Developing a holistic understanding of our work through research and evaluation

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The work presented here has been supported by the National Science Foundation through grants DRL #1223173, DRL #0833624, DRL #0525040. The Lynch School of Education and Boston and Irving Backman and associates.
Brief Overview: Context for our E&R

- Long-term program to support first generation youth to get into college, major in a STEM or related field (i.e. science writer)
- Support teachers in implementation of curriculum materials
Evaluation and Research

- Reflexive design – different areas of focus
  - Formative/Summative feedback across the program
  - Capture feedback/data from all participants
What we have been doing

- Develop a **longitudinal and holistic** view of the work
- Design-based implementation focus
  - Quantitative
    - Surveys with youth in and out of school (IR)
    - Teachers (IR)
  - Qualitative
    - Student Focus groups (evaluator)
    - Teacher Focus (E)
    - Classroom observations (E)
    - Narrative longitudinal case studies of youth (IR)
    - Student learning (IR)
      - 6 student dissertations
    - Where youth end up (college-graduate?, major?) (IR) and what have been doing (E)
- Looking for growth over time on constructs
  - Science Interest, Career Planning, Work Hope, Self-efficacy, Resilience, and Problem Solving
What we have learned

• Important to have both the evaluation team and our research team approaching the constructs of interest from different perspectives

• Helped to identify the underlying principles that drive the success of our program
  – Youth need to be in program for at least 2 years
  – Social Justice and Community-based science are the key hooks for our youth
What we learned

• Teachers have reported that there are three level challenges of implementation
  • 1st order – just getting it to work
  • 2nd order – logistics of making it work in a classroom
  • 3rd order – pedagogical
    – Shifted the nature of our teacher PD and supports that we provide teachers

• Been able to track the impact of our program on youth over 8 years (first group just graduated from college)
  – Learned that kids struggled during their early college careers in STEM fields… 40% of them left to another discipline
What we learned

• Willing to develop new instruments as needs/shift
  – Collaboratively developing a observational protocol to see if we can measure how resilience is developed in youth over time
  – Share everything (small IRB challenge but not bad)
    • Survey results -> observations -> focus groups
    • Data management..

• Bad (well programmatic challenges) are good… evaluator needs to be candid about what is not working… and help with suggestions
  – Trust… Good and Bad…
Challenges and Needs

• **Time** *(I know a challenge for everything)*
  – Reciprocal nature of our research and evaluation efforts

• **Scale vs. Depth** – across states – around 200 teachers
  – Want and need more than just a snapshot of teaching practice – though kept local
  – Why we have divided up to maximize resources

• **Longitudinal work**
  – Responsive to shifts in the youth program
    • As much as is feasible our program is driven by youth interests…
Recommendations

• Close working relationship between research team and evaluator while maintaining an experience near and experience far perspective

• Don’t think of research and evaluation as separate entities
  – Creating positive feedback loops

• Plan early and often

• Be adaptive and flexible based upon results
  – Learned more from what hasn’t worked than what has in many ways
Challenges: Plan from beginning

The Grant Writing Process

Crazy Idea
- Think about it
- Think about it and decide just nuts
- Other miracle occurs, often arises from sleep deprived trance

Third Draft
- Complain about indirect costs
- Is the idea really that crazy to be funded?

Fourth Draft
- Fifth Draft
- Convince University the idea is a good one
- Yes, idea is crazy enough to be funded

Worry about budgets
- Complain about indirect costs
- Complain about indirect costs

Second Draft
- Decide the idea is really interesting
- No way this will ever work
- No way will it ever work?
- Who will help me with this nutty plan?

First Draft
- Think about first draft
- Resigned to indirect costs

Final Draft
- Somewhat panic: The grant is due today at 5:00!
- Wait for University to submit grant

Start writing
- A miracle occurs

Wait for next crazy idea or revise idea
- Too crazy to possibly work
- Crazy enough to work
- Identify Key Partners
- Excited partners

- Perhaps it makes sense
- No way this will ever work

- Perhaps it makes sense
- No way this will ever work

- Who will help me with this nutty plan?
- Excited partners.