Broadening the Theory of Undergraduate Research: Assessing Benefits to Institutions, Communities, and Regions

Elizabeth Ambos, Executive Officer

INHERE Meeting – March 8, 2018
Broadening the Undergraduate Research/Forschendes Lernen (UR/FL) Theory of Change: A Brief Overview

• Why is it so important and timely to assess UR/FL benefits to institutions, communities, and regions?
  • historical perspective
  • current climate for higher education

• How does the evolution of the Council on Undergraduate Research express the growing impact of UR/FL to institutions, communities, and regions?

• What are some key elements of a broader theory of change that would include benefits to institutions, communities, and regions?
  • how do we assess community/region unmet needs?
  • what are some next steps to consider?
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Honoring Key Thought Leaders
Why is it important and timely to assess UR/FL benefits to institutions, communities, and regions?

• We now have stronger evidence than ever before to tie UR/FL with student success, with more research needed!
• Most of our discussions today will concern the connection between UR/FL and student benefits
• However, we haven’t yet fully justified UR/FL as beneficial to communities
• **We will need to do both to expand and sustain UR/FL**
• Reason: uneasy balance between higher education and communities: so-called “town-gown”
“Town-Gown” Relationships: Challenges – Historical

St. Scholastica Riot
- 10 February 1355
- Oxford, England

Source: Creative commons
“Town-Gown” Relationships: Opportunities - Historical

• in their 2012 paper “Medieval Universities, Legal Institutions, and the Commercial Revolution”, Davide Cantoni (University of Munich) and Noah Yuchtman (University of California, Berkeley) provide evidence for a connection between establishment of universities in Germany in the late 1300’s and generation of new marketplaces.

• “Universities provided training in newly-rediscovered Roman and Canon law; students with legal training served in positions that reduced the uncertainty of trade in medieval Europe. “

“Town-Gown” Relationships: Opportunities - Present-Day

• interactions between higher education and economic benefits have never been more clearly linked as they are in today’s economy

• capacity to grow research infrastructure may well depend on undergraduates...working with “citizen scientists/historians, etc.”: faculty and graduate students may be fully deployed already

• many societal challenges rely less on money than on culturally-appropriate and trusted solutions

• for example, increasing mobility of human populations, climate change, public health, and a host of other issues need extensive research to find solutions...in partnership with communities
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Council on Undergraduate Research

• A national (increasingly international) organization of individual (>13,000) and institutional (>700) members representing all disciplines and over 1000 institutions of all types.


• Two multidisciplinary, administrative-based divisions: At-Large (research administrators) and Undergraduate Research Program Directors.

The mission of CUR is to support and promote high-quality undergraduate student-faculty collaborative research and scholarship.
CUR Offers a variety of Programs, Information resources, and Advocacy to its members.

Began in 1978 with ten Chemists....
CUR’s Evolution

• Began in 1978 with ten chemists....
  • Forty years later....span all disciplines with more than 13,000 members representing more than 1000 organizations...

• With rise of representation from arts and humanities...as well as sciences, mathematics and engineering....
  • Observe rise of publications that emphasize
    • shared principles and ideas (e.g. Characteristics of Excellence in Undergraduate Research)
    • multi and interdisciplinary collaborations that benefit communities
  • Important voice for the value of undergraduate research to institutions, communities, and regions
    • Posters on the Hill, National Conference on Undergraduate Research
NCUR Locations
Interior U.S.
NCUR Provides great Showcase for UR/FL

CUR moves location around U.S.

Currently Studying economic impact of 2015 Spokane – conservative estimate: €2Million

View of one of 9 poster sessions at 2014 NCUR – Kentucky – 4300 attendees
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Theory of Change in Undergraduate Research

• CURRENT GOAL = STUDENT SUCCESS THROUGH UR
  • Undergraduate research opportunities are provided to all students who have interest in them
    • benefits individual student success
    • higher graduation rates
    • better retention in degree programs
    • better preparation for work and advanced study
    • demonstrates degree quality (e.g. Bologna Accord discussions)

• ASPIRATIONAL GOAL = STUDENT AND COMMUNITY SUCCESS THROUGH UR
  • The research that undergraduate students do contributes to community success
    • benefits public good
    • higher community health and other indicators of quality of life
    • greater community economic vitality, growth, stability
A Simple Theory of Change for UR in the Community

**Goal**

STUDENT AND COMMUNITY SUCCESS THROUGH UNDERGRADUATE RESEARCH

**Preconditions**

- Faculty, students, and institutions practice UR in the community
- Community benefits from UR in the community

**Assumptions**

- Faculty, students, and institutions value UR when practiced in the community
- Pathways, policies, and relationships exist to support UR in the community
- Communities have unmet needs with respect to research
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Chapter on Inter and Transdisciplinary Undergraduate Research (Studium)

Authors Michael Prytula, Tobias Schroder and Harald Mieg

Highlights FL in support of the InterFlex program to redesign city (Potsdam, Berlin, etc.) architecture, design, and services to support human quality of life
UR/FL in the Community: Flint, Michigan - Drinking Water Crisis

Region’s Unmet Research Need: Trained researchers to sample and analyze water quality in aging water delivery infrastructure

Virginia Tech University Team, including UR students, helped uncover high levels of lead (Pb) in Flint, Michigan public water system – pictures taken from Virginia Tech website. [http://flintwaterstudy.org/](http://flintwaterstudy.org/)
World CUR 2019: Research Themes

- The Environment, Human Footprints, and Responsibility
- Global Health Care
- Current and Emerging Economic Issues
- Communication Technology and Challenges
- Emerging Political and Social Issues of the 21st Century
- The World We Create
Questions for Future UR/FL in the Community

• As researchers/faculty members how do we assist communities in identifying unmet research needs?
• How do we set expectations?
• How do we build relationships?
• How do we define metrics?
• How do we define the economic contribution of our research activities?
• What policies in the community or academic institution do we need to adjust to do community research?
• Other?
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