



Active Learning and High-Impact Practices

AGEP California - Summer Teaching Institute 2019
Christopher R Meyer, Martin Shapiro,
Emily Walter, and Dennis Neff

California State University, Fresno



Active Learning and High-Impact Practices

Christopher R Meyer

Dean, College of Science and Mathematics

Martin Shapiro

Department of Psychology

Emily Walter

Department of Biology

Dennis Nef

Vice-Provost, Academic Affairs
California State University, Fresno



Think about the most important and impactful **academic** experience that you had in college in college.



Take a minute to share that experience with the person next to you explaining why the experience was so important.



Academic High-Impact Practices

- Engaging activities in and out of class
- Experiential Learning
- Gets students out of their seats
- Working with other students
- Working with faculty members
- Working with the community
- Applying what they learn
- Experiencing diversity



Active Learning > Lecture

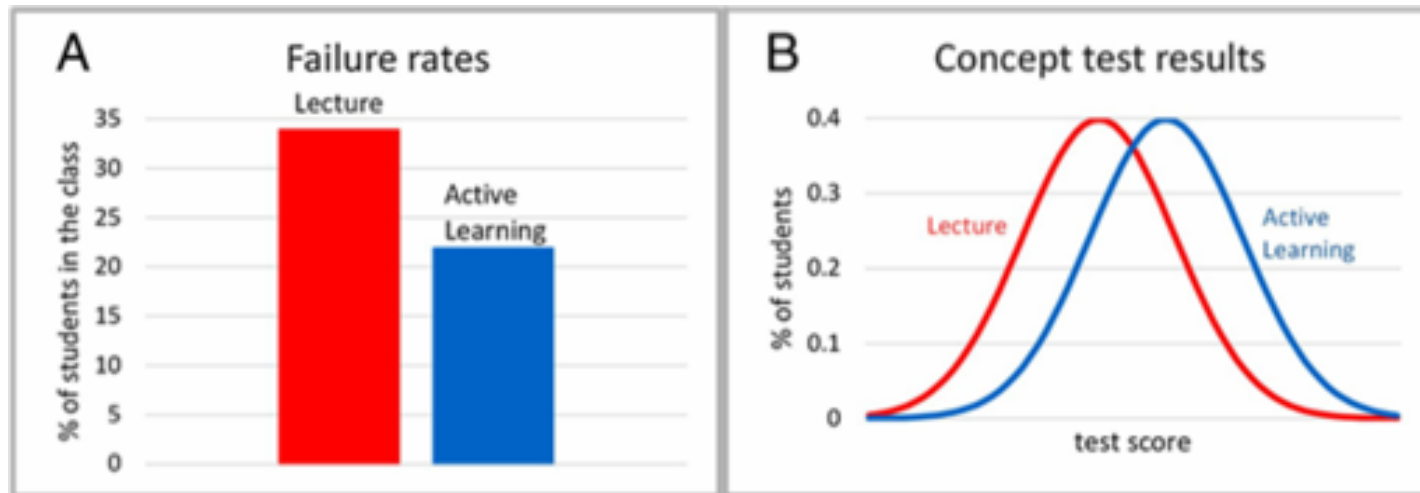
- Overwhelming evidence that lecture is far less effective than active learning (Freeman et al. 2014)
- It is no longer appropriate to use lecture as the comparison standard
 - Instead, researchers compare different active learning methods



Large-scale comparison of science teaching methods sends clear message

Carl E. Wieman

PNAS June 10, 2014 111 (23) 8319-8320; published ahead of print May 22, 2014



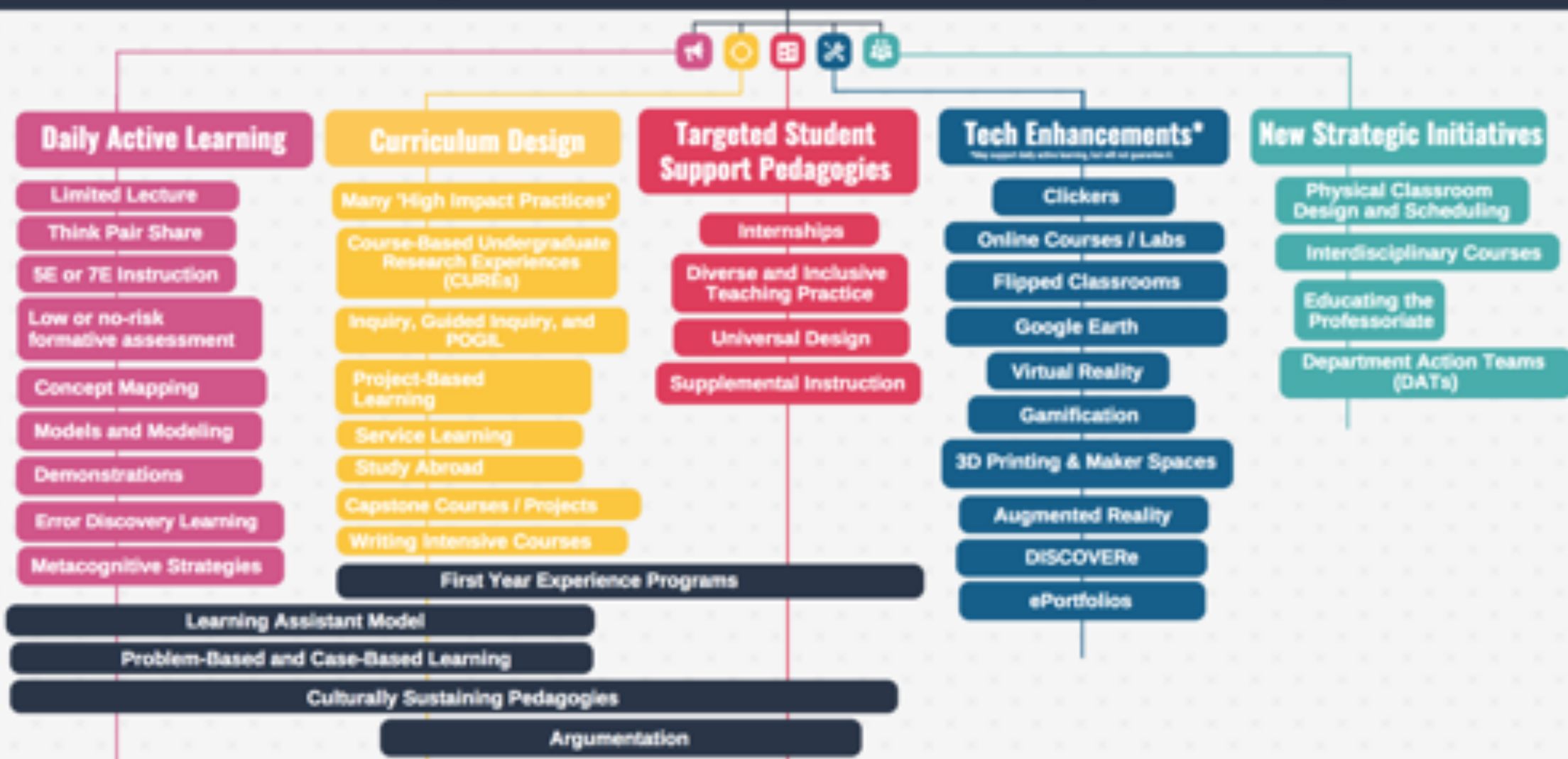
Results independent of class size, discipline, variety and intensity of use, and assessment type.

What does our teaching look like?



50-75% STEM
professors in the
United States
exclusively lecture
(Stains et al., 2018)

Active Learning at Fresno State - A Roadmap of Strategies



What is daily active learning?

4 guiding principles



What was your support system as an undergraduate?

- Academically
- Socially
- Psychologically



Academic High-Impact Practices

- Create social support systems
- Provide academic help
- Provide connections to the community
- Provide connections to jobs
- Encourage life-long learning
- Are often fun



First-Year Experience

- Helps with the transition into college
- Helps students form friendships and support
- Helps with psycho-social needs
- Teaches about good study habits
- Gives the students a sense of belonging



Service Learning

- Tying community service with academic content
- Fresno State offers 200 service-learning courses each year
- 10 million hours service to the community over 10 year
- Ranked 4th in the nation in overall service.



Service Learning



San Joaquin River
Parkway and
Conservation Trust, Inc.



Diversity and Projects

- Anthropology Department
 - Dr. Dvera Saxton and Dr. Hank Delcore
- [Fresno Food Ways](#)
- Ethnographic glimpse of the stories of immigrant, refugee, diasporic cooks and food entrepreneurs in Fresno, CA.



Project-Based Learning

- Semester-long project related to course material
- Engineering an object, building an art project, directing a video, testing a product for a business, collecting data
- Great for peer collaboration
- In-class and out-of-class work



Project-Based Learning



Project-Based Learning

- Groups, Pairs or Individuals
- Single semester or continuing projects
- Across courses or across disciplines
- Big community projects and problems that tackle big issues

Sustainable Cities

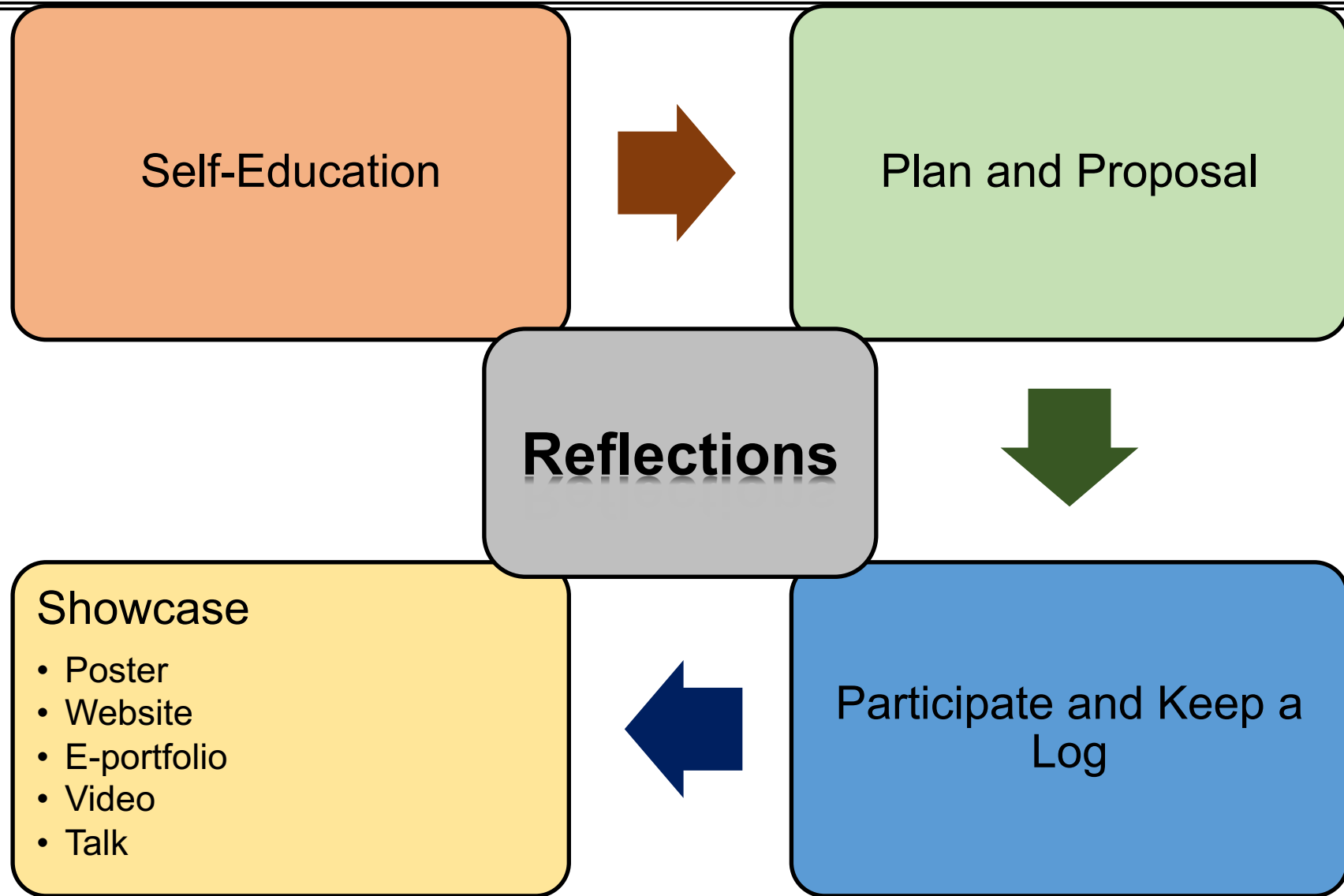


Project-Based Learning

When designing the project, think of the following questions.

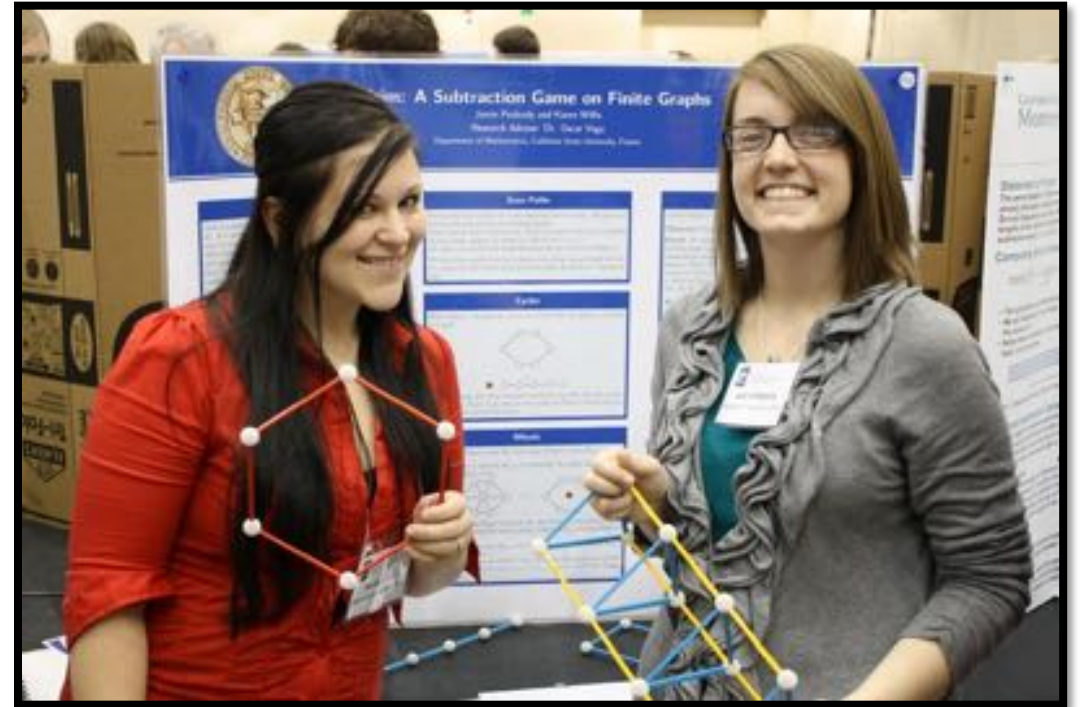
- How is the project tied to learning outcomes for your course?
- What is unique about learning through a project?
- Will this be a collaboration with another organization on or off campus?
- How will the project enable the students to learn about diverse ideas and backgrounds?
- Will students work in groups, teams or individually?

Common Activities



Showcase

- Webpages
- Videos
- ePortfolios
- Oral presentations at events
- Poster sessions
- Papers and reports
- Social media
- Blogs
- Booth at a campus events
- Art exhibit



High Impact Practices



Why Are HIPs Important for Students?

- Greater retention, persistence, and GPA
- Particularly helpful to underserved students
- Yet, underserved students are less likely to participate in high-impact practices
- Greater appreciation for diversity
- Students connect what they are learning to different settings
- Can lead to life-changing experiences

Why Are HIPs Important for Students?

Top 10 things employers look for in new college graduates

1. The ability to work well in teams—especially with people different from yourself
2. An understanding of science and technology and how these subjects are used in real-world settings
3. The ability to write and speak well
4. The ability to think clearly about complex problems
5. The ability to analyze a problem to develop workable solutions



Why Are HIPs Important for Students?

Top 10 things employers look for in new college graduates

6. An understanding of global context in which work is now done
7. The ability to be creative and innovative in solving problems
8. The ability to apply knowledge and skills in new settings
9. The ability to understand numbers and statistics
10. A strong sense of ethics and integrity



Types of Undergraduate Students and LUNC

- Science Majors
 - Keep their enthusiasm
 - Prepare them for graduate school or the job market
- Non-Science Majors
 - Create an appreciation for science
 - Help them to make good decisions
- Undecided or Persuadable



Come to
the dark
side.



Why are HIPs important to you?

- They make the experience of teaching and mentoring more rewarding.
- They make you a better instructor.
- They make the experience of college better for students.
- They improve student and peer evaluations.



Why is this important to you?

- You should address thoughts on high-impact practices in your cover letter and during your interview.
 - During your job talk
 - During one-on-one conversations with other faculty.
 - During one-on-one conversations with students.

How would you incorporate high-impact practices into your teaching and research?

- Global thinking
- Project-based learning
- Service-learning
- Study abroad
- CUREs
- First-year experiences

