

A 2-Phase, Mixed Methods Approach to Evaluating and Improving an Innovative Program Model

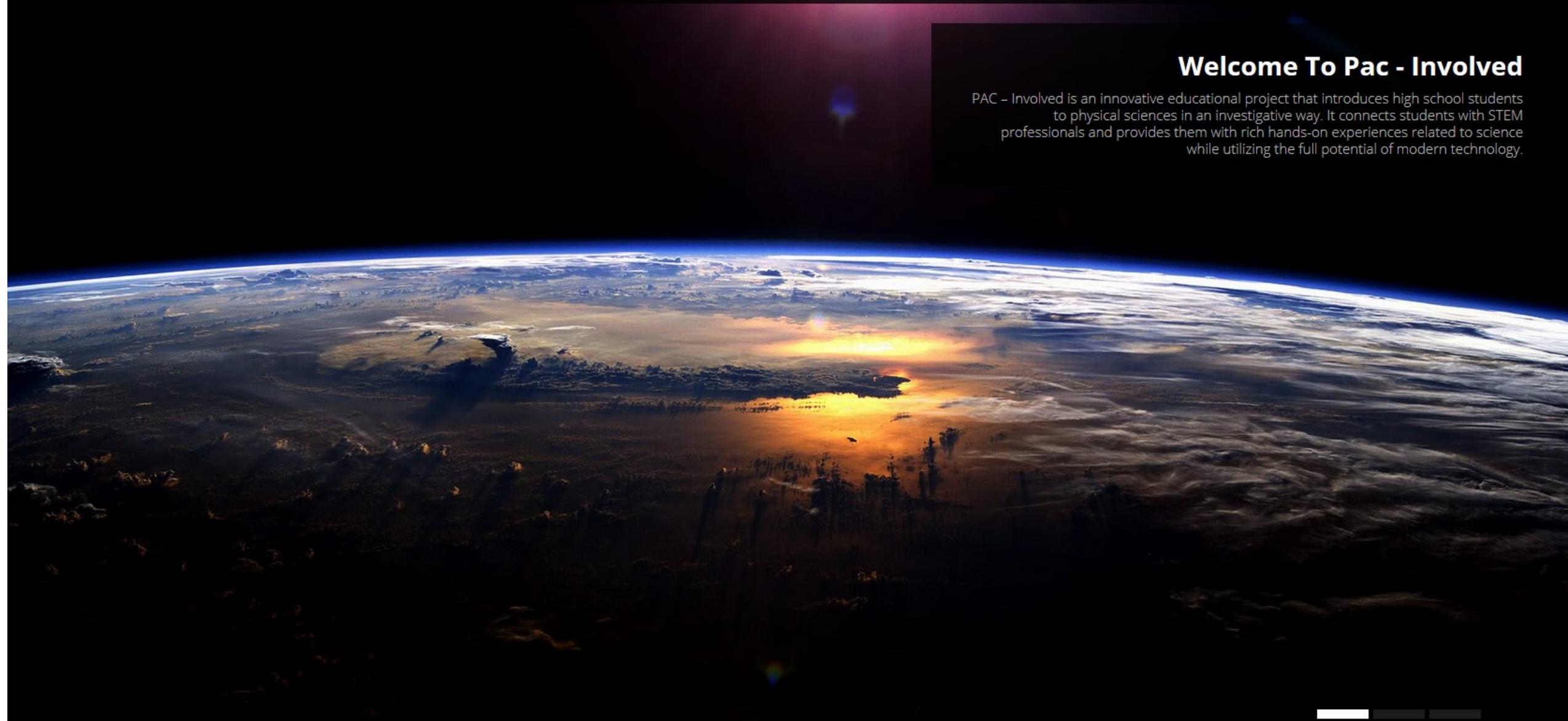
The PAC-Involved Evaluation

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Welcome To Pac - Involved

PAC – Involved is an innovative educational project that introduces high school students to physical sciences in an investigative way. It connects students with STEM professionals and provides them with rich hands-on experiences related to science while utilizing the full potential of modern technology.

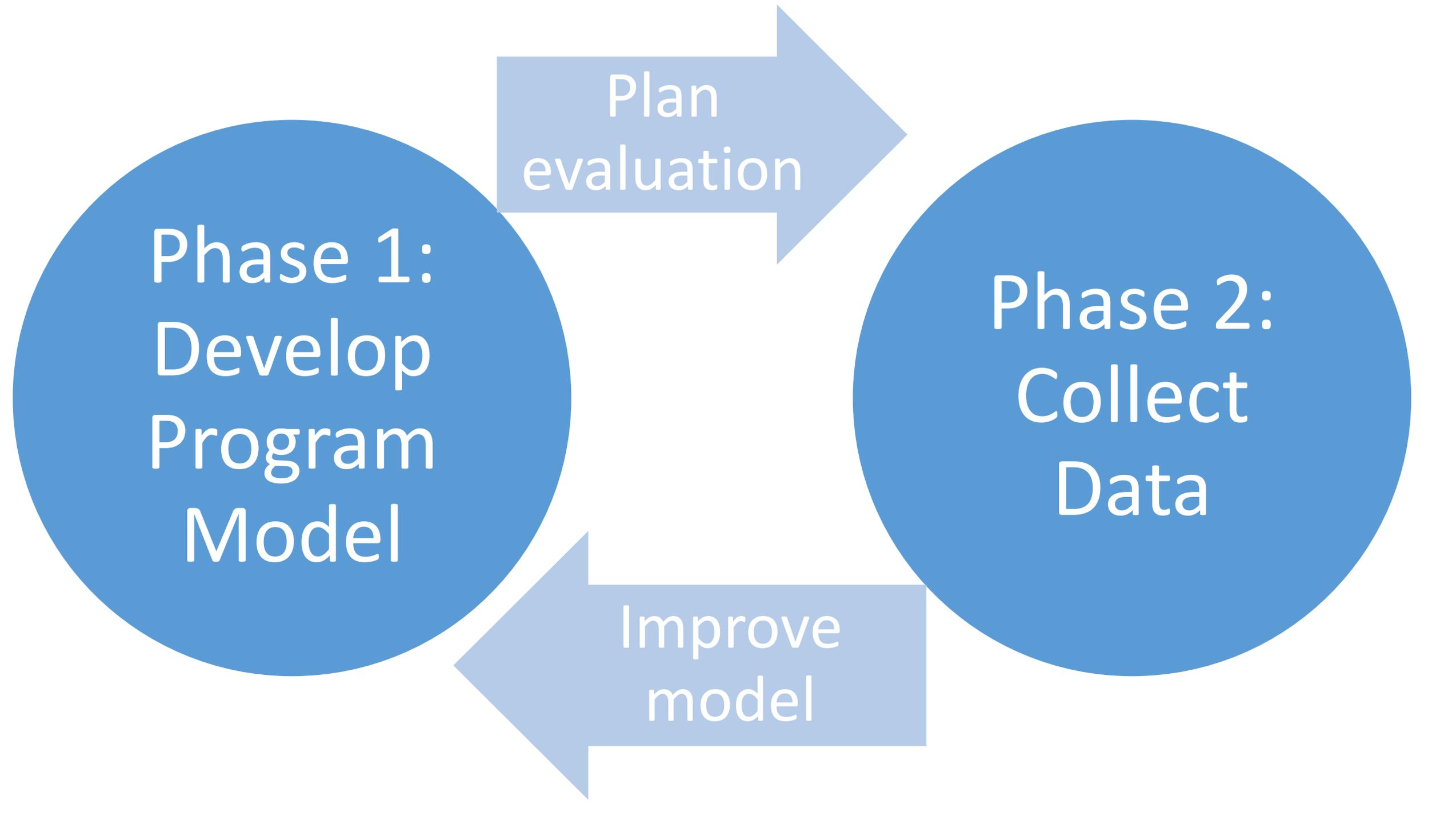


Phase 1:
Develop
Program
Model

Plan
evaluation

Phase 2:
Collect
Data

Improve
model



Preliminary Logic Model

Context and Resources →	Activities and Strategies →	Two-Year / Pilot Project Goals →	Longer-Term / Expanded Project Goals
<p>NSF ITEST grant supported pilot project</p> <p>Howard University</p> <p>Interdisciplinary project team</p> <p>Web designer</p> <p>Vendors for student lunches</p> <p>Supplies for labs</p> <p>Computers and \$300 stipends for students</p>	<p>Throughout</p> <p>PI manages grant</p> <p>Evaluators collaborate with HU to plan and conduct evaluation</p> <p>Fall 2013 - Summer 2014</p> <p>Interdisciplinary team develops modules and materials</p> <p>Create website (http://pacinvolved.com/), populate it, and search engine optimize it</p> <p>Recruit high schools, high school physics teachers</p> <p>DCPS and project team develop student recruitment/parent outreach plan and materials</p>	<p>Peak and maintain students' interest and engagement in PAC-Involved and in physics/STEM / relevance to their everyday lives</p> <p>Increase interest and motivation toward studying STEM/physics and considering STEM careers</p> <p>Enhance math skills and knowledge of physics/STEM</p> <p>College exposure</p> <p>Exposure to, understanding of realities of being a scientist</p> <p>Strengthen students' research and problem-solving skills</p> <p>Help start back STEM Academy</p>	<p>More students enroll and succeed in college level STEM courses and STEM careers</p> <p>Refine the PAC-Involved model and expand it to a larger group of students, to the entire school year</p> <p>Incorporate Saturday content into everyday class assignments</p> <p>Share findings with the larger field, including high school and college instructors and researchers</p> <p>Extend to more themes beyond the two themes of the pilot</p> <p>Involve more teachers and add workshops for teachers</p>

 How does the program affect students?

 What works with this model?

 How to structure future projects?

Surveys

Focus
Group

Inter-
views

Observa
-tion

Videos
&
Journals

Teachers calling parents & reminding students

Telling students not to be afraid of the experiments/Cameras

Working with h.s. students

Shorter sessions

Lunch being late / lunch issues

Professors sometimes do not answer students' questions

Long lectures

Students may not have seen all media clips selected

Opportunity to learn from college professors

Start early looking for teachers

PAC-involved students have questions & ask their teachers

Benefit to students

Experiments/demos/hands-on activities

Show video clips (popular media)

Students engaged in PAC-Involved

Teachers can manage their time at the school

Learning/teaching about science

Involving teachers more closely, e.g. workshops for teachers

Identify schools sooner

Open to any STEM class rather than limit to physics

Students do not all like the same type of movies

Too much thinking / calculations

Students are accustomed to Saturday school

Students interested in coming to PAC-Involved

Recruiting schools & teachers

Research availability of physics in schools before selecting school district

Students have other career interests, e.g. music, politics, reporter, writer

Spending more time / clarify details with teachers

Challenging their understanding of material for high school students

Good relationship between teachers & students

Helping students decide about STEM career

Not all media fit learning objectives for h.s. & laptop

Free lunch

Teachers can avoid scheduling conflicts w/ standardized tests

Talk w/ principal about releasing teachers from other responsibilities

Expand program to more students

Exposure to physics for minority youth

Interest in STEM/connect to everyday

College exposure / Howard Uribe have more time for PAC-Involved

Expand program to more topics

Increased confidence in science classes

Teachers can inform students better

Teachers select students based on reliability & interest

Expand program to more topics

Start other STEM programs at h.s.

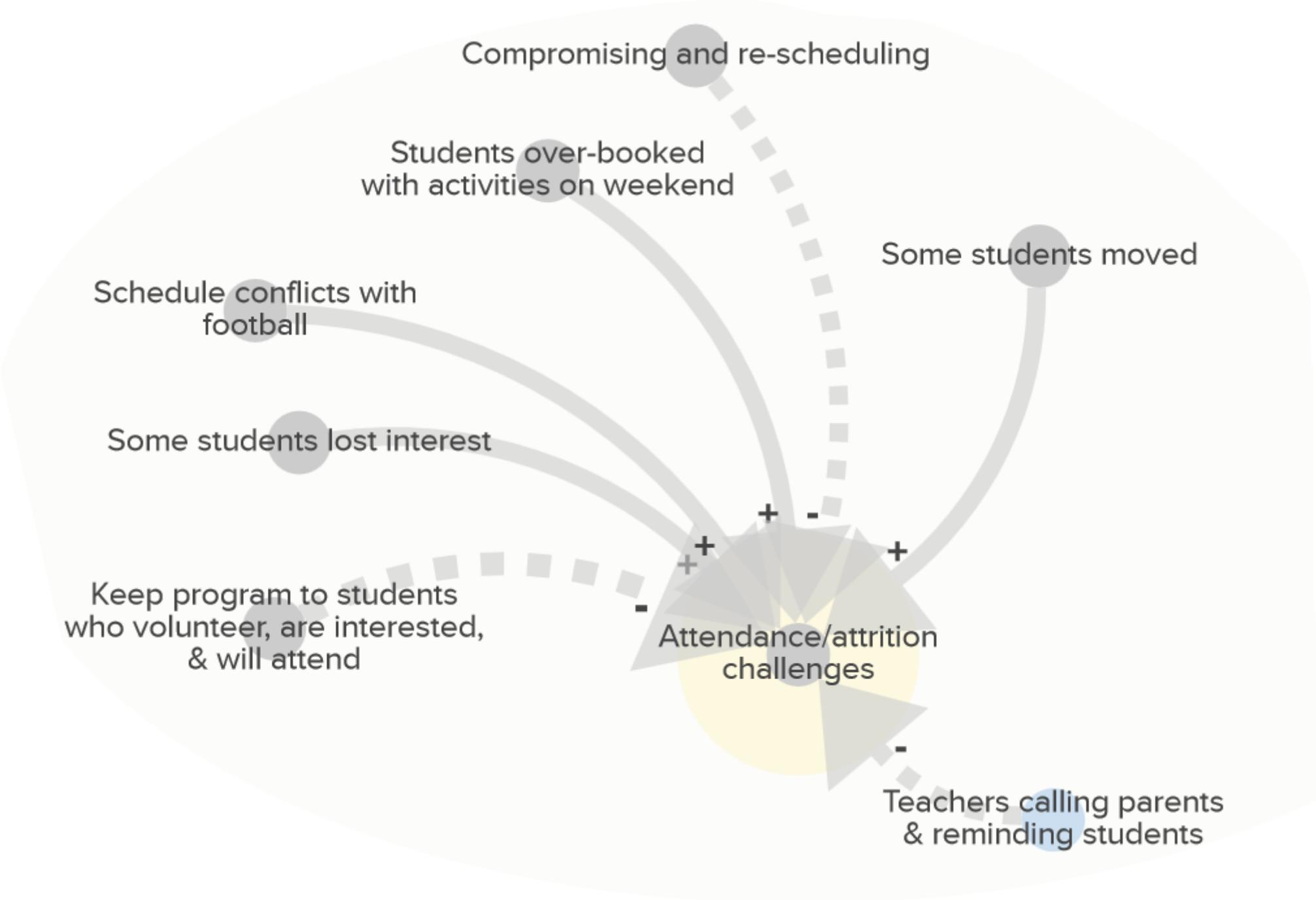
Students rarely go to PAC-Involved website to enter reflections

Students decide to go to college

Many students at h.s. are genuinely interested in physics

base

- Wider connections = more data sources
- Transformative concept
- Causes less
- Causes more
- Causes more
- High school teachers
- Popular media
- Student outcome



Compromising and re-scheduling

Students over-booked with activities on weekend

Some students moved

Schedule conflicts with football

Some students lost interest

Keep program to students who volunteer, are interested, & will attend

Attendance/attrition challenges

Teachers calling parents & reminding students

Integrative Propositional Analysis (IPA) Results

1

Depth

Preliminary
model

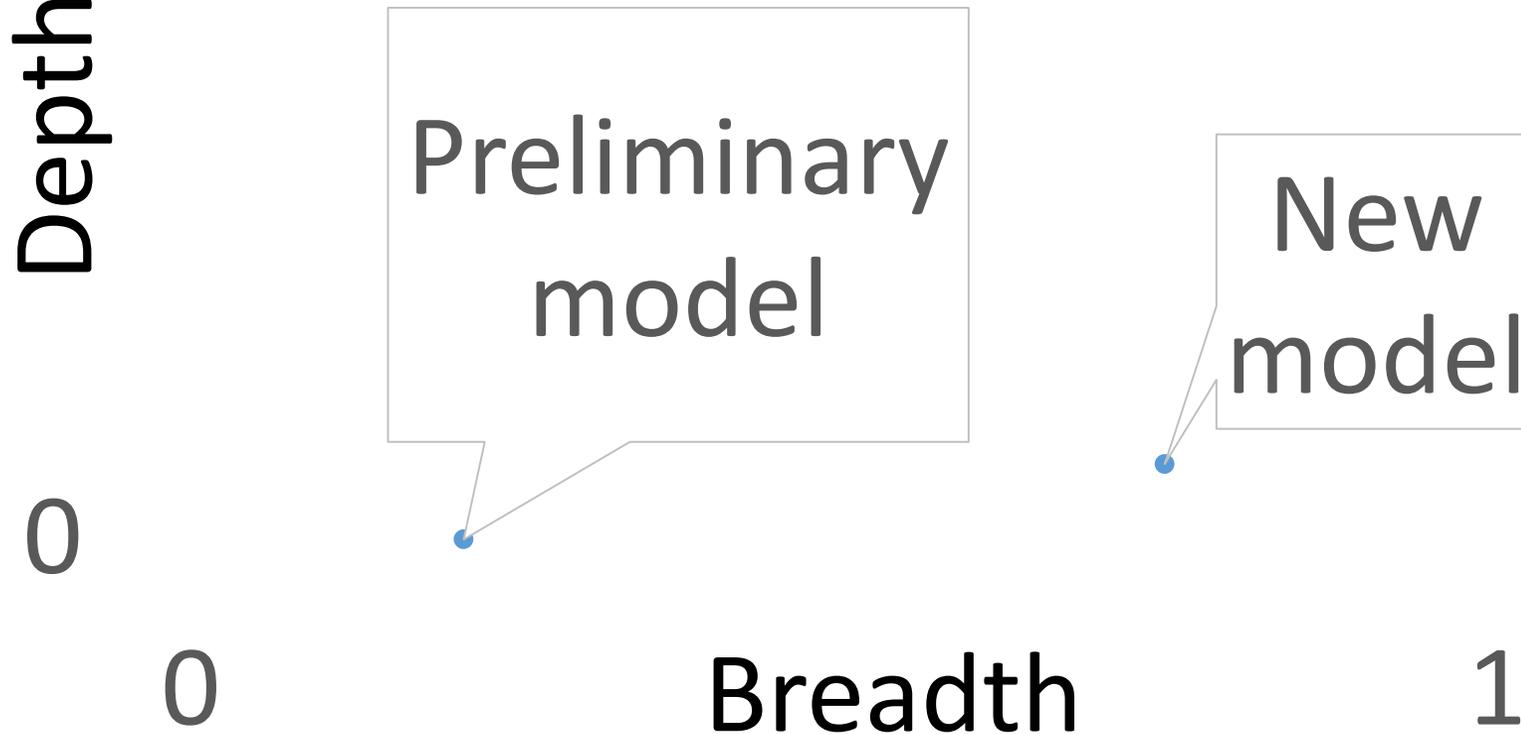
New
model

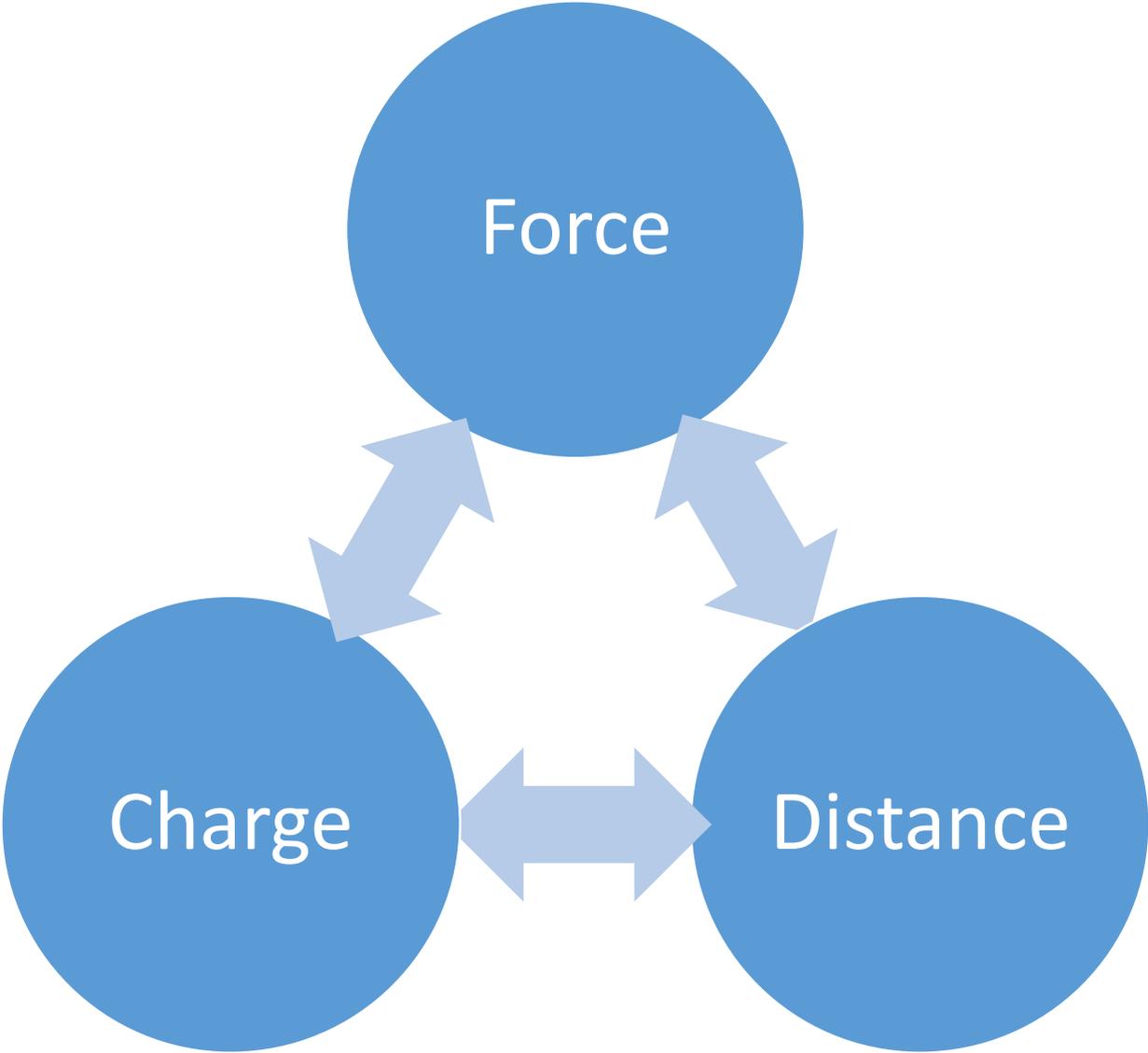
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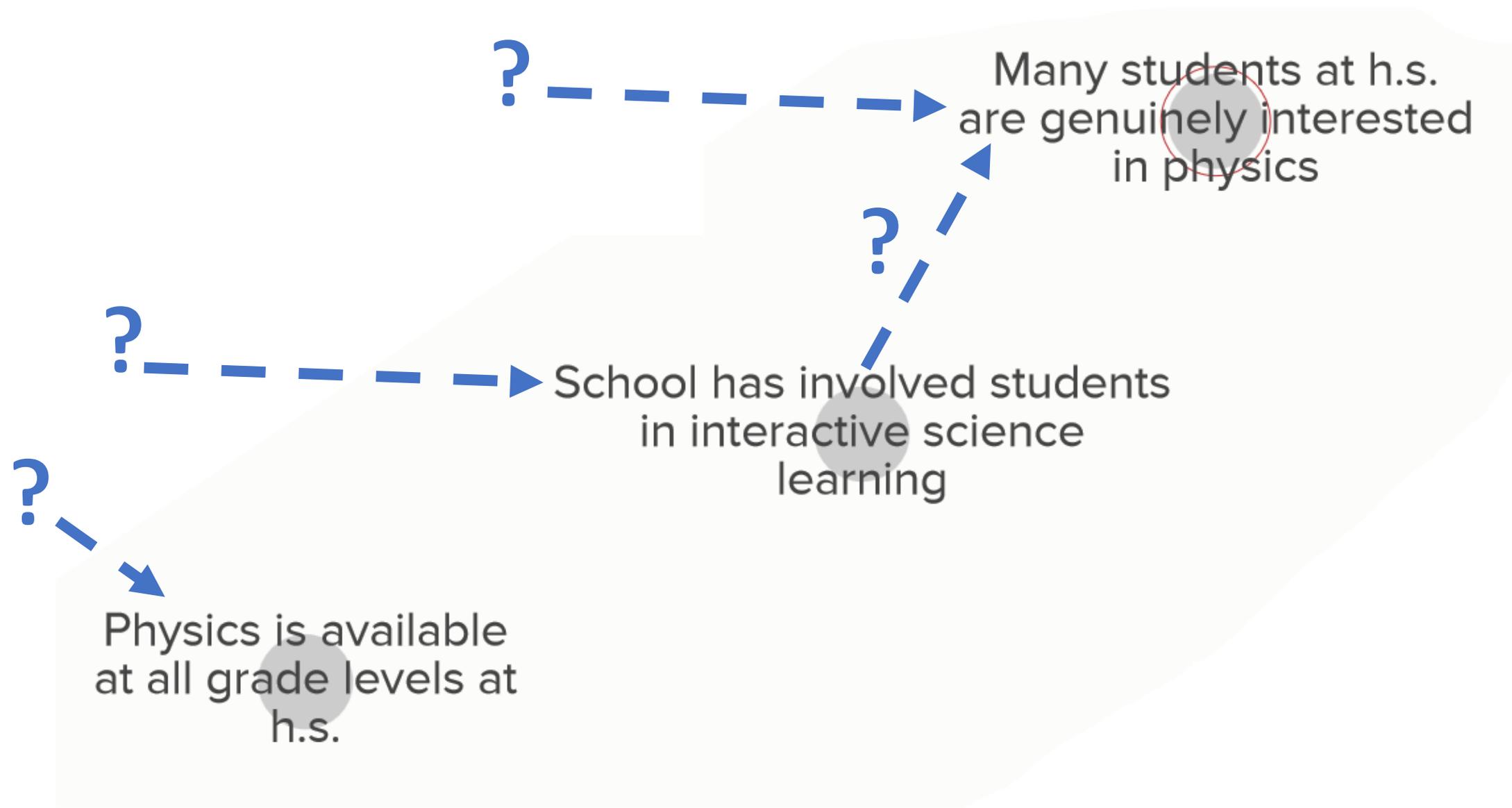
Breadth

150







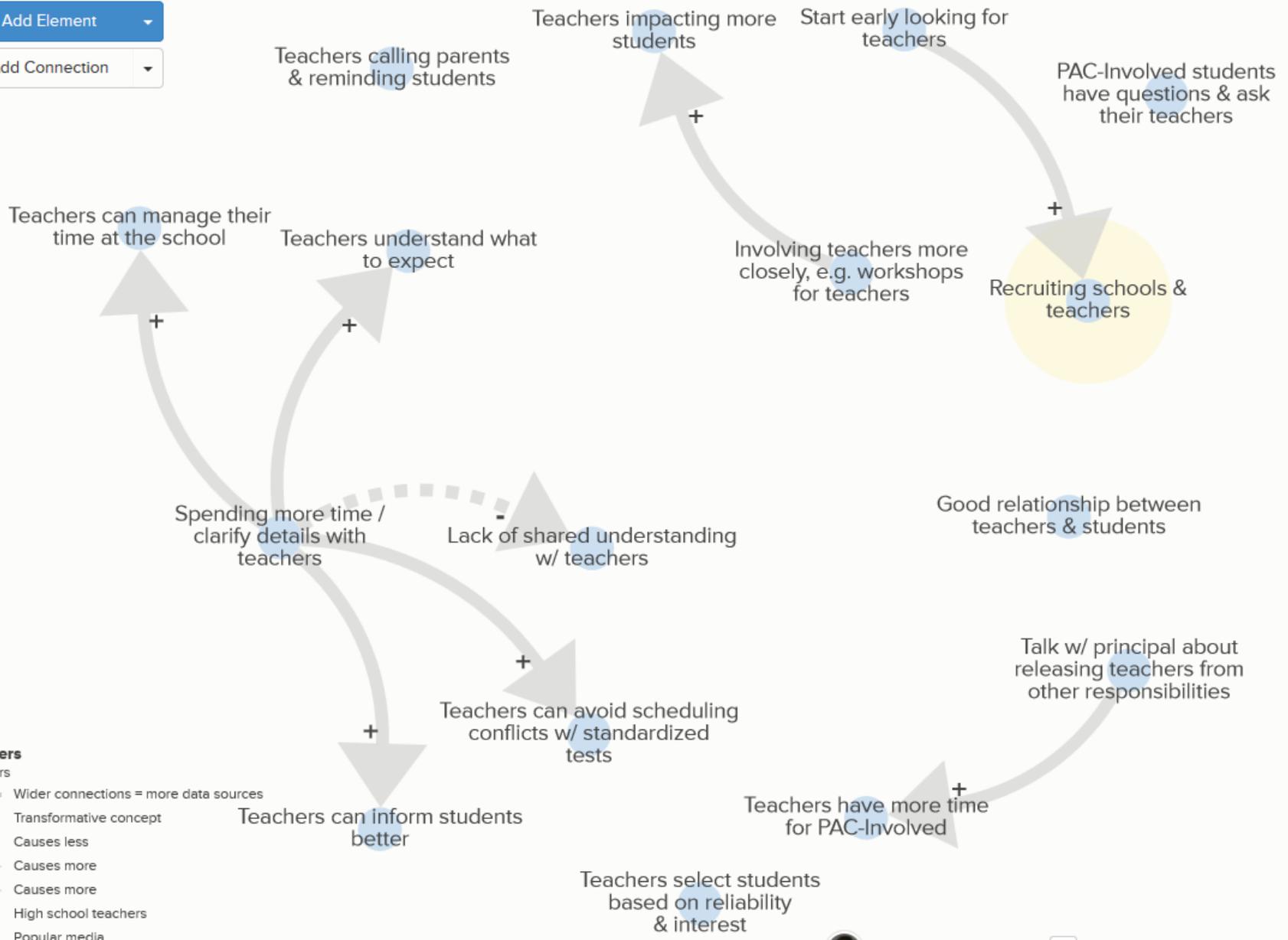


Search

Add Element

Add Connection

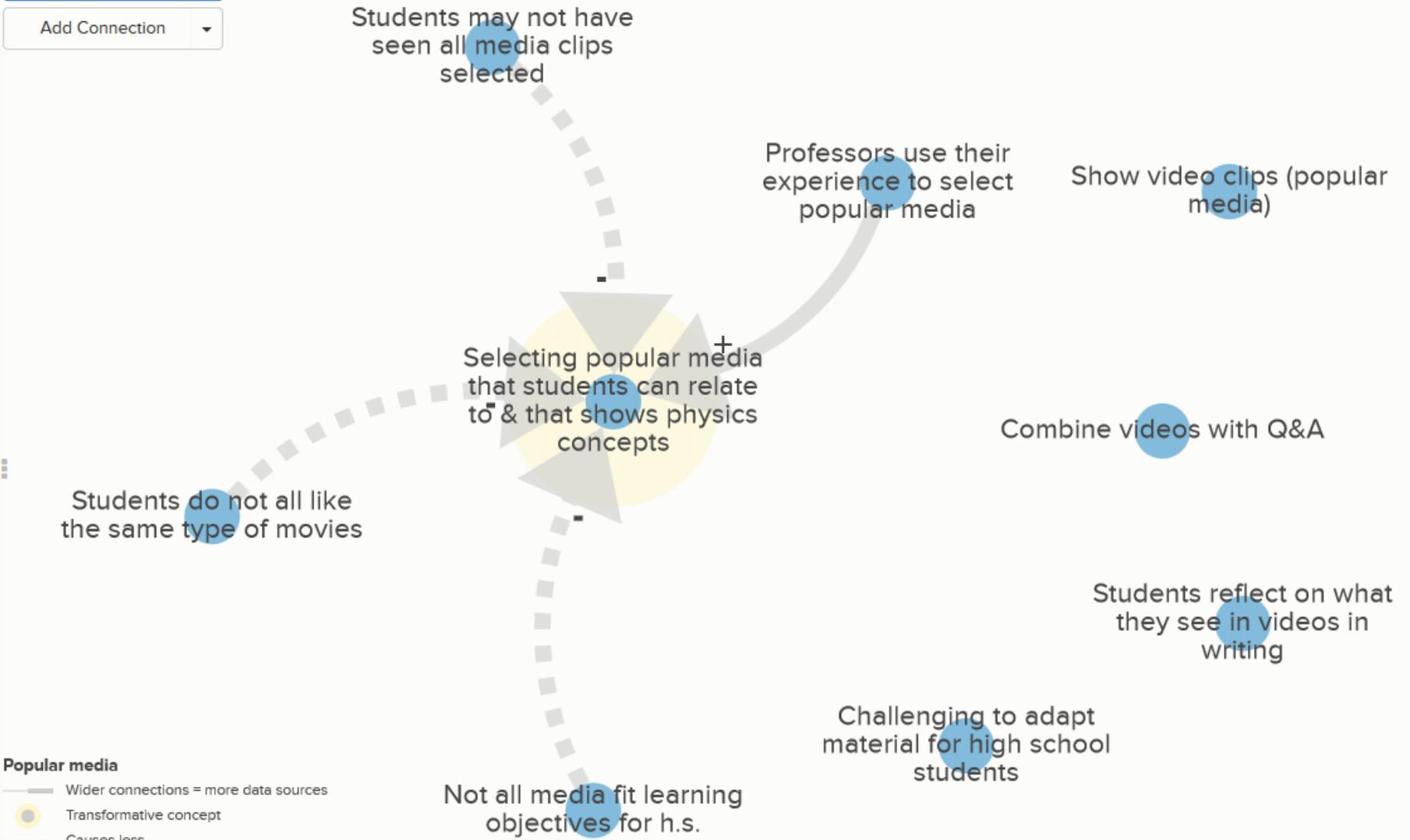
- Teachers**
- Teachers
 - Wider connections = more data sources
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Q Search

Add Element

Add Connection



- Popular media**
- Wider connections = more data sources
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 - Causes more
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 - Student outcome

Add Element

Add Connection

"A-ha moments" for students

Benefit to students

Students engaged in PAC-Involved

Learning/learning about science

Start other STEM programs at h.s.

Exposure to physics for minority youth

Increased confidence in science classes

Interest in STEM courses/STEM careers

Students decide to go to college

Students successfully pursue STEM careers

Interest in STEM/connect to everyday

College exposure / Howard University setting

Helping students decide about STEM career

Student outcomes

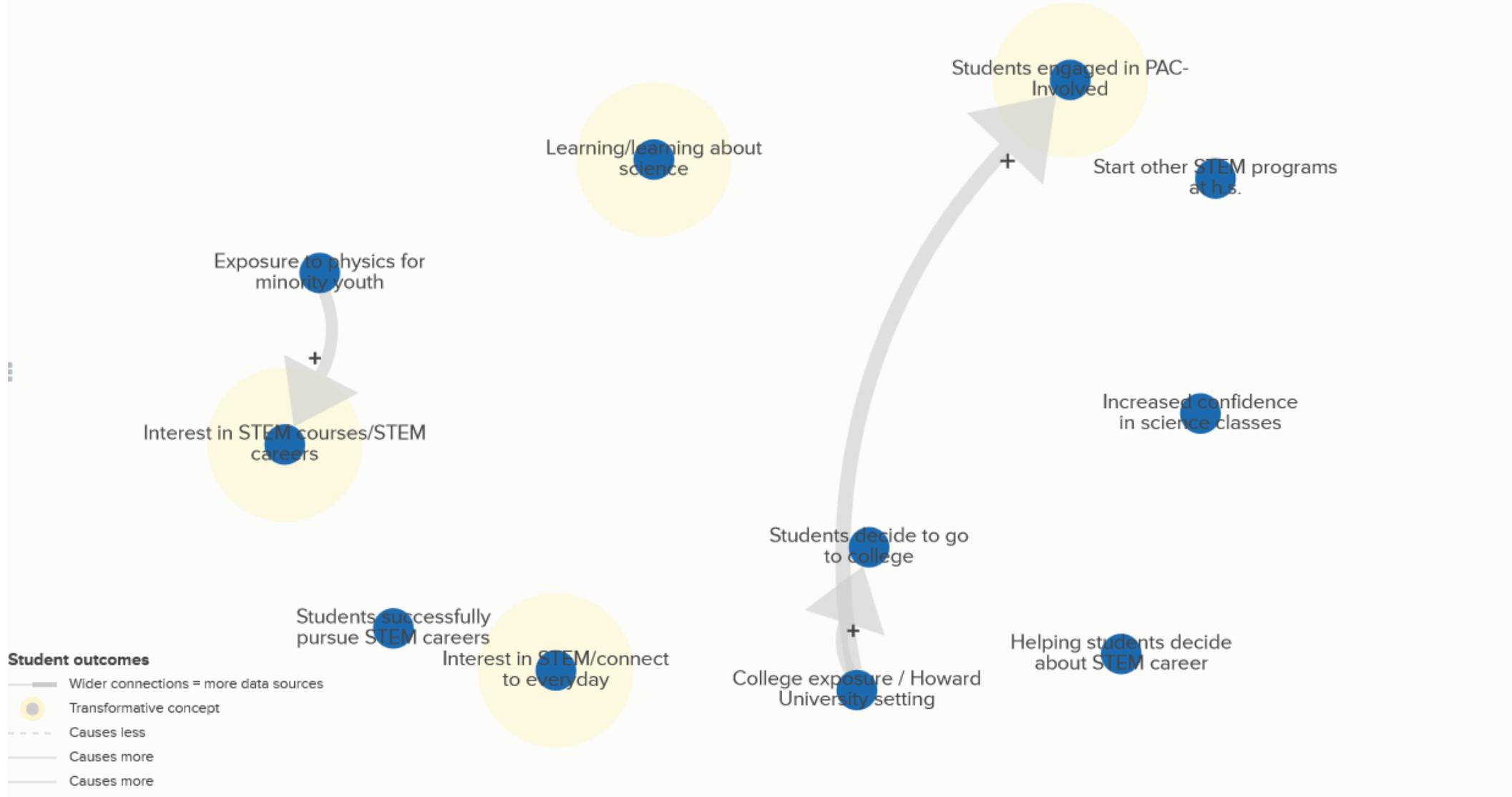
Wider connections = more data sources

Transformative concept

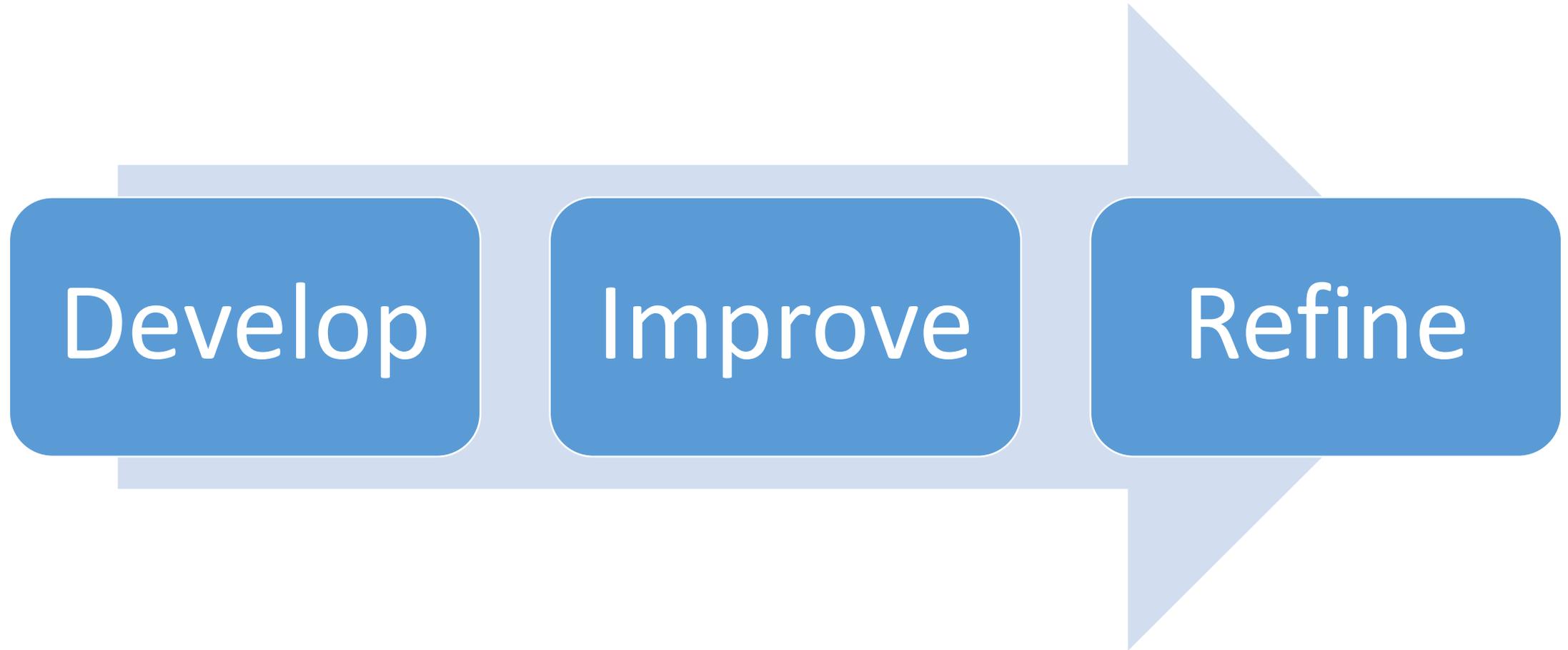
Causes less

Causes more

Causes more



Benefits for the Program

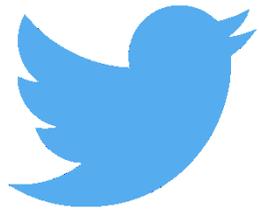


“The program was educational. I didn’t know some things until I did this. I do want to learn more about space and how it works. This program was the best. I hope to make sure that in college this would be my major.”

Keep in Touch

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Download handout from the AEA E-Library.

