

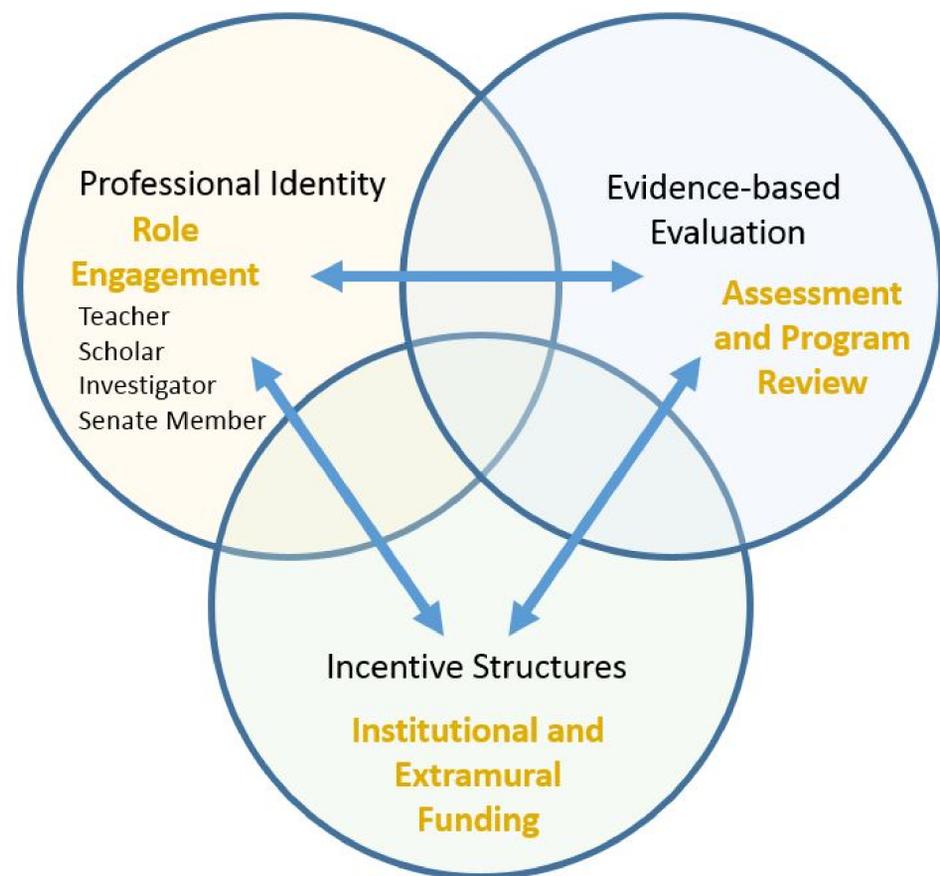
Learning Outcomes Assessment: Catalyzing Innovation in STEM Education to Effect Institutional Change

*Erin Sanders O'Leary, PhD
and Kelly Wahl, MFA*

UCLA

Faculty at UCLA use the direct assessment of student work in a concerted analytical effort to improve STEM education, document outcomes, and lead campus conversations on best practices in teaching and learning. UCLA's Academic Senate program review process requires the articulation of outcomes, an assessment of learning, and a closing of the loop, which aligns pedagogy and outcomes for the benefit of our students. Innovation is catalyzed through the way STEM education development and program review operate in synergy.

To articulate how these concurrent and intersecting processes promote innovation, we have constructed an e-portfolio that details examples of STEM learning assessment at UCLA and our campus academic program review history and practices. A guiding schema for this presentation is how professional identities, incentive structures, and evidence-based evaluation serve as the key concepts that frame how this approach has succeeded. These concepts overlap and interact; however, with faculty as the agents for change, their professional identities serve as the drivers of innovation.



EVIDENCE-BASED EVALUATION

- Learning outcomes assessment transforms instruction in UCLA's STEM education.
- Centers were created to support instructional improvement (CEILS).
- Faculty take initiative and conduct assessment as part of curriculum development effort.
- Faculty introduce new pedagogy based on research findings.
- Assessment processes warrant review for potential improvement.
- Infrastructure must respond to meet program needs.

PROFESSIONAL IDENTITIES

- Their role as teacher, which promotes the continuous improvement of what occurs in the classroom.
- Their role as a scholar, which promotes access to resources in support of generating knowledge.
- Their role as investigator, which promotes the use of evidence in decision making.
 - What would help our students learn more effectively?
 - How can we capture the most compelling evidence of what students know and what they can do?
 - What changes must we make as a consequence of what we learn about their performance or behavior?
- Their role as Academic Senate member, which promotes their engagement with their peers in review of program quality by using evidence.
- Their role as Academic Senate member, which promotes their engagement with the campus administration in their pursuit of resources to support further success.

INCENTIVE STRUCTURES

- External grants support further innovation.
- Program review requires learning outcomes assessment.
- Program review influences resource allocation.
- UCLA's current strategic planning process values education innovation and assessment.

