Engaging with Communities on Broader Impacts Work

Monica Kowal, Director, Community Engagement Office
Stephanie Tofighi, Faculty Research Support Officer, Faculty Research Development Office
What are Broader Impacts (BI)?

- Also referred to as Outreach Efforts by some sponsors
- The potential of a sponsored project to benefit society and contribute to the achievement of specific, desired societal outcomes
Potential Target Outcomes for BI

• Full participation of women, underrepresented minorities in STEM, and persons with disabilities
• Improved STEM education and educator development (at any level)
• Increased public scientific literacy and public engagement with science and technology
• Improved well-being of individuals in society
• Development of a diverse, globally competitive STEM workforce
• Increased partnerships between academia, industry and others
• Improved national security
• Increased economic competitiveness
• Enhanced infrastructure for research and education
Outreach might imply...

- Academic work done “for” the public
- Applying existing knowledge
- Unidirectional flow of knowledge (university → public)
- Distinction between knowledge producers & knowledge consumers
- Primacy of academic knowledge
- University as center of public problem solving
Engagement refers to:

<table>
<thead>
<tr>
<th>Academic work done “with” the public</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusive, collaborative, problem oriented</td>
</tr>
<tr>
<td>Multidirectional flow of knowledge (university ↔ public)</td>
</tr>
<tr>
<td>Co-creation of knowledge (university + community – solutions)</td>
</tr>
<tr>
<td>Shared authority for knowledge creation (both universities and communities have relevant knowledge &amp; expertise)</td>
</tr>
<tr>
<td>University as part of an ecosystem of knowledge production addressing public problem solving</td>
</tr>
<tr>
<td>Community change that results from the co-creation of knowledge</td>
</tr>
</tbody>
</table>
Benefits to Society

Co-creation of knowledge

Sustainable transfer of knowledge

Generates true empowerment approaches to community development

Creates mutually beneficial outcomes

Creates public support for solutions-focused partnerships

Creates public support for PreK-12 educational improvements

Potentially involves (impacts) whole community (diffusion)

Creates transdisciplinary partnerships

Creates startup companies, product improvements, innovation and workforce development

Enhances quality of research and evaluation

• Implementation & Fidelity
• Reliability & Validity
• Diffusion & Dissemination
Community Engaged Scholarship is...

- Scholarship focused (Goal oriented toward change)
- Community-based (Systems oriented)
- Mutually beneficial
- Capacity Building
- Sustainable
- To serve a larger public good
What do we mean by “community”? 

GEOGRAPHIC 

Shared physical space such as a neighborhood, city, or region.
More definitions of “community”

- **Identity**: • Shared race, gender, or other characteristics
- **Affiliation or Interest**: • Shared common set of values or concerns
- **Circumstances**: • Shared common experiences, e.g. surviving natural disaster or managing a disease
- **Profession or Practice**: • Shared specific knowledge to occupation, skill, or trade
- **Faith**: • Shared belief systems, customs, and religious or spiritual practice
- **Family/Kin**: • Shared relationships through family and/or marriage
Engaged Research & Creative Scholarly Approaches to BI

- Use-inspired basic research
- Community-based research
- Community-based Participatory research
- Applied research
- Contractual research (funded by government, NGOs or businesses)
- Demonstration projects
- Needs and assets assessments
- Program Evaluations
- Translational scholarship through presentations, publications and websites
- Exhibitions, performances, and other creative activities
“Engaged” Incorporates Community Knowledge

Scholarship *informs* your understanding and *guides*... ...*your experiences* with community engagement, which, then in turn... ...*generate* new scholarship and practice for both...

In Collaboration with Community Partners (including local, indigenous, or practitioner knowledge)

...academic audiences
...public audiences.
What is the Infrastructure to Support BI?

- ADVANCE Team
- Office of Community Engaged Learning & Research
- Faculty Research Development Office
- UNM Pre-College Programs (CEP, Upward Bound)
- K12 Community Partnerships (APS)
- Museums (Explora, Natural History Museum, ABQ Art Museum, BioPark)
- STEM NM Ecosystem
As a Researcher, What Can My Broader Impact Be?
Proposed Research Itself Defines the Broader Impact

- Converting solid waste materials into road surfacing material to develop longer-lasting, quieter road surfaces
- Using math and statistics to improve predictions of severe weather
- Analyzing evolution of massive storms to develop better understanding and improve forecasting and resilience planning.
Proposed Research Directly Contributes to Broader Impact

Advancement of computer architecture that could improve energy efficiency and battery life.

Harmonic analysis research with applications in big data, image processing, and wave propagation.

Improve photovoltaic technology with the potential to improve solar cell efficiency and reduce costs.
Proposed Research is Complemented by Broader Impact Activities

- Research studies early language and bilingual education. BI is to collaborate with organizations and policymakers to develop science-based programs.
- Museum exhibit that displays technological advances being made to restore and extend human abilities. Shares engineer’s stories with general public.
- Research studies use of organic semiconductors. BI fosters interest in polymer science with chemistry ambassadors to underrepresented teens.
What is your Broader Impact Identity?
Finding your Broader Impact Niche

• How does your research naturally connect to societal needs and issues?

• Which societal needs and issues most connect to you and your work?

• What societal change do you want to see as a result of your work and why?
Finding your Broader Impact Niche

• How does your research naturally connect to societal needs and issues?
• Which societal needs and issues connect to you and your work?
• What societal change do you want to see as a result of your work and why?
Examples of Community Engaged Approach to Outreach
Refugee Well-Being Project

PI: Jessica Goodkind, Sociology
NASA Swarmathon

PI: Melanie Moses, Computer Science
Bosque Ecosystem Monitoring Project

PI: Kim Eichhorst, Biology
City of ABQ, UNM partner to make restrooms more accessible for homeless

By: Allison Martinez

Posted: Mar 12, 2020 06:23 PM MDT
Updated: Apr 2, 2020 03:01 PM MDT
Reaching your Broader Impact Goal

• What people, programs, expertise, partners, institutions, and tools do you already have access to that can help you reach your impact goal?
• What other people, programs, institutions, partnerships, etc. do you need?
ONLINE TOOLS AVAILABLE

- NSF Perspectives on Broader Impacts -
- National Alliance on Broader Impacts (NABI) -
  https://broaderimpacts.net/
- Broader Impacts at UNM -
  http://frdo.unm.edu/unm_broader_impacts
Campus Resources

- K-12 Specialists
- Undergraduate Specialists
- Underrepresented and/or Minority Group Specialists

Request support from the Faculty Research Development Network by clicking this link.
K-12 SPECIALISTS

- NM STEM-H Center
  - Karen Kinsman (Director)
  http://nmstemh.org/

- NM MESA
  - Kim Scheerer (UNM Contact)
  http://www.nmmesa.org/

- Engineering Student Success Center
  – Elsa Castillo (Asso. Director)
  https://ess.unm.edu/index.html

- ABQ Math Teachers’ Circle
  - Michael Nakamaye (UNM Prof.)
  http://www.unm.edu/~mathtc/index.php
• Research Experience for Undergrads
  • Nanoscience & Microsystems - https://reu.unm.edu/
  • Biology - https://sevilletareu.wordpress.com/

• Student Support Services http://ssstrio.unm.edu/

• STEM Collaborative Center https://stem.unm.edu/

• STEM University https://stemuniversity.unm.edu/

• Engineering Student Success Center https://ess.unm.edu/index.html
UNDERREPRESENTED/MINORITY GROUPS SPECIALISTS

- Student Support Services
  http://ssstrio.unm.edu/
  - African American Student Services
    http://afro.unm.edu/
  - American Indian Student Services
    https://aiss.unm.edu/
  - El Centro de la Raza
    https://elcentro.unm.edu/
  - TRIO Program
    http://ssstrio.unm.edu/
- Ronald E. McNair Scholars Program
  https://mcnair.unm.edu/
- Project for NM Graduates of Color
  http://pnmgc.unm.edu/
- Native Americans in STEM (NASTEM)
  https://ess.unm.edu/programs/nastem/index.html

UNM Spring 2019 Total Enrollment by Ethnicity*
