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

The PAC-Involved Evaluation

Bernadette Wright, Ladel Lewis, Izolda Fotiyeva, & Steven E. Wallis

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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

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

What works with this model?

How to structure future projects?
Which Is Better for Navigation?

- State/Lake
- Midway
- 79th
- Orange Line
- Lake Michigan
Students have other career interests, e.g. music, politics, reporter, writer.
Compromising and re-scheduling

Students over-booked with activities on weekend

Schedule conflicts with football

Some students moved

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

Preliminary model

New model

0

Depth

1

0

Breadth

150
Many students at h.s. are genuinely interested in physics.

School has involved students in interactive science learning.

Physics is available at all grade levels at h.s.
Students may not have seen all media clips selected.

Professors use their experience to select popular media.

Show video clips (popular media).

Combining videos with Q&A.

Students reflect on what they see in videos in writing.

Challenging to adapt material for high school students.

Not all media fit learning objectives for h.s.

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

Students do not all like the same type of movies.
- Exposure to physics for minority youth
- Interest in STEM courses/STEM careers
- Students successfully pursue STEM careers
- College exposure / Howard University setting
- "Aha moments" for students
- Students engaged in PAC-Involved
- Increased confidence in science classes
- Start other STEM programs
- Students decide to go to college
- Helping students decide about STEM career

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Student outcomes:
- Wider connections = more data sources
- Transformative concept
- Causes less
- Causes more
- Causes more...
Benefits for the Program

- Develop
- Improve
- Refine
“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
info@meaningfulevidence.com
732-388-0061
twitter.com/meaningflEvdenc
meaningfulevidence.com

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