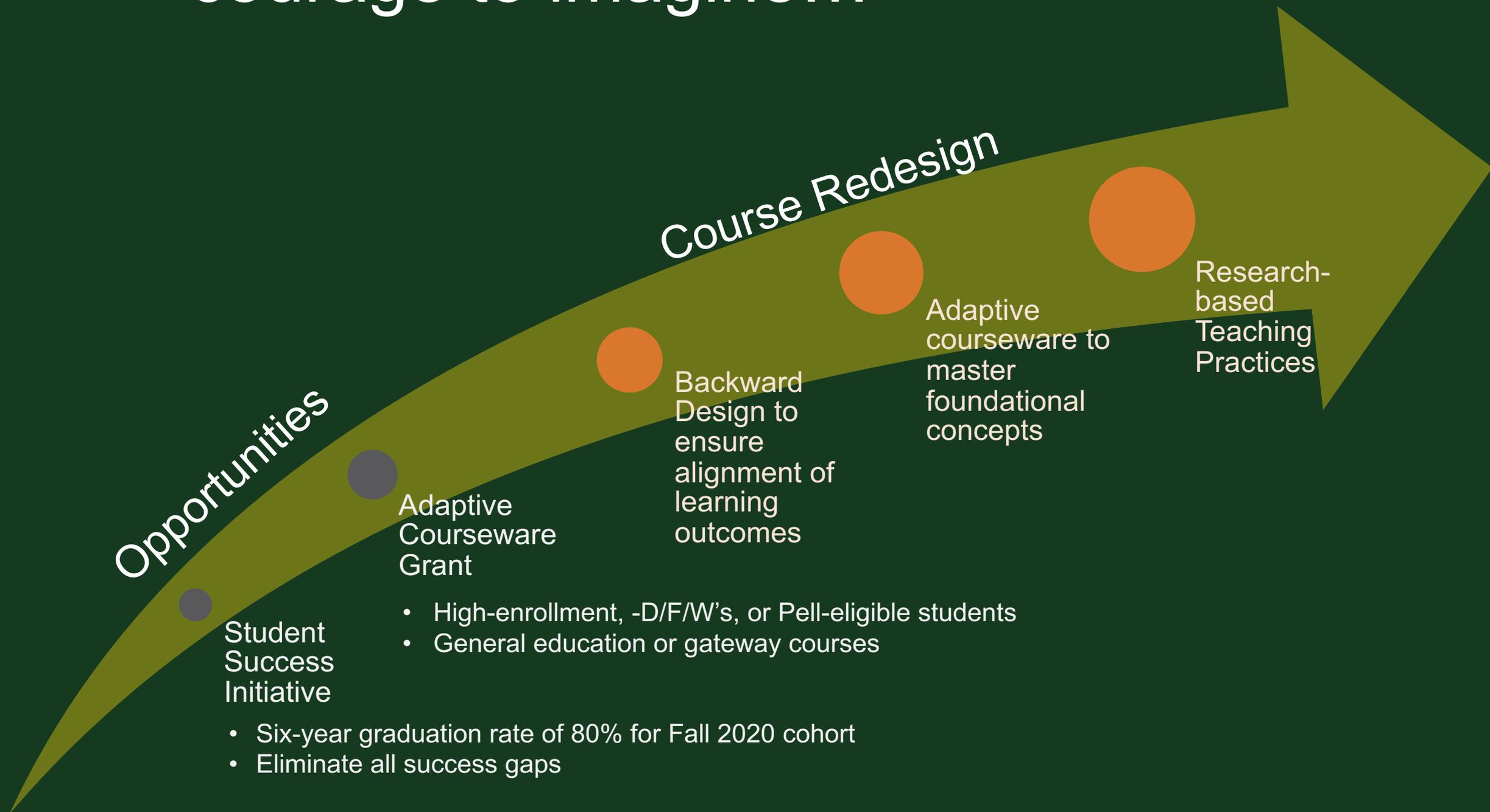


Colorado State University

Zoom poll

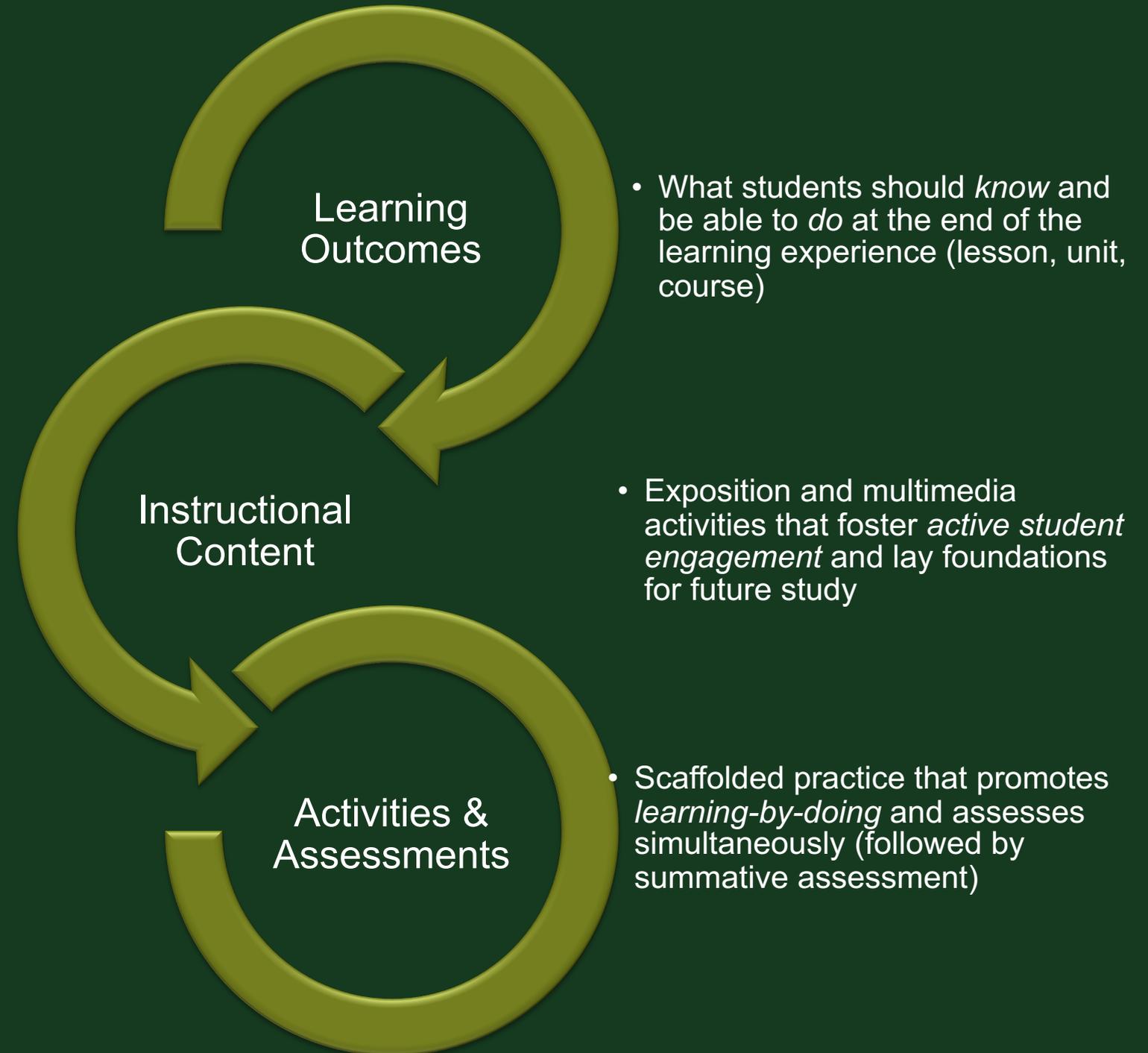


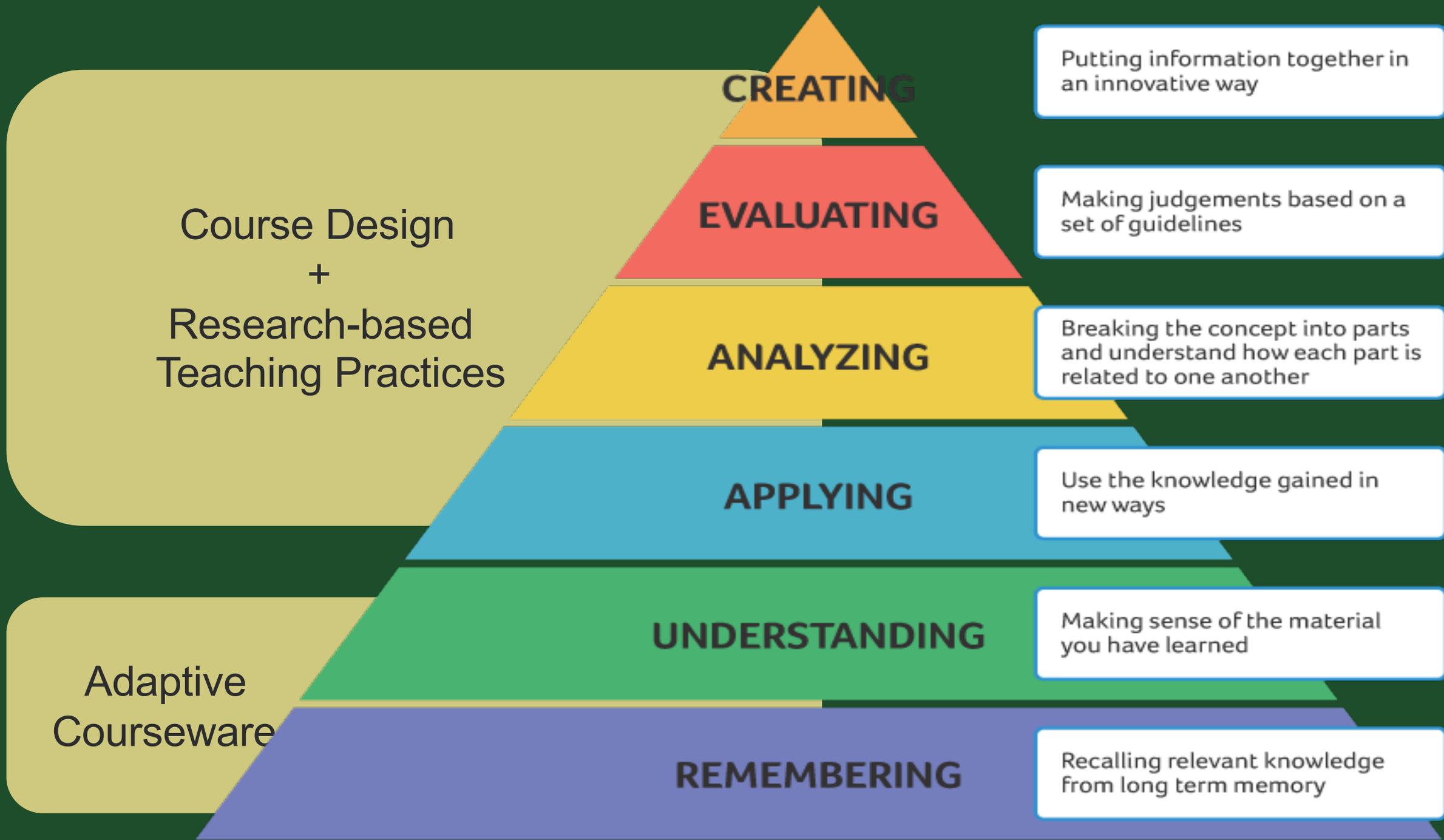
Every possibility begins with the courage to imagine...



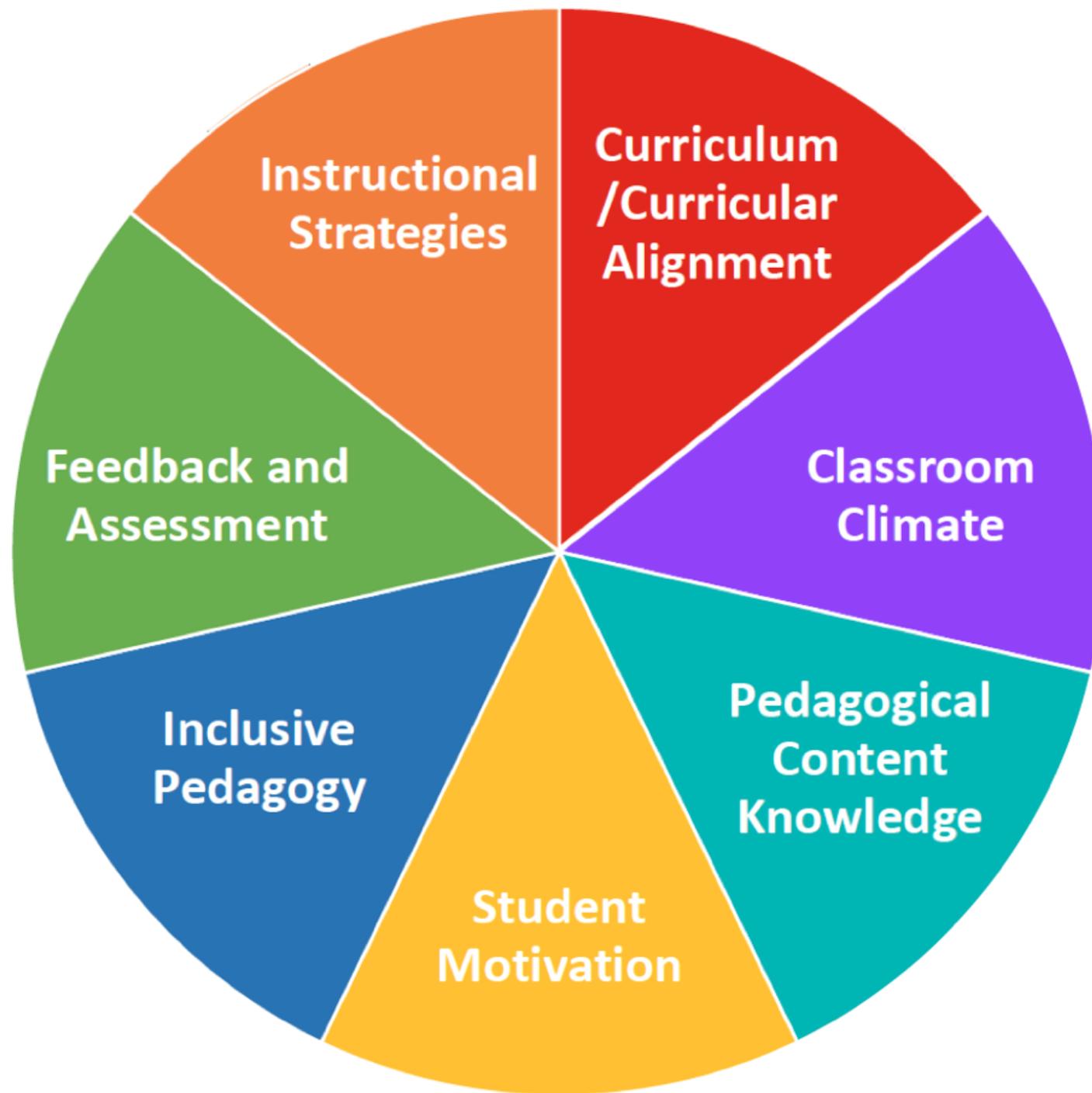
Begin with the end in mind...

Backward Course
Design
+
Adaptive Courseware
+
Research-based
Teaching Practices





Adaptive Courseware Can Cover Lower-level Blooms Content Outside of Class



Definition of Teaching Effectiveness at CSU

Effective teaching is the intentional design and implementation of effective teaching practices that support student achievement of course-level learning outcomes. The Teaching Effectiveness Framework provides theory and evidence-based practices that support effective teaching, and thus, student success.



Faculty Development



Data Points

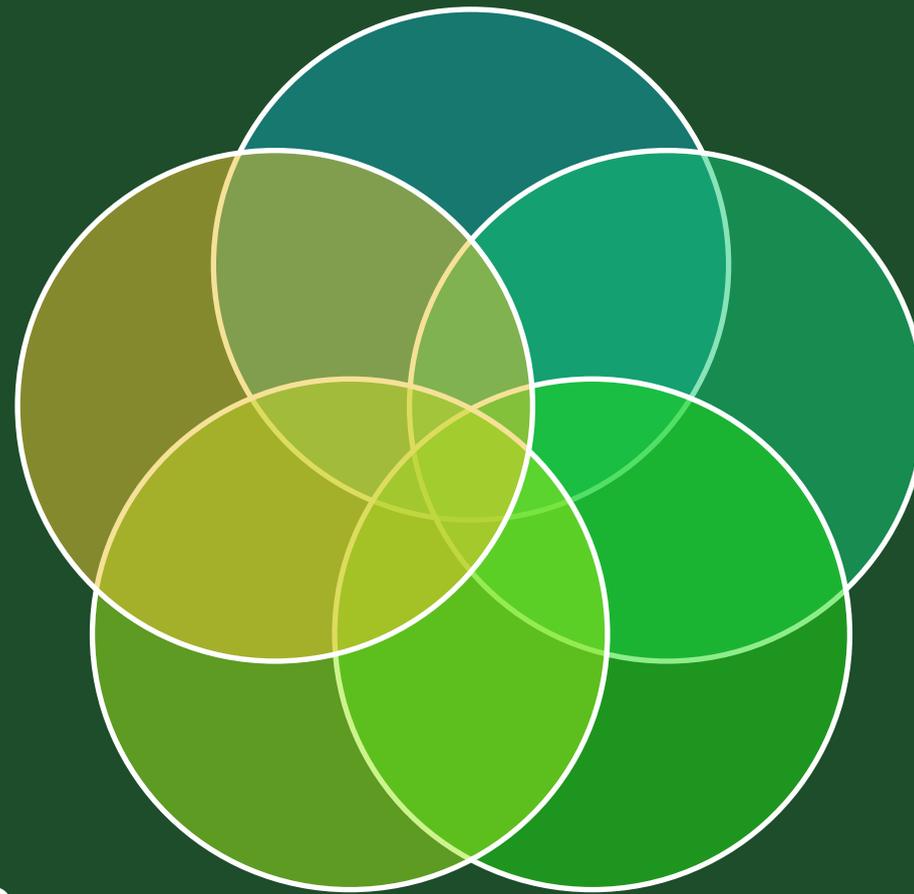
Classroom
Observation
Protocol

Faculty Use
Survey

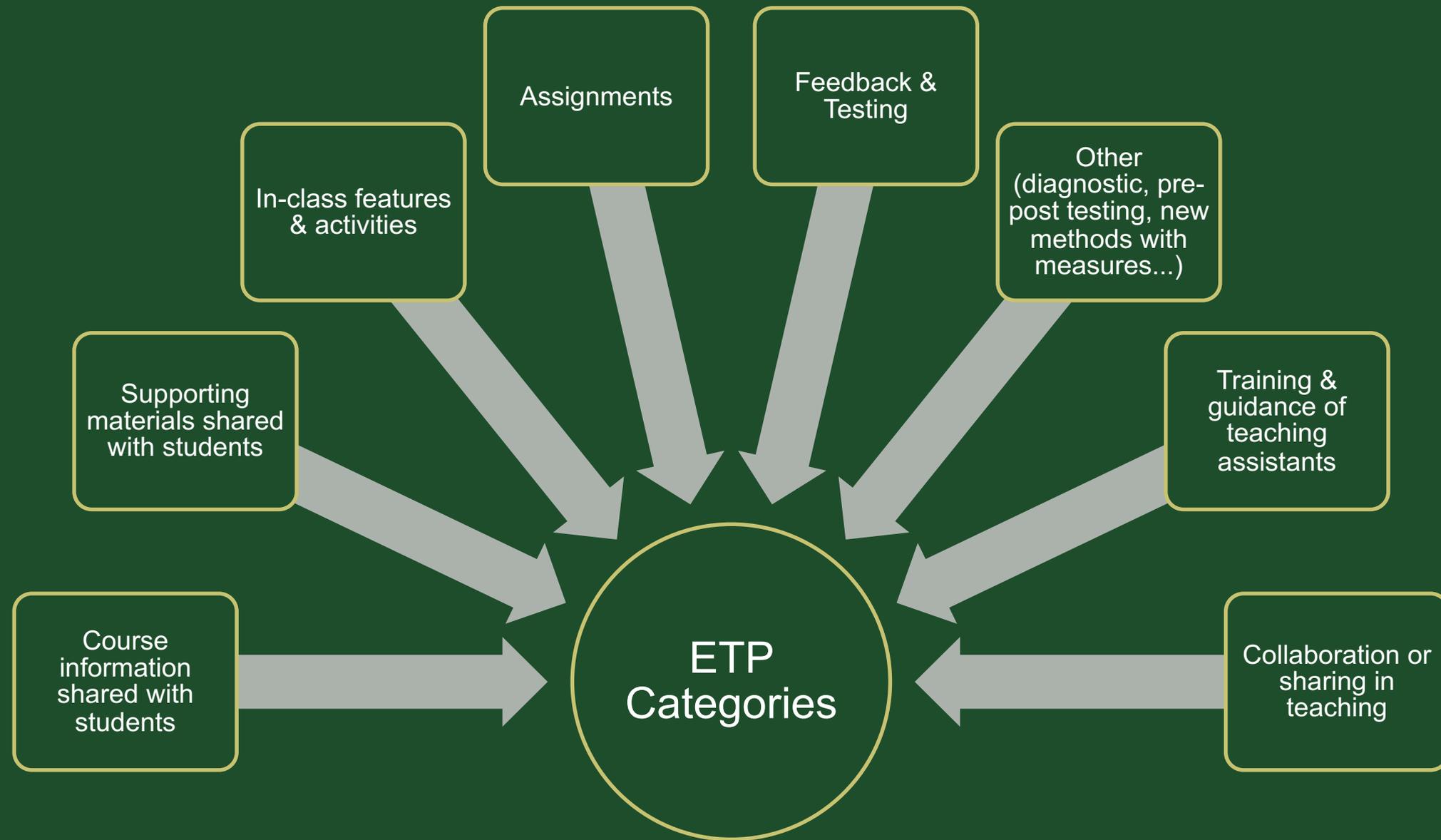
Evidence of
Research-based
Teaching Practices
(ETP)

Student
Success Rate

Student
Perception
Survey



Research-based Teaching Practices



Preliminary Results - Faculty

Adaptive and Non-adaptive Student Success Outcomes - Teaching Practices Inventory – Wieman Institute

- TPI measures the extent to which instructors use research-based teaching practices (ETP)

Course type and ETP score		Headcount		A, B, C, or S		PP difference	Pearson Chi-square
		Non-adaptive	Adaptive/Active	Non-adaptive	Adaptive/Active		
STEM	49-37	5,111	5,326	82.2%*	84.2%*	2.0	0.01
	34-30	1,108	1,232	71.4%*	76.8%*	5.4	<0.01
	27-24	1,207	1,171	82.7%	84.5%	1.9	0.22
	21-18	353	362	88.1%	87.0%	-1.1	0.66
Non-STEM	34-30	759	1,401	83.0%	85.9%	2.9	0.07
	27-24	611	963	78.4%	81.1%	2.7	0.19

*Statistically significantly different at $p \leq .05$

Faculty on Adaptive Courseware...



[Adaptive courseware...] allows me to hold the students accountable for weekly questions and online quizzes. Not taking class time for these allows for more flexibility in teaching and high impact practices. Using this adaptive courseware enables me to feel less rushed to finish everything in the class time, which hopefully is noticed by the students. I have more time to ask questions, start discussion, and give them an opportunity to have a voice in the material. I have found the students benefit from these moments in time.

Students found the courseware helpful in understanding the text and lecture material. It provided guidance in determining areas requiring more studying.

Adaptive courseware has encouraged students to engage more with reading material and independent study skills... Using adaptive courseware has taken the pressure off me to lecture on everything in the text, giving me more time to use discussions and other active teaching/learning strategies in class.

I find adaptive courseware to be an essential way for students to work on their learning edge. It allows them to learn the prerequisite material as needed, and skip ahead if they already have mastered other topics.

Really consider and think through the purpose it will serve and role it will fill in your class and in the students' learning. Do it intentionally, rather than for checking a box, because this will yield better outcomes. Make sure the connection to other course content is clear, otherwise it may lead students in the wrong direction.

It's a valuable tool, but it is not a magic bullet.

Faculty on Adaptive Courseware...



The adaptive courseware that exists simply isn't adaptive enough to be of use yet for my courses. I was not able to remove unnecessary content from the system, so students were quizzed on things irrelevant to the course... Students were very frustrated with the adaptive courseware because it seemed arbitrary and unrelated to the learning objectives of the course.

So far it has been a mixed bag and is HIGHLY dependent on the platform in which the adaptive courseware is based.

I have prepared all of my [platform] assignments and have encountered some rather frustrating features and glitches. I don't think we were sufficiently trained in using [platform] in particular before implementing.

Cheaper/less financial burden for students, more sophisticated software (it was buggy/clunky at times for me and for students). It'd be great to be able to create/customize your own adaptive courseware materials.

The book and its courseware are much too detailed. I try to focus on major concepts and points of confusion, and the courseware asks students about specifics I don't intend for them to bother with. The book is aimed at the wrong level for an intro class ...

More flexibility in being able to choose topics (not just learning objectives, which are too broad) to include/exclude from student use.

Overall Goal 12,300-16,300 enrollments

AY 19-20 *Fall only*
68 sections
7,898 enrollments

AY 18-19
121 sections
14,746 enrollments

AY 17-18
82 sections
8,212 enrollments

AY 16-17
51 sections
3,124 enrollments

- Problem Solving in General Chemistry
- Fundamentals of Chemistry
- Biology of Organisms- Animals & Plants
- General Chemistry I
- General Chemistry II
- Health and Wellness
- Mechanical Engineering Problem Solving
- Media in Society
- Survey of Human Nutrition
- US History to 1876
- US History Since 1876
- Appreciation of Philosophy
- Attributes of Living Systems
- Fundamentals of Accounting
- Introduction to Astronomy*
- General Psychology
- Introduction to Mechanical Engineering*
- Humans and Other Animals
- Principles of Human Biology
- Principles of Macroeconomics*
- First Year French I*
- First Year French II*
- First Year German I
- First Year German II
- First Year Spanish I
- First Year Spanish II
- General Physics I
- General Physics II
- Principles of Microeconomics*

Spring '20
Estimate ~7300

Implementation Progress

Adaptive Courseware at CSU

Combined Total
322 sections
33,980 enrollments
Fall 2016-Fall 2019

* Courses transitioning off courseware

Reflection: Extending the work... [worksheet]

- Identify a campus initiative related to teaching or educational technology.
- Identify the goal.
- Identify shareholders (schools, departments, faculty, committees, etc.) that will need to be involved to for the initiative to be successful.
- Identify research-based teaching strategies as a focus for faculty development delivered through a community of practice.



Questions? Tonya.Buchan@ColoState.Edu

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