My Background

• PhD Psychology (social psychology)

• Postdoctoral fellowship – Vanderbilt Institute for Energy and Environment

• Assistant Professor, Environmental Studies (CU-Boulder)

• Environmental decision-making (conservation behavior, adaptation to climate change)

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<td>Law &amp; Policy</td>
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1. Times have changed – correcting common misconceptions about inter/trans-disciplinary research

2. Common limitations of the social/behavioral components of integrative research

3. Unique challenges found in transdisciplinary teams (and a few recommendations)
## 1. Times are Changing…

### False Assumptions

1. Cross-cutting funding programs (CNH, INFEWS, NNA) don’t really want social or behavioral science (SBS)

2. “Ticking the box” on social science (SS) is sufficient

3. Interdisciplinary research is risky for early career scholars

### The New Normal

- Some of the most novel questions are ‘social’ in nature.
- Unique opportunity for high dollar funding for innovative SBS-led research
- Strong expectation of rigor and record of methodological expertise
- More jobs than many realize, but training gap is apparent
- Gatekeepers increasingly reward interdisciplinary innovation
- Imbalance of opportunities for those with non-disciplinary degrees
2. Common limitations of SBS components

• The social/behavioral science is isolated to research dissemination or outreach

• The science lacks a fundamental / generalizable research question

• To advance knowledge of human systems:
  1. Research question must be contextualized within a knowledge base
  2. Assessment about what is and is not known about a research question
  3. Defense of how methods address knowledge gaps
  4. Findings are relevant beyond a specific study site or topic

• Importantly – transdisciplinary work opens opportunities for advancements that are at the intersection of the social/natural sciences.
3. Unique Challenges in Transdisciplinary Team Science

1. Cultural divides
2. The question of scale
3. Loss of control
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1. Communicate early & often (structured discussion)
2. Require a history or philosophy of science course for grad students
3. Understand that tensions can be productive (Nightengale, 2016)
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Adoption of Ag Adaptations during 2017 Drought

- Hybrid Seed: 99% knowledge, 14% adoption
- Switched Crop: 100% knowledge, 4% adoption
- Crop Mgmt Technique: 71% knowledge, 0% adoption
1. Communicate early & often (structured discussion)
2. Require a history or philosophy of science course for grad students
3. Understand that tensions can be productive (Nightengale, 2016)
4. Leadership is critical
5. Let the team flow from the research question, not the other way around
6. Mock up a data integration plan early and revisit often
7. Ask the “stupid” questions
   • What will this data look like (what format, what characteristics, how derived)?
   • At what scale (temporal/spatial) is it reliable?
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- Moving from multi-disciplinary to trans-disciplinary teams requires flexibility & openness
  - Standards of practice within a field may need to be modified to accommodate integration
  - Team members need be able to explain and educate one another about the relevance of their work
  - Unpleasant but potentially productive tension
    • Leading to advances within and across disciplines
1. Communicate early & often (structured discussion)
2. Require a history or philosophy of science course for grad students
3. Understand that tensions can be productive (Nightengale, 2016)
4. Leadership is critical
5. Let the team flow from the research question, not the other way around
6. Mock up a data integration plan early and revisit often
7. Ask the “stupid” questions
8. Foster and select for important “soft skills”: humility, flexibility, patience
9. “Gradual” approaches (Gilligan, 2019)
10. Train specialists and generalists
Thank you!

Contact: Amanda.Carrico@Colorado.edu
www.carricolab.weebly.com

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