



FIRST2 NETWORK



New to First2: November 13, 2025
Erica Harvey and Sue Ann Heatherly



The First2 Network is supported by the U.S. National Science Foundation under Award Numbers: HRD-1834586, WV Higher Education Policy Commission; HRD-1834601, Green Bank Observatory; HRD-1834575, Fairmont State University; HRD-1834595, High Rocks Educational Corporation; HRD-1834569, West Virginia University.

www.first2network.org



U.S. National Science Foundation INCLUDES Alliance started by 5 collaborating PI organizations in 2018



An expanding group of over 1300 people and 30 organizations in West Virginia and beyond



Working to double the graduation rate of rural, first-generation, low-income and other underrepresented STEM students

1300+

total network members

30+

organizational partners¹

OUR NETWORK

700%

increase in network membership from Year 1 to Year 6

400

of our network members are students

6000+

students have been impacted by First2 change ideas

90%+

STEM retention rate for 3,000+ WVU students impacted by First2 (24-25) compared to 55% retention rate for STEM peers*

OUR IMPACT

\$1.12M+

in stipends have been given to 309 student leaders

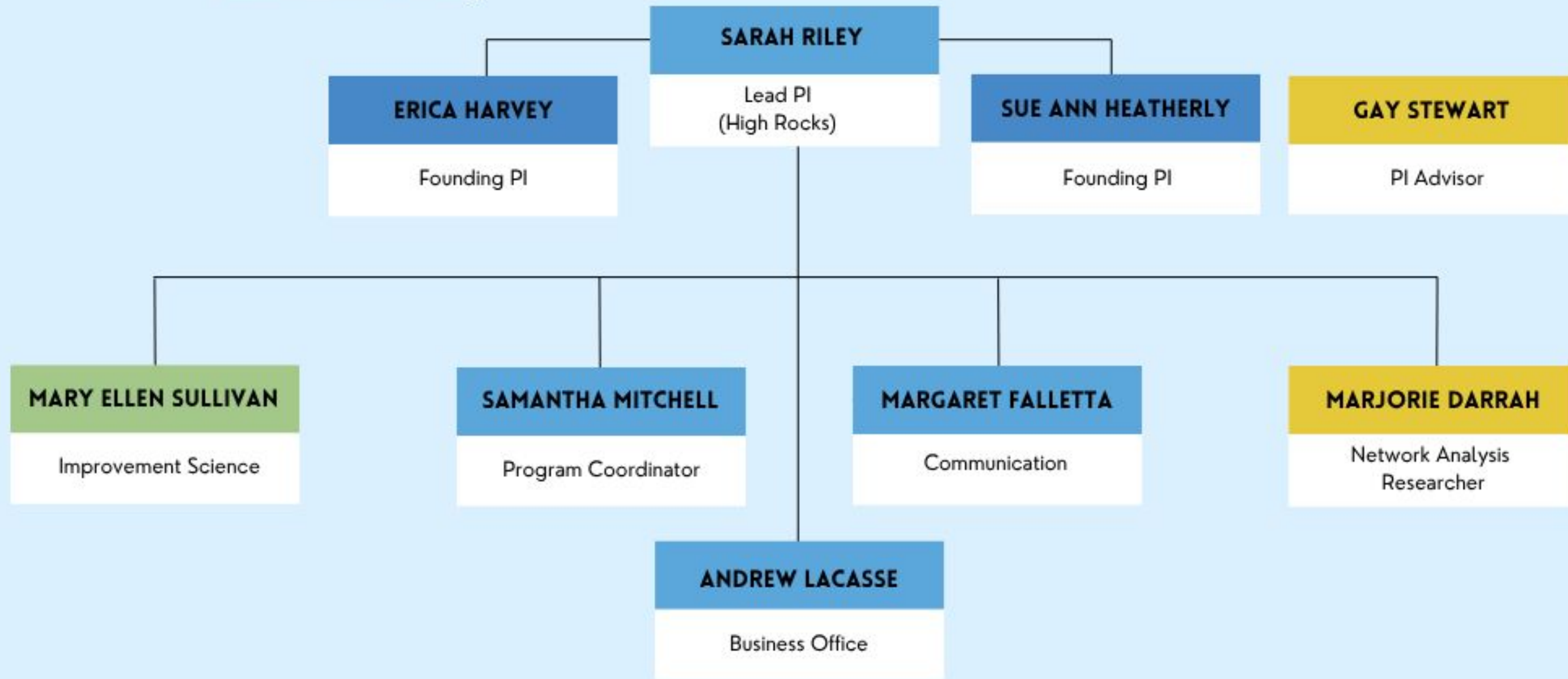
120+

tests of change ideas have been completed

*who provided consent for tracking

OUR PARTNERS:





The First2 Network is an expanding group of people and organizations working to increase the number of college graduates in science, technology, engineering, and math (STEM) to strengthen our communities and drive an innovation economy in West Virginia, Kentucky, and beyond.



The First2 Network is supported by the U.S. National Science Foundation under Award Number: HRD-1834595, High Rocks Educational Corporation.



BOARD OF DIRECTORS

To enhance governance and sustainability



Travis Miller



Deana White



Dave Mohr



Tyler Davis



Adam Smith

Collaboration with Industry for Workforce Development

First2 Industry Advisory Board

- First generation STEM professionals
- Advises on key issues related to workforce readiness.
- Co-created credential in Power Skills that is being piloted across WV and KY
- Co-conference w/ **WV Jobs Network**

ARC WV Career Collaborative project

- building stronger relationships between academia and industry
- refining curriculum with focus on student/industry engagement and instructor/industry engagement
- creating opportunities for job shadowing, internships.

Industry Advisory Board - direct interactions with students:

- Mentoring
- Classroom and site visits/exchanges
- Mock interviews
- Resume writing
- Application searching and support
- Networking
- Leading conference sessions





WHAT WE DO



WORK IN TRUE PARTNERSHIP WITH STUDENT LEADERS

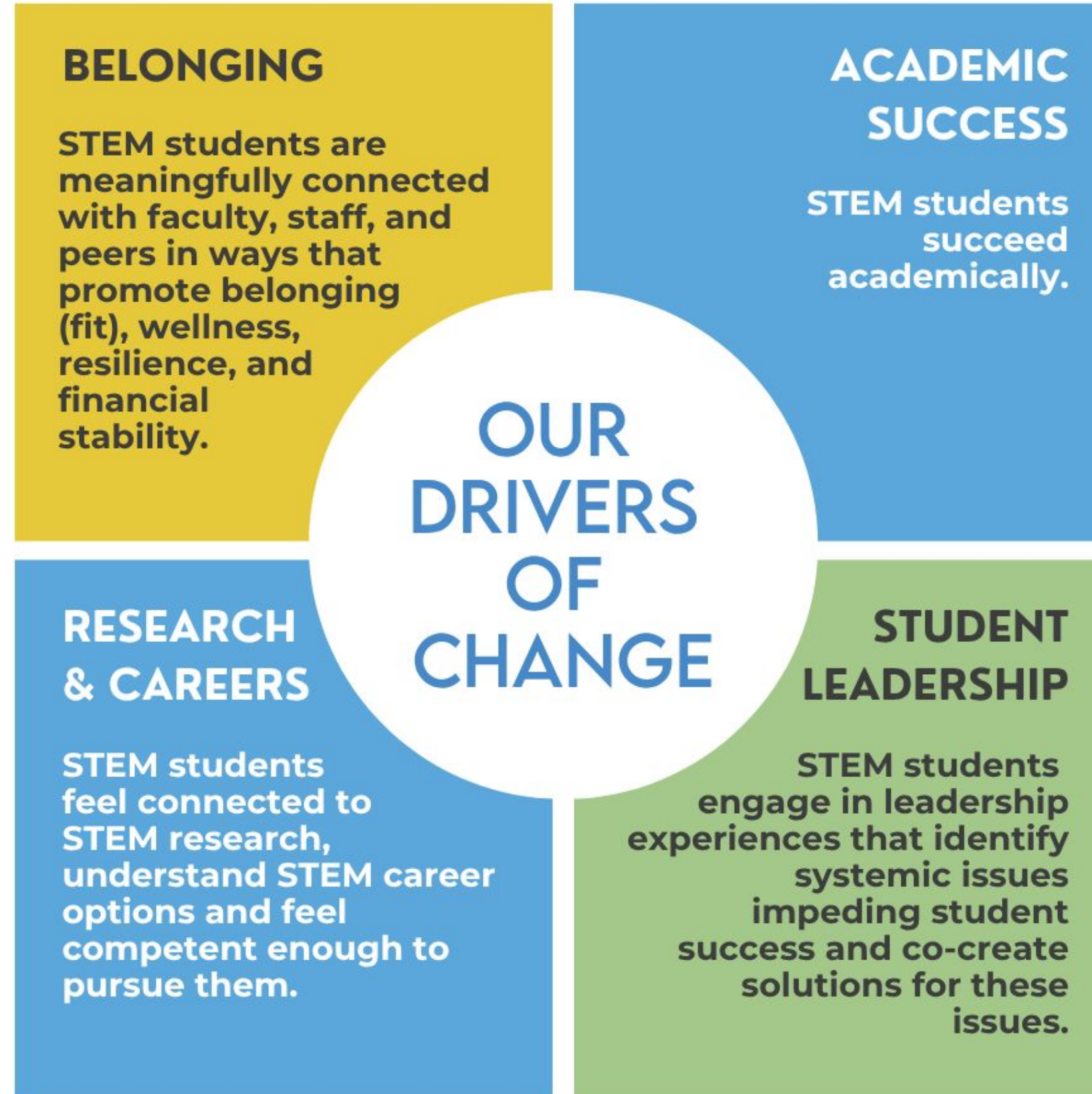


TEST AND LEARN WITH STAFF AND STUDENTS TO SHARE AND SCALE HIGH-IMPACT PRACTICES

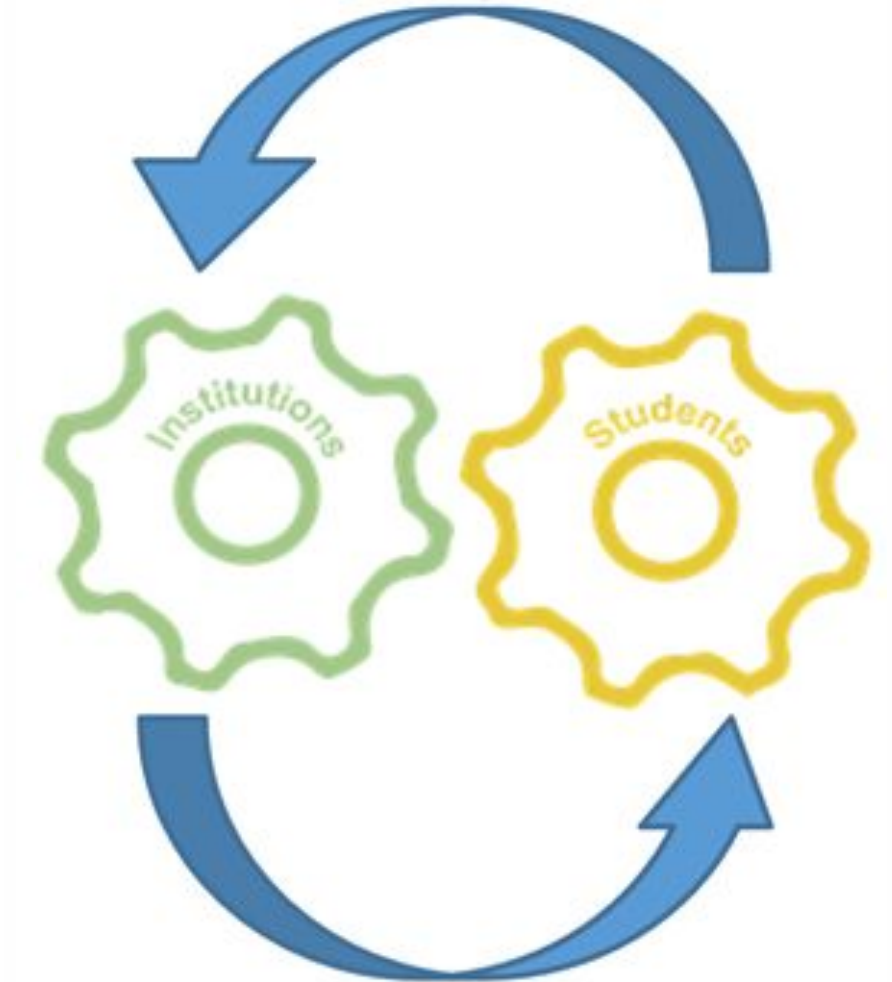


WORK TO DRIVE SYSTEMIC CHANGE THROUGH INFORMED POLICY AND RESOURCE ALLOCATION

AIM: Double the college graduation rate of all STEM students, focusing on rural, first-generation, low-income STEM students



Institutional practices



Student experiences



CREATING A CULTURE OF LEARNING

First2 supports 8 higher education Institutional Teams in WV and KY:

- students;
- STEM faculty, deans, chairs, and other administrators;
- career services; student success; and academic affairs professionals.

Shared Outcomes

- persistence (re-enrollment as a STEM major)
- course completion rate
- course pass rate and/or grades
- probationary status
- belongingness
- grit
- self-efficacy

Publications: See [Proceedings of the WV Academy of Science](#)

WHY USE IMPROVEMENT SCIENCE?

It's Scientific and Manageable

- **Evidence-Based:** Uses data to drive decisions and improvements
- **Iterative:** Allows for continuous refinement and learning
- **Scalable:** Small changes can lead to significant impacts
- **Impact:** Helps organizations adapt and thrive in dynamic environments



Students are Powerful Change Makers!

At First2 Network, we believe that STEM students are the experts in driving changes in campus culture that could improve the STEM experience for all STEM majors.

Examples of Student-led change idea at right.

 **FIRST2 NETWORK**
University of Charleston


FIRST2 NETWORK CHANGE IDEA EXPERIENCE

HIGHLIGHTED CHANGE IDEA

Impromptu Lecture

SUMMARY

As a team-building exercise to improve students' sense of belonging and comfort when talking with faculty and administrators, students will host an impromptu/improv lecture activity with faculty and administrators from the STEM department. Students will use informational slides from various STEM class lectures, put them together into a creative PowerPoint, and ask faculty to give a 5-minute impromptu lecture on slides not in their subject area. This activity is designed to get faculty out of their comfort zones in front of students, to allow students to see a humorous side of faculty, and to enable faculty to gain a better understanding of the student experience of learning new material which they are held accountable for understanding and knowing.

ACT

We would like to adopt this PDSA again as the results were very similar to last time and the results show measurable improvements.

PLAN

The First2 Student Directors (and other club members) will design slides for the professors to present. The slides will be chosen using previous class material and comparing them to random real-life concepts that remind us of the class. Each professor will have five slides. The first four will be in a grouped category, and the fifth slide is a fun slide. Professors will be assigned a set of slides that are outside their subject area.

PHOTO HIGHLIGHTS



Frogs or Chameleons?

DATA

The results were pretty straightforward, so there was not much analysis needed. One out of ten respondents showed an increase (from neither agree/disagree to somewhat agree) related to respect in the campus STEM community. The rest of the responses were positive (somewhat agree or strongly agree), and there was no shift in the responses pre/post.

DO

First, Student Directors sent an email to STEM faculty before the event asking who would be interested in participating, while other First2 students began working on compiling the appropriate amount of slides for the attending professors.

As students arrived at the event, they were asked to scan a QR code and complete the intake survey if this was their first time at a First2 club event this year. Students and professors were also asked to sign in on a piece of paper for attendance.

During the presentation, each professor had 5 minutes to present five slides. Professors presented on topics outside of what they typically teach. The last slide was a fun/informal slide. After the presentation, students voted on which professor presented the information the best and that professor was given a "BS" award.

STUDY

Student participation was lower than what we expected.

- 5 out of the expected 11 faculty members attended.
- Faculty from each STEM department participated.
- 80% of students were more likely to ask their professors for help.
- 10% of students reported an increase in belonging, as 80% reported they already felt a strong sense of belonging before the event.

DISCUSSION & CONCLUSION

While the numbers are small and inconsistent, the data suggest that this activity increased students' willingness to discuss non-academic matters with their professors. However, faculty willingness to engage in these conversations appears to have declined. Given the low number of responses and the potentially different individuals who responded, this interpretation is weak at best.

Our data reveals that students do benefit from social interactions with professors regarding connection with their STEM department faculty and administrators.

TIPS FOR OTHER INSTITUTIONAL TEAMS

It is a fun event to host, and everyone seems to enjoy it; the room is always filled with laughter. It is an excellent opportunity for student and faculty interaction, and I would highly encourage other institutions to try it.

DISCUSSION & CONCLUSION

We feel the overall experience for the Green Bank Observatory trip was a great experience for the students to connect with each other. Based on the survey results, the students felt comfortable interacting with fellow students and faculty. The students also had a greater sense of belonging. There were comments about wanting to have another trip like this one for a longer duration. Students were worried about not being able to use their phones for two days, however, the comments after the trip indicated that most students didn't miss their phones; some students even informed us they were glad they had not used their phones.

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Presented by:
Reanna Jackson

 **FIRST2 NETWORK**
BlueRidge
COMMUNITY AND TECHNICAL COLLEGE

FIRST2 NETWORK CHANGE IDEA EXPERIENCE

HIGHLIGHTED CHANGE IDEA

Green Bank Observatory (GBO) Field Trip

This is a copy of the scavenger hunt to help the students engage with GBO and students from the other groups; Fairmont, Shepherd, and High Rocks Tech Express.

SUMMARY

The Green Bank Observatory field trip, initially planned for BRCTC students, expanded to include Shepherd University. During the planning process, Fairmont State University and High Rocks also asked to join. We embraced the idea of a multi-institutional collaboration to foster camaraderie amongst First2 Network members. Engagement activities include a 'Get to Know You' Bingo and a GBO scavenger hunt to encourage interaction among the students and enhance their overall experience with hands-on learning. Post-trip surveys will assess student interaction and the overall learning experience.

PLAN

First2 Student Leaders at Blue Ridge CTC planned a field trip with faculty and administrators, in hopes of bridging the communication gap between students, faculty, and administrators. The purpose of this change idea was to make students feel more comfortable speaking with faculty members and administrators by having them interact in a casual setting. We planned to give a survey at the end of the trip to measure how comfortable participants felt about engaging with other students and faculty.

DO

Contacted the GBO to set up a good time for dates and events for the trip. We intended to invite Shepherd, and soon after Fairmont contacted us and asked to join...which then snowballed into High Rocks joining us for a great collaboration among all students and organizations.

PHOTO HIGHLIGHTS



STUDY

Of the 13 original participants, we had three cancel the trip for personal and/or health reasons and 6 responded to the survey out of 8 students and 2 faculty for nearly an 80% response rate.

100% of student respondents said they spoke with more than 6 people.

100% of student respondents had a good time and wanted to make the trip longer.

We had a good mix of first-time attendees as well as students who attended other events.

We had a good mix of first-generation and non-first-generation students

90% of respondents had a good sense of belonging since the trip.

ACT

We would like to continue future multi-institution trips to bring all students together among all campuses across the First2 Network. I would start the planning process earlier and confer with other First2 Student Directors about possible trips and activities.

DATA



DISCUSSION & CONCLUSION

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Dianne Rose, Ian Rude, &
Nathan Clark

BEYOND CAMPUS: OUTREACH AND ADVOCACY

First2 members outreach to:

- **legislative sessions**
- **high school classrooms**
- **Higher Ed administrators**

Student members discuss their experiences and perspectives as college students and professionals while building their networking, public speaking, and presentation skills.





OUR ACCOMPLISHMENTS

**EXPANSION
TO
KENTUCKY**

**IMPROVED STEM
STUDENT
PERSISTENCE
AND RETENTION**

**MEANINGFUL
POLICY
CHANGES**

PERSISTENCE and FIRST2 ENGAGEMENT

ALL First2 Campuses show higher persistence for students who have participated in First2 change ideas.

WVU:
student persistence
from 55% to 90%

N = 3000+ WVU STEM majors
who participated in at least one
First2 Change Idea test activity in
24-25

FAIRMONT STATE:
student persistence
from ~59% to 98%

N= 111 Fairmont STEM students
impacted by First2 Change Idea
tests in 24-25

POLICY WINS FOR SYSTEMS CHANGE



WV AMERICORPS TUITION WAIVER

Provides a year of undergraduate or graduate education at any WV public college/university for a year of AmeriCorps service in WV.

SECOND CHANCE PROMISE

Provides college students who lose the Promise Scholarship a second chance to re-meet the eligibility requirements.



SUSTAINABILITY

Policy changes at the state and national level improve student success.

- informed by evidence and network learnings
- of key interest to stakeholders in Kentucky and other
INCLUDES Alliances

Campuses continue change work, involving students as partners beyond this INCLUDES funding.

- facilitate sharing across institutions
- facilitate partnerships
- develop student leadership

FUNDING FOR SUSTAINABILITY

\$1.3M annual operating budget through High Rocks (student support and institutional support)

- **\$9M** secured since 2018 from NSF initial award and 2 supplements through 24-25
- **\$1.5M** and **\$2M** Appalachian Regional Commission (ARC) POWER awards
- **\$100K** S-STEM planning grant award

Working actively on financial sustainability through partnerships and grants



STRATEGY - COLLABORATIVE PARTNERSHIPS

Collaborative Proposals in 2025/26:

- **NSF IUUSE**
- **ARC POWER**
- **Toyota**
- **Economic Development Authority**
- **Congressionally Directed Spending**

In Planning:

- **ARC ARISE**
- **NSF SSTEM Track 3**

Roles of First2 in Recent Proposals:

- **PI/lead**
- **Subawardee**
- **Contractor**
- **Broadening participation partner**
- **Mentor backbone organization**

FROM OUR STUDENTS

“Participation with First2 allowed me to access professional and educational channels within the network itself, to further my efforts in my other scientific and professional endeavors...

...my participation has also allowed employers and internship recruiters to acknowledge my experience in research.”

“Without the support from the network...I would not be able to effectively pursue my college degree.”



THANK YOU

What questions do you have?