Broadening the Evaluation Measures from “Ordinary” to “Extraordinary”: Utilization of Social and Psychological Measures

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What have OCCRP been involved with?

- Student Enrollment and Engagement through Connections (SEEC)
  - ISU-COE, DMACC
- Iowa Project Lead The Way (PLTW) Statewide Evaluation Research
  - Iowa Dept. of Ed., U of I
- Iowa Community College Completion Initiative: STEM Student Success Literacy
  - Iowa 15 community colleges
- HHMI Summer Research Experience
  - ISU-Grad. College (Craig Ogilvie), Marshall Town CC
- Biological Materials and Processes Research Experience for Undergraduates (BioMaP REU)
  - ISU-COE (Monica Lamm)
- Academy For STEM Success
  - San Diego City College
- S-STEP Engineering Transfer Success
  - Texas A & M, Polo Alto Community College
What does OCCRP do and don’t?

**OCCRP Provides:**

- **Quantitative Measures**
  - Participants demographics, cognitive/academic outcomes
  - Impact of interventions, programs, etc. utilizing survey instruments (e.g., STEM Student Success Literacy survey)

- **Qualitative Measures**
  - Impact of interventions, programs, etc. through focus groups, interviews
  - Effectiveness of program implementation, management, communication, etc. through document analysis
  - Assessment of program practice via laboratory, class observations.

**OCCRP will not Provide:**

- **Quantitative Measures**
  - Participants demographics measures that are not permissible under Family Educational Rights and Privacy Act (FERPA) (e.g., financial status, disability, income, etc.)

  -> **OCCRP measures with self-reported data**

- **Qualitative Measures**
  - Reporting of personal stories, experiences that potentially disclose the identity of individuals

  -> **OCCRP reports aggregate results and provides implications based on the qualitative data**
What works and doesn’t work?

Works:

• Develop a Partnership Early
  – Consider working with OCCRP during your proposal writing stage
  – Identify and work with all stakeholders (e.g., students, departments, faculty, etc.)
  – Plan for IRB!

• Communicate Frequently
  – Once a partnership is established, be sure to communicate frequently to inform OCCRP of your progress
  – Early planning for data collection (evaluation design - cross-sectional, longitudinal, etc.; logistics for survey study, focus group, etc.)

Doesn’t Work:

• Last-minute Request
  – A paragraph of evaluation plan does not give the proposal competitive edge that you need. Show how evaluation plan can provide evidence for broader impacts of your project.
  -> OCCRP wants to know early – even you are just thinking about writing a proposal.

• Mono-disciplinary approach
  – NSF encourages interdisciplinary approach. Consult OCCRP how your research and prosed programs can be interdisciplinary, including evaluation.
  -> OCCRP encourages PIs to think go beyond “ordinary measures” by utilizing social and psychological measures.
Opportunities and Challenges

Opportunities:

• Evidence of Broader Impact on Students
  – Plan for a longitudinal evaluation to track students’ academic outcome, including persistence in STEM majors, retention, graduation, etc.
  – Consider measuring students’ career and educational aspirations in STEM
  – Look for future collaborations with other institutions for a larger grant opportunity – by identifying common evaluation measures

• Broader Impact on Community and Society
  – Consider measuring how students’ experiences through your projects/programs can impact outreach activities (e.g., siblings, family members, etc. to participate in postsecondary education in STEM)
  – Look for a possible economic impact of students’ career trajectory to a local business, community and beyond.
  – Include dissemination efforts to share the evidence from evaluation to professional and academic society

Challenges:

• Budget
  – NSF encourages to have an evaluation plan with rigor, but need funding for project/program

  -> OCCRP wants to learn about your internal and external constituents.

• Homogeneity of Student’s Characteristics
  – Difficulties in attracting URMs in STEM at ISU

  -> OCCRP encourages PIs to collaborate with other initiatives at ISU as well as the State of Iowa.
Example of Possible Outcome Measures

1. To what extent do PLTW and non-PLTW students persist to community colleges or four-year universities?

1. What demographic and achievement factors (e.g., ethnicity, gender, social economic status, PLTW participation, attendance, ITED math and science scores, etc.) predict PLTW and non-PLTW student persist to community colleges or four-year universities?

- Demographic Characteristics
  - Ethnicity
  - Gender
  - Free/Reduced Lunch
  - Gifted/Talented

- Academic Backgrounds
  - ITED Math & Science Scores
  - Grades of HS Courses

- Status of PLTW Participation

- Transition to Higher Ed
  - No College
  - 2-year College
  - 4-year College

Selection Bias
Research Projects

Currently on-going:
- National Survey Study: STEM Student Success Literacy
- STEM Educational Pathway
- Community College Leadership Program: STEM Focus
- Summer Research Experience for Community College Students
- IINspire LSAMP (NSF)
- STEM Transfer Students

Looking for future:
- State Longitudinal Data System
- Iowa Experimental Program to Stimulate Competitive Research (EPSCoR)