

# Developing a holistic understanding of our work through research and evaluation

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Developers of Advanced  
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Interactive tools for geographic education

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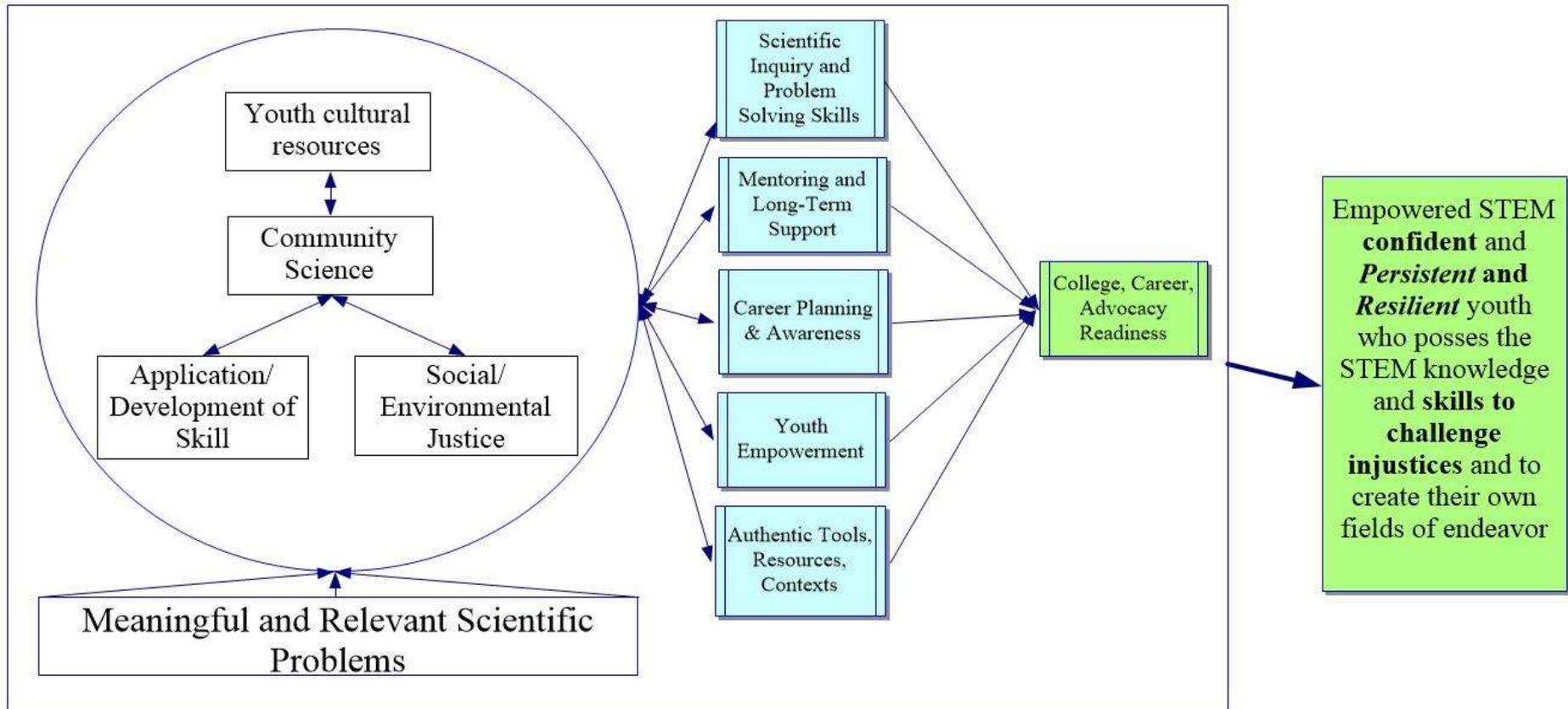


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# Brief Overview: Context for our E&R



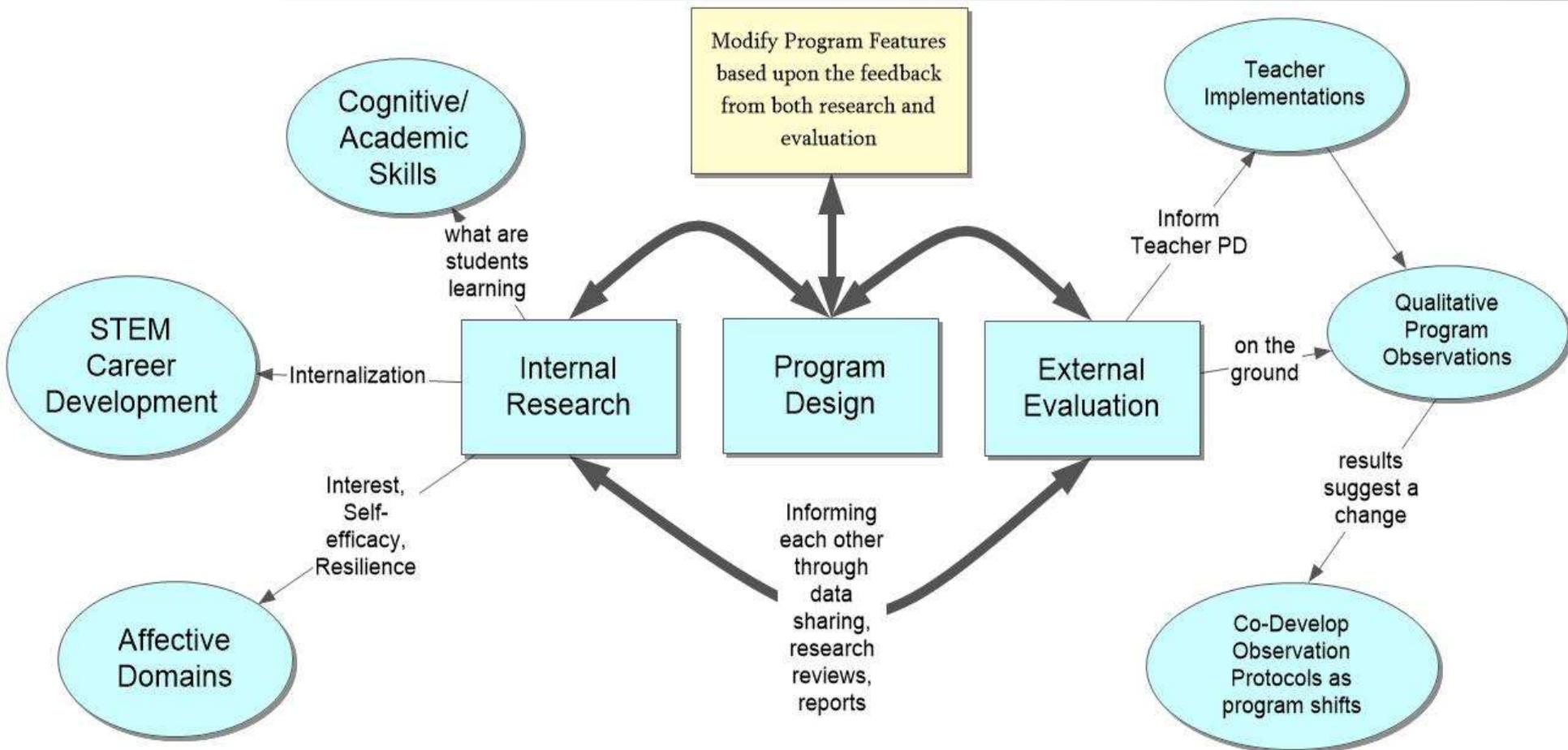
- Long-term program to support first generation youth to get into college, major in a STEM or related field (i.e. science writer)
- Support teachers in implementation of curriculum materials



# 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

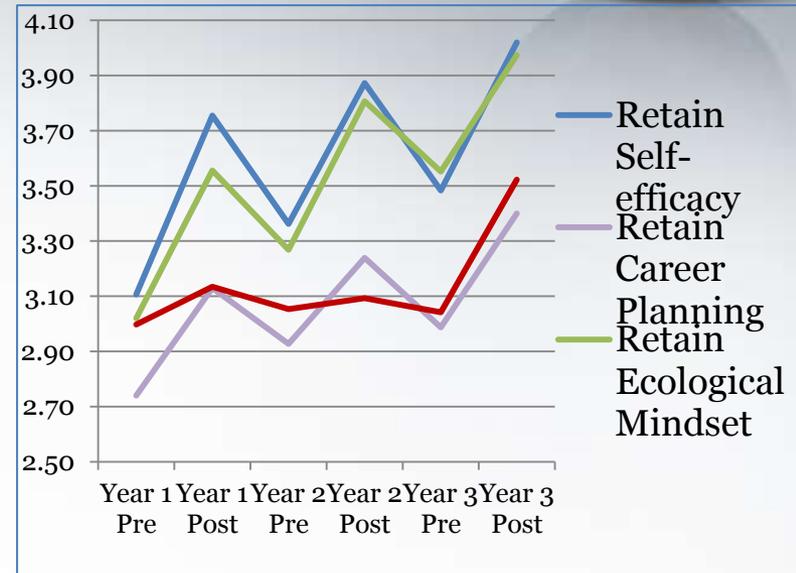
- Develop a **longitudinal and holistic** view of the work
- Design-based implementation focus
  - Quantitative
    - Surveys with youth in and out of school (IR)
    - Teachers (IR)
  - Qualitative
    - Student Focus groups (evaluator)
    - Teacher Focus (E)
    - Classroom observations (E)
    - 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
  - 1<sup>st</sup> order – just getting it to work
  - 2<sup>nd</sup> order – logistics of making it work in a classroom
  - 3<sup>rd</sup> 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

