Grand Challenges in Assessment: Approaches to Authentically Measuring Student Learning in Settings across Campus

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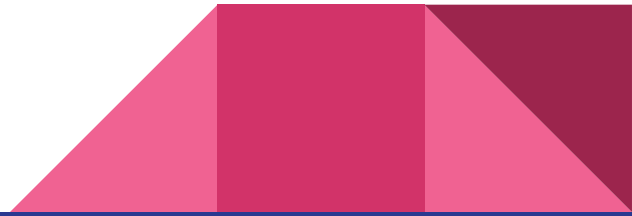

Introductions

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Group Overview

Grand Challenges in Assessment: Improving the Measurement of Student Learning over Time

Link: Strategic Plan

Goal 1: Improve measurement of student learning over time

- Identify measurement strategies to evaluate the impact of using assessment to effect pedagogical changes
- Promote strategies that effectively measure student learning over time

Formative Assessment

Definitions of Formative Assessment

Low-stakes activities that provide ongoing and timely feedback on students' strengths and gaps

Continuously monitor student progress toward the intended learning outcomes throughout a course/learning experience

Goals can include improving performance on summative measures

Lessons Learned from the Literature

Not enough in literature on formative assessment in higher ed (mostly K-12)

Summative assessment tends to take center stage in higher ed (particularly driven by accreditation standards)

Need to investigate how much formative assessment is being used in higher ed

Need for more professional development and support

Carney, Elizabeth A., Xue Zhang, Ashley Charsha, Jessica N. Taylor, and Justin P. Hoshaw. 2022. “Formative Assessment Helps Students Learn Over Time: Why Aren’t We Paying More Attention to It?” *Intersection: A Journal at the Intersection of Assessment and Learning* 4 (1).

Formative Assessment Strategies

Clicker questions, minute papers (classroom assessment techniques)

“Ungrading,” and Competency-Based Assessment

Break large projects into defined steps with feedback at each step (e.g., with paper drafts)

Self- and peer-assessment

Portfolios

EXAMPLE: Before students submit their final product, they work in pairs to apply a rubric to their partner’s product.

Example adapted from Zehnder, C., Alby, C., Kleine, K., & Metzker, J. (2021). *Learning that matters: A field guide to course design for transformative education*.

Future Directions

- Research on current practices and effectiveness
- Understand student perspectives and barriers to using feedback
- Faculty development resources and rewards
- Culturally responsive feedback & equitable assessment practices
- Strengthen culture of learning and improvement vs. grades K-20 and beyond

Co-Curricular Learning

Seven Key Components of Co-Curricular Learning

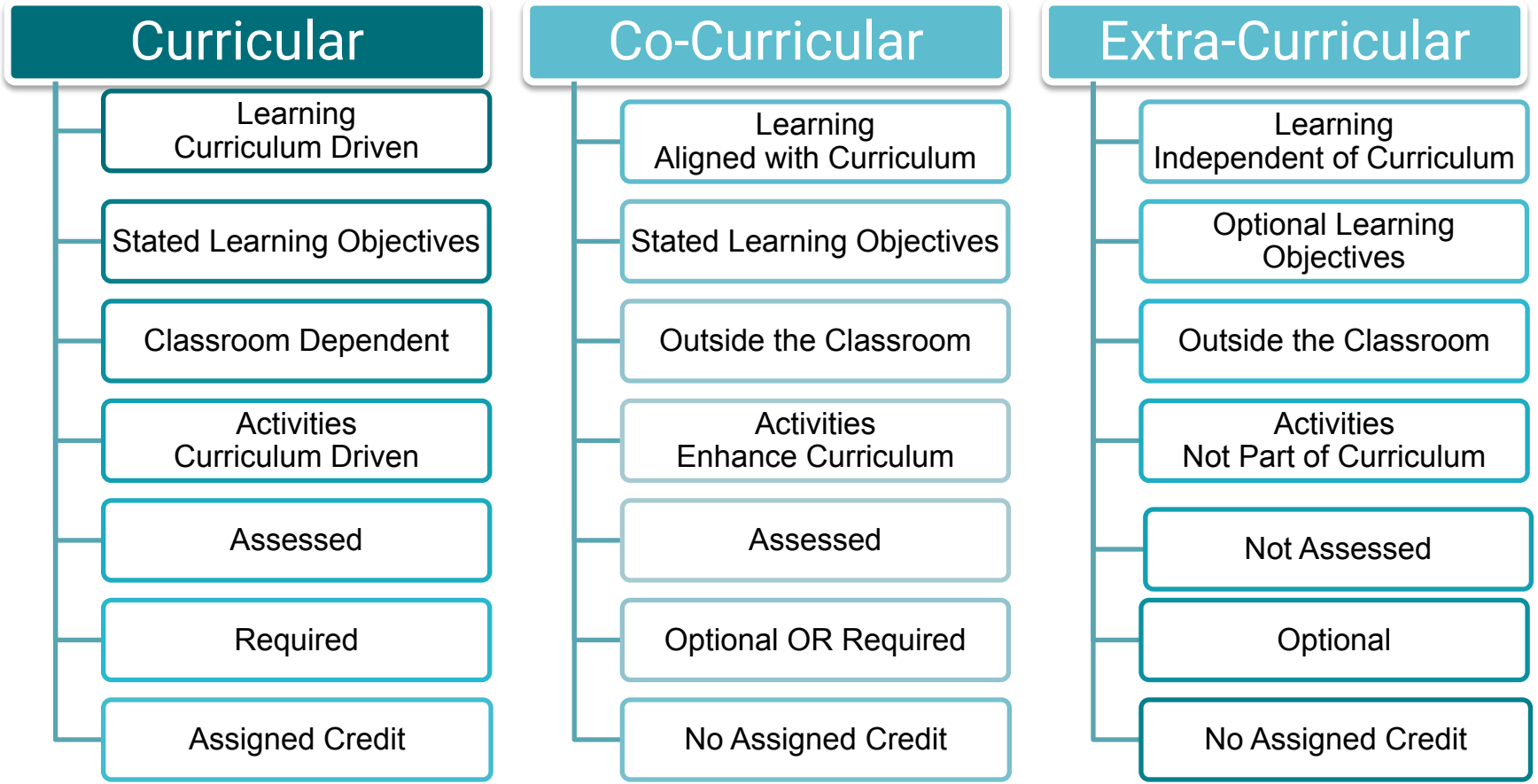
“Given the variability in expectations of what constitutes a co-curricular learning experience, it is judicious to identify the common elements across definitions of co-curricular learning. Most definitions examined had the following in common: “

Co-curricular learning,

1) is tied to the curriculum,
2) aligns with learning outcomes connected to a program or to a division,
3) is an experience outside of but complements the curricular instruction,
4) designed to enhance and support learning and engagement,
5) supplements the students’ curricular experience,
6) may reside within a program or outside the departmental and programmatic structure, and
7) is always assessed.

Source: Abras, C., Nailos, J., Lauka, B., Hoshaw, J. P., & Taylor, J. N. (2023). Defining co-curricular assessment and charting a path forward. *Intersection: A journal at the intersection of assessment and learning, 4*(1).

Comparison of Learning Spaces



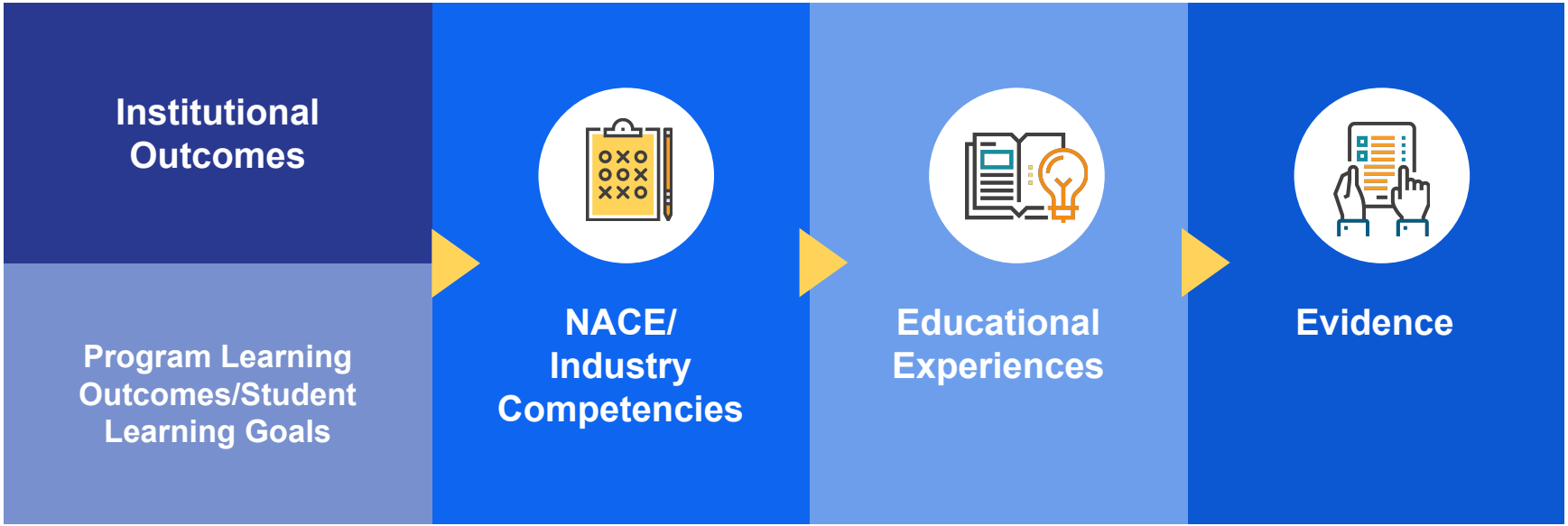
Strategies for Measuring Learning

- Identify impact on student learning
- Uncover the role of co-curricular learning in educating the whole person
- Implementing authentic application of learning
- Applying empathy as a vehicle for learning
- Determine research to conduct meaningful studies

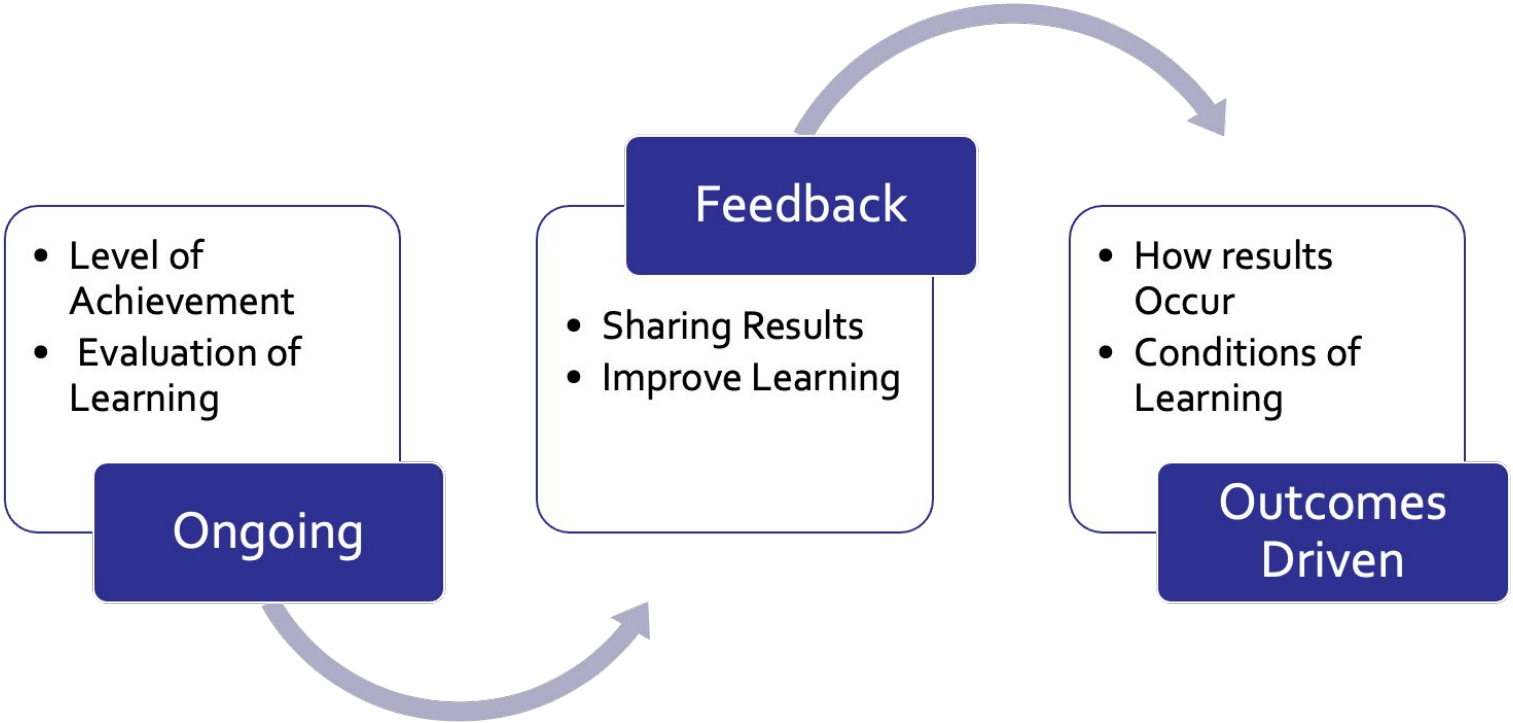
Alignment to Standards and Learning Outcomes

- NACE
  - Leadership
  - Communication
  - Critical Thinking
  - Career and Self-Development
  - Teamwork
  - Technology
  - Equity and Inclusion
  - Professionalism
- Program Learning Outcomes
- Institutional Outcomes
- Student Learning Goals

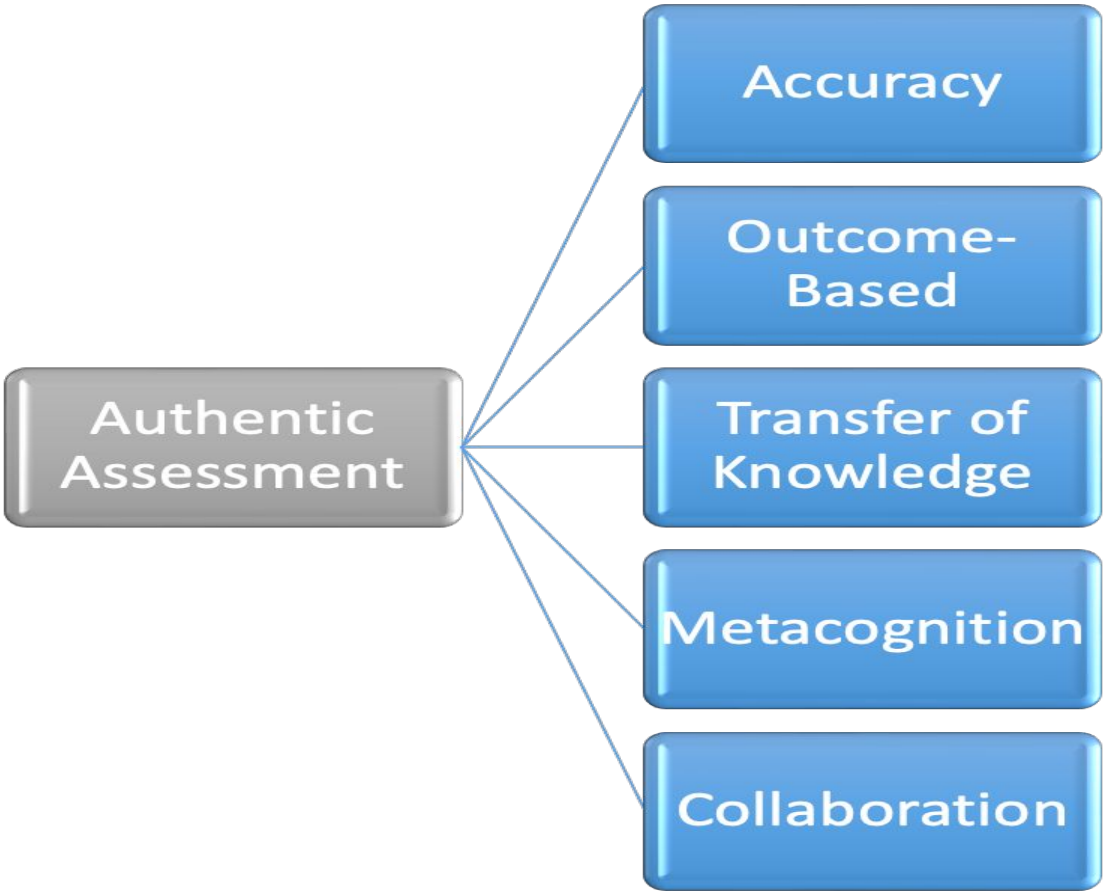
Alignment to Standards and Learning Outcomes



Assessment of Co-Curricular Activities



Authentic Assessments of Co-Curricular Activities



Evaluating Alignment

Set Goals and Standards

1

Align to NACE
Program Goals
Institutional Goals
Student Goals

Co-Curricular Value

Set value to the students.
Apply Learning
Develop Skills
Achieve Goals

2

Lifelong Learning

3

Authentic Application of Knowledge
Development of Lifelong Skills
Empathy as a vehicle for learning

Multiple-Choice Exam Questions: Authentic Assessment

MCQs and Authentic Assessment

Kimberly Daugherty, Sullivan University, Bryant Hutson, UNC-Chapel Hill, Michael Rudolph, Lincoln Memorial University

Actively demonstrate knowledge application in authentic contexts

Critical thinking analysis, synthesis, critiquing, defending, evaluation, problem-solving, skill application, constructed arguments, judgment, innovation, deep comprehension, novel context & applications

Uses of MCQs

Assess higher-level cognition: analysis, synthesis, evaluation, problem-solving

Provide equitable assessment

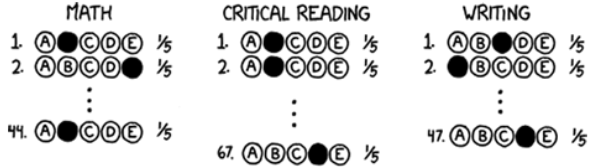
Assess construct-relevant and context-relevant information

Infer psychological constructs using MCQs

Measures of knowledge & skills

Measures of achievement

Measures of intelligence



Borsboom et al., 2004;Burton, 2005; Bush, 2015; Cronbach & Meehl, 1955; Haladyna & Downing, 1989; Kaplan & Saccuzzo, 2017; Martinez, 1999; Smith et al., 1993; Spearman, 1946; Wechsler-Bellevue Intelligence Scale,1939; Willingham & Cole, 1997

Creating Good MCQs

Follow item-writing guidelines

Assure validity, reliability

Avoid design flaws - content, formatting, stem, answer alternatives

Align with content standards and learning objectives

Align with pedagogy

Conduct faculty development on writing quality questions

Evaluate: Quality of questions, effective training duration, impact of training on student performance

Brosboom et al., 2004; Cronbach & Meehl, 1955; FitzPatrick, 2015; Haladyna & Downing, 1989; Haladyna, 1997; Hattie, 2023; Lam & Tsui, 2013; Martinez, 1999; Rudolph et al., 2019; Teasdate & Aird, 2023; Wiggins & McTighe, 1998; Utaberta & Hassanpour, 2012; Zimmario, 2016; Zimmerman et al., 1990

MCQs: Test Blueprinting

Align learning objectives with assessment to ensure content validity

Provide students with a study guide

Provide a cognitive schema

Support equitable assessment

Improve exam performance

Align course content across instructors and support re-evaluation of content

Aziz, 2021; Corderre, 2009; NBME, 2019; Suskie, 2009; Zimmario, 2016; Zimmerman et al., 1990

MCQs: Measuring

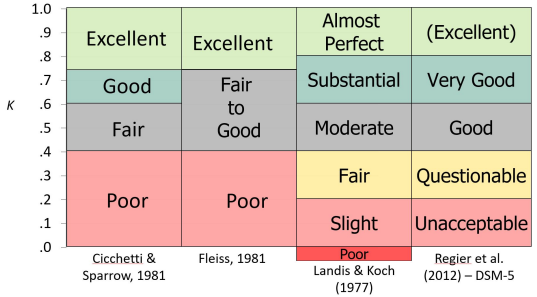
Entire assessment needs to be evaluated for validity, reliability, and equity

- Chronbach's alpha
- KR-20
- Standard Error of Measurement
- Item response theory
- Weighted moving average smoothing

Review individual questions for quality

- Item difficulty (p)
- Discrimination (d, point-biserial)
- Number of times a distractor was chosen

Impact of institutional guidance on item analysis



Crowe et al., 2008; Darling-Hammond & Adamson, 2010; Haladyna, 2004; Jencks & Phillips, 2011; Rudolph et al., 2019

Experiential Learning

Defining Experiential Learning

Experiential learning is a learning process that leverages:

1. prior knowledge,

2. situates learning in real-world contexts,

3. utilizes concrete hands-on experiences, and

4. emphasizes critical reflection to allow learners to transform experiences into deeper understanding.

It is a learner-centered approach focused on the individual construction of knowledge through both doing and reflective observation.

Strategies for Measuring EX

Model of Experiential Learning	Sources of Knowledge/Description	Example Assessment Practices
Kolb's Experiential Learning Cycle (Kolb, 1984)	Concrete experience, reflective observation, abstract conceptualization, active experimentation	Reflective journals, papers analyzing experience, projects applying concepts
Dewey's Model (Dewey, 1938)	Impulse, observation, knowledge, judgment	Reflective essays, concept maps, debates
Lewin's Experiential Learning Model (Lewin, 1944)	Concrete experience, observations, reflection, abstract concepts, testing	Observation and reflection logs, concept maps, transfer tasks
Joplin's Five Stage Model (Joplin, 1981)	Focus, action, support, feedback, debrief	Self and peer evaluations, facilitator feedback forms, debrief analyses

Strategies for Measuring EX

Model of Experiential Learning	Sources of Knowledge/Description	Example Assessment Practices
Gibbs' Reflective Cycle (Gibbs, 1988)	Description, feelings, evaluation, analysis, conclusion, action plan	Reflective journals, learning logs, self-assessments
Place-Based Education (Sobel, 2004)	Local cultures, landscapes, resources	Project reports, community presentations, cultural competency rubrics
Project-Based Learning (Blumenfeld et al., 1991)	Real-world projects, products, presentations	Project rubrics, prototypes, presentation assessments
Service Learning (Bringle & Hatcher, 1995)	Community service, reflection	Reflection journals, project impact reports, site supervisor evaluations

Measuring Experiential Learning

The Experiential Learning process is as valuable as the final outcomes

"Learning by doing." - John Dewey

What are we Measuring? Defined before the experience

Durable Skills
Content Knowledge
Cognitive Development

Common direct measures include:

Journals
Portfolios
Essays
Reports
Presentations

Indirect measures:

Surveys
Self-efficacy reporting

Evaluating Alignment

How will you assess Experiential Learning?

Student Choice to how they will be given feedback
Rubrics aligned to pre-defined learning outcomes
AAC&U VALUE Rubrics
Surveys - self reporting alignment and impact

Implications for assessing EX
Time (unsustainable)
Duplicative assessment requirements (course vs. skill/experience within)
Different assessment protocols (unnatural for many)

Future Models

- Heinrich and Green (2020) proposed a "Design-Instruction-Assessment-Learning" remix model, which recognizes the relationship between experience and reflection
- Reflection based on experience, based on skill developed
- Student directed assessment

Questions?

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MORE REFERENCES AS NEEDED