

**RAW DATA - URE Summit Thursday Afternoon Discussion Group**  
**1:40 pm – 4:45 pm (20-minute break at 3:00 pm)**

## MEASURING IMPACT / CONTINUOUS IMPROVEMENT

Note: There were three groups participating in this discussion. They are numbered here for organization, but do not denote the actual table number at the summit.

### GROUP 1:

**1) Measuring Impact:** How do we effectively measure the impact of UREs on student learning? How do we effectively measure the impact of the practice of UREs at the institutional level? **Propose 2-3 promising strategies for measuring impact on student learning and for measuring institutional impact.**

Key Discussion Points	Final Synthesis
<p>For student learning:</p> <ul style="list-style-type: none"> <li>• Look at student artifacts including poster, final reports, capstone presentations</li> <li>• Use of scoring rubrics with multiple reviewers</li> <li>• Look at Jill Singer's EvaluateUR outcomes list</li> <li>• The process of research is more important than the product (i.e. if you don't get to a happy final result, don't panic, focus on the process.)</li> <li>• Use competencies</li> <li>• Identification and use of tools created to measure specific competencies, skills, etc.</li> <li>• Don't cause survey fatigue – combine survey assessments with some recognizable additional benefit. Student self-assessment should include qualitative feed-back loops with mentor.</li> <li>• Realize that students are not necessarily good at self-assessment</li> <li>• Use of formative and summative assessments (realizing that formative assessments are part of a feed-back loop that improves what is happening during the URE)</li> <li>• Avoid stereotypes</li> <li>• Clearly identify research question</li> <li>• Combine numbers and narrative</li> <li>• Student interview</li> <li>• Utilization of pre-existing tools (such as CAT) that measure things that might want to be measured.</li> <li>• Keep a journal</li> </ul> <p>Instructional Impact:</p> <ul style="list-style-type: none"> <li>• Groups of students should be used</li> <li>• Measure retention, completion and placement: office of institutional research. For example: CURE vs non-CURE completion rates</li> </ul>	<p><u>Strategies for Measuring Impact Student Learning (2-3)</u></p> <ul style="list-style-type: none"> <li>• Having feedback loop within the assessment process. The assessment process should be transparent to the student.</li> <li>• Clearly articulate your assessment objectives</li> </ul> <p><u>Strategies for Measuring Institutional Impact (2-3)</u></p> <ul style="list-style-type: none"> <li>• Engage with your office of Institutional Research</li> <li>• Collect stories and other metrics that augment institutional data</li> </ul>

<ul style="list-style-type: none"> <li>• Be aware of resources to do meaningful research</li> <li>• Measure items that aligned with institutional goals.</li> <li>• Snapshots of what is happening now is a class, by collecting stories.</li> <li>• Identify metrics that can be easily measure by individual</li> <li>• Diversify the type of data that is collected</li> <li>• Measure demographic of URE utilizers and compare to non URE students to assess effective inclusion.</li> </ul>	
<b>2) Customizing Assessment:</b> How do we customize the measurement and proper assessment for the different types of UREs offered? <b>Propose 3-4 promising strategies for customization of assessing different URE types.</b>	
Key Discussion Points	Final Synthesis
<p>There are a lot of tools out there that CC faculty don't necessarily know about (and don't have a lot time to figure out).</p> <p>It would be great if there were standardized assessments to give out. It would be great if there were a toolbox of tools that instructors can grab when needed.</p> <p>Develop a standardized collection of tools that can be used for CUREs, PUREs and SUREs.</p> <p>Realize that each institution might have different priorities in what is measured, and the topics focused upon.</p> <p>Closing the feedback loop will be different when you are dealing with 5 students vs 48 students vs 200 students.</p> <p>Focus on a narrow set of outcomes from a collection (such as Jill's) of possible outcomes to investigate.</p> <p>Create training workshops for assessment usage and interpretation.</p>	<p><u>Strategies for Customizing Assessment (3-4)</u></p> <ul style="list-style-type: none"> <li>• It would be nice if there were standard set of tools created from which instructors and institutions can pick and choose.</li> <li>• It would be nice if there were training workshops for two-year college instructors in the use and interpretation of assessment tools.</li> </ul>

**3) Ensuring Continuous Improvement & Impact:** How do we evaluate UREs in ways that ensure continuous improvement of these programs and of the broader impact they have? **Propose 3-4 promising strategies for ensuring continuous improvement of URE programs.**

**Key Discussion Points**

**Final Synthesis**

Closing the loop: share what is learned with all the stakeholders

One of the challenges is that data collected about URE success is scattered.

Look at transfer rates of students who completed capstone projects (recognizing that there is a difference between correlation and causation)

Low-stakes presentations as a means of presenting results (vs publications where IRBs and peer reviews are required). Perhaps an NSF project like “ask Liz about title” that could help foster a community of people interested in collecting experiences and things learned about UREs. Also: look at REIL Biology online as another possible example.

Strategies for Ensuring Continuous Improvement (3-4)

**4) Communicating ROI (return on investment) and Value of UREs:** How do we use evaluation to communicate the value of students’ URE experiences? To communicate the return on investment for students? For the institution? **Propose 3-4 promising strategies for communicating the critical value and ROI to students and to the institution.**

**Key Discussion Points**

**Final Synthesis**

Use measures such as retention to show ROI.

Have “Were you a URE student?” on degree satisfaction forms.

Use Exit Placement data.

Make sure that students have ownership in the project.

Bring students in to explain to other students/faculty/board members how the URE impacted them.

Strategies for communicating ROI (3-4)

5) Common Success Factors: Are there success factors common to all (or most) URE types? If so, what are they? <b>List 3-4 common factors</b>	
Key Discussion Points	Final Synthesis
<p>How related is your research to your interest.</p> <p>Alignment between student academics and URE.</p> <p>URE challenge is in Zone of Proximal Learning</p> <p>The experience should be structured.</p> <p>An effective mentor is common of successful UREs. Good communication between mentor and instructor. Good communication of expectations.</p>	<p><u>Common Factors</u></p> <ul style="list-style-type: none"> <li>• URE challenge is in Zone of Proximal Learning</li> <li>• A good mentor can adjust the scaffolding to assist student staying in the Zone of Proximal Learning.</li> </ul>

## GROUP 2:

**1) Measuring Impact:** How do we effectively measure the impact of UREs on student learning? How do we effectively measure the impact of the practice of UREs at the institutional level? **Propose 2-3 promising strategies for measuring impact on student learning and for measuring institutional impact.**

Key Discussion Points	Final Synthesis
<p>Students pre and post reflections of projects</p> <p>Student learning</p> <p>Retention and completion</p> <p>Follow up after completion, what opportunities did these students gain after completion</p> <p>Assess student skill set by looking at different competencies (Self-assessment)</p> <p>Building resume before and after</p> <p>Student focus groups, for students who show up, gain positive, quality narratives</p> <p>But getting the students there can be a challenge</p> <p>Faculty focus groups</p> <p>What they think of research and being an active student before they start, and a post reflection after project completion</p> <p>National clearinghouse data can be problematic—how do we increase our graduating class tracking?</p> <p>Maintain relationships/communication with graduates through networking</p> <p>Follow up with alumni and see what kinds of takeaways have been important in career</p> <p>Use of student wage data from DOL</p> <p>Institutional:</p> <p>Creating a culture of giving back and returning to your academic institution, to share learning and workforce/career experiences</p> <p>Performance based funding models becoming more utilized</p> <p>Statistical measurements at an institutional level</p> <p>Comparing URE data vs non URE data graduates</p>	<p><u>Strategies for Measuring Impact Student Learning (2-3)</u></p> <ul style="list-style-type: none"><li>• Statistical metrics considering retention and completion</li><li>• Self-assessment (pre/post course, long term)</li><li>• Maintain relationships with post-graduates</li></ul> <p><u>Strategies for Measuring Institutional Impact (2-3)</u></p> <ul style="list-style-type: none"><li>• National Assessment/Guidelines for Competencies</li><li>• Student Wage Data</li><li>• Statistical data</li></ul>

**2) Customizing Assessment:** How do we customize the measurement and proper assessment for the different types of UREs offered? **Propose 3-4 promising strategies for customization of assessing different URE types.**

**Key Discussion Points**

Apprenticeship, REUs and UREs  
Varied assessments (objective and subjective)  
What learning outcomes would we expect from the different types of UREs  
Define the student learning outcomes  
Define student learning outcomes up front  
Self-efficacy/Ability to persist  
Measure the depth of skills over time  
Design individual assessments

**Final Synthesis**

Strategies for Customizing Assessment (3-4)

- Define student learning outcomes up front
- Define technology specific skills
- Define Professional Skills (soft skills)
- Refer to DOL Foundation Competency Model

**3) Ensuring Continuous Improvement & Impact:** How do we evaluate UREs in ways that ensure continuous improvement of these programs and of the broader impact they have? **Propose 3-4 promising strategies for ensuring continuous improvement of URE programs.**

Key Discussion Points	Final Synthesis
<p>Define the methods for continuous improvements with regular evaluation of mentors (by students) to gain insight into any needed improvements/positive reinforcements</p> <p>Change the culture around the negative view of assessments</p> <p>Faculty Learning Communities for UREs</p> <p>Student led focus group to discuss concerns of the program, facilitating students would communicate to faculty. Students would be provided a template to assist with providing feedback.</p> <p>Continuing education for faculty</p>	<p><u>Strategies for Ensuring Continuous Improvement (3-4)</u></p> <ul style="list-style-type: none"> <li>• Faculty Learning Communities/continuing education for faculty</li> <li>• Change the culture around the negative view of assessments</li> <li>• Regular evaluations of all working parts of UREs</li> <li>• Student led focus groups providing constructive feedback to URE program personnel</li> </ul>

**4) Communicating ROI (return on investment) and Value of UREs:** How do we use evaluation to communicate the value of students' URE experiences? To communicate the return on investment for students? For the institution? **Propose 3-4 promising strategies for communicating the critical value and ROI to students and to the institution.**

Key Discussion Points	Final Synthesis
<p>Student led production of experiences as a campus wide showcase</p> <p>Video, infographics, etc.</p> <p>URE project/poster presentations from CC students given to local area high schools</p> <p>Requirement to communicate URE projects in the classroom setting with related course objectives</p> <p>Age matters! And it takes a village to measure impact. Need an effective institution.</p> <p>To maintain an Alumni and institutional relationship</p>	<p><u>Strategies for communicating ROI (3-4)</u></p> <ul style="list-style-type: none"> <li>• Student led production of experiences as a campus wide showcase via posters, Q &amp; A sessions, video vignettes, infographics, etc.</li> <li>• URE presentations from CC students given to local area high schools</li> <li>• Requirement to communication URE project in a classroom setting with related course objectives to that URE.</li> <li>• To maintain an Alumni and Institutional relationship</li> </ul>

**5) Common Success Factors:** Are there success factors common to all (or most) URE types? If so, what are they? **List 3-4 common factors**

Key Discussion Points	Final Synthesis
<p>Professional skills are stated as learning outcomes upfront and assessed at the end</p> <p>Assessment of student skill set</p> <p>Assessment of the overall URE</p> <p>Those results are communicated to a wider audience (alumni, local area schools, etc.)</p> <p>Alumni remain actively engaged over time for certain high impact URE experiences</p> <p>CUREs, in particular, provide an increase in student engagement:</p> <p>Students developing professional identity, which requires a quality CURE facilitator, which will require support from the institution (to actually hear from these administrators, especially in a changing system)</p>	<p><u>Common Factors</u></p> <ul style="list-style-type: none"> <li>• Assessment of student skill set AND assessment of the overall URE</li> <li>• Professional skills are stated as learning outcomes upfront and assessed after completion of URE</li> <li>• Results are communicated to a wider audience (Alumni, local area schools, etc.)</li> <li>• CUREs provide an increase in student engagement and provides a sense of professional identity. This requires a quality CURE facilitator and will require support from the institution (to hear from administrators)</li> <li>• Alumni remain actively engaged over time for certain high impact URE experiences</li> </ul>



### GROUP 3:

**1) Measuring Impact:** How do we effectively measure the impact of UREs on student learning? How do we effectively measure the impact of the practice of UREs at the institutional level? **Propose 2-3 promising strategies for measuring impact on student learning and for measuring institutional impact.**

Key Discussion Points	Final Synthesis
<p><b>Students:</b> Depends on what we (stakeholders?) value (audience for data – funding agencies, colleague, administration, students). Different data for different audiences. Redefine “student learning” as discipline-specific, skills, certifications, learn about themselves and interests, habits and attitudes, metacognition, confidence. What instruments? May not exist. Requires reliability and validation tests. (e.g. PIT survey) Comparison group? Qualitative observational data collection (focus groups, surveys). Descriptive, causal, mechanistic research possible. Triangulation: Document in faculty’s, students’ and presentation observers’ words. Need: identifying current appropriate instruments/clearinghouse, gap analysis, development of new instruments for CC context, training for faculty to develop Caution about self-reported data (e.g. SALG ~80% accuracy, web site collected some instruments). Reiterated by URE student in the group. Suggest exit interviews.</p> <p><b>Institutional:</b> Retention, student success, transfer rates, student satisfaction surveys, graduation rates, job placement rates, community support. Hard to track students to 4Y colleges. How to incentivize return of data from universities to 2Y. All students create a LinkedIn page, still need people to track. Media/promotional data (video views, etc.). Data on touchpoints (# of students in UREs, presentations, etc.)</p>	<p><u>Strategies for Measuring Impact Student Learning (2-3)</u></p> <ul style="list-style-type: none"><li>• Collect known instruments, gap analysis for needs</li><li>• Data collection design barriers exist (e.g., comparison groups)</li><li>• Need multiple measures</li></ul> <p><u>Strategies for Measuring Institutional Impact (2-3)</u></p> <ul style="list-style-type: none"><li>• Traditional measures (retention etc.)</li><li>• Want data from 4Y institutions on student success</li><li>• Exit interviews</li><li>• External support (e.g., grants)</li></ul>

**2) Customizing Assessment:** How do we customize the measurement and proper assessment for the different types of UREs offered? **Propose 3-4 promising strategies for customization of assessing different URE types.**

Key Discussion Points	Final Synthesis
<p>Backwards design from URE goals.</p> <p>Local adaptation from the start.</p> <p>People don't know about what instruments exist. Encourage dissemination, interdisciplinary communication.</p> <p>Local assessment committee instruments. Gave local comparative group. Knew what administration wanted measured. Internal vs. external use: neither may be publishable but gives local feedback.</p> <p>Numbers and narratives: collect student stories.</p> <p>Suggest that ATE community develop database of assessment instruments. Recognize need to curate site. e.g. CHIRAL (chemistry site for assessment). Conference proposal?</p>	<p><u>Strategies for Customizing Assessment (3-4)</u></p> <ul style="list-style-type: none"> <li>• Identify URE goals.</li> <li>• Identify instruments to measure goals. Locally adapt as much as possible.</li> <li>• Get assessment specialist help as much as possible.</li> <li>• Don't let perfect be the enemy of good.</li> </ul>

**3) Ensuring Continuous Improvement & Impact:** How do we evaluate UREs in ways that ensure continuous improvement of these programs and of the broader impact they have? **Propose 3-4 promising strategies for ensuring continuous improvement of URE programs.**

#### Key Discussion Points

Need to look at the longer-term impacts

We may not see the impacts immediately

Key to any continuous plan is to have an iterative process with assessment in the middle

Work with the data that you have access to (peer evaluations, student evaluations)

Assessments need to be designed to tell us what we are doing well and what we could do better (that can inform our continuous improvement)

It would be helpful to be circle back to students

Interested in looking at the impact on students who have had multiple CURE experiences

Formative feedback is important for the instructors

Be able to monitor the process that you are going through

Recognize that the first time will probably be a mess

Need support for innovation (safe environment for taking risks)

It is difficult to track the longer-term effects (in terms of outcomes following graduation)

It might be useful to leverage LinkedIn as a way to track student outcomes

#### Final Synthesis

##### Strategies for Ensuring Continuous Improvement (3-4)

- We need to see this as an iterative process that allows us to reflect and inform the changes to our UREs
- Carefully designed assessment tool should be informative (they should tell us not only what we are doing well and what we could do better)
- Look for best practices that are out there and then be able to locally adapt
- We need to find creative ways to track the longer-term effects after students have left

**4) Communicating ROI (return on investment) and Value of UREs:** How do we use evaluation to communicate the value of students' URE experiences? To communicate the return on investment for students? For the institution? **Propose 3-4 promising strategies for communicating the critical value and ROI to students and to the institution.**

Key Discussion Points	Final Synthesis
<p>We would like to also include the faculty within the institution.</p> <p>Having alumni come back to report back the gains and value of the experience</p> <p>Need to collect the numbers and narrative to share with board of trustees, donors, and other stakeholders</p> <p>Narratives are useful as a recruitment tool</p> <p>Can highlight a student's story/successes including opportunities for scholarships</p> <p>Highlights how important qualitative data is</p> <p>Suggestion to invite high school students to the research showcase event</p> <p>Keep track of where students transfer</p> <p>Need to improve the public perception of the community college</p> <p>Emphasize the skills that employers are seeking – could include vignettes that involve employers as well</p> <p>Evaluations need to include these qualitative pieces that tell the narratives</p> <p>Need to consider the platform for reaching the audience (for younger crowds – Instagram, LinkedIn or Facebook)</p> <p>Need to have a point person who is responsible for this dissemination/communication</p> <p>Need to include the faculty in these vignettes as well</p>	<p><u>Strategies for communicating ROI (3-4)</u></p> <ul style="list-style-type: none"> <li>• Track and emphasize how retention and graduation rates are impacted by UREs</li> <li>• Need to highlight student's narrative and emphasize successes (including reporting out how these opportunities have led to scholarships or additional experiences)</li> <li>• Leverage social media platforms to communicate successes</li> <li>• Need to improve the public perception of the community college within the community</li> <li>• Coordinated communication of efforts at the school should be done at an institutional level (so there aren't 5 different UREs and communication is happening for each individual)</li> </ul>

**5) Common Success Factors:** Are there success factors common to all (or most) URE types? If so, what are they? [List 3-4 common factors](#)

Key Discussion Points	Final Synthesis
<p>Increased understanding in basic research process, learning goals, persistence, develop scientific/researcher identity (and for some graduate school). Increase in scientific literacy, critical thinking, tenacity from trial and error struggles (opportunity to learn from failure), reading the literature and getting information out of it, presentation/communication skills.</p> <p>Faculty are intellectually stimulated, recruitment of faculty, invitations to national level networking opportunities, grant funding, presentation opportunities at national meetings/regional meetings.</p> <p>For more of the REUs—increased access to networks/mentors and opportunities.</p> <p>CUREs have a better chance of sustainability in continuing over time rather than reliant on funding.</p> <p>Requires a faculty champion—dedicated faculty are a must or it won't work.</p> <p>Administration (chair, dean, VP, P, and Board of Trustees/ed) needs to be supportive or it can cause a program to disappear. Can also find ways to make it more sustained and successful (e.g., use student fees to support students travel to research meetings).</p> <p>Needs to be aligned with the school mission and strategic plan</p>	<p><u>Common Factors</u></p> <ul style="list-style-type: none"><li>• Student success factors (such as learning, persistence, skills development, identity development, etc...)</li><li>• Faculty are supported and gain intellectual stimulation and champion the work</li><li>• Administration support the faculty in their endeavors and efforts</li><li>• Workforce identifies the value of the programs</li></ul>