



2022 | Year 4

Get The Facts Out
Annual Report



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About Get the Facts Out

Get the Facts Out (GFO) is a five-year, NSF-funded partnership of the Colorado School of Mines and four national societies: the American Physical Society, the American Chemical Society, the American Association of Physics Teachers, and the Association of Mathematics Teacher Educators. GFO is a unique project designed to reach STEM majors in a large fraction of all U.S. mathematics, chemistry, and physics departments and has the potential to address teacher shortages in these high-need STEM disciplines significantly.

Repairing the Reputation of the Teaching Profession

To change the conversation around STEM teacher recruitment at institutions across the country, GFO produces research-based content and reports that faculty can use to help improve their teacher recruitment efforts. The resources are designed to celebrate the positives of teaching and to provide students and faculty with facts that address misinformation and common misperceptions about teaching. The GFO Project Team continually works to update and improve these resources as well as provide support to the faculty who use them.

These resources, and all other content in this report, are intended to be used broadly to change the conversation around STEM teaching careers. We encourage anyone to use and distribute these materials for their intended purpose, within the terms of the [Creative Commons license described here](#).



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Accomplishments

What are the major goals of the project?

Get the Facts Out (GFO) is a national information campaign that promises to increase the number of well-prepared math and science teachers nationwide. In turn, this will increase the number and the diversity of HS graduates who have both the interest and the preparation to persist as STEM majors. GFO is a cost-effective approach to recruiting that can be implemented by any IHE. It targets widespread negative perceptions that can be barriers to recruiting and promotes positive, accurate messaging about the teaching profession. This unique project is designed to reach STEM majors in a large fraction of all U.S. math, chemistry, and physics departments and has the potential to significantly address teacher shortages in these high-need STEM disciplines.

The project team includes leadership from professional societies in the mathematical and physical sciences, experts in behavioral change, and leaders in teacher education. Several IHEs were chosen to serve as study sites. The societies have leveraged their connections with disciplinary departments to implement this national campaign, which will be sustained by the societies after project funding ends. The study sites have been implementing local GFO campaigns and assisting researchers in gathering quantitative and qualitative data to document impact and inform revisions of the campaign resources.

The goals of the Get the Facts Out project are to:

- (1) change perceptions of the teaching profession among faculty, teachers, students, and parents,
- (2) increase the frequency of faculty engaging in practices in the Get the Facts Out toolkit, and
- (3) increase numbers of math, chemistry, and physics majors who enroll in a certification program.

We developed Yr4 Priority Initiatives directly in response to the Yr3 EE's Report. In addition, our annual meeting is held in August each year and recommendations were suggested by the National Advisory Board (NAB) at that time.

Year 4 Priority Initiatives:

1. Identify and pursue a strategy for meeting each discipline's (i.e. Physics, Chemistry, Mathematics) key challenges, by organizing a GFO mini-conference and subsequent activities.
2. Get more of our current audiences to engage deeply with GFO by revising each society's marketing/dissemination plan with clear objectives and customized activities; consider including dept. chairs, deans, society chapter leaders and student chapter leaders.
3. Explore whether GFO can have an impact through faculty in schools of education (such as through a workshop at AAEE, helping connect existing champions with education colleagues).
4. Actively focus on increasing the fraction of Change Agents' work at other institutions and in support of C/champions by establishing a discipline-specific approach for each group of Change Agents.
5. Support C/Champions by implementing other key parts of the Champion Engagement Strategy.
6. Determine an approach to collect and analyze data that further demonstrates the impact of GFO.
7. Strategize next steps for sustainability and growth beyond the current funding cycle.

Year 4 NAB Recommendations

The NAB reviewed the Yr3 annual report and the Yr3 EE's report and spent many additional hours hearing from project leadership and the Comprehensive Study Sites. *Overall these are appropriate priorities. Below we suggest one shift and some missing priorities.*

Suggested priority shift

Priority #3 could be shifted to focus on lower hanging fruit such as increasing awareness more broadly and less deeply through announcements in newsletters and publications that are likely to reach school of education faculty (e.g., mailing lists for ASTE, AACTE, AERA). Increasing awareness of GFO among school of education faculty is an important goal because 47% of STEM faculty who mentor undergraduates indicated that they would first reach out to their local schools of education to find information about K-12 teaching careers. School of education faculty don't necessarily need a deep understanding of GFO because they are probably not the most appropriate mentors for STEM faculty to learn about changing perceptions of STEM teachers. However, if they are the people STEM faculty first reach out to, ensuring they have a basic awareness of GFO would enable them to point STEM faculty in the right direction to find appropriate mentors through GFO.

Missing priorities

- Establish proof points, establishing a clearer model for how they are supporting champions and what they want champions to do.
- Provide clearer guidance on when and how to give student presentations, e.g., "here are 15 ideas for ways to do this."

AY 21/22 Strategic Plan outline, organized by Working Group (WG):

PI Team

Approve 21-22 strategic plan, approve the NAB and Annual meeting agendas, hold the Virtual NAB meeting and Annual meeting, approve NSF Annual report, approve plan for sustainability and growth, approve plan to seek additional funding, check on each WG's progress towards their 21/22 objectives.

Planning and Management

Draft AY 21-22 strategic plan, draft NAB and Annual meeting agendas, plan and submit NSF annual report, make plans to integrate NAB feedback, draft plan for sustainability and growth, seek additional funding, and schedule NAB and Annual meeting.

Societies

Assess, revise, and implement each discipline's marketing plans, publish GFO Newsletters, strategize next steps for sustainability and growth, draft a discipline-specific approach for each Change Agent community to actively focus on increasing the fraction of outreach compared to in-reach, approve CES WG plans.

Change Agents

Create plans for AY 21-22 workshops and local efforts, reach out to ~10 new institutions per Change Agent (e.g., deliver colloquia, host a regional workshop), report activities via the tracking form and utilize evaluation surveys, submit self-assessments each semester, support adopted GFO Champions, continue to implement internal institutional recruitment efforts and provide written feedback to the Resource WG, create blog articles for the website, and attend All Change Agent meetings.

Champion Engagement Strategy

Coordinate and prioritize all project activities that engage C/champions, actively maintain online forum and Facebook page, maintain champion listing on the website, data mining by request, share local teacher salary data and infographics with each Study Site, coordinate with the change agents to identify the best workshop/colloquia opportunities, coordinate and post 5-10 blog articles from various WGs, and report progress to the Societies WG.

Resource Development

Finalize GFO Users Guide and user-test it, complete conversion of website to WordPress, update the Explore Teaching page framing with DYKs, create facts and data section and the Teacher's Life by the Numbers section of the new website, complete the six-video series with CM, update resources based on feedback, create 1-2 blog articles, develop 1-2 short videos with a math or chemistry focus, continue to develop faculty-facing resources (e.g. poster for copy room), hold All Change Agent meeting, create GFO best practices videos for the GFO YouTube channel.

Research Team

Create plans for AY 21-22, present at Utah and National American Association for Education Employment (AAEE), conduct perceptions intervention study on intro chemistry courses at Mines, conduct site visits and create site visit reports, complete and deliver reports for baseline PTaP and PTaP.HE data collection to each Study Site, continue to collect Year 3 PTaP and PTaP.HE data and begin Year 4 data collection, continue to conduct resource testing with a special focus on HBCU's in the South, analyze Yr 2 FSI and SSE data, analyze Yr 1-3 Perceptions and use data, draft and publish research papers, write blog articles about research findings, engage in postdoc PD, attend and present research outcomes at professional conferences (e.g. PhysTEC, BCCE, Noyce).

Evaluation

TBD planning will be done in July

What was accomplished under these goals and objectives (you must provide information for at least one of the 4 categories below)?

Major Activities:

PI Team

Approved AY 21-22 strategic plan, NAB and Annual meeting agendas, and NSF Annual report. Checked on each WG's progress towards their 21/22 objectives and held Virtual NAB and Annual meetings. Based on our research findings and our EE's findings, we designed the next steps for GFO and began building new partnerships and a new funding proposal.

Planning and Management

Drafted AY 21-22 strategic plan, drafted NAB and Annual meeting agendas, planned and submitted NSF annual report, and scheduled the NAB and Annual meetings. Worked extensively on the details of a new NSF proposal and worked on a one pager for possible private funding.

Societies

Facilitated EE's survey of the membership of AMTE (to supplement last year's surveys of the other partners). Published 5 Newsletters. Each includes event announcements, brief tips for implementing GFO resources, recent results from GFO research, and highlights of Change Agent or Champion activities. Regularly discussed how each society was engaging its membership and collaborating on new ways to be more effective (given the differences among societies). Each society made its own plan in consultation with the WG and with their Change Agents.

Change Agents (CA) by Discipline

- Created plans for AY 21-22 workshops and local efforts.
- Conducted 22 presentations reaching ~280 faculty and ~310 students
- Reported activities via the tracking form and utilized evaluation pre/post surveys, continuing to show very large average effect sizes (see 2022 EE's report).
- Supported adopted GFO Champions
- published 2 blog articles, implemented local efforts and provided feedback to other WGs, attended All-CA meeting

Champion Engagement Strategy

Coordinated and prioritized all project activities that engage C/champions

- 60 posts to Community@GFO.org listserv. 33 from GFO 30 from Champions

- 170 posts on GFO Facebook group with 1542 reactions.
- 100 attendees to GFO online mini-conference.
- 138 new infographics created with teacher salary data from 300 school districts across the U.S.
- 36 data requests from champions
- 61 Infographics with teacher salary data sent to study sites
- 33 faculty presentations about GFO given by GFO staff or CAs reaching 620 faculty
- 150 personal emails sent to ACS Hach and APS PhysTEC sites asking for the chemistry/physics teacher prep contact and sharing GFO resources
- 90 new Champions added to the Community page on the GFO website
- 9 blog articles posted to the website (18 total) written by various Working Groups. The blog draws over 4000 reads/month.

Resource Development

Presentations

“Teaching: The Best-Kept Secret” (faculty facing)

- 18 presentations given by the Mines team for groups from faculty to K-12 administrators and teachers
- Slides updated with additional data references and prettier graphics.
- Streamlined to a 15-minute version so now have versions from 15 minutes to 240 minutes

“Busting Myths about the Teaching Profession” (prospective teacher facing)

- 23 presentations conducted by the Mines team for groups middle school to grad school.
- Slides updated with more transparent language for less experienced students

In response to our advisory board and EE all presentations have,

- Notes extensively updated to include a script as well as pointers on how to deliver the slides
- Language through the website and in all presentations refer to “Busting Myths About the Teaching Profession” rather than the student presentation. This is to make it clear that the presentation as built is the resource, not simply the facts contained within.
- Script of exact language used by the Mines team has been added to every slide along with delivery pointers
- Facilitators guides are nearly complete for all presentations.

New Teacher Retention Infographic – Teacher Retention is One of the Best

- To better understand the impact of the pandemic on the teaching profession, we mined for data about teacher retention and how that has changed or not. There is NOT adequate data to answer this question. The most reliable source we found was the Federal Bureau of Labor Statistics (BLS), which publishes quit rates every month for employees in many different labor sectors, including public and private education. We have created graphical representations of BLS’s (tabular) data for easier interpretation (See supporting files) and have begun using them in situations where someone asks about teachers quitting or teachers’ reactions to the pandemic. We have found that the education and government sectors have significantly lower quit rates than every other sector, including over the last 2-3 years. Because the plurality of teacher quits happen over the summer, we are looking forward to seeing this summer’s BLS data, which should be available sometime this Fall.

Website:

- Worked with Circuit Media, a digital communications and design agency, to update the website to WordPress
- Made dozens of significant updates including:
 - Creative Commons attribution only license information
 - list of student loan forgiveness and scholarship programs in every state
 - Teacher Salary section with a map containing 138 infographics, and teacher salary slides for customizing presentations
 - Extremely improved blog look and feel
 - Professionally designed, user-tested home page

Videos:

Get the Facts Out YouTube channel

- 24 videos
 - 6 new professionally made videos (11 total)
 - 2 new About GFO (6 total)
 - 3 new GFO Best Practices
 - 5 new by others – Champions, NCTM, study sites

Facebook:

- Created and user-tested additional Memes.

Change Agent Support

- Organized and ran an All-Change-Agent meeting
- Supported AMTE CAs as they prepped their pre-conference
- Attended CA meetings and connected CA 1-to-1 with champions

Research Team

HBCUTeach: Collected survey data from several sites and student interviews at one site.

Study Sites

- Continued to accept Study Sites, specifically MSIs

- Conducted 2 virtual and 3 in-person site visits at comprehensive study sites.
- Conducted a controlled study of >1000 STEM freshmen at Mines to measure the impact of Busting Myths about the Teaching Profession on student perceptions of teaching as a Profession (PTaP). Found that perceptions greatly improved for the treatment group (*Fig. 1 & 2*) but not the control group.
- Conducted seven student focus groups in person at Kennesaw State University, the site of a new champion.
- Completed and delivered 29 Yr2 Study Site reports, includes PtaP (student survey) and PtaP.HE (faculty survey) data. On track to deliver 47 reports for Yr3 this summer/fall. (“Yr3” in this case means Calendar Year 2021.)
- Completed Yr 3 PtaP and PtaP.HE data collection and began Yr 4 collection.
- Began collecting data on student enrollments in STEM teacher preparation programs in order to look for impacts of GFO resources. Data on enrollments over each of the last four years (i.e., before and during GFO) were collected from 46 sites. See “Specific Objectives – Goal 3” below for details.
- Analyzed PtaP, PtaP.HE, SSE, and FSI survey data for Year 3.

Research Papers/presentations

- 2 PERC papers submitted and accepted
- 2 blog articles
- Research section in most newsletters
- 3 research presentations at various professional conferences
- Near completion of PtaP Development and Validation Paper

Evaluation

The EE recommended and then gathered communication plans from societies, analyzed activity logs from change agents and champions, compiled data from SurveyMonkey forms from student and faculty workshops, and interpreted data from the Faculty Strategy Implementation (FSI) survey appended to the PtaP.HE survey. Additionally, the EE conducted interviews and analyzed data to create the following reports:

- AMTE society survey report
- Champion survey report
- Casual change agent evaluation
- Six-month retrospective report
- Mini-conference evaluation report

See the EE’s annual evaluation report (attached) for more information.

Specific Objectives: The goals are listed in Sect. 1

The first two have largely been met, and we have strong preliminary data in support of Goal 3.

We also share this year’s work to broaden participation in STEM and describe our efforts to accomplish our Yr4 Priority Initiatives.

Goal 1 (perceptions)

This year we have continued to collect pre/post data on both the faculty and student presentations. These brief pre/post surveys have each been aligned with the objectives of the presentations and were developed in cooperation with the external evaluator (EE). They are included in all slide decks available on the GFO website so that both Champions and CAs can easily use them.

This year, pre/post tests were administered with 42 different faculty presentations and 46 different student presentations. The effect sizes were very large for both presentation types: 1.9 and 2.3 for the student and faculty presentations, respectively (corresponding to normalized gains of 64% and 61%).

For the first time, we also used the more extensive and research-validated PtaP instrument to measure the impact of the student presentation. With 471 Mines STEM students who responded to all survey opportunities, we found:

1. Perceptions improved significantly for those who attended a GFO presentation and did not decrease when measured again 2.5 months later (*Fig. 1*), while the control group held steady. (*Fig 2*)
2. Approximately 30% of students shifted to a more positive response on “I want to be a grade 7-12 teacher” (*Fig 3*)

Goal 2 (engagement)

GFO is an Institutional and Community Transformation project; therefore, it’s critical that we have faculty uptake of the GFO resources. This year, we worked to grow the GFO network and strengthen our community of practice.

This growth is evident in a few different ways:

- **Community engagement**
In the current reporting period, GFO maintained an active Facebook group (268 members), Email discussion list (210 subscribers), Newsletter list (571 subscribers & 36- 47% open rates - considered very high), Website (70,000 unique pageviews in yr4), Blog (9 new articles; ~50% of pageviews), YouTube videos (24 videos, over 2,200 views this year), events (e.g. presentations at national conferences)
- **Downloads of GFO resources**
In the past 11 months, GFO website visitors have downloaded 2,264 resources.

- **Resource usage**

The number of *reported* GFO presentations this year is up significantly from last year (168 vs. 77) mostly due to champions presenting “Busting Myths” to students.

The number of engaged Champions has increased to 212 (from 122) at 157 unique institutions (from 90) (*Community map* sup file).

We know that this number of Champions is still a substantial underestimate of those using GFO resources. The benefits for registering are mainly a big Thank You! We continue to meet GFO users who have not found the time to register and can tell from the numbers of downloads that there are likely many more whom we have not met.

Goal 3 (enrollment)

On the Champion survey as well as via word of mouth, many faculty have told us that they have been able to recruit more students to their teacher-preparation programs because of their use of GFO resources.

To measure actual changes in enrollment in teacher-preparation programs, we have begun collecting data from study sites and champions on the numbers of students “enrolled” in their programs in each of the last four years. We have collected this enrollment information from 13 institutions who have indicated using GFO resources.

This data shows increase in enrollment for 9 of these 13 sites. Given the national decline in STEM teacher production (>20% over 10 years), holding steady is likely a very favorable outcome and increasing enrollment is rare.

Broadening participation

This year we continued to collect PTaP and PTaP.HE data from a range of institutions across the US. Our study sites slightly over represent MSIs nationally. This year we added Kennesaw State University, which is one of the largest minority degree granting institutions in the U.S. and they have a large active teacher preparation program. We also conducted student interviews at two institutions in the South, Kennesaw State and Claflin University. After this work, Kennesaw State has agreed to become a comprehensive study site. During these focus groups we found student responses to the presentation, messages, and photos quite consistent with responses from our comprehensive study sites. We also found that students were less knowledgeable about the facts than at other sites, likely due to these sites (and their faculty) being new to GFO.

Addressing Year 4 Top Priority Initiatives (listed in Sec. 1)

1. We have pursued a strategy for meeting each discipline’s key challenges by organizing a successful GFO mini-conference and then following up on suggestions from the mini-conference
 - Conducted 2 webinars following the min-conference – one on best practices and another on the research behind GFO messaging.
 - Working to collect teacher testimonials in written and video format
 - Digging deeper into teacher well-being and retention data since 2020.
 - ACS used the mini-conference as a target to recruit and convene faculty interested in supporting students who pursue teaching from chemistry departments across the U.S. This work resulted in ~30 new Chemistry Champions.
 - AMTE also put extensive planning into the mini-conference wrestling with various challenges in mathematics. Based on that planning and feedback from math champions, updated their planned GFO focus and activities.
 - APS used the mini-conference as a vehicle to revitalize their CA group (converted two active physics champions to CAs) and steep the new APS Head of Education in GFO. As a result the PCAs have been much more active this year
2. Each society updated its marketing/dissemination plan with clear objectives and customized activities. These were reviewed by the EE and updated based on her feedback.
3. Our connections with schools of education have increased this year as we have partnered with both American Association for Employment in Education (AAEE) and the National Council of Teachers of Mathematics (NCTM), both of which have a substantial fraction of their membership comprised of education faculty. We presented at AAEE’s national conference and Utah AEE conference and two webinars and wrote an article on GFO to the AAEE jobs handbook for students. NCTM leadership attended the AMTE pre-conference featuring GFO and MCAs attended the regional NCTM conference. NCTM also shared a new video of teacher testimonials with us for our channel.
4. Change Agents continue to conduct a modest amount of faculty presentations compared to the original grant goals. However, the project has learned that the Mines team can accomplish much of what was originally intended for the CAs. Now the CAs focus on strategizing for each disciplinary society while the MCAs also are very active with presentations and reaching their membership.
5. We have been very active this year implementing the Champion Engagement Strategy. This can be seen the extensive list of activities in the previous section and the increase in both Champions and their activities.
6. We have engaged in 4 major activities this year to demonstrate the impact of GFO. All of which have found very positive concrete results supporting the claim that GFO brings more people to the profession.
 - Controlled study of the impact of a “Busting Myths about Teaching” on student perceptions – described above
 - Enrollment data study described above
 - Champion engagement survey that asked the question, “How has GFO impacted your teacher recruitment work?”
 - Analysis of the pre/post presentation surveys for both students and faculty to determine the impact of presentations on perceptions. (See EE report)
7. Each society has been working hard to think about sustainability beyond funding. However, we have focused even more time on a new funding proposal and plans for acquiring private funding.

Significant Results:

GFO Empowers faculty to recruit future teachers:

The Champion survey shows that GFO strengthens local teacher recruitment efforts by enabling STEM faculty who normally don't recruit future teachers to do so actively and with agency. This was not anticipated but is a valuable outcome as it can help strengthen the integration of STEM departments with teacher-preparation programs. "Half of GFO Champions can identify concrete impacts of using GFO, including ... empowering faculty to engage actively in recruiting future teachers. Since many departments do not [normally] take responsibility for recruiting future teachers, this empowerment is key." (from EE report)

"Mathematics teacher educators are using them [GFO resources] to actively recruit teachers, when they did not do that as part of their job in the past"
...Quote from champion engagement survey

1/3 of students more positive about becoming a teacher after a GFO presentation

In addition to improving perceptions and knowledge of the teaching profession, GFO's student presentation "Busting Myths about the Teaching Profession" increases the number of students who indicate that they want to become grade 7-12 teachers. 33% of students shift towards agreement after seeing the "Busting Myths about the Teaching Profession" presentation based on 54 presentations to more than 1,600 students (Fig. 4 and EE's report page 16).

Faculty are supportive of students becoming teachers but...

We have found that faculty are very supportive of their student's becoming teachers. Even before any GFO facts or presentations are shared. The EE examined pre/post results from all "Teaching: The Best Kept Secret!" presentations over the past three years. She found that the average score (possible range of -2 to +2) on the statement "I would be comfortable with my favorite student becoming a teacher" was **1.3 before the presentation**. (Fig. 5 and EE's report page 17) The average response is even higher at **1.6 after a presentation**. However, there is still the challenge of faculty having inaccurate perceptions with the average score on "Teaching pays a lot less than other careers" at **-0.6 before the presentation**. As reported last see, we see this is problematic since students will sense that faculty deep down, believe there are better careers for their students to pursue. However, faculty shift to **0.6 after the presentation** on this pay question, which is a big improvement.

We believe that the highlight of this data is that even without benefit of accurate facts, faculty are supportive of students pursuing the career. It is much harder to change someone's feelings about something than to help them with accurate information. We are seeing that faculty have **positive feelings** towards the career. We just need to share accurate facts so that we can take that nagging guilty feeling away and they can be confident that teaching is also a fantastic career for their students, not just for making a difference, but for financial stability and retirement.

When we look through our PTaP and PTaP.HE data over the last three years and we couple that with student and faculty interviews, a pretty clear story has emerged.

- Over **60% of STEM majors are interested** in grade 7-12 teaching
 - Students indicate that they often do not mention this to faculty for fear that they will be looked down upon
 - Faculty incorrectly believe that maybe 5% of students are interested and indicate that they do not bring it up because of this lack of interest.
 - Over 40% of students surveyed in 2021 (n=2300) indicate that they **have never heard even one faculty member mention teaching** as a career option.
- **88% of faculty** (n=2200) **agree/strongly agree** with the statement, "I would be comfortable with my strongest student becoming a grade 7-12 teacher"
 - Faculty also indicate that they perceive their colleagues are not supportive of the career – but they actually are.

Let's start talking about teaching!

Evolution of Faculty development

1. Faculty hear about GFO and see it as valuable (because emotionally they love teachers and believe in the profession)
2. Faculty question their own perceptions and increase their factual knowledge – maybe have a conversation with another faculty or student
3. Faculty change their beliefs that teaching is a great career in and out – share a presentation with students
4. Faculty are empowered and feel a sense of responsibility to advocate for the profession – share with colleagues via conversation or presentation

GFO can alleviate fear and GFO can empower!

Key Outcomes or Other Achievements:

Executive Summary from EE 2022 Evaluation Report

Get the Facts Out is at the end of its 4th year of funded work, and boasts a great many accomplishments for this relatively short period. It has built on the successes of the past several years, expanding contact with the intended audiences, achieving widespread awareness of the project through a variety of dissemination mechanisms, offering highly effective student presentations and faculty workshops, and actively supporting increased engagement of local Champions using the materials. The project has continuously iterated its approach, addressing challenges and responding carefully to all evaluation feedback, discussing results, assigning working groups to write up a response, and circling back to them over time. A 6-month evaluation retrospective in January 2022 assigned the project a "check plus" on their progress in addressing identified difficulties. These strengths were also all identified in the 2021 annual evaluation report, but have continued to grow and improve over the past year. In this Executive Summary I provide an outline of the evaluation findings over the past year; the evidence to support these statements can be found in the full report.

I have identified substantial project success this year, including:

GFO strengthens local teacher recruitment efforts.

Half of GFO Champions can identify concrete impacts of using GFO, including drawing students to their teaching program, an overall strengthening of the teacher recruitment efforts, and empowering faculty to engage actively in recruiting future teachers. Since many departments do not take responsibility for recruiting future teachers, this empowerment is key.

Faculty and student workshops are highly effective at conveying knowledge and changing perceptions about teaching as a profession.

One of the highlights of GFO are the tested faculty and student presentations. Averaging across 54 student and 42 faculty workshop surveys (~2,200 individual responses), I find impressive pre-post gains in knowledge and perceptions of 41% for students and 45% for faculty presentations (normalized gains of 64% and 61% respectively), with an effect size of 1.9 and 2.3 respectively.

GFO presentations reduce barriers to choosing teaching careers.

On student presentation pre/post surveys, students display important shifts in attitudes, agreeing that teaching is a good career and disagreeing that teaching pays a lot less than other careers. One-third of students shift towards agreement (or more accurately, away from disagreement) that they want to be a teacher after attending a GFO presentation.

Awareness of GFO is high and growing.

On a variety of surveys, including a large survey of members of each engaged GFO society, 40% or more respondents were aware of GFO. Awareness of GFO was particularly high among AMTE members; 56% of those surveyed were aware of GFO, and 16% mentioned GFO as a resource before it was mentioned in the survey. Even those survey respondents who are not aware of GFO indicate that they are likely to at least visit the website (60%) or might use the materials (43%), showing that faculty immediately perceive value in the project and what it offers.

There are now 202 GFO Champions at 157 institutions, with high growth in Chemistry.

Additionally, the number of activities reported by these Champions have increased from 267 in 2021 to 384 in 2022. The growth in Chemistry is notable and is the result of their focused outreach to the Chemistry community.

The project has had an impressive reach, engaging at least 10,000 students and faculty in learning activities, and another 10,000 through outreach.

When counting the reported estimated reach of all GFO activities by Change Agents, GFO/Mines staff (e.g. W. Adams, D. May, and team), and Champions, approximately 6,500 students and 3,000 faculty have engaged in workshops or presentations, and an additional ~12,000 students and faculty have been touched by broader outreach efforts (e.g. emails, posters, videos, and publications) based on registered activities. I estimate that this reach represents ~ 2,000 STEM departments: This achieves the identified goal of 1,200 STEM departments over the 5 year project. Additionally, on surveys, approximately ¾ of those aware of GFO have attended a workshop, showing that many faculty have engaged in deep learning about GFO. These numbers are only the reported reach and are certainly an under-estimate.

The project uses multiple outreach and support methods to engage the community.

This impact is a testament to the community of practice design of GFO. It is also a direct result of the engagement efforts of the project to date, including a Champion Engagement Strategy working group, society-submitted communication plans, a variety of Change Agent outreach activities, an active Facebook group (268 members), Newsletter list (568 subscribers), regular Newsletters (36% open rate; considered high), Website (60,000 unique pageviews in 9 months and 1621 downloads), Blog (16 posts; drawing in the majority of web visitors), YouTube videos (22 videos, over 2,000 views), Email discussion list (210 subscribers), events (e.g. presentation at national conferences such as UTeach and Noyce, GFO mini conference, AMTE conference, ACS webinars, All Change Agent meetings). Most people learn of GFO through word of mouth, conferences, and email, showing that these outreach mechanisms are effective. The GFO Change Agents are helping in this work: In 2022, Change Agents reported 114 activities, reaching 300 faculty and 400 students.

GFO Champions are expanding GFO's reach, especially to student audiences.

In the last year, Champions conducted more student presentations (93) than Change Agents or GFO/Mines staff combined. These Champion presentations have reached ~2,200 students (and ~4,000 since 2019).

Additionally, Fidelity of Implementation scores for GFO Champions' presentations were similar or better than those of Change Agents or GFO/Mines, showing that these presentations emphasize key messages and give time for active engagement and discussion. Champions have also engaged faculty through workshops, though more modestly so (a total of 725 since 2019). While they are not conducting faculty workshops, however, Champions may be spreading GFO through word of mouth: 91% of Champions indicate they have talked to faculty at their institution, and 48% to faculty outside their institution.

Faculty are highly positive about GFO, finding it to be a uniquely valuable resource.

Faculty are enthusiastic about GFO and the materials, often citing the customizable materials and access to national and local data. For example, 88% agree that GFO is highly relevant for their recruitment audience, 98% agreed that they feel confident that the data provided by GFO is accurate and trustworthy, and 96% agreed that GFO provides needed resources and supports that they cannot find elsewhere. *"I have been promoting STEM teaching for 35 years and lacked GOOD resources. I immediately recognized the value of the resources GFO provided, even early on in the program."* - GFO Champion

Many faculty (including Champions) are using GFO resources.

On surveys, 60% of Newsletter subscribers and 40% of broader FSI survey respondents are using GFO. The most popular materials are the website, student presentation, data handouts, and infographics.

See EE's full report in the supplemental files

What opportunities for training and professional development has the project provided?

Post-Doctoral Researchers and Research Associate

In the fall post doc Breakall began a full-time assistant professor position at Snow College in Utah and has returned to work with us this summer. In January we were able to hire a recent Teach@Mines graduate with a BS in Computer Science, Lucia Grande to take on much of his role. In May, we hired Dr. Elias Euler to join the team as a research associate in August.

Grande's professional development has included qualitative work such as focus groups and interviews supervised by PI Adams, as well as quantitative work analyzing student perceptions data supervised by Dr. Breakall. Additionally, Grande conducted several of this Spring's site visits, mentored by both Adams and May. Grande has co-presented with Adams and under her support has become one of the strongest GFO presenters on the team and is now traveling to national conferences to conduct presentations and workshops.

Project Manager

Dr. David May transitioned from the role of GFO project manager at APS over to full-time GFO project manager at Mines. May came with extensive experience but still had professional development goals including gaining more experience with quantitative data analysis, and increasing his knowledge of the GFO project research and resource development teams.

Additionally, it has been a growth experience working with a project with so many moving parts. May works closely with Adams on all aspects of his work.

Project Coordinator

Allison Bolter has been the GFO project coordinator since the project was awarded NSF support. Bolter has engaged in extensive training and professional development over the past four years. This year she extended her duties to include leading the supervision and training of personnel who build the "A Teacher's Life by the Numbers" infographics. She also wrote her first blog article for the project this year. Bolter also engages in regular training on Mines human resource and finance policies since they've become very fluid this past year.

Research Assistants

The project has maintained several part-time undergraduate researchers and recently began hiring new BS graduates to support the extensive research activities of GFO. These research assistants (RA) are or have been from different institutions including Mines, U. of North Texas, Brigham Young U., Virginia Commonwealth U., U. of Texas Rio Grande, U. of Southern California, and Florida State U.. GFO RAs have worked on various data collection and analysis activities as well as giving GFO presentations. They are being trained and supported by Adams, Breakall, May, and Bolter. In some cases, these assistants do not have a STEM degree so have required extensive training with Excel, quantitative analysis, and data visualization.

GFO/Mines personnel

All GFO/Mines personnel listed above meet with Adams a minimum of one hour per week and interact via email daily. In addition, they track their hours per project and provide weekly summaries of their activities. In this way, they receive regular timely feedback on all of their efforts.

STEM Faculty

In Y4 year we continue to enhance our faculty professional development efforts. We are working hard to further develop the GFO Community of Practice. We are working to communicate with and support this community through a range of mechanisms including one-on-one email, individual zoom meetings, the GFO listserv, Facebook, the newsletter, webinars, and a mini-conference.

Every new champion receives at least 2 customized emails from different GFO personnel offering resources, support, and an individual zoom meeting. A small, but not insignificant, number opt for this connection which results in a rich conversation about their local recruitment needs. We also reach out to the whole via several channels. At the GFO mini-conference an anonymous Zoom poll asked if people were on the listserv (90%+) and if they enjoyed the messages (95%).

We also feel that our faculty professional development could be stronger. As noted by the EE, not all faculty are using local data or are aware of the value of using the tested messaging. We have been adding to the notes on the presentations to provide a clear script for faculty with guidance on where it's important to stick to the GFO language. We have also very purposefully changed our reference to the "faculty-facing presentation" to "Teaching: The Best Kept Secret!" in order to be clear that the presentation as built, is the resource, not just the pile of facts contained within.

Finally, Y4 has been a particularly challenging year with talk of teacher stress and violence in schools.

Teacher Stress

- We have searched extensively for data to support the recent claims about teachers' intent to leave the profession. We have found that there is an acute shortage of data. Based on the data that does exist from the Bureau of Labor Statistics Quit rates and a few specific states, there is NOT evidence that teachers are leaving at greater rates than in the past. We are monitoring the situation closely. In the meantime, we have worked to support any faculty who enquires about this year's media frenzy. We have created an infographic with quit rates to share when folks ask about this topic (*Teacher Retention* sup file). Here is what we can share:
- Many of these studies are not comparing properly to other professions

- There are some negative impacts of the pandemic on teaching, but these are not disproportionately affecting teaching compared to other professions
- Teachers are weathering the storm better than other professions, buffered by their well-being.

Violence in Schools

- We have been asked if it's appropriate to share positive messages about the profession after the recent events in Uvalde, TX. We carefully developed the following response:
 - We have reached out to our teacher partners across the US and discussed this delicate situation. We all agree that
 - the slides should not be modified, nor should the recent events be brought up. This may sound tone deaf, but I don't believe that it is, rather deeply considered. The recent events impacted me very strongly. I learned about it via an acknowledgement of the event at the end of a very nice note from the past president of NCTM about why math teaching is so critical. It was a wonderful message about the career and then had a note at the end about the tragedy. I couldn't even be pleased that GFO was mentioned in her message, I was simply horror struck and couldn't stop thinking about it.

I have managed not to make my point yet. Sorry. After talking with the teachers, we concluded that the best way to articulate the reason that there should not be language added, nor should it even be brought up, is that it's very unlikely that is what the teachers who were lost would have wanted. Why would we disrupt our efforts to bring in more highly qualified and caring teachers at a time that our youth need them the most? Now those teachers might want to use this incident to help with some other related issues, but likely not to disrupt the educational system as a whole.

Additionally, there are issues with providing further press for these types of actions. In a March 2021 statement by Gerry Holmes, NPR's managing editor for enterprise and planning, he said, "...we don't want to give any suspected shooter additional notoriety they may be seeking." I think this articulates further reasoning that bringing up this terrible tragedy when talking about any topic related to schools or teaching, potentially sends the opposite message that we intend.

PI Project Management

PI Adams has gained extensive pm experience over the life of this grant but continues to enjoy support from GFO Sr. Advisor Gay Stewart and APS Director of Education Michael Wittmann and APS Head of Programs Monica Plisch. In addition, Adams finds thought partners in AAPT GFO coordinator Drew Isola, PM May, PC Bolter, and external evaluator Chasteen.

Have the results been disseminated to communities of interest? If so, please provide details.

GFO is an Institutional and Community Transformation project; therefore, it's critical that we have an effective dissemination approach to facilitate faculty uptake of the GFO resources. We have continued to focus on a mostly virtual dissemination approach. We learned more about giving our presentations virtually and modified them accordingly. GFO personnel and Champions have now given presentations 295 times, reaching approximately 3,200 faculty and 6,500 students (*Fig. 7*). The EE annual report includes detail on these activities and their effectiveness.

The project also disseminates its results in a variety of additional ways including the GFO newsletter, the GFO website, blog articles, society publications, society newsletters, the GFO YouTube channel, GFO Facebook page, during CSS virtual and in-person site visits, and on our new discussion listserv.

Mines Team

This year the Mines team, led by PI Adams, was again able to engage in many more presentations without the need to travel, but was able to travel for some in-person conferences. Additionally, if other project personnel travel to an event, PI Adams builds out the slide decks. Virtual conferences or meetings (with GFO presentations) included national standalone webinars, such as the AAEE series, meetings with individual universities *and K-12 district officers*, and virtual participation in the usual venues such as the national conferences of AAPT, PhysTEC, ACS, and UTeach etc. In-person workshops were given at 3 CSS's, the IUUSE Summit, AAEE, each discipline's two-year college committees/associations, Utah Science Teachers Association, Noyce regional conferences, locally to Mines faculty and students, and at a local school district to principals and individual classes of students.

Publications included two papers published in the PERC 2021 Conference Proceedings, one in the Forum on Education Newsletter, one in the upcoming AAEE Jobs Handbook, and several blog articles.

Association of Mathematics Teacher Educators

Yr4 of GFO was AMTE's second year working with the project. The AMTE/GFO Task Force (MCA) met monthly to strategize and plan efforts to get the word out about GFO to AMTE members and the broader math education community. During the year, the MCAs:

- Added a GFO page to the AMTE Website
- Created an acknowledgment letter for AMTE Champions to recognize their teacher recruitment efforts.
- Developed a process for matching MCAs with champions.
- Planned the math session for the GFO Mini-Conference, focused on building connections and capacity in the math education community to enhance teacher recruitment efforts.
- Made modifications to GFO materials to emphasize equity and diversity in teacher recruitment, without changing the tested messaging in the materials.
- Added Talking Points and Planning Notes to the faculty facing AMTE GFO Slides to support our math champions in using the slides.
- Conducted six GFO Workshops, both independently and as a group. These have been largely virtual due to the pandemic, but the task force has begun some face-to-face presentations.

- Held a joint pre-conference with the Mathematics Teacher Education Partnership (MTEP) at the 2022 AMTE Annual Conference. This hybrid event was supported by an NSF Conference Grant secured by MTEP, with 32 Zoom participants and 43 in-person. Participants represented 56 different institutions, including IHEs, state departments of ed, K-12 school districts, NSF-funded projects, and private institutions. We had 7 new GFO Champions sign up. NCTM leadership also attended the GFO plenary. During the conference sessions participants:
 - Explored GFO resources and learned to tailor them to meet institutional needs.
 - Explored the role of equity in secondary math teacher recruitment and preparation.
 - Met with NCTM leadership to explore how we might collaborate on teacher recruitment efforts.
- The MCAs held their 1st virtual coffee hour on 5/10, with three champions participating with the task force.
- Submitted a GFO proposal for the NCTM 2022 Annual Conference in September.
- Pilot tested creating videos of teachers sharing why they love being a math teacher at an NCTM regional conference.
- Two MCAs were featured in the Teaching Math Teaching Podcast, and their GFO work was highlighted.

American Physical Society

Physics Change Agents (PCA) The four PCAs continue to meet virtually with project staff, implement GFO resources in their own institutions in partnership with other local faculty and staff, and lead workshops at regional and national conferences. This year GFO central experimented with assigning PCAs with specific champions. The PCAs expect to resume presenting in person at regional conferences more regularly.

APS has continued to engage PhysTEC member institutions (more than 700 potential faculty champions in 334 different physics departments) through regular emails and the national PhysTEC conference. The 14 institutions and two regional networks currently supported by PhysTEC are required to use GFO resources and collect data on their impact. There are currently 48 GFO champions in physics (about half of them at PhysTEC-supported institutions). In addition to leading GFO workshops at local institutions, GFO physics champions, PCAs, and APS staff have given presentations or led workshops at three national meetings. In addition to managing APS's activities described above, Co-PI M. Wittmann regularly works with the project PI and project manager, D. May, as well as the broader PI Team, on project design and development.

APS revised its GFO communication plan to address engagement in the post-pandemic environment. Most of our efforts are centered on giving the PCAs more agency in their work. Thus, the work of GFO staff is to enable the best work of the PCAs.

American Chemical Society

ACS efforts over the five-year funding period include (1) supporting a team of chemistry change agents (CCA), (2) hosting live and virtual workshops and presentations, (3) creating and sustaining a web presence for GFO products on the ACS site www.acs.org/getthefactsout, and (4) broadly disseminating GFO resources to chemistry faculty members. These efforts are all designed to lead to sustainability beyond the funding period.

During Yr4, areas of emphasis included:

Supporting a team of chemistry change agents who represent a diverse set of experiences and institution types but share a passion and interest in the recruitment, preparation, and retention of well-qualified chemistry teachers. CCAs and project team members conducted workshops to actually “get the facts out about STEM teaching” to students and faculty members. See Products and the EE's report.

Targeted champion recruitment ACS leveraged key contacts at ACS-Hach institutions (72) and approved departments (700+) via email and newsletter to identify chemists who are most likely to advise students interested in pursuing teaching careers. This yielded nearly 50 contacts who were individually invited to become champions and to attend the GFO mini- conference. This effort resulted in a significant increase in chemistry Champions (28), more than the previous 3 years combined.

Zoom coffee Chats We engaged faculty with three informal, chemistry-specific Zoom coffee chats. Attendance was lower than we'd like but the conversation was rich.

A multi-pronged communications plan was launched. This included regular outreach through ACS communications channels for chemistry faculty and the ACS membership-at-large, outreach to the ACS Committee on Education and the Two- Year College Chemistry Consortium.

ACS Regional Meetings were leveraged as venues for GFO presentations; these are better venues than National Meetings due to their smaller size and less disbursed format.

American Association of Physics Teachers

See report for grant # 1821462

What do you plan to do during the next reporting period to accomplish the goals?

Consistent with the past two years, we have identified several strategic initiatives, these are new or enhanced activities for this coming year. Below that we have the strategic plan laid out by working group. This organization helps us track what needs to be done and who will accomplish it. These efforts are guided by the recommendations of the EE and are currently in draft form. Our annual meeting is in September, at which time, we will seek additional recommendations from our NAB.

Year 5 Top Priority Initiatives:

1. Build out resources and support structures to empower faculty to start talking about teaching.
2. Continue to support and build on the GFO Community of Practice.
3. Work with disciplinary societies to incorporate accurate information about the teaching profession into existing disciplinary careers resources aimed at undergraduates.
4. Build on our new partnerships with disciplinary, two-year college societies or projects, AAEE, and NCTM.

AY 22/23 Strategic Plan outline, organized by Working Group (WG):

PI Team

Approve 22-23 strategic plan, approve the NAB and Annual meeting agendas, hold the Virtual NAB meeting and in-person Annual Meeting, approve NSF Annual report, approve plan for sustainability and growth, approve plan to seek additional funding, check on each WG's progress towards their 22/23 objectives.

Planning and Management

Draft AY 23/24 strategic plan, draft NAB and Annual meeting agendas, plan and submit NSF annual report, make plans to integrate NAB feedback, draft plan for sustainability and growth, seek additional funding, and schedule 2022 NAB and Annual meetings

Societies

Implement each discipline's revised marketing plans, publish more GFO Newsletters, and strategize next steps for sustainability and growth, per each society's plans below.

APS:

In Y4, APS will focus on several different elements in partnership with PhysTEC. Most of our efforts are centered in giving the community of Change Agents more agency in their work. Thus, the work of GFO staff is to enable the best work of the Change Agents. See "Change Agents by Discipline" below. Advertise GFO in APS publications such as APS News, the Forum on Education Newsletter, and other settings. Interact more closely with APS Careers, who are implementing a Career Mentoring Fellows program across departments in the USA. The long range goal is to have these Career Mentoring Fellows (target: 740) become GFO champions as part of their career mentoring work, so that they can share information about teaching as part of their work.

ACS:

Publish articles and/or announcements about GFO every month in several of the society's newsletters, including Chemunity News, ACS Undergraduate Programs and Faculty Newsletter, ACS Matters, GP Chemist, and InChemistry. Most of these newsletters reach targeted audiences in education (K-12 teachers, faculty, undergraduates, etc.). As budget permits, run targeted ads in these and other publications. Send direct emails to known chemistry champions (quarterly) and to faculty members of the Amer. Assoc. of Chemistry Teachers (bi-annually) to engage them and invite them to activities and events. Conduct more GFO-themed "coffee chats" for faculty, GFO giveaways at ACS exhibition booths, and bi-annual presentations to ACS Society Committee on Education.

AMTE:

In Y4, AMTE plans to formalize connections among other math organizations and projects that are working on math teacher recruitment. These include NCTM, CBMS, MTEP, SEC, 100Kin10, and the MAA's sub group on teacher recruitment. The purpose of these connections would be to identify dissemination opportunities that can broaden our reach and generally join forces to promote teaching as a career for mathematicians. To this end, AMTE will convene an informal gathering with representatives of these organizations/projects that focus on math teacher recruitment. This may or may not include a GFO presentation, but will mostly comprise facilitated dialogues to identify key foci and problems. We suspect there are people working on common problems who might work deeper through collaboration. Related to this, AMTE plans to work with NCTM to see if they can identify at least four champions or allies who can help us spread the GFO message. Continue its dissemination activities at national math education conferences (workshops and giveaways), and will organize another AMTE Pre-Conference with MTEP. Collect more positive stories and videos of math teachers sharing about the joys of teaching math, teaming up with NCTM's media team again, and plans to participate in another episode or two of the Teaching Math Teaching podcast.

AAPT:

See report for grant # 1821462

Change Agents by Discipline

- **Physics:** Focus on the registered Physics Champions; support their development process to become empowered to share GFO more broadly. Plan to engage in 2-3 targeted webinars and coffee chats, focusing on a specific topic each time; potentially post on YouTube. PCAs will attend in-person section and regional AAPT and APS meetings, and encourage Champions to attend, as well.
- **Chemistry:** CCAs will help write articles and organize and run events like presentations and coffee chats, as outlined under "Societies - ACS" above.
- **Math:** MCAs (i.e., the AMTE GFO Task Force) lead and run all GFO-related activities described under "Societies - AMTE" above.

Champion Engagement Strategy

Coordinate and prioritize all project activities that engage champions and support the GFO Community of Practice. Organize Fall GFO mini conference. Identify webinar topics for 2-4 joint AAEE/GFO webinars. Maintain Champion Listserv. Maintain Champion listing on the website. Conduct regional data mining (for teacher salaries and costs of living) by request. Coordinate with the CA and Societies WGs to identify the best workshop/colloquia opportunities and assign presenters. Plan, coordinate, and post blog articles from various WGs or Champions every 2-3 weeks. Identify champion needs for the website or resources WGs.

Resource Development

Finalize GFO Users guide, Busting Myths and Teaching: The Best Kept Secret Facilitator's guides. Draft and user-test careers resources. Work with partner societies to more accurately represent teaching within their existing careers. Develop emotional messaging and resources that will engage and empower faculty to talk about teaching. Maintain and update website as needed. Share updated Salary Data with each Study site. Continue to post videos on our YouTube channel and on the GFO website and solicit more. Conduct Spring All-Change Agent meeting. Write a blog on teacher salaries and other topics.

Research Team

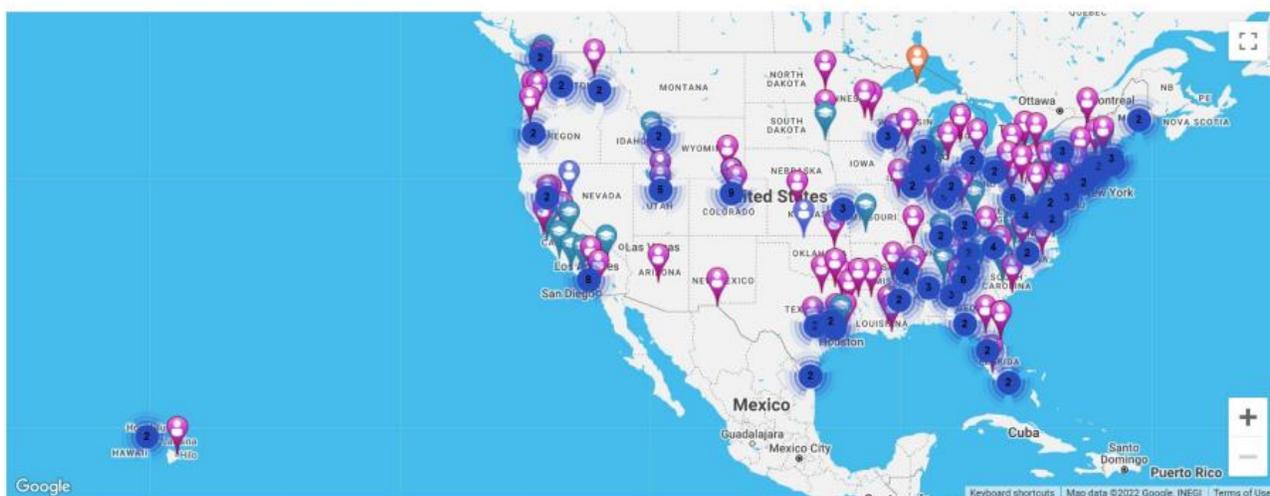
Conduct research planning. Attend and present GFO research presentations at societies' and other national meetings. Conduct site visits to Comprehensive Sites. Publish PTaP and PTaP.HE papers. Draft the Chem study paper. Repeat the Chem study at Mines. Create 5-7 blog articles on research topics for the website. Plan and engage in PD in STEM education research. Collect data from all Study Sites and prepare reports for each. Analyze FSI and SSE data and compare across Years 1-4. Analyze enrollment data from Y4 and collect it for Y5.

Evaluation

TBD Planning will be completed in July.

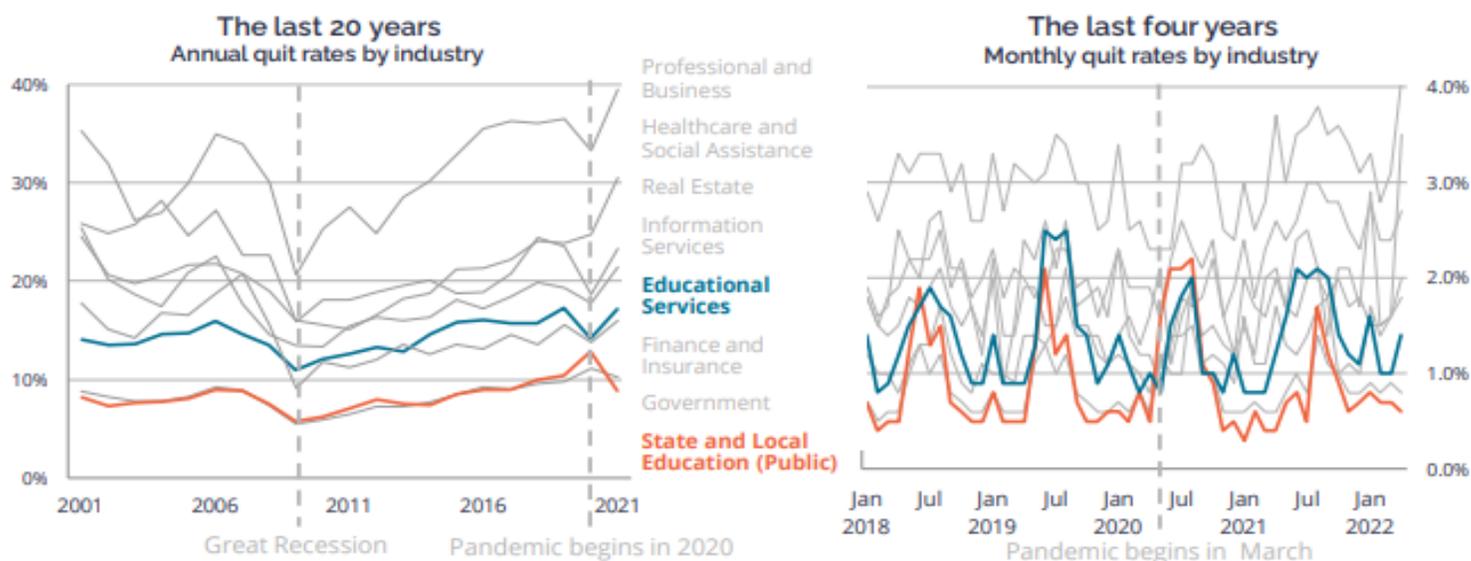
Supporting Files [1-5]

1. [External Evaluator's Year 4 Annual Report – GFO 2022 Annual Evaluation](#)
2. [GFO Community map which shows the location of each GFO Champion, PI, and Study Site](#)



3. Teacher Retention infographic

Teacher Retention is One of the Best



About the data

State and Local Education (Public) includes all employees of public K-12 school districts and public universities.

Educational Services are any public or private provider of training or education, including private school personnel, contractors who work in schools, and tutoring or training services.

Quits are generally voluntary separations initiated by the employee. **Quit rate** is the percentage of all employees who quit during the given time period.

Data source: U.S. Bureau of Labor Statistics, "Quits levels and rates by industry and region, seasonally adjusted," *Economic News Release*, 2022. URL: <https://www.bls.gov/news.release/jolts.t10.htm>

Questions about the *annual* graph:

1. What is the overall trend for the last decade?
2. How does the quit rate for teachers compare with other industries?

Questions about the *monthly* graph:

1. What seasonal trends do you notice?
2. What do you notice about teacher quit rates for Summer 2020?
3. What do you notice about teacher quit rates in Fall 2020?
4. What do you notice about teacher quit rates in Summer 2021?
5. What do you notice about Spring 2022?

Get the Facts Out



Repairing the reputation of the teaching profession

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation. NSF DUE #1821710 & 1821462.



4. Figures 1-5 to accompany text in the Accomplishment sections of the report.

2021 Controlled Study of Perceptions at Colorado School of Mines

- 1100 students in Introductory chemistry (majority freshman)
- **September:** Invited to a Busting Myths about the Teaching profession presentation for extra credit.
 - ~300 attended a presentation w/ PTaP before and after.
- Remaining asked to take the PTaP survey the following week - a final extra-credit opportunity
 - ~200 in **control** (survey and no presentation)
- **December:** All students invited to take the PTaP for more extra-credit.

PTaP – Perceptions of Teaching as a Profession

Figure 1: Treatment Group (Busting Myths presentation)
Colorado School of Mines

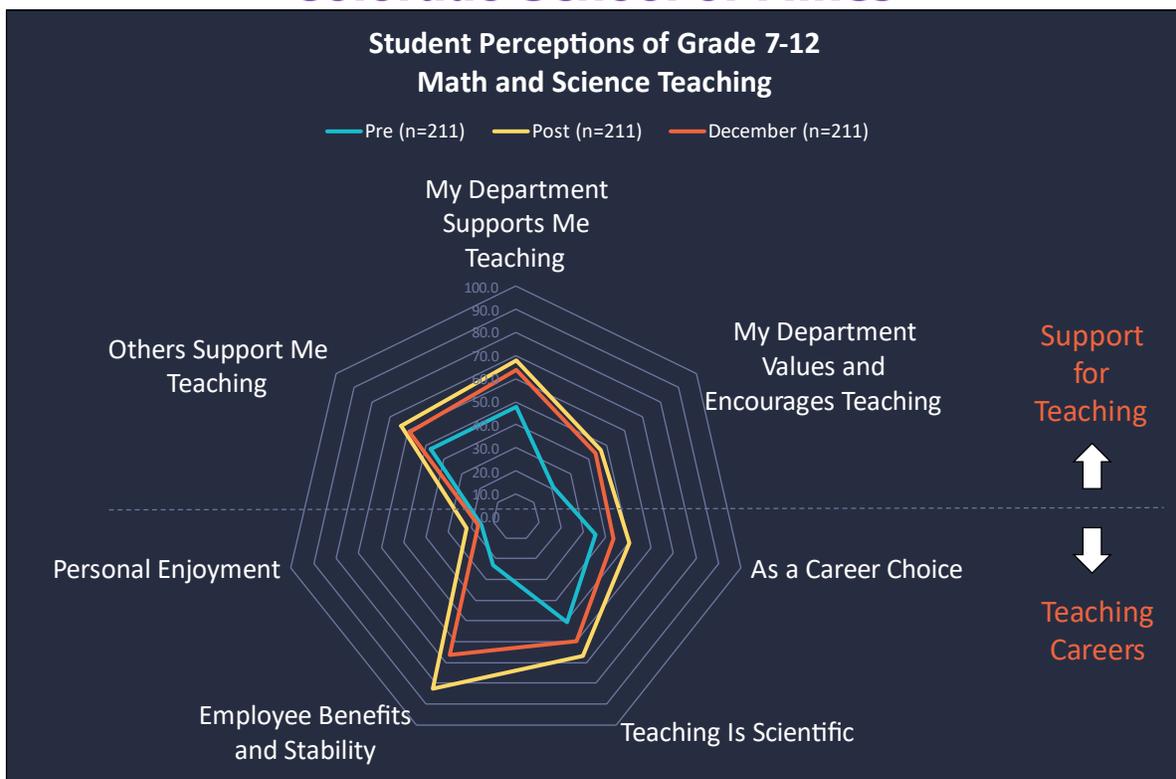


Figure 2: Control Group (no GFO) Colorado School of Mines

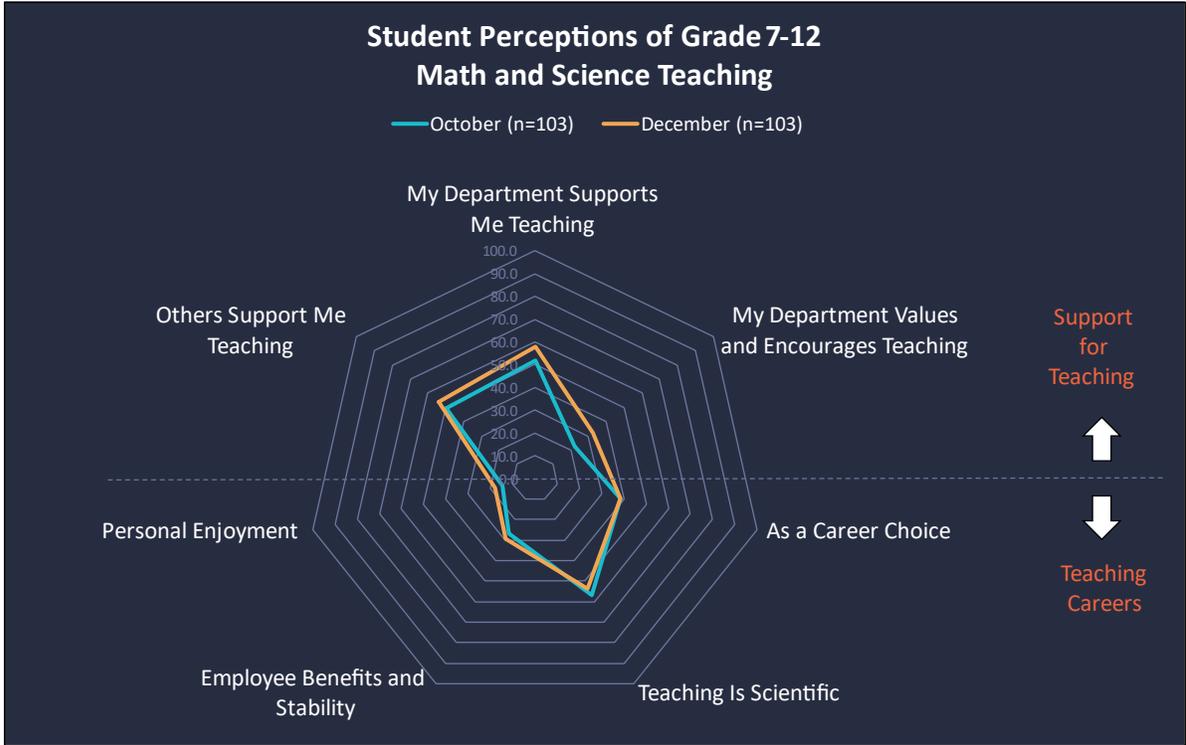


Figure 3:
Responses to “I want to become a grade 7-12 teacher

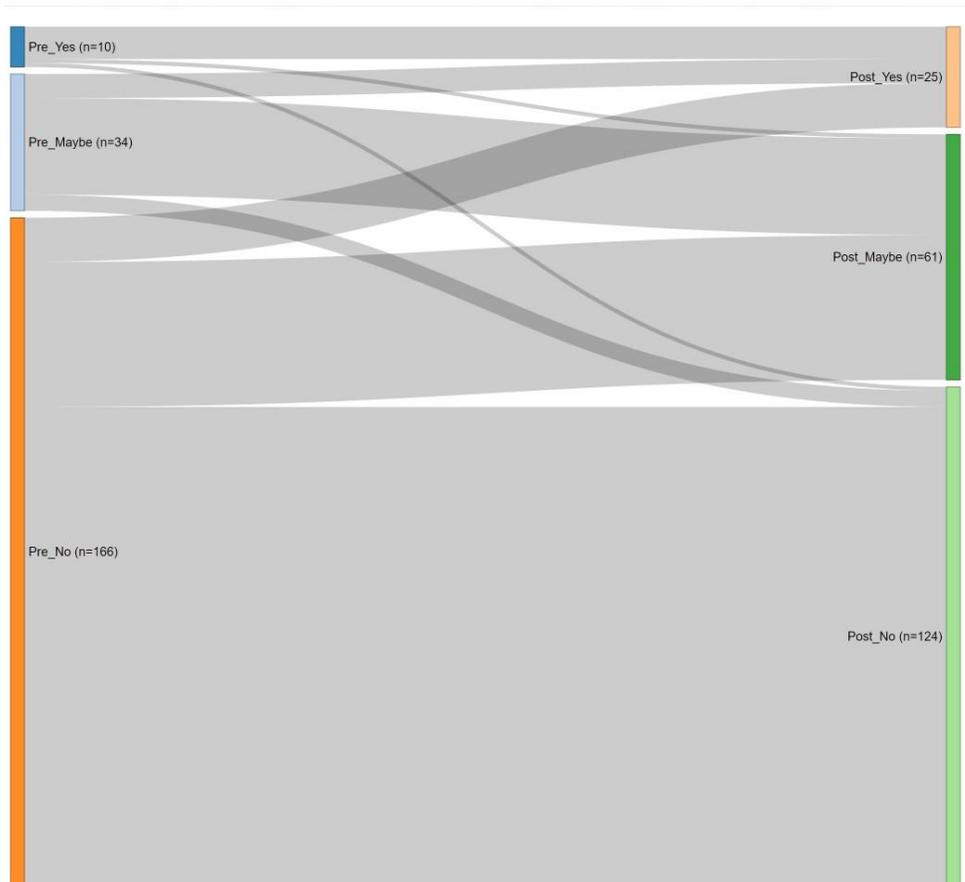


Figure 4:

From EE's report:

Responses to "I want to become a grade 7-12 teacher. One-third of students shifted towards greater agreement with "I want to be a teacher."

To identify the number of students who shift attitudes, I use an average across students (N=1,657 students), instead of an average of the average responses per workshop as above. When averaging across students, the shift on "I want to be a teacher" is from -0.7 ("disagree") to -0.3 ("neutral"). One-third of students (N=553) shifted towards a more positive attitude, and 7% had a large shift in response (moving up more than one level). Figure at right.

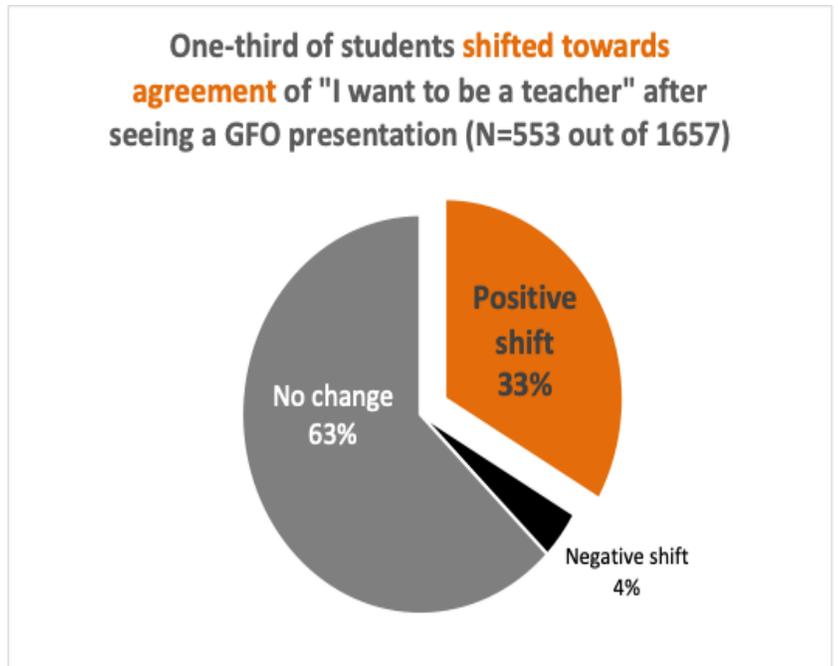
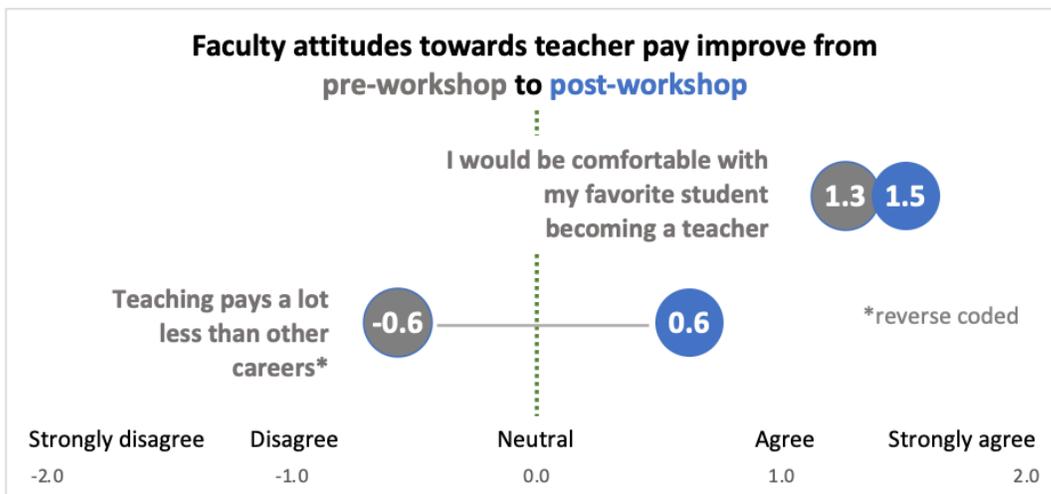


Figure 5:

From EE's report:

When averaged across workshops, faculty in workshops shift towards disagreement that "teaching pays a lot less than other careers." Their comfort in their favorite student becoming a teacher is already quite positive (on average) pre-workshop, and shifts are minimal. Note that this aligns with broader data from the PTA.P.HE.



Book Chapters

Inventions

Journals or Juried Conference Papers

View all journal publications currently available in the [NSF Public Access Repository](#) for this award.

The results in the NSF Public Access Repository will include a comprehensive listing of all journal publications recorded to date that are associated with this award.

Breakall, Jared B. and Logan, Savannah L. and Adams, Wendy K.. (2021). Faculty perceptions of grade 7-12 math and science teaching as a career: Evidence from a reduced-basis factor analysis of the PTAP.HE Instrument. *2021 Physics Education Research Conference Proceedings*. 57 to 62. Status = Deposited in NSF-PAR [doi: https://doi.org/10.1119/perc.2021.pr.Breakall](https://doi.org/10.1119/perc.2021.pr.Breakall) ; Federal Government's License = Acknowledged. (Completed by Adams, Wendy on 07/07/2022)

Logan, Savannah L. and Breakall, Jared B. and Adams, Wendy K.. (2021). A comparison of student perceptions of the teaching profession at minority-serving and non-minority-serving institutions. *Physics Education Research Conference Proceedings*. 239 to 244. Status = Deposited in NSF-PAR [doi: https://doi.org/10.1119/perc.2021.pr.logan](https://doi.org/10.1119/perc.2021.pr.logan) ; Federal Government's License = Acknowledged. (Completed by Adams, Wendy on 07/07/2022)

Breakall, Jared B. and Logan, Savannah L. and Pearson III, Richard L. and Pyper, Brian A. and Adams, Wendy K.. (2020). Maybe we aren't that different after all: Faculty perceptions of grade 7-12 teaching as a career. *2020 Physics Education Research Conference Proceedings*. 51 to 56. Status = Deposited in NSF-PAR [doi: https://doi.org/10.1119/perc.2020.pr.Breakall](https://doi.org/10.1119/perc.2020.pr.Breakall) ; Federal Government's License = Acknowledged. (Completed by Adams, null on 07/15/2021)

Logan, Savannah L. and Breakall, Jared B. and Pearson, Richard L. and Adams, Wendy K.. (2020). College faculty support for grade 7-12 teaching careers: survey results and comparisons to student perceptions. *2020 Physics Education Research Conference Proceedings*. 291 to 296. Status = Deposited in NSF-PAR [doi: https://doi.org/10.1119/perc.2020.pr.Logan](https://doi.org/10.1119/perc.2020.pr.Logan) ; Federal Government's License = Acknowledged. (Completed by Adams, null on 07/15/2021)

Pearson III, Richard L. and Logan, Savannah L. and Adams, Wendy K.. (2020). Faculty perception insights obtained from faculty interviews during the development of the Perceptions of Teaching as a Profession in Higher Education (PTaP.HE) instrument. *2020 Physics Education Research Conference Proceedings*. 394 to 399. Status = Deposited in NSF-PAR [doi: https://doi.org/10.1119/perc.2020.pr.Pearson_III](https://doi.org/10.1119/perc.2020.pr.Pearson_III) ; Federal Government's License = Acknowledged. (Completed by Adams, null on 07/15/2021)

Logan, Savannah L. and Pearson III, Richard L. and Adams, Wendy K.. (2020). GFO copywrite: development and testing of written and visual materials for recruiting STEM teachers. *PERC 2019*. . Status = Deposited in NSF-PAR <https://doi.org/10.1119/perc.2019.pr.Logan> ; Federal Government's License = Acknowledged. (Completed by Adams, Wendy on 07/28/2020)

Adams, W. K. and Plisch, M. and Plantt, T.. (2019). Have a passion for teaching? Consider high school teaching. *American Journal of Physics*. 87 (5) 328 to 329. Status = Deposited in NSF-PAR <https://doi.org/10.1119/1.5094433> ; Federal Government's License = Acknowledged. (Completed by Adams, Wendy on 06/23/2019)

Licenses:

Other Conference Presentations / Papers

Drew Isola (2020). "So, what does a typical mid-career teacher make anyway?". AAPT Summer Meeting. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jean Lee, Glenn Waddell, Amy Roth-McDuffie, Tim Hendrix, Gary Martin (2021). *AMTE Get the Facts Out Webinar*. AMTE members interested in AMTE GFO work. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Adams, W. K., (2022). *Best Practices for Building a Marketing Campaign Targeting Prospective Teachers*. American Association for Employment in Education Webinar Series. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy K. Adams (2022). *Best practices for building a marketing campaign targeting teachers*. AAEE Webinar Series. virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (2020). *Busting Myths About the Teaching Profession*. West Virginia University site visit. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (2020). *Busting Myths About the Teaching Profession*. Student Seminar Colorado School of Mines GFO Site Visit. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (). *Busting Myths About the Teaching Profession*. Presentation to the Colorado School of Mines Society of Physics Students. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall (2020). *Busting Myths About the Teaching Profession*. GFO Site Visit Focus Group. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Adria Brown (2021). *Busting Myths About the Teaching Profession*. Social for Colorado School of Mines students. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzy (2021). *Busting Myths About the Teaching Profession*. SUMMET Week 4 (Summer Multicultural Engineering Training) for juniors from CO and OK. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzy (2021). *Busting Myths About the Teaching Profession*. SUMMET week 5 (Summer Multicultural Engineering Training) for Juniors from CO and OK. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzy (2021). *Busting Myths About the Teaching Profession*. SUMMET Week 6 (Summer Multicultural Engineering Training) for juniors from CO and OK. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. Challenge Summer program BBQ. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell, Adam Bennion, Clint Goldman (2021). *Busting Myths About the Teaching Profession*. Introduction to teaching Physical Science and Physics 191 Careers in Physics Class. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. Intro Chemistry & Intermediate Mechanics Class. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. Intro Chemistry & Intermediate Mechanics Class (second presentation). Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. Intro Chemistry & Intermediate Mechanics Class (Third presentation). Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Dawson Lang (2021). *Busting Myths About the Teaching Profession*. GFO All Change Agent Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. SCED333/SCED598A – Educational Psychology and Assessment. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Dawson Lang, Emma Khorunzhy (2021). *Busting Myths About the Teaching Profession*. Teach@Mines Semesterly Ice Cream Social. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center Ethical Hacking course. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center P-TEACH Understanding (Dis)Abilities. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center P-TEACH Child Development course. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center, Studio Film Production. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center: Applied Robotics. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. St. Vrain Innovation Center: TriCaster class. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang (2022). *Busting Myths About the Teaching Profession*. SPS meeting. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths About the Teaching Profession*. Teach@Mines Career Event. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2022). *Busting Myths About the Teaching Profession*. SOE Preview Day. Indianapolis, IN. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Lucy Grande (2022). *Busting Myths About the Teaching Profession*. Duane's Physical Science class. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jordan Harshman (2021). *Busting Myths About the Teaching Profession*. Honors Chemistry Course. Auburn University, AL. Status = OTHER; Acknowledgement of Federal Support = Yes

Daniel Bolton (2021). *Busting Myths About the Teaching Profession*. Physics Education Research Group Meeting. CU Boulder, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Joe Kozminski (2021). *Busting Myths About the Teaching Profession*. General Physics 1 class (1st year physics and chemistry majors). Lewis University, IL. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths About the Teaching Profession*. LA Pedagogy class. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths About the Teaching Profession*. LA Pedagogy class: Section II. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Steven Maier (2021). *Busting Myths About the Teaching Profession*. Biochemistry class (upper level biology/chemistry students). NWOSU, OK. Status = OTHER; Acknowledgement of Federal Support = Yes

Josh Stowers (2021). *Busting Myths About the Teaching Profession*. Introduction to Biology Teaching Course. BYU, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Arthur Eisenkraft (2021). *Busting Myths About the Teaching Profession*. Student Orientation. UMass Boston, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Stephanie Casey (2022). *Busting Myths About the Teaching Profession*. STEM Education Webinar hosted by Washtenaw Community College and Eastern Michigan University. Eastern Michigan University, MI. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2022). *Busting Myths About the Teaching Profession*. Calculus 1 class. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2022). *Busting Myths About the Teaching Profession*. Physics 2 class. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Liza Bondurant (2022). *Busting Myths About the Teaching Profession*. Local High Schools where interns are placed. Delta State University, MS. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeffrey Williams (2022). *Busting Myths About the Teaching Profession*. Mechanics Class. Bridgewater State University, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeffrey Williams (2021). *Busting Myths About the Teaching Profession*. Physics One. Bridgewater State University, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeffrey Williams (2022). *Busting Myths About the Teaching Profession*. Physics One. Bridgewater State University, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeffrey Williams (2022). *Busting Myths About the Teaching Profession*. Physics Two. Bridgewater State University, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Jon Anderson (2022). *Busting Myths About the Teaching Profession*. Meeting with 14 Science Student Teachers. University of Minnesota, MN. Status = OTHER; Acknowledgement of Federal Support = Yes

Marta Magiera (2021). *Busting Myths About the Teaching Profession*. Math Student Meet-Up. Marquette University, WI. Status = OTHER; Acknowledgement of Federal Support = Yes

Amy Wagler (2021). *Busting Myths About the Teaching Profession*. STEM Teaching Training Program Orientation. The University of Texas at El Paso, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Math Club. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Intro Physics Class. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Intro Physics Class II. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Intro Physics Class III. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Second Year Physics Class. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2021). *Busting Myths About the Teaching Profession*. Pre Service Teacher Staff development. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2022). *Busting Myths About the Teaching Profession*. Intro Physics class. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

April Nelms (2021). *Busting Myths About the Teaching Profession*. Shiloh High School. University of North Georgia, GA. Status = OTHER; Acknowledgement of Federal Support = Yes

Christine Liebe (2022). *Busting Myths About the Teaching Profession*. Computer Science Teaching Techniques class for pre- service teachers. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Drew Isola, David May (2022). *Busting Myths About the Teaching Profession and Discussion*. AAPT TYC Seminar. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Savannah Logan (2020). *Busting Myths About the Teaching Profession: Teach@Mines*. Mines Admissions Session. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Richard L. Pearson III (2019). *Busting Myths about the Teaching Profession*. Chemistry Field Session Chemistry. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Savannah Logan (2019). *Busting Myths about the Teaching Profession*. Mathematics Field Session. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall (2021). *Busting Myths about the Teaching Profession*. BYU Student Seminar. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Wendy Adams (2021). *Busting Myths about the Teaching Profession*. Math Ed department students and Faculty. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Wendy Adams (2021). *Busting Myths about the Teaching Profession*. STEM Teaching Majors at BYU. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang (2021). *Busting Myths about the Teaching Profession*. SUMMET Week 2. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang (2021). *Busting Myths about the Teaching Profession*. SUMMET week 3(Summer Multicultural Engineering Training) for Juniors from CO and OK. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Dawson Lang and Emma Khorunzy (2021). *Busting Myths about the Teaching Profession*. Colorado School of Mines Fall Kickoff. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Meghan Marrero (2021). *Busting Myths about the Teaching Profession*. Recruitment Event for Scholarship program. Mercy, NY. Status = OTHER; Acknowledgement of Federal Support = Yes

Steven Maier (2021). *Busting Myths about the Teaching Profession*. NWOSU Recruitment Event. Enid, OK. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths about the Teaching Profession*. Physics 101. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths about the Teaching Profession*. Physics 333 (Waves) class. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths about the Teaching Profession*. Physics 2425. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2021). *Busting Myths about the Teaching Profession*. Physics 2426. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Steven Maier (2021). *Busting Myths about the Teaching Profession*. Organic Chemistry I class - CHEM 3114. NWOSU, OK. Status = OTHER; Acknowledgement of Federal Support = Yes

Steven Maier (2021). *Busting Myths about the Teaching Profession*. Chemistry for non-majors - CHEM 1105. NWOSU, OK. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell (2022). *Busting Myths about the Teaching Profession*. Intro Class to Physics Teaching. Brigham Young University, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Legleiter (2022). *Busting Myths about the Teaching Profession*. Presentation with five or more Local Community Colleges.. Fort Hays State University, KS. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2022). *Busting Myths about the Teaching Profession*. Chem 1311 lecture class. Texas A&M University- Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2022). *Busting Myths about the Teaching Profession*. Intro Physics Class. Texas A&M - Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Clay Stanfield (2022). *Busting Myths about the Teaching Profession*. Intro Physics class. TAMU-Commerce, TX. Status = OTHER; Acknowledgement of Federal Support = Yes

Julie Grotophorst (2022). *Busting Myths about the Teaching Profession*. High School Educators Rising Club. Greendale School District, WI. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2021). *Busting Myths about the Teaching Profession*. U-Indy SOE Preview Day. Indianapolis, IN. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Busting Myths about the Teaching Profession*. Longs Peak Middle School Career Friday. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson (2022). *Busting Myths about the Teaching Profession*. Math 101. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Lucy Grande (2022). *Busting Myths about the Teaching Profession*. Math Educators Club. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Dawson Lang (2022). *Busting Myths about the Teaching Profession*. Teach@Mines Ice Cream Social. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession*. Kennesaw State Site Visit. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Beverly Smith (2022). *Busting Myths about the Teaching Profession*. East Tennessee State University - presentation to students. Johnson City, TN. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeff Williams (2021). *Busting Myths about the Teaching Profession*. Bridgewater State University. Bridgewater State University, MA. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Three lab sections of Biology 324 Cell Biology. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Lecture section of BIOL 333 Identification of Animals. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Pre-recorded presentation posted to the Anat & Phys 1 class, BIOL 341. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to lecture session of Biochemistry, CHEM 361. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to CHEM/BIOTECH 380 Junior Seminar. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to lecture session of algebra-based physics 1, mostly jr and sr life science majors. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Virtual live presentation to algebra physics 1, mostly life science majors. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to lecture section of Calc based physics 1, mix of half physics freshmen, half jr/sr life science. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to PHYS 301 Advanced Physics Lab. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to lab section 1 of PHYS 311 Electronics. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Present to lab section 2 of PHYS 311 Electronics. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. GEOL 485 Senior Seminar. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. BIOL 230 General Zoology. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Earl Blodgett (2021). *Busting Myths about the Teaching Profession*. Plant and Earth Science Department Faculty Meeting. University of Wisconsin - River Falls. Status = OTHER; Acknowledgement of Federal Support = Yes

Thomas Brown (2022). *Busting Myths about the Teaching Profession*. Appalachian State University. Appalachian State University, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Tony Musumba (2022). *Busting Myths about the Teaching Profession*. Physics and Astronomy Club meeting. Riverside City College, CA. Status = OTHER; Acknowledgement of Federal Support = Yes

Richard Pearson (2021). *Busting Myths about the Teaching Profession / Teaching: The Best Kept Secret!*. Virtual Physics Department Colloquium. Embry-Riddle Aeronautical University, FL. Status = OTHER; Acknowledgement of Federal Support = Yes

Linda Venenciano (2021). *Busting Myths about the Teaching Profession / Teaching: The Best Kept Secret!*. Series of meetings with 2-year and 4-year college counselors and math faculty. University of Hawaii, Manoa. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession and Focus Group*. Kennesaw State Site Visit. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession and Focus Group*. University of Wisconsin - La Crosse Site Visit. La Crosse, WI. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession and Focus Group - 1 student*. Kennesaw State Site Visit. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession and Focus Group - MAT students*. Kennesaw State Site Visit. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Busting Myths about the Teaching Profession and Focus Group - group of students*. Kennesaw State Site Visit. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2022). *Busting Myths to IUPUI Faculty using Student-Facing Presentation*. IUPUI STEM faculty. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Ellen Yeziarski (2021). *Career Exploration: High School Chemistry Teaching*. First year CHM and BCHM undergraduate majors at Miami University. Oxford, OH. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee, Travis Miller (2021). *Changing the Narrative of the Teaching Profession Through Data*. Hoosier Association of Science Teachers Inc, Indiana Council Teachers of Mathematics Virtual 2021 Conference. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall (2020). *Chemistry faculty's perceptions of grade 7-12 teaching as a career: Results and implications for teacher recruitment*. National ACS Conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared B. Breakall, Wendy K. Adams (2020). *College Faculty Support for Grade 7-12 Teaching Careers: Survey Results and Comparisons to Student Perceptions*. Physics Education Research Conference (PERC) 2020. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan, Wendy Adams (2021). *College students' perceptions of grade 7-12 math and science teaching as a career*. PhysTEC Conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

David May (2022). *Community Building*. PhysTEC UnConference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared B. Breakall, Wendy K. Adams (2021). *Creating Effective Teacher Recruitment Resources Using Cognitive Science*. PhysTEC Conference 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Sarah Formica (2021). *Did You Know... Busting Myths about Teaching*. CU Boulder Physics faculty meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

IUSE PI Summit (2022). *Explore Mines - Teach@Mines*. Explore Mines Student Event. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Adams, W. K., Breakall, J. B., and Logan, S. L. (2020). *Faculty Perceptions of the Teaching Profession: PTaP.HE categorization, interpretation, and setting a benchmark*. PhysTEC Annual Conference. Denver, CO. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall, Savannah Loga, Richard Pearson, Brian Pyper (2020). *Faculty perceive they are more supportive than their perceptions may suggest...* PERC 2020. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Renee Michelle Goertzen (2022). *Focusing on careers: industry, teaching and more*. CUWiP Convocation. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Drew Isola, and David May (2022). *GFO All Change Agent Meeting*. All Change Agent Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared B. Breakall, Wendy K. Adams (2020). *GFO Copywrite: Research-Based Materials for Recruiting STEM Teachers*. AAPT Summer Meeting 2020. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Drew Isola, Wendy K. Adams (2020). *GFO Discussion in the K12 Teachers Resource Room*. AAPT Summer Meeting. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (2021). *GFO Faculty Focus Group to Test Videos*. GFO-CSULB Faculty Focus Group to Test Videos. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson (2021). *GFO Seminar for Chemistry students*. Department of Chemistry and Biochemistry seminar for students. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (2021). *GFO Student Focus Group to Test Videos*. GFO-CSULB Site Visit Student Focus Group. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall (2021). *GFO Video Focus Group*. CSU-Long Beach site visit. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Ellen Yeziarski (2020). *GFO Workshop for CHM and BCHM Students*. CHM and BCHM Students. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *GFO faculty workshop for CSULB*. Chairs and advisors for STEM and STEM education at CSULB. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Tonya Coffey (2022). *GFO for Faculty*. App State Program Directors. Boone, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *GFO student workshop at CSULB*. GFO site visit to CSULB, 2022. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *GFO workshop for faculty at WVU*. GFO site visit for WVU 2022. Morgantown, WV. Status = OTHER; Acknowledgement of Federal Support = Yes

Tonya Coffey (2022). *Get the Fact Out*. Advisors in the College of Arts and Sciences. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell (2020). *Get the Facts Out*. Virtual Workshop. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy K. Adams (2020). *Get the Facts Out*. Presentation at Teach@Mines Ice Cream Social. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared Breakall (2020). *Get the Facts Out*. Ed Psych class at Colorado School of Mines. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Amy Roth McDuffie (2021). *Get the Facts Out*. Mathematics Education Graduate seminar for Washington State University and University of Idaho. Pullman, WA. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2021). *Get the Facts Out*. School of Education Leadership and UIndy Marketing for SOE. Indianapolis, IN. Status = OTHER; Acknowledgement of Federal Support = Yes

Glenn Waddell, Natasha Gerstenschlager, Nick Fortune (2021). *Get the Facts Out*. Kentucky AMTE Regional Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson (2021). *Get the Facts Out*. Presentation for course of students exploring a MathEd career. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2022). *Get the Facts Out*. HAMTE: Hoosier Association of Mathematics Teacher Educators. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Tonya Coffey (2022). *Get the Facts Out*. James Center Advising Team. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Drew Isola (2022). *Get the Facts Out Best Practices for Teacher Recruitment: Lessons from GFO*. MI - AAPT Section meeting. Interlochen, MI. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams (2021). *Get the Facts Out - Changing the Conversation around STEM Teacher Recruitment*. Utah Association of Education Employment. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell (2020). *Get the Facts Out Student*. Physics 191 careers in physics course. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell (2020). *Get the Facts Out Students*. 191 PH career course. Virtual. Status=OTHER; Acknowledgement of Federal Support = Yes

Drew Isola, Wendy Adams, Savannah Logan, Jared Breakall (2020). *Get the Facts Out Workshop*. AAPT Summer Meeting. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Gay Stewart (2020). *Get the Facts Out Workshop*. Nebraska section AAPT meeting. Lincoln, NE. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

William Hunter (2021). *Get the Facts Out about STEM teaching careers...data driven myth busters*. Midwest Noyce conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jennifer Nielson, Duane Merrell (2021). *Get the Facts Out workshop*. Presentation to Career Services directors at BYU. Provo, UT. Status = UNDER_REVIEW; Acknowledgement of Federal Support = Yes

Gay Stewart (2019). *Get the Facts Out workshop for faculty*. UTeach Conference 13th annual. Austin, TX. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Duane Merrell (Physics) (2021). *Get the Facts Out, REU students*. REU summer students. Provo, Utah. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee, Amy Roth-McDuffie, Gary Martin, Glenn Waddell, Tim Hendrix (2021). *Get the Facts Out: AMTE Webinar*. Webinar for AMTE Members. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee, Glenn Waddell (2021). *Get the Facts Out: CT-AMTE Webinar*. Connecticut AMTE. Fairfield, CT. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2020). *Get the Facts Out: Changing the Conversation Around STEM Teacher Recruitment*. PhysTEC NAB. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Derek Jack, BYU (2021). *Get the Facts Out: Changing the Conversation Around the Teaching Profession*. AAEE National Conference. Louisville, KY. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall, Savannah Logan (2021). *Get the Facts Out: Changing the Conversation around STEM Teacher Recruitment*. PhysTEC SoCal Conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Terri M Chambers, Jennifer Nielson, Willy Hunter, Etta Gravely (2021). *Get the Facts Out: Chemistry Connection*. Webinar. Washington. Status = OTHER; Acknowledgement of Federal Support = Yes

Timothy Hendrix, Gary Martin, Stephanie Casey, Chuck Fessler (2021). *Get the Facts Out: Faculty Workshop for Michigan AMTE Affiliate*. Michigan AMTE Affiliate Webinar. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson (2021). *Get the Facts Out: MathEd 377*. MathEd 377 course (the semester before student teaching) at BYU. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Terri Chambers (2022). *Get the Facts Out: Presentation to ACS Committee on Education*. ACS Spring 2022 Meeting. San Diego, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Savannah Logan, Jared Breakall (2021). *Get the Facts Out: Recruiting physics teachers in a virtual world*. AAPT Winter Meeting 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Drew Isola (2022). *Get the Facts Out: Repairing the Reputation of the Teaching Profession*. AAEE Webinar Series. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Savannah Logan, Jared Breakall (2020). *Get the Facts Out: Resource updates and recent research results*. AAPT Summer 2020. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Get the Facts Out: Site Visit at Kennesaw State University*. 6 student focus groups. Kennesaw, Georgia. Status = OTHER; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Get the Facts Out: Site Visit at University of Wisconsin La Crosse*. Site Visit at University of Wisconsin La Crosse. La Crosse, Wisconsin. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell, Wendy K. Adams, Jennifer Nielson, Jared Breakall (2021). *Get the Facts Out: Students, Advisors, Faculty*. Physics and Physical Science Teaching Majors presentation during site visit. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2020). *Get the Facts Out: Teaching, The Best Kept Secret!*. 100Kin10 Steal this Session. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Timothy Hendrix, Glenn Waddell, Liza Bondurant (2021). *Get the Facts Out: Teaching, the Best Kept Secret*. Mississippi Association of Mathematics Teacher Educators (MAMTE) Annual Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Adams, W.K., Waddell, G. and Steward, G., (2022). *Get the Facts Out: User-tested, research-based resources for STEM teacher recruitment*. UTeach STEM Educators Conference. Houston, TX. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Sarah Formica (2021). *Get the Facts Out: Workshop for STEM Students*. Principles of Physics I class at UNG. Dahlonega, GA. Status = OTHER; Acknowledgement of Federal Support = Yes

Sarah Formica (2021). *Get the Facts Out: Workshop for STEM Students*. Zoom presentation for STEM students in the LA pedagogy class. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2020). *Get the Facts Out: Workshop for Secondary School of Education Majors*. Mandatory SOE Secondary Major Orientation Meeting. Indianapolis, IN. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall and Savannah Logan (2020). *Get the Facts out - Faculty*. Colorado School of Mines GFO Site Visit. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Increasing number and diversity of majors: Sharing teaching career options*. AAPT Winter Meeting 2022. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Tonya Coffey (2022). *Intro to GFO*. STEM Prog Directors at AppState. Boone, NC. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell (2020). *Intro to teaching*. Physics 276 course. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Richard Pearson, III and Wendy Adams (2021). *It's all about perspective: How an aeronautical university fits GFO*. AAPT Winter Meeting 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

David May et al (2021). *Lightning Session: Recruiting Using Get the Facts Out Materials*. PhysTEC Conference session. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jean Lee, Gary Martin, Amy Roth McDuffie, Tim Hendrix, Glenn Waddell (2022). *MTEP/GFO AMTE Preconference: Transforming Secondary Mathematics Teacher Preparation -- Focus on Recruitment and Equity*. Association of Mathematics Teacher Educators. Henderson, NV. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Etta Gravely, Ginger Redd, Tyrette Carter, Calisha Petty (2021). *NC A & Teach Scholars: Success and Growth Opportunities*. Southeastern Regional Robert Noyce Conference/ Administrators. Virtual- University of South Alabama, AL. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Drew Isola, Jared Breakall, Savannah Logan (2021). *NEW: Videos about the teaching profession*. PhysTEC 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Mark Hannum (2022). *Overview of GFO - its products and resources as a exemplar of NOYCE projects for potential PI*. NSF workshop: Noyce Teacher Scholarship Program for prospective PI. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall (2021). *Past, Present, and Future Research*. Faculty members at SUU. Cedar City, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Savannah Logan (2019). *Perceptions of the Teaching Profession at Universities Across the United States*. AAPT Summer 2019 Meeting. Provo, UT. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Annelise Roti Roti (2022). *Physics Teaching: the Need, the Work, the Dream*. SUNY Geneseo Physics Colloquium. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Drew Isola (2022). *Recruiting Students to physics and physics teaching: tools, practices, and problem solving*. PhysTEC UnConference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Isola, D. & Adams, W.K. (2022). *Repairing the Reputation of the Teaching Profession*. Oklahoma Science Teaching Association Annual Meeting - (Celebration Dinner Speaker). Oklahoma City, OK. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared B. Breakall, Wendy K. Adams (2020). *Research-based, User-tested Materials for Recruiting STEM Teachers*. Physics Education Research Conference (PERC) 2020. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Richard Pearson (2020). *Results of faculty interviews during the development of the Perceptions of TEaching as a profession in Higher Education (PTaP.HE) instrument*. PERC 2020. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Terri M Chambers, Jennifer Nielson (2021). *Secondary Chemistry, Physics, and Mathematics Teaching: Do you know the Facts?*. Southwest ACS Regional Meeting. Austin, TX. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams (2020). *Teach@Mines*. Preview Mines. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Emma Khorunzy (2021). *Teach@Mines*. Discover Mines. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Adams, W. K., Plantt, T., and Norfleet, E. (2020). *Teach@Mines*. Teach@Mines Colorado School of Mines Foundation Lunch Bunch, Golden, CO. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Taylor Plantt and Eric Norfleet (2020). *Teach@Mines Lunch Brunch*. Mines Alumni monthly meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Emma Khorunzhy (2021). *Teach@Mines Table at Discover Mines. Students walk around and learn about different Mines' programs*. Discover Mines. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan, Wendy Adams (2021). *Teacher recruitment: Focus group insights from five Universities*. PhysTEC National Conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Terri Chambers, Jennifer Nielson (2021). *Teaching the Best Kept Secret*. Webinar as part of the Two Year College Chemistry Consortium Spring Webinar Series. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jean Lee and Etta Gravely (2020). *Teaching the Best Kept Secret!*. ILAC2020 - LA Alliance national conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall (2020). *Teaching the Best Kept Secret!*. BYU Physics and Chemistry Faculty Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams and Jared Breakall (2021). *Teaching the Best Kept Secret!*. BYU Site visit. MAE required meeting. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jared Breakall, Savannah Logan (2020). *Teaching the Best Kept Secret!*. Colorado School of Mines site visit. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jean Lee (2021). *Teaching the Best Kept Secret! and Get the Facts Out*. UA LittleRock, CSC Deans' Committee. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2021). *Teaching the Best Kept Secret! and Teach@Mines*. CASA (Center for Academic Advising) meeting. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Ellen Yeziarski (2020). *Teaching: Best Kept Secret*. Executive Committee of the Younger Chemistry Education Scholars. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson, Wendy Adams, Jared Breakall, Duane Merrell (2020). *Teaching: The Best Kept Secret*. GFO workshop for faculty advisors and career service advisors. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson, Terri Chambers, Wendy Adams Spencer (2019). *Teaching: The Best Kept Secret*. ACS Society Committee on Education members. Webinar. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2020). *Teaching: The Best Kept Secret*. All Change Agent Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Tonya Coffey, Tom Brown (2022). *Teaching: The Best Kept Secret*. NC AAPT meeting. High Point, NC. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Adams, W. K., Breakall J. B., & Nielson, J. (2020). *Teaching: The Best Kept Secret!*. Brigham Young University Math and Science Advising. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Adams, W. K., Breakall J. B., & Nielson, J. (2020). *Teaching: The Best Kept Secret!*. Brigham Young University Chemistry and Mathematics Departments. Provo, UT. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall, Savannah Logan (2021). *Teaching: The Best Kept Secret!*. SoCal PhysTEC conference 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams, Ellen Yeziarski, Jean Lee (2020). *Teaching: The Best Kept Secret!*. AAAS-ARISE Workshop. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall and Savannah Logan (2021). *Teaching: The Best Kept Secret!*. Mines Physics Department Colloquium. Golden, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Duane Merrell, Jennifer Nielson (2021). *Teaching: The Best Kept Secret!*. University and Public school Partnership with Brigham Young University,. Midway, Utah. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2021). *Teaching: The Best Kept Secret!*. GFO Mini-conference. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jeremy Zelkowski (2021). *Teaching: The Best Kept Secret!*. NSF Master Teacher Fellowship. The University of Alabama, AL. Status = OTHER; Acknowledgement of Federal Support = Yes

Jennifer Nielson, Etta Gravely (2021). *Teaching: The Best Kept Secret!*. ACS Rocky Mountain Regional conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams (2021). *Teaching: The Best Kept Secret!*. GFO Mini Conference. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Teaching: The Best Kept Secret!*. St. Vrain School district Administrator's Meeting. Longmont, CO. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2022). *Teaching: The Best Kept Secret!*. Induction/Mentoring Support for UIndy Teach (STEM)³ Scholars in their first and second year teaching.. Indianapolis, IN. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Teaching: The Best Kept Secret!*. PhysTEC Conference. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Teaching: The Best Kept Secret!*. WRNC Noyce Scholars + Projects. San Diego, CA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Leah Frazee (2021). *Teaching: The Best Kept Secret!*. Mathematics Education Group Faculty Presentation. Central Connecticut State University, CT. Status = OTHER; Acknowledgement of Federal Support = Yes

Jill Cochran (2021). *Teaching: The Best Kept Secret!*. Mathematics and Natural Sciences School Meeting. Berry College, GA. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *Teaching: The Best Kept Secret!*. GFO site visit at WVU - Faculty. West Virginia University, WV. Status = OTHER; Acknowledgement of Federal Support = Yes

Liza Bondurant (2022). *Teaching: The Best Kept Secret!*. MCTM. Delta State University, MS. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *Teaching: The Best Kept Secret!*. Site visit to CSU Long Beach - Department Chairs and STEM Education Advisors.. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Leah Frazee (2022). *Teaching: The Best Kept Secret!*. The School of Education's Central Teaching Education Network Faculty Meeting. Central Connecticut State University, CT. Status = OTHER; Acknowledgement of Federal Support = Yes

Isola, D. & Adams, W.K., (2022). *Teaching: The Best Kept Secret!*. Oklahoma Science Teaching Association Annual Meeting. Edmond, OK. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Lucia Grande (2022). *Teaching: The Best Kept Secret!*. University of Wisconsin - La Crosse Site Visit. La Crosse, WI. Status = OTHER; Acknowledgement of Federal Support = Yes

Jessie Store (2022). *Teaching: The Best Kept Secret! Busting Myths About the Teaching Profession*. Teacher Cadet program at Gratiot Technical Education Center. Alma College, MI. Status = OTHER; Acknowledgement of Federal Support = Yes

Ellen Yeziarski (2021). *Teaching: The Best Kept Secret! Benefits Compared to Industry and University Teaching*. Meeting with professional advising staff from the Miami College of Arts and Science and one chief departmental advisor (faculty) from PHY. Virtual. Status = OTHER;

Acknowledgement of Federal Support = Yes

Wendy Adams (2022). *Teaching: The Best Kept Secret! and GFO 2.0*. Committee on Chemistry in Two Year Colleges Board Meeting. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Jean Lee (2022). *Teaching: The Best Kept Secret! and breakout sessions digging into local data*. MTEP and GFO Pre-conference at AMTE Las Vegas. Las Vegas, NV. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Wendy Adams (2020). *Teaching: The best Kept Secret!*. West Virginia University advising. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall, Savannah Logan (2020). *Teaching: The best Kept Secret!*. Presentation to Faculty at WVU. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

Wendy Adams, Jared Breakall, Savannah Logan (2020). *Teaching: The best Kept Secret!*. HBCU Teach Presentation. Virtual. Status = OTHER; Acknowledgement of Federal Support = Yes

David May (2022). *Teaching: The best-kept secret! Changing the conversation about STEM teaching careers (IUSE)*. IUSE PI Summit. Washington, DC. Status = OTHER; Acknowledgement of Federal Support = Yes

Glenn Waddell (2021). *This was a conversation and mini presentation about sharpening our own recruitment efforts using the GFO messaging*. University of Nevada; Nevada Teach. Reno, NV. Status = OTHER; Acknowledgement of Federal Support = Yes

Savannah Logan, Jared B. Breakall, Wendy K. Adams (2021). *User Testing of Physics Teacher Recruitment Videos, Images, and Other Materials*. AAPT Winter Meeting 2021. Virtual. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Glenn Waddell, Gay Stewart, Wendy Adams (2022). *User-tested, research-based resources for math and science teacher recruitment*. UTeach. Austin, TX. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Other Products

Audio or Video Products.

New and updated teacher-recruiting resources for Fall 2021: <https://www.youtube.com/watch?v=R-0MDMotC9A>

Recruiting Physics Teachers in a Virtual World: <https://www.youtube.com/watch?v=gcmqxBBdk58&t=26s>

Busting Myths about the Teaching Profession (presentation for prospective teachers): <https://www.youtube.com/watch?v=972U22GDPqo>

Did you know? Five surprising facts about the teaching profession: <https://www.youtube.com/watch?v=U-X7cbalqkg>

Fact #1: Teachers love their lives: https://www.youtube.com/watch?v=7Vir5qMet_w

Fact #2: Teacher salaries are competitive with other jobs: <https://www.youtube.com/watch?v=RkOI8S5rIK8>

Fact #3: Teachers have great work-life balance compared to other careers: <https://www.youtube.com/watch?v=xcpwAp8CjfU>

Fact #4: Math and science teachers can get a job almost anywhere in the U.S. or abroad: <https://www.youtube.com/watch?v=umXcSLi0HTo>

Factor Analysis of the Perceptions of Teaching as a Profession in Higher Education Instrument: <https://www.youtube.com/watch?v=cosqG0cRnI>

GFO Mini-Conference plenary: "Teaching, The Best Kept Secret," and resource updates: <https://www.youtube.com/watch?v=-I22tw3PKgw>

Get the Facts Out: "Teaching, The Best-Kept Secret": <https://www.youtube.com/watch?v=IKf604M5nxw>

Get the Facts Out: Repairing the Reputation of the Teaching Profession: <https://www.youtube.com/watch?v=86JInvwldl>

Life as a Middle School Math Teacher: <https://www.youtube.com/watch?v=qWZs4wXRuzY>

Physics Secondary Education at Appalachian (longer version) https://www.youtube.com/watch?v=W_BOCz_CgpA

Physics Secondary Education at Appalachian (shorter version) <https://www.youtube.com/watch?v=0VAeJtReK5I>

Educational aids or Curricula.

TLN's: A Teacher's Life by the Numbers (TLN) Infographic is an one-page document provides a quick, visual representation of teachers' lives at different career points in its specific county(ies). It is posted on the GFO website Teacher Salary Page and shared by GFO Champions and personnel local to the infographic.

TLN: AL - Shelby and Talladega C.	TLN: MI - Calhoun and Kalamazoo County.
TLN: AL - Tuscaloosa County.	TLN: MI - Gratiot, Mecosta, and Isabella County.
TLN: AR - Benton and Washington.	TLN: MI - Kent County.
TLN: AR - Columbia/Union County.	TLN: MI - Marquette County.
TLN: AR - Craighead and Independence County.	TLN: MI - Monroe and Washtenaw County.
TLN: AR - Faulkner County.	TLN: MO - Boone and Cooper County.
TLN: AR - Jefferson County.	TLN: MS - DeSoto and Lafayette County.
TLN: AR - Pulaski County.	TLN: MS - Hinds County.
TLN: AZ - Maricopa County.	TLN: NC - Avery and Watauga County.
TLN: CA - Butte County.	TLN: NC - Beaufort, Martin, and Craven County.
TLN: CA - East Los Angeles County.	TLN: NC - Durham, Johnston, and Wake County.
TLN: CA - Fresno County.	TLN: NC - Forsyth and Guilford County.
TLN: CA - North Los Angeles County.	TLN: NC - Lenoir and Wayne County.

TLN: CA - Plumas County.	TLN: NC - Pitt County.
TLN: CA - Sacramento County.	TLN: NC - Wilson, Greene, and Edgecombe County.
TLN: CA - Santa Barbara County.	TLN: NH - Hillsborough County.
TLN: CA - Shasta County.	TLN: NJ - Camden County.
TLN: CA - West Los Angeles County.	TLN: NV - Carson, Douglas, Lyon, and Washoe County.
TLN: CO - Adams County.	TLN: NV - Clark County.
TLN: CO - Boulder County.	TLN: NV - Elko county.
TLN: CO - Douglas County.	TLN: NV - Lincoln County.
TLN: CO - Jefferson and Denver County.	TLN: NY - Madison County.
TLN: CT - Fairfield County.	TLN: NY - Nassau and Suffolk County.
TLN: CT - Hartford County.	TLN: OH - Cuyahoga, Summit, and Wayne County.
TLN: CT - New London County.	TLN: OH - Hamilton County.
TLN: CT - Tolland County.	TLN: OH - Montgomery County.
TLN: CT - Windham County.	TLN: OK - Alfalfa and Woods County.
TLN: DE - Kent County.	TLN: OK - Canadian County.
TLN: DE - Sussex County.	TLN: OK - Oklahoma County.
TLN: FL - Flagler County.	TLN: OK - Tulsa County.
TLN: FL - Volusia County.	TLN: OR - Lane County.
TLN: GA - Bartow and Floyd County.	TLN: OR - Multnomah County.
TLN: GA - Cherokee County.	TLN: PA - Allegheny County.
TLN: GA - Clayton, DeKalb, and Gwinnett County.	TLN: PA - Westmoreland County.
TLN: GA - Cobb County.	TLN: PE - Bucks and Montgomery County.
TLN: GA - Fulton County.	TLN: PE - Delaware and Chester County.
TLN: GA - Paulding County.	TLN: PE - Franklin County.
TLN: HI - Hawaii County.	TLN: PE - Philadelphia County.
TLN: HI - Honolulu County.	TLN: SC - Charleston County.
TLN: HI - Maui County.	TLN: SC - Chester, Lancaster, and Chesterfield County.
TLN: ID - Ada County.	TLN: SC - Greenville County.
TLN: ID - Bonneville and Madison County.	TLN: SC - Horry County.
TLN: ID - Kootenai County.	TLN: SC - Orangeburg County.
TLN: ID - Nez Perce and Latah County.	TLN: SC - Richland County.
TLN: IL - Cook County.	TLN: SC - York County.
TLN: IL - DuPage County.	TLN: TN - Blount County.
TLN: IL - McLean County.	TLN: TN - Davidson and Rutherford County.
TLN: IN - Boone, Hamilton, Madison, and Marion County.	TLN: TN - Henry, Obion, and Weakley County.
TLN: KS - Douglas and Shawnee County.	TLN: TN - Sullivan County.
TLN: KS - Johnson County.	TLN: TN - Washington County.
TLN: KS - Leavenworth County.	TLN: TX - Bastrop and Travis County.
TLN: KS - Sedgwick County.	TLN: TX - Cameron, Hidalgo, and Starr County.
TLN: KS - Wyandotte County.	TLN: TX - Harris County.
TLN: KY - Boone, Kenton, and Campbell County.	TLN: TX - Hays County.
TLN: KY - Carter and Rowan County.	TLN: TX - Hopkins and Hunt County.
TLN: KY - Fayette and Jessamine County.	TLN: UT - Davis County.
TLN: KY - Jefferson and Bullitt County.	TLN: UT - Salt Lake County.
TLN: KY - Warren County.	TLN: UT - Utah County.
TLN: LA - Bossier Parish.	TLN: VA - Albemarle and Rockingham County.
TLN: LA - Caddo Parish.	TLN: VA - Chesterfield County.
TLN: LA - East and West Baton Rouge Parish.	TLN: VA - Fairfax and Loudoun County.
TLN: MA - Hampden and Hampshire County.	TLN: VA - Giles, Montgomery, and Pulaski County.
TLN: MA - Middlesex County.	TLN: VA - Norfolk and Virginia Beach City County.
TLN: MA - Plymouth County.	TLN: WA - King and Snohomish County.
TLN: MA - Suffolk County.	TLN: WI - Eau Claire and Jackson County.
TLN: MD - Baltimore and Carroll County.	TLN: WI - La Crosse County.
TLN: MD - Montgomery County.	TLN: WI - Milwaukee county.
TLN: MD - Prince George's County.	TLN: WV - Marion, Marshall, Monongalia, and Preston County
TLN: MD - Queen Anne's County.	

Linda Venenciano at University of Hawaii, Manoa customized the flyers and shared these documents in a series of meetings with 2-year and 4-year college counselors and math faculty.

Table Tent: Creation of table tents for use in in-person recruitment events and are placed around NWOSU Science Building, that have GFO resources on them.

Other Publications

Logan, S. L., Breakall, J. B., Adams, W. K. (2021). *A comparison of student perceptions of the teaching profession at minority- serving and non-minority-serving institutions*. Physics Education Research Conference Proceedings. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Breakall, J. B., Logan, S. L., and Adams W. K., (2021). *Faculty perceptions of grade 7-12 math and science teaching as a career: Evidence from a reduced-basis factor analysis of the Perceptions of Teaching as a Profession in Higher Education Instrument*. Physics Education Research Conference Proceedings.. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Allie Bolter and Kaitlin Miller (2022). *GFO's Infographics: Teacher Salaries and the Cost of Living around the Country*. Blog article on Website; <https://getthefactsout.org/gfo-infographics-blog/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

William Hunter, Terri Chambers, Ellen Yeziarski, Etta Gravely, Jennifer Nielson, Kevin Diaz (2021). *Get the Facts Out Article in AACT's publication "ChemistrySolutions"*. <https://teachchemistry.org/periodical/issues/november-2020>; <https://teachchemistry.org/periodical/issues/november-2020/getting-the-facts-out-about-secondary-chemistry-teaching>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Chemists From GFO (2022). *Get the Facts Out Change Agents: What they can do for you*. Blog article on website; <https://getthefactsout.org/get-the-facts-out-change-agents-what-they-can-do-for-you/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

The GFO Newsletter Team (2021). *Get the Facts Out Newsletter | August 2021*. Newsletter distributed via email and on website; <https://us7.campaign-archive.com/?u=502af9db3395cd26ce7819dc6&id=9c65347ee8>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

The GFO Newsletter Team (2022). *Get the Facts Out Newsletter | February 2022*. Newsletter distributed via email and on website; <https://us7.campaign-archive.com/?u=502af9db3395cd26ce7819dc6&id=73ab8392af>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

The GFO Newsletter Team (2022). *Get the Facts Out Newsletter | March 2022*. Newsletter distributed via email and on website; <https://us7.campaign-archive.com/?u=502af9db3395cd26ce7819dc6&id=fbbf362e05>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

The GFO Newsletter Team (2021). *Get the Facts Out Newsletter | November 2021*. Newsletter distributed via email and on website; <https://us7.campaign-archive.com/?u=502af9db3395cd26ce7819dc6&id=93624ede9d>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Faith Ann Santucci (2022). *How GFO Collects Perceptions Data Nationwide*. Blog article on website; <https://getthefactsout.org/how-gfo-collects-perceptions-data-nationwide/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Stephanie Chasteen (2022). *How to use GFO presentations effectively to "bust myths" about the teaching profession for students and faculty*. Blog article on website; <https://getthefactsout.org/how-to-use-gfo-presentations-effectively-to-bust-myths-about-the-teaching-profession-for-students-and-faculty/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Jared Breakall (2020). *Life as a middle school science teacher*. Blog article on website; <https://getthefactsout.org/middle-school-science-teacher/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Laura Altfeld (2021). *One GFO Champion's experience*. Blog article on website; <https://getthefactsout.org/one-gfo-champions-experience/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

The GFO Newsletter Team (2022). *The latest resources for drawing students to the teaching profession*. Newsletter distributed via email and on website; <https://us7.campaign-archive.com/?u=502af9db3395cd26ce7819dc6&id=e27f8a7312>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Stephanie Chasteen (2021). *What are Get the Facts Out Change Agents doing?*. Blog article on website; <https://getthefactsout.org/what-are-get-the-facts-out-change-agents-doing/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Drew Isola (2021). *What do faculty need for their STEM teacher recruitment efforts?*. Blog article on website; <https://getthefactsout.org/mini-conference-blog/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Stephanie Chasteen (2021). *Who do you ask for advice about how students become STEM teachers?*. Blog article on website; <https://getthefactsout.org/gfo-reach-and-awareness/>. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Patent Applications Technologies or Techniques

Thesis/Dissertations

Websites or Other Internet Sites

Get the Facts Out: Changing the conversation around math teacher recruitment: <https://amte.net/content/get-facts-out> This is a page on the AMTE website that features GFO and AMTE's partnership and highlights the GFO resources.

Participants/Organizations

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
Adams, Wendy	PD/PI	9
Plisch, Monica	Co PD/PI	0
Stockero, Shari	Co PD/PI	0
Taylor, Terri	Co PD/PI	0
Breakall, Jared	Faculty	2
Coffey, Tonya	Faculty	0
Formica, Sarah	Faculty	0
Gravely, Etta	Faculty	0
Hendrix, Tim	Faculty	0
Hunter, William	Faculty	0
Kuo, Vince	Faculty	0
Lee, Jean	Faculty	1
Maier, Steven	Faculty	0
Martin, Gary	Faculty	0
Merrell, Duane	Faculty	0
Nielson, Jennifer	Faculty	0
Roth McDuffie, Amy	Faculty	0
Stewart, Gay	Faculty	0
Waddell, Glenn	Faculty	0
Yeziarski, Ellen	Faculty	0
Bolter, Allie	Other Professional	3
Grimes, Jessica	Other Professional	0
May, David	Other Professional	11
Roti Roti, Annelise	Other Professional	0
Thompson, Kenetia	Other Professional	0
Miller, Kaitlin	Non-Student Research Assistant	3
Santucci, FaithAnn	Non-Student Research Assistant	1

Khorunzhy, Emma	Undergraduate Student	1
Lang, Dawson	Undergraduate Student	0
Lister, Caleb	Undergraduate Student	1
Chasteen, Stephanie	Consultant	2
Dearing, Jim	Consultant	0
Ferguson, Mark	Consultant	0
Levine, Zach	Consultant	0
McKagan, Sarah	Consultant	0
Ryan, Stephanie	Consultant	0

Full details of individuals who have worked on the project:

Wendy K Adams

Email: wkadams@mines.edu

Most Senior Project Role: PD/PI

Nearest Person Month Worked: 9

Contribution to the Project: Adams leads the PI Team, the Research Team, the Resource Development and the Champion Engagement Strategy. Adams engages in as many presentations to share the facts as possible and provides support to Change Agents and the Comprehensive Study Sites.

Funding Support: 4 months Teach@Mines which supports Mines teacher recruitment efforts

Change in active other support: No

International Collaboration: No

International Travel: No

Monica J Plisch

Email: plisch@aps.org

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Plisch meets regularly with the PI to help manage the project

Funding Support: None

Change in active other support: No

International Collaboration: No

International Travel: No

Shari Stockero

Email: stockero@mtu.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Shari serves as co-PI and co-coordinates AMTEs engagement with GFO along with Lee.

Funding Support: None

Change in active other support: No

International Collaboration: No

International Travel: No

Terri M Taylor

Email: t_taylor@acs.org

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 0

Contribution to the Project: Taylor serves as co-PI and leads the American Chemical Society's engagement with GFO. She supervises the consultants who work on the project, leads her team of 4 faculty Change Agents and is the thought leader for GFO engagement.

Funding Support: Taylor is supported by ACS and leading GFO is a portion of her ACS job responsibilities.

Change in active other support: No

International Collaboration: No

International Travel: No

Jared Breakall

Email: jared.breakall@snow.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 2

Contribution to the Project: Breakall worked with the project last summer and again this summer now that he's a full time faculty at Snow College. He has led the Mines controlled study, has trained several of the research assistants on various tasks, and is leading the writing of the PTaP manuscript.

Funding Support: none

International Collaboration: No

International Travel: No

Tonya Coffey

Email: coffeyts@appstate.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Tonya joined the physics change agents this year. She also co-leads the group. Tonya has been actively sharing GFO locally and nationally.

Funding Support: none

International Collaboration: No

International Travel: No

Sarah Formica

Email: sarah.formica@ung.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: GFO Change Agents are contracted to recruit and support GFO champions with expert advice and guidance.

Funding Support: none

International Collaboration: No

International Travel: No

Etta Gravely

Email: gravely@ncat.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Chemistry change agent. Implemented strategies and materials in the Get the Facts Out toolkit and provide feedback to the development team. Advised implementation of GFO at ACS. Participated in videoconferences with other National Chemistry Change Agents and ACS staff.

Funding Support: none

International Collaboration: No

International Travel: No

Tim Hendrix

Email: hendrixt@meredith.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Math change agent and past Executive Director of AMTE. Tim worked as a change agent sharing GFO materials nationally. Tim is just joined the Evaluation Working group as our Change Agent representative

Funding Support: none

International Collaboration: No

International Travel: No

William Hunter

Email: wjhunte@ilstu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Chemistry change agent. Implemented strategies and materials in the Get the Facts Out toolkit and provide feedback to the development team. Advised implementation of GFO at ACS. Participated in videoconferences with other National Chemistry Change Agents and ACS staff.

Funding Support: none

International Collaboration: No

International Travel: No

Vince Kuo

Email: hkuo@mines.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Physics Change Agents are contracted to recruit and support GFO champions with expert advice and guidance.

Funding Support: none

International Collaboration: No

International Travel: No

Jean Lee

Email: jslee@uindy.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 1

Contribution to the Project: Jean serves as the head of the AMTE GFO Task Force/Change Agent. She has expertly led the new AMTE change agents from a group of strong skeptics to some of GFO's strongest advocates! Jean has conducted several presentations with PI Adams and now co-presents with other AMTE change agents in various venues. Jean also serves as the AMTE representative on the Societies Working Group.

Funding Support: None
International Collaboration: No
International Travel: No

Steven Maier

Email: sjmaier@nwsu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Steven became a Physics Change Agent this year and now co-leads the group. He runs a very active GFO campaign at his institution and has been an asset in best practices for communication about the profession.

Funding Support: none

International Collaboration: No

International Travel: No

Gary Martin

Email: martiwg@auburn.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Gary is an AMTE Change Agent. He participates in regular AMTE Change Agent meetings and has presented GFO nationally with other AMTE change agents. Glenn also supports new math champions.

Funding Support: none

International Collaboration: No

International Travel: No

Duane Merrell

Email: duane_merrell@byu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Physics Change Agent. Engaging in a very active local campaign at Brigham Young University. Presented at national AAPT meetings Also active member of the National Advisory Board and attended the annual meeting.

Funding Support: none

International Collaboration: No

International Travel: No

Jennifer Nielson

Email: jnielson@chem.byu.edu

Most Senior Project Role: Faculty **Nearest Person Month Worked:** 0

Contribution to the Project: Chemistry change agent. Implemented strategies and materials in the Get the Facts Out toolkit and provided feedback to the development team. Advised implementation of GFO at ACS. Participated in videoconferences with other National Chemistry Change Agents and ACS staff. Participated in the Mines GFO Site visit and conducted virtual workshops

Funding Support: none

International Collaboration: No

International Travel: No

Amy Roth McDuffie

Email: mcduffie@wsu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Amy is an AMTE Change Agent. He participates in regular AMTE Change Agent meetings and has presented GFO nationally with other AMTE change agents. Glenn also supports new math champions.

Funding Support: none

International Collaboration: No

International Travel: No

Gay Stewart

Email: gbstewart@mail.wvu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Sr. Advisor to GFO. Conducted active local campaign and presented nationally at UTeach and AAPT meetings. Consulted in the Project Planning team.

Funding Support: none

International Collaboration: No

International Travel: No

Glenn Waddell

Email: gwaddell@unr.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Glen is an AMTE Change Agent. He participates in regular AMTE Change Agent meetings and has presented GFO nationally with other AMTE change agents. Glenn also supports new math champions.

Funding Support: none

International Collaboration: No

International Travel: No

Ellen Yeziarski

Email: yeziere@miamioh.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 0

Contribution to the Project: Chemistry change agent. Implemented strategies and materials in the Get the Facts Out toolkit and provide feedback to the development team. Advised implementation of GFO at ACS. Participated in videoconferences with other National Chemistry Change Agents and ACS staff. Presented virtual workshops. Served the year as the change agent representative on Champion Engagement Strategy Working group.

Funding Support: none

International Collaboration: No

International Travel: No

Allie Bolter

Email: ambolter@mines.edu

Most Senior Project Role: Other Professional

Nearest Person Month Worked: 3

Contribution to the Project: Provides administrative support for the project including management of sub awards, hiring of personnel on the Mines side, coordination of events, provide research support including leading the teacher salary data mining and supervising undergraduate assistants, assistance with focus groups and data analysis, assist PI where needed.

Funding Support: 3 months Teach@Mines. Some Teach@Mines work is for GFO

International Collaboration: No

International Travel: No

Jessica Grimes

Email: j_grimes@acs.org

Most Senior Project Role: Other Professional

Nearest Person Month Worked: 0

Contribution to the Project: ACS support staff

Funding Support: none

International Collaboration: No

International Travel: No

David May

Email: davidmay@mines.edu

Most Senior Project Role: Other Professional

Nearest Person Month Worked: 11

Contribution to the Project: This year David became the GFO project manager. He is the working group organizer for Societies and Champion Engagement Strategy as well as the PI Team. He has led the organization of all the Champion engagement activities and now works with the research team taking the lead on this year's enrollment study. He's also written two papers, conducted site visits, and presented at national conferences.

Funding Support: none

International Collaboration: No

International Travel: No

Annelise Roti Roti

Email: rotiroti@aps.org

Most Senior Project Role: Other Professional

Nearest Person Month Worked: 0

Contribution to the Project: Assists with coordinating APS GFO program activities, mostly through PhysTEC

Funding Support: none

International Collaboration: No

International Travel: No

Kenetia Thompson

Email: K_Thompson2@acs.org

Most Senior Project Role: Other Professional

Nearest Person Month Worked: 0

Contribution to the Project: Support staff for ACS

Funding Support: none

International Collaboration: No

International Travel: No

Kaitlin Miller

Email: kmiller3@mines.edu

Most Senior Project Role: Non-Student Research Assistant

Nearest Person Month Worked: 3

Contribution to the Project: Kaitlin is data mining for teacher salaries, she's developed a mac/pc friendly template for A Teacher's Life by the Numbers and has analyzed all of the PTaP data from Year 2 and completed those sections for the Study Site Reports.

Funding Support: None

International Collaboration: No

International Travel: No

FaithAnn Santucci

Email: faithannsantucci@gmail.com

Most Senior Project Role: Non-Student Research Assistant

Nearest Person Month Worked: 1

Contribution to the Project: FaithAnn expertly led the Study Site data collection during the fall. She completely transformed the process and created a organized system for communicating with and tracking sites.

Funding Support: none

International Collaboration: No

International Travel: No

Emma Khorunzhy

Email: ekhorunzhy@mymail.mines.edu

Most Senior Project Role: Undergraduate Student

Nearest Person Month Worked: 1

Contribution to the Project: Emma conducts data mining for teacher salaries, has helped build out the Study Site reports, helped with the study site data collection, and presented at student events about the teaching profession.

Funding Support: none

International Collaboration: No

International Travel: No

Dawson Lang

Email: dawsonlang@mymail.mines.edu

Most Senior Project Role: Undergraduate Student

Nearest Person Month Worked: 0

Contribution to the Project: Conducted several Busting Myths About the Teaching Profession presentations for students.

Funding Support: none

International Collaboration: No

International Travel: No

Caleb Lister

Email: cmlister@mines.edu

Most Senior Project Role: Undergraduate Student

Nearest Person Month Worked: 1

Contribution to the Project: Caleb is a BYU math education major who is very interested in mining teacher salary data. He also has completed all of the analysis of the PTaP.HE Year 2 data and is working on the respective sections of the Study Site reports.

Funding Support: None

International Collaboration: No

International Travel: No

Stephanie Chasteen

Email: stephanie@chasteenconsulting.com

Most Senior Project Role: Consultant

Nearest Person Month Worked: 2

Contribution to the Project: External Evaluator **Funding Support:** none

International Collaboration: No

International Travel: No

Jim Dearing

Email: dearjim@msu.edu

Most Senior Project Role: Consultant

Nearest Person Month Worked: 0

Contribution to the Project: Attended annual meeting and served on the National Advisory Board

Funding Support: none

International Collaboration: No

International Travel: No

Mark Ferguson

Email: mark@bluesteelrealestate.com

Most Senior Project Role: Consultant

Nearest Person Month Worked: 0

Contribution to the Project: Work with Resource Development WG to develop emotionally compelling messaging, advice on SEO for the website and new Blog. Provided template and expert advice for the new GFO YouTube Channel, assisted with the design of the new website. Attended the annual meeting and serves on the National Advisory Board

Funding Support: none

International Collaboration: No

International Travel: No

Zach Levine

Email: zlevine@teach.org

Most Senior Project Role: Consultant

Nearest Person Month Worked: 0

Contribution to the Project: Attended the annual meeting and served on the National Advisory Board

Funding Support: none

International Collaboration: No

International Travel: No

Sarah McKagan

Email: sam.mckagan@gmail.org

Most Senior Project Role: Consultant

Nearest Person Month Worked: 0

Contribution to the Project: Serves as the Lead National Advisory Board member, prepared the NAB report/recommendations, attended the annual meeting.

Funding Support: none

International Collaboration: No

International Travel: No

Stephanie Ryan

Email: sryan@ryaneducationconsulting.com

Most Senior Project Role: Consultant

Nearest Person Month Worked: 0

Contribution to the Project: ACS Project coordinator beginning 6/15/19. Chemistry-specific research. Participation in Chemistry Change Agent Meetings, Societies WG, and Champion Engagement Strategy WG. Consultation on marketing/dissemination opportunities

Funding Support: none

International Collaboration: No

International Travel: No

What other organizations have been involved as partners?

Name	Type of Partner Organization	Location
Adams County School District	School or School Systems	Commerce City, CO
Adelphi University	Academic Institution	Manhattan, NY
Association of Mathematics Teacher Educators	Other Nonprofits	Houghton, MI
Northwest Missouri State University	Academic Institution	Maryville, MO
Northwestern Oklahoma State University	Academic Institution	Alva, OK
Northwestern State University	Academic Institution	Natchitoches, LA
Oral Roberts University	Academic Institution	Tulsa, OK
Oregon State University	Academic Institution	Corvallis, OR
Pacific Lutheran University	Academic Institution	Parkland, WA
Pacific University	Academic Institution	Forest Grove, OR
Penn State Behrend	Academic Institution	Erie, PA
Prince George's Community College	Academic Institution	Largo, MD
Riverside City College	Academic Institution	Riverside, CA
Auburn University	Academic Institution	Auburn, Alabama
Roosevelt University	Academic Institution	Chicago, IL
Rowan University	Academic Institution	Glassboro, NJ
STEMteachersNYC	Other Nonprofits	New York, NY
SUNY Buffalo State College	Academic Institution	Buffalo, NY
Sacred Heart University	Academic Institution	Fairfield, CT
Saint Leo University	Academic Institution	St. Leo, FL

Shepherd University	Academic Institution	Sheperdstown, WV
Slippery Rock University	Academic Institution	Slippery Rock, PA
South Dakota State University	Academic Institution	Brookings, SD
Southern Connecticut State University	Academic Institution	New Haven, CT
Augsburg University	Academic Institution	Minneapolis, MN
Southern University and A&M College	Academic Institution	Baton Rouge, LA
St. Mary's College of Maryland	Academic Institution	St. Mary's City, MD
St. Vrain School District	School or School Systems	Longmont, CO
Taylor University	Academic Institution	Upland, IN
Texas A&M University - Commerce	Academic Institution	Commerce, TX
Texas Lutheran University	Academic Institution	Seguin, TX
The Citadel	Academic Institution	Charleston, SC
The College of New Jersey	Academic Institution	Ewing Township
The Ohio State University	Academic Institution	Columbus, OH
The University of Alabama	Academic Institution	Tuscaloosa, AL
Augustana University	Academic Institution	Sioux Falls, SD
The University of Mississippi	Academic Institution	Oxford, MS
Tougaloo University	Academic Institution	Tougaloo, MS
Towson University	Academic Institution	Towson, MD
UMass Boston	Academic Institution	Boston, MA
University of Akron	Academic Institution	Akron, OH
University of Arizona	Academic Institution	Tuscon, AZ
University of Arkansas	Academic Institution	Fayetteville, AR
University of California - Berkeley	Academic Institution	Berkeley, CA
University of California - Irvine	Academic Institution	Irvine, CA
University of California - Merced	Academic Institution	Merced, CA
Aurora University	Academic Institution	Aurora, Illinois
University of California - Santa Cruz	Academic Institution	Santa Cruz, CA
University of Central Florida	Academic Institution	Orlando, Florida
University of Cincinnati	Academic Institution	Cincinnati, OH
University of Colorado - Boulder	Academic Institution	Boulder, CO
University of Colorado - Colorado Springs	Academic Institution	Colorado Springs, CO
University of Connecticut	Academic Institution	Mansfield, CT
University of Delaware	Academic Institution	Newark, DE
University of Detroit Mercy	Academic Institution	Detroit, MI
University of Florida	Academic Institution	Gainesville, FL
University of Hartford	Academic Institution	West Hartford, CT
Azusa Pacific University, CA	Academic Institution	Azusa, California

University of Hawai'i at Mānoa	Academic Institution	Honolulu, HI
University of Hawaii at Hilo	Academic Institution	Hilo, HI
University of Houston	Academic Institution	Houston, TX
University of Illinois at Urbana-Champaign	Academic Institution	Champaign, IL
University of Kansas	Academic Institution	Lawrence, KS
University of Maryland	Academic Institution	College Park, MD
University of Massachusetts	Academic Institution	Amherst, Massachusetts
University of Massachusetts Lowell	Academic Institution	Lowell, Massachusetts
University of Mississippi	Academic Institution	Oxford, MS
University of North Carolina - Chapel Hill	Academic Institution	Chapel Hill, North Carolina
Berry College	Academic Institution	Berry, Georgia
University of North Georgia	Academic Institution	Dahlonega, GA
University of Oregon	Academic Institution	Eugene, OR
University of Saint Joseph	Academic Institution	Hartford, Connecticut
University of Tennessee - Martin	Academic Institution	Martin, TN
University of Texas - Austin	Academic Institution	Austin, TX
University of Texas - El Paso	Academic Institution	El Paso, TX
University of Texas - Rio Grande Valley	Academic Institution	Edinburg, TX
University of Texas at Austin	Academic Institution	Austin, TX
University of Texas-Rio Grande Valley	Academic Institution	Edinburg, Texas
University of Washington Bothell	Academic Institution	Bothell, WA
Boulder Valley School District	School or School Systems	Boulder, CO
University of West Georgia	Academic Institution	Carrollton, Georgia
University of Western Florida	Academic Institution	Pensacola, Florida
University of Wisconsin - La Crosse	Academic Institution	La Crosse, WI
University of Wisconsin - River Falls	Academic Institution	River Falls, Wisconsin
University of Wisconsin-Platteville	Academic Institution	Platteville, WI
Utah State University	Academic Institution	Logan, Utah
Wartburg College	Academic Institution	Denver, CO
Waynesburg University	Academic Institution	Waynesburg, PA
West Chester University	Academic Institution	Chester County, Pennsylvania
West Virginia University	Academic Institution	Morgantown, WV
Bridgewater State University	Academic Institution	Bridgewater, MA
Western Colorado University	Academic Institution	Gunnison, Colorado
Western Kentucky University	Academic Institution	Bowling Green, Kentucky
Western Washington University	Academic Institution	Bellingham, Washington
Westmont College	Academic Institution	Santa Barbara, CA
Worcester Polytechnic Institute	Academic Institution	Worcester, MA

Wright State University	Academic Institution	Dayton, OH
Brigham Young University	Academic Institution	Provo, UT
Alma College	Academic Institution	Alma, MI
Brigham Young University - Idaho	Academic Institution	Rexburg, ID
Bucknell University	Academic Institution	Lewisburg, PA
Butler County Community College	Academic Institution	Butler Township, PA
CUNY College of Staten Island	Academic Institution	Staten Island, NY
Caddo Parish Public Schools	School or School Systems	Shreveport, LA
Cal State University - Channel Islands	Academic Institution	Camarillo, California
Cal State University - Chico	Academic Institution	Chico, California
California Polytechnic State University - San Luis Obispo	Academic Institution	San Luis Obispo, CA
California State University - Fullerton	Academic Institution	Fullerton, CA
California State University - Northridge	Academic Institution	Northridge, CA
American Academy	School or School Systems	Colorado
California State University, Fresno	Academic Institution	Fresno, CA
California State University, Long Beach	Academic Institution	Long Beach, CA
California State University, Monterey Bay	Academic Institution	Monterey Bay, CA
California State University, Sacramento	Academic Institution	Sacramento, CA
California State University, San Bernardino	Academic Institution	San Bernardino, CA
California State University, San Marcos	Academic Institution	San Marcos, CA
Case Western Reserve University	Academic Institution	Cleveland, OH
Central Connecticut State University	Academic Institution	New Britain, Connecticut
Central Washington University	Academic Institution	Ellensburg, WA
Cherry Creek Schools	School or School Systems	Greenwood Village, CO
American Association for Employment in Education (AAEE)	Other Nonprofits	Sycamore, IL
Chicago State University	Academic Institution	Chicago, IL
Christel House	Academic Institution	Indianapolis, IN
Cinco Ranch High School	School or School Systems	Cinco Ranch, TX
Clemson University	Academic Institution	Clemson, SC
Cleveland State University	Academic Institution	Cleveland, OH
Colgate University	Academic Institution	Hamilton, NY
Colorado School of Mines	Academic Institution	Golden, CO
Colorado State University	Academic Institution	Fort Collins, CO
Columbus State University	Academic Institution	Columbus, GA
Concordia College	Academic Institution	Moorhead, MN
American Chemical Society	Other Nonprofits	Washington, DC
Curry College	Academic Institution	Milton, MA
Decatur Central High School	School or School Systems	Indianapolis, IN

Delta State University	Academic Institution	Cleveland, MS
Douglas County School District	School or School Systems	Castle Rock, CO
Drexel University	Academic Institution	Philadelphia, PA
East Carolina University	Academic Institution	Greenville, NC
East Tennessee State University	Academic Institution	Johnson City, TN
Eastern Kentucky University	Academic Institution	Richmond, Kentucky
Eastern Michigan University	Academic Institution	Ypsilanti, MI
Eastern Washington University	Academic Institution	Cheney, WA
American Physical Society	Other Nonprofits	College Park, MD
Embry-Riddle Aeronautical University	Academic Institution	Daytona Beach, FL
Englewood Schools	School or School Systems	Englewood, CO
Fisk University	Academic Institution	Nashville, TN
Fitchburg State University	Academic Institution	Fitchburg, MA
Florida Gulf Coast University	Academic Institution	Fort Myers, FL
Florida International University	Academic Institution	Miami, FL
Florida State University	Academic Institution	Tallahassee, FL
Fort Hayes State University	Academic Institution	Hays, Kansas
Georgetown University	Academic Institution	Washington, D.C.,
Georgia Tech Research Institute	Academic Institution	Atlanta, GA
Andrews University	Academic Institution	Berrien Springs, MI
Gettysburg College	Academic Institution	Gettysburg, PA
Greendale School District	School or School Systems	Milwaukee County, WI
Hofstra University	Academic Institution	Hempstead, NY
Idaho State University	Academic Institution	Pocatello, ID
Illinois Wesleyan University	Academic Institution	Bloomington, IL
Indiana State University	Academic Institution	Terre Haute, IN
Indiana University - Purdue University Indianapolis	Academic Institution	Indianapolis, IN
Indiana University of Pennsylvania	Academic Institution	Indiana County, PA
James Madison University	Academic Institution	Harrisonburg, VA
Jeffco Public Schools	School or School Systems	Golden, CO
Appalachian State University	Academic Institution	Boone, NC
Kennesaw State University	Academic Institution	Kennesaw, GA
Kentucky Department of Education	Other Nonprofits	Frankfort, KY
Lee College	Academic Institution	Baytown, TX
Lewis & Clark College	Academic Institution	Portland, OR
Lewis University	Academic Institution	Romeoville, IL
Louisiana Tech University - UTeach Tech Program	Academic Institution	Ruston, Louisiana
Marquette University	Academic Institution	Milwaukee, WI

Maryville College	Academic Institution	Maryville, TN
Mathematical Association of America	Other Nonprofits	Washington, DC
Mattawan Consolidated Schools	School or School Systems	Mattawan, MI
Arizona State University	Academic Institution	Tempe, AZ
Mercy College	Academic Institution	Dobbs Ferry, NY
Middle Tennessee State University	Academic Institution	Murfreesboro, TN
Mississippi State University	Academic Institution	Starkville, MS
Missouri University of Science and Technology	Academic Institution	Rolla, MO
Morehead State University	Academic Institution	Morehead, KY
Morgan State University	Academic Institution	Baltimore, Maryland
New Castle Area School District	School or School Systems	Lawrence County, PA
Nicholls State University	Academic Institution	Thibodaux, LA
Northern Arizona University	Academic Institution	Flagstaff, AZ
Northern Kentucky University	Academic Institution	Highland Heights, KY

Full details of organizations that have been involved as partners:

Adams County School District

Organization Type: School or School Systems

Organization Location: Commerce City, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Adelphi University

Organization Type: Academic Institution

Organization Location: Manhattan, NY

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Alma College

Organization Type: Academic Institution

Organization Location: Alma, MI

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

American Academy

Organization Type: School or School Systems

Organization Location: Colorado

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

American Association for Employment in Education (AEE)

Organization Type: Other Nonprofits

Organization Location: Sycamore, IL

Partner's Contribution to the Project:

Collaborative Research

Other: Host webinars and conferences that GFO presents at they are also using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

American Chemical Society

Organization Type: Other Nonprofits

Organization Location: Washington, DC

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: Identified chemistry change agents, recruited quantitative sties, disseminated GFO resources through ACS channels.

American Physical Society

Organization Type: Other Nonprofits

Organization Location: College Park, MD

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: Identified physics change agents, developed the website, recruited quantitative sties, disseminated GFO resources through APS and PhysTEC channels, participated in overall project planning.

Andrews University

Organization Type: Academic Institution

Organization Location: Berrien Springs, MI

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Appalachian State University

Organization Type: Academic Institution

Organization Location: Boone, NC

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math and chemistry faculty and students each year.

Arizona State University

Organization Type: Academic Institution

Organization Location: Tempe, AZ

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Association of Mathematics Teacher Educators

Organization Type: Other Nonprofits

Organization Location: Houghton, MI

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: AMTE is our mathematics society partner. AMTE has created a task force of 5 change agents who work to Get the Facts Out to mathematics teacher educators across the U.S. and support new GFO mathematics champions.

Auburn University

Organization Type: Academic Institution

Organization Location: Auburn, Alabama

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Augsburg University

Organization Type: Academic Institution

Organization Location: Minneapolis, MN

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Augustana University

Organization Type: Academic Institution

Organization Location: Sioux Falls, SD

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Aurora University

Organization Type: Academic Institution

Organization Location: Aurora, Illinois

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Azusa Pacific University, CA

Organization Type: Academic Institution

Organization Location: Azusa, California

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Berry College

Organization Type: Academic Institution

Organization Location: Berry, Georgia

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Boulder Valley School District

Organization Type: School or School Systems

Organization Location: Boulder, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Bridgewater State University

Organization Type: Academic Institution

Organization Location: Bridgewater, MA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Brigham Young University

Organization Type: Academic Institution

Organization Location: Provo, UT

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally, once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry, and math.

Brigham Young University - Idaho

Organization Type: Academic Institution

Organization Location: Rexburg, ID

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Bucknell University

Organization Type: Academic Institution

Organization Location: Lewisburg, PA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Butler County Community College

Organization Type: Academic Institution

Organization Location: Butler Township, PA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

CUNY College of Staten Island

Organization Type: Academic Institution

Organization Location: Staten Island, NY

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Caddo Parish Public Schools

Organization Type: School or School Systems

Organization Location: Shreveport, LA

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Cal State University - Channel Islands

Organization Type: Academic Institution

Organization Location: Camarillo, California

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Cal State University - Chico

Organization Type: Academic Institution

Organization Location: Chico, California

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

California Polytechnic State University - San Luis Obispo

Organization Type: Academic Institution

Organization Location: San Luis Obispo, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

California State University - Fullerton

Organization Type: Academic Institution

Organization Location: Fullerton, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

California State University - Northridge

Organization Type: Academic Institution

Organization Location: Northridge, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

California State University, Fresno

Organization Type: Academic Institution

Organization Location: Fresno, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

California State University, Long Beach

Organization Type: Academic Institution

Organization Location: Long Beach, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally, once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry, and math.

California State University, Monterey Bay

Organization Type: Academic Institution

Organization Location: Monterey Bay, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math and chemistry faculty and students each year.

California State University, Sacramento

Organization Type: Academic Institution

Organization Location: Sacramento, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

California State University, San Bernardino

Organization Type: Academic Institution

Organization Location: San Bernardino, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

California State University, San Marcos

Organization Type: Academic Institution

Organization Location: San Marcos, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Case Western Reserve University**

Organization Type: Academic Institution

Organization Location: Cleveland, OH

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Central Connecticut State University**

Organization Type: Academic Institution

Organization Location: New Britain, Connecticut

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Central Washington University**

Organization Type: Academic Institution

Organization Location: Ellensburg, WA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Cherry Creek Schools**

Organization Type: School or School Systems

Organization Location: Greenwood Village, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Chicago State University**

Organization Type: Academic Institution

Organization Location: Chicago, IL

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry and math.

Christel House

Organization Type: Academic Institution

Organization Location: Indianapolis, IN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Cinco Ranch High School**

Organization Type: School or School Systems

Organization Location: Cinco Ranch, TX

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Clemson University**

Organization Type: Academic Institution

Organization Location: Clemson, SC

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Cleveland State University**

Organization Type: Academic Institution

Organization Location: Cleveland, OH

Partner's Contribution to the Project:

Financial support Collaborative
Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Colgate University

Organization Type: Academic Institution

Organization Location: Hamilton, NY

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Colorado School of Mines

Organization Type: Academic Institution

Organization Location: Golden, CO

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry and math.

Colorado State University

Organization Type: Academic Institution

Organization Location: Fort Collins, CO

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math faculty and students each year.

Columbus State University

Organization Type: Academic Institution

Organization Location: Columbus, GA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Concordia College**

Organization Type: Academic Institution

Organization Location: Moorhead, MN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Curry College**

Organization Type: Academic Institution

Organization Location: Milton, MA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Decatur Central High School**

Organization Type: School or School Systems

Organization Location: Indianapolis, IN

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Delta State University**

Organization Type: Academic Institution

Organization Location: Cleveland, MS

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Douglas County School District**

Organization Type: School or School Systems

Organization Location: Castle Rock, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Drexel University****Organization Type:** Academic Institution**Organization Location:** Philadelphia, PA**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

East Carolina University**Organization Type:** Academic Institution**Organization Location:** Greenville, NC**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

East Tennessee State University**Organization Type:** Academic Institution**Organization Location:** Johnson City, TN**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Eastern Kentucky University**Organization Type:** Academic Institution**Organization Location:** Richmond, Kentucky**Partner's Contribution to the Project:**

Collaborative Research

More Detail on Partner and Contribution:

Eastern Michigan University**Organization Type:** Academic Institution**Organization Location:** Ypsilanti, MI**Partner's Contribution to the Project:**

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

Eastern Washington University**Organization Type:** Academic Institution**Organization Location:** Cheney, WA**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Embry-Riddle Aeronautical University**Organization Type:** Academic Institution**Organization Location:** Daytona Beach, FL**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Englewood Schools**Organization Type:** School or School Systems**Organization Location:** Englewood, CO**Partner's Contribution to the Project:**

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Fisk University**Organization Type:** Academic Institution**Organization Location:** Nashville, TN**Partner's Contribution to the Project:**

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Fitchburg State University**Organization Type:** Academic Institution**Organization Location:** Fitchburg, MA**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Florida Gulf Coast University

Organization Type: Academic Institution

Organization Location: Fort Myers, FL

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Florida International University

Organization Type: Academic Institution

Organization Location: Miami, FL

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Florida State University

Organization Type: Academic Institution

Organization Location: Tallahassee, FL

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Fort Hayes State University

Organization Type: Academic Institution

Organization Location: Hays, Kansas

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution:

Georgetown University

Organization Type: Academic Institution

Organization Location: Washington, D.C.,

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Georgia Tech Research Institute

Organization Type: Academic Institution

Organization Location: Atlanta, GA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Gettysburg College

Organization Type: Academic Institution

Organization Location: Gettysburg, PA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Greendale School District

Organization Type: School or School Systems

Organization Location: Milwaukee County, WI

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Hofstra University

Organization Type: Academic Institution

Organization Location: Hempstead, NY

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Idaho State University

Organization Type: Academic Institution

Organization Location: Pocatello, ID

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

Illinois Wesleyan University

Organization Type: Academic Institution

Organization Location: Bloomington, IL

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Indiana State University

Organization Type: Academic Institution

Organization Location: Terre Haute, IN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Indiana University - Purdue University Indianapolis

Organization Type: Academic Institution

Organization Location: Indianapolis, IN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Indiana University of Pennsylvania

Organization Type: Academic Institution

Organization Location: Indiana County, PA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

James Madison University

Organization Type: Academic Institution

Organization Location: Harrisonburg, VA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

Jeffco Public Schools

Organization Type: School or School Systems

Organization Location: Golden, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Kennesaw State University

Organization Type: Academic Institution

Organization Location: Kennesaw, GA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

Kentucky Department of Education

Organization Type: Other Nonprofits

Organization Location: Frankfort, KY

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: Collaborate with possible New Champion Engagement Strategy and Change Agent model for GFO 2.0 and staff is using GFO resources and providing feedback on their experiences

Lee College

Organization Type: Academic Institution

Organization Location: Baytown, TX

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Lewis & Clark College

Organization Type: Academic Institution

Organization Location: Portland, OR

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Lewis University**

Organization Type: Academic Institution

Organization Location: Romeoville, IL

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Louisiana Tech University - UTeach Tech Program

Organization Type: Academic Institution

Organization Location: Ruston, Louisiana

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Marquette University

Organization Type: Academic Institution

Organization Location: Milwaukee, WI

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Maryville College

Organization Type: Academic Institution

Organization Location: Maryville, TN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Mathematical Association of America

Organization Type: Other Nonprofits

Organization Location: Washington, DC

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: MAA distributed GFO at summer 2019 events.

Mattawan Consolidated Schools

Organization Type: School or School Systems

Organization Location: Mattawan, MI

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Mercy College

Organization Type: Academic Institution

Organization Location: Dobbs Ferry, NY

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Middle Tennessee State University

Organization Type: Academic Institution

Organization Location: Murfreesboro, TN

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Mississippi State University

Organization Type: Academic Institution

Organization Location: Starkville, MS

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Missouri University of Science and Technology

Organization Type: Academic Institution

Organization Location: Rolla, MO

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Morehead State University

Organization Type: Academic Institution

Organization Location: Morehead, KY

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics and math faculty and students each year.

Morgan State University

Organization Type: Academic Institution

Organization Location: Baltimore, Maryland

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution:

New Castle Area School District

Organization Type: School or School Systems

Organization Location: Lawrence County, PA

Partner's Contribution to the Project:

Other: Staff from this district are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Nicholls State University

Organization Type: Academic Institution

Organization Location: Thibodaux, LA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Northern Arizona University

Organization Type: Academic Institution

Organization Location: Flagstaff, AZ

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Northern Kentucky University

Organization Type: Academic Institution

Organization Location: Highland Heights, KY

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Northwest Missouri State University

Organization Type: Academic Institution

Organization Location: Maryville, MO

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Northwestern Oklahoma State University

Organization Type: Academic Institution

Organization Location: Alva, OK

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Northwestern State University

Organization Type: Academic Institution

Organization Location: Natchitoches, LA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math faculty and students each year.

Oral Roberts University

Organization Type: Academic Institution

Organization Location: Tulsa, OK

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Oregon State University

Organization Type: Academic Institution

Organization Location: Corvallis, OR

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Pacific Lutheran University

Organization Type: Academic Institution

Organization Location: Parkland, WA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Pacific University

Organization Type: Academic Institution

Organization Location: Forest Grove, OR

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Penn State Behrend

Organization Type: Academic Institution

Organization Location: Erie, PA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Prince George's Community College

Organization Type: Academic Institution

Organization Location: Largo, MD

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math faculty and students each year.

Riverside City College

Organization Type: Academic Institution

Organization Location: Riverside, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Roosevelt University

Organization Type: Academic Institution

Organization Location: Chicago, IL

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math faculty and students each year.

Rowan University

Organization Type: Academic Institution

Organization Location: Glassboro, NJ

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

STEMteachersNYC

Organization Type: Other Nonprofits

Organization Location: New York, NY

Partner's Contribution to the Project:

Other: Staff from this organization are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

SUNY Buffalo State College

Organization Type: Academic Institution

Organization Location: Buffalo, NY

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Sacred Heart University

Organization Type: Academic Institution

Organization Location: Fairfield, CT

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Saint Leo University

Organization Type: Academic Institution

Organization Location: St. Leo, FL

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Shepherd University

Organization Type: Academic Institution

Organization Location: Sheperdstown, WV

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Slippery Rock University

Organization Type: Academic Institution

Organization Location: Slippery Rock, PA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

South Dakota State University

Organization Type: Academic Institution

Organization Location: Brookings, SD

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Southern Connecticut State University

Organization Type: Academic Institution

Organization Location: New Haven, CT

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Southern University and A&M College

Organization Type: Academic Institution

Organization Location: Baton Rouge, LA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

St. Mary's College of Maryland

Organization Type: Academic Institution

Organization Location: St. Mary's City, MD

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

St. Vrain School District

Organization Type: School or School Systems

Organization Location: Longmont, CO

Partner's Contribution to the Project:

Other: Staff from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Taylor University

Organization Type: Academic Institution

Organization Location: Upland, IN

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**Texas A&M University - Commerce****Organization Type:** Academic Institution**Organization Location:** Commerce, TX**Partner's Contribution to the Project:**

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Texas Lutheran University**Organization Type:** Academic Institution**Organization Location:** Seguin, TX**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

The Citadel**Organization Type:** Academic Institution**Organization Location:** Charleston, SC**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

The College of New Jersey**Organization Type:** Academic Institution**Organization Location:** Ewing Township**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

The Ohio State University**Organization Type:** Academic Institution**Organization Location:** Columbus, OH**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

The University of Alabama**Organization Type:** Academic Institution**Organization Location:** Tuscaloosa, AL**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

The University of Mississippi**Organization Type:** Academic Institution**Organization Location:** Oxford, MS**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Tougaloo University**Organization Type:** Academic Institution**Organization Location:** Tougaloo, MS**Partner's Contribution to the Project:**

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics, math and chemistry faculty and students each year.

Towson University**Organization Type:** Academic Institution**Organization Location:** Towson, MD**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

UMass Boston**Organization Type:** Academic Institution**Organization Location:** Boston, MA**Partner's Contribution to the Project:**

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Akron

Organization Type: Academic Institution

Organization Location: Akron, OH

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Arizona

Organization Type: Academic Institution

Organization Location: Tuscon, AZ

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Arkansas

Organization Type: Academic Institution

Organization Location: Fayetteville, AR

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of California - Berkeley

Organization Type: Academic Institution

Organization Location: Berkeley, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of California - Irvine

Organization Type: Academic Institution

Organization Location: Irvine, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the faculty and students each year.

University of California - Merced

Organization Type: Academic Institution

Organization Location: Merced, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of California - Santa Cruz

Organization Type: Academic Institution

Organization Location: Santa Cruz, CA

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Central Florida

Organization Type: Academic Institution

Organization Location: Orlando, Florida

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Cincinnati

Organization Type: Academic Institution

Organization Location: Cincinnati, OH

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Colorado - Boulder

Organization Type: Academic Institution

Organization Location: Boulder, CO

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Colorado - Colorado Springs

Organization Type: Academic Institution

Organization Location: Colorado Springs, CO

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Connecticut

Organization Type: Academic Institution

Organization Location: Mansfield, CT

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Delaware

Organization Type: Academic Institution

Organization Location: Newark, DE

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Detroit Mercy

Organization Type: Academic Institution

Organization Location: Detroit, MI

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Florida

Organization Type: Academic Institution

Organization Location: Gainesville, FL

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Hartford

Organization Type: Academic Institution

Organization Location: West Hartford, CT

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Hawai'i at Mānoa

Organization Type: Academic Institution

Organization Location: Honolulu, HI

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Hawaii at Hilo

Organization Type: Academic Institution

Organization Location: Hilo, HI

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Houston

Organization Type: Academic Institution

Organization Location: Houston, TX

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics and math faculty and students each year.

University of Illinois at Urbana-Champaign

Organization Type: Academic Institution

Organization Location: Champaign, IL

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Kansas

Organization Type: Academic Institution

Organization Location: Lawrence, KS

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Maryland

Organization Type: Academic Institution

Organization Location: College Park, MD

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Massachusetts**

Organization Type: Academic Institution

Organization Location: Amherst, Massachusetts

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Massachusetts Lowell**

Organization Type: Academic Institution

Organization Location: Lowell, Massachusetts

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Mississippi**

Organization Type: Academic Institution

Organization Location: Oxford, MS

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics and chemistry faculty and students each year.

University of North Carolina - Chapel Hill

Organization Type: Academic Institution

Organization Location: Chapel Hill, North Carolina

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of North Georgia**

Organization Type: Academic Institution

Organization Location: Dahlonega, GA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Oregon

Organization Type: Academic Institution

Organization Location: Eugene, OR

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Saint Joseph**

Organization Type: Academic Institution

Organization Location: Hartford, Connecticut

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Tennessee - Martin**

Organization Type: Academic Institution

Organization Location: Martin, TN

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math faculty and students each year.

University of Texas - Austin

Organization Type: Academic Institution

Organization Location: Austin, TX

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Texas - El Paso

Organization Type: Academic Institution

Organization Location: El Paso, TX

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Texas - Rio Grande Valley

Organization Type: Academic Institution

Organization Location: Edinburg, TX

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Texas at Austin

Organization Type: Academic Institution

Organization Location: Austin, TX

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of Texas-Rio Grande Valley

Organization Type: Academic Institution

Organization Location: Edinburg, Texas

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Washington Bothell

Organization Type: Academic Institution

Organization Location: Bothell, WA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

University of West Georgia

Organization Type: Academic Institution

Organization Location: Carrollton, Georgia

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Western Florida

Organization Type: Academic Institution

Organization Location: Pensacola, Florida

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

University of Wisconsin - La Crosse

Organization Type: Academic Institution

Organization Location: La Crosse, WI

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry and math.

University of Wisconsin - River Falls

Organization Type: Academic Institution

Organization Location: River Falls, Wisconsin

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:**University of Wisconsin-Platteville**

Organization Type: Academic Institution

Organization Location: Platteville, WI

Partner's Contribution to the Project:

Other: Western Colorado University

More Detail on Partner and Contribution:

Utah State University

Organization Type: Academic Institution

Organization Location: Logan, Utah

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Wartburg College

Organization Type: Academic Institution

Organization Location: Denver, CO

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the math and chemistry faculty and students each year.

Waynesburg University

Organization Type: Academic Institution

Organization Location: Waynesburg, PA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

West Chester University

Organization Type: Academic Institution

Organization Location: Chester County, Pennsylvania

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

West Virginia University

Organization Type: Academic Institution

Organization Location: Morgantown, WV

Partner's Contribution to the Project:

Facilities

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Qualitative Site. Researchers visit this IHE once per year during the grant period to conduct focus groups and give a workshop on the GFO resources. Additionally once per year the GFO Research Team collects perceptions survey data from faculty and students in physics, chemistry and math.

Western Colorado University

Organization Type: Academic Institution

Organization Location: Gunnison, Colorado

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Western Kentucky University

Organization Type: Academic Institution

Organization Location: Bowling Green, Kentucky

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Western Washington University

Organization Type: Academic Institution

Organization Location: Bellingham, Washington

Partner's Contribution to the Project:

Other: Departments from this institution are using GFO resources and providing feedback on their experiences

More Detail on Partner and Contribution:

Westmont College

Organization Type: Academic Institution

Organization Location: Santa Barbara, CA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the chemistry faculty and students each year.

Worcester Polytechnic Institute

Organization Type: Academic Institution

Organization Location: Worcester, MA

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Wright State University

Organization Type: Academic Institution

Organization Location: Dayton, OH

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: This institution is a GFO Quantitative Site. The Research Team collects perceptions survey data from the physics faculty and students each year.

Were other collaborators or contacts involved? If so, please provide details.

Utah Association for Employment in Education, The two year college committee of AAPT, Oklahoma Science Teachers Association, and UTeach.

Impacts

What is the impact on the development of the principal discipline(s) of the project?

This project is supporting chemistry, physics, and mathematics local faculty champions throughout the United States in providing equivalent and fair information about teaching as a profession compared to other STEM careers by providing high-quality, accurate, and effective recruitment resources.

Longer term, this project will recruit more highly qualified undergraduates into STEM teaching fields which will help improve workforce training and an educated citizenry. Research shows that students coming into college classes will be better prepared for their college STEM courses if they had well prepared STEM teachers.

The project also produces primary research on STEM student's and faculty's perceptions of grade 7-12 teaching. Much is first of its kind. This work can be used to guide new research in this needed field of study. Key research outcomes to date include:

- Detailed understanding of student perceptions of grade 7-12 math and science teaching including an instrument that can measure these and measure student interest in the career.
- An understanding of why students who are interested choose to pursue other careers. These reasons often center around salary, retirement, and day-to-day satisfaction.
- GFO's student presentation is effective at significantly improving perceptions of the profession.
- No differences in these perceptions and interests were found by gender or STEM discipline.
- Clear and large differences were found when analyzing student interest in and perceptions of grade 7-12 math and science teaching by race/ethnicity, including:
 - A smaller fraction of STEM majors who identify as white are interested in the career or are pursuing certification compared to students who identify in one of the underrepresented groups including: Black or African American, Hispanic or Latino, and Asian or Asian American.
 - Students who identify as Black or African American and students who identify as Hispanic or Latino have more positive perceptions of the profession.
 - Students who identify as Black or African American and students who identify as Hispanic or Latino are underrepresented in STEM degrees earned compared to all college degrees.
- The first research-based, user-tested teacher recruitment materials
- Presentations for Faculty - Teaching the Best Kept Secret!
- Presentations for Students - Busting Myths about the Teaching Profession
- Poster series and Brochure series
- Tested messaging about the profession that improves both student and faculty views of the profession
- Videos about the profession that share facts and provide a glimpse of teaching as a career
- Data handouts that include data to support the key facts about the profession that have been shown to impact student's career choices.
- Detailed understanding of faculty perceptions of grade 7-12 math and science teaching as a profession including an instrument that can measure them. In particular:
 - STEM faculty tend to think that (a) students aren't interested in teaching and (b) their colleagues do not value teaching careers for their students, neither of which are generally true. Consequently, many do not talk about teaching careers to students.

- Also, we have learned that faculty in general are supportive of a teaching career for their students but are very naïve about the career itself. They often hold these inconsistent views at the same time. If these faculty do mention teaching, students are likely to sense the negative views and are often dissuaded from the career, because faculty are important influences in their lives at the time that they are making a career choice.
- STEM Faculty perceptions and knowledge of the career are not different by discipline, gender, or faculty position type
- There are unique challenges related to teacher recruitment facing each STEM discipline requiring a customized strategic approach for each.
- **NEW:** 138 A Teacher's Life by the Numbers Infographics for different counties around the U.S.
- **NEW:** Basic miscommunication between faculty, students, and fellow faculty.
 - Over 60% of STEM majors are interested in grade 7-12 teaching
 - Students indicate that they often do not mention this to faculty for fear that they will be looked down upon
 - Faculty believe ~5% are interested and indicate that they do not bring it up because their students are not interested.
 - Over 40% of students surveyed indicate that they have never heard even one faculty member mention teaching as a career option.
 - Faculty also indicate that they perceive their colleagues are not supportive of the career
 - 88% of faculty (n=2200) agree/strongly agree with the statement, "I would be comfortable with my strongest student becoming a grade 7-12 teacher"

What is the impact on other disciplines?

The GFO resources have been and will continue to be developed and tested with subjects from a range of STEM disciplines. These materials are ready for adoption by other societies or faculty in other STEM disciplines interested in recruiting teachers. Additionally 55 (about 25%) of our C/champions are not specifically Physics, Chemistry, or Math educators. Those include other sciences, STEM/UTeach programs (directors, instructors, outreach, etc), Science Education, Education/Teacher prep, K12 human resources, university administrators, and K12 teachers.

Additionally, we are learning that Education faculty and Education Employment specialists are finding the GFO resources to be valuable for and effective with any field of teaching. 24 of our registered Champions are in schools of education. Recently we've been partnering with AAEE and now have six champions who are K12 employment specialists. As part of this work we have given a 90-minute, invited workshop at two American Association of Education in Employment (AAEE) conferences, one to each Utah college/university AAEE specialist and one at the National AAEE Specialists conference in Fall 2021. GFO's goals closely match those of AAEE, and we are building our partnership further. Finally, research shows that mathematics preparation is the primary barrier to participation in STEM disciplines in college, particularly for underserved students. Increasing the pipeline of highly qualified high school mathematics teachers should have a significant impact on numbers of students successfully pursuing majors and careers in all STEM disciplines.

What is the impact on the development of human resources?

Faculty

- More accurate and complete knowledge of the STEM teaching profession
- More positive opinion of the STEM teaching profession.
- **NEW:** Greater understanding of student interest in and faculty appreciation of teaching careers.

Postdocs

- Active contributing members of the DBER community who are qualified to secure a DBER faculty position.
- Stronger project management and research presentation and writing skills.

STEM Teachers

- Increased number of grades 7-12 math, chemistry, and physics teachers.
- Incoming college first-year students who are better prepared for introductory STEM courses

What was the impact on teaching and educational experiences?

Nothing to report

What is the impact on physical resources that form infrastructure?

Nothing to report

What is the impact on institutional resources that form infrastructure?

Nothing to report

What is the impact on information resources that form infrastructure?

GettheFactsOut.org

The GFO website hosts a wealth of information and resources related to chemistry, mathematics, and physics teaching professions, some of which is related to K-12 teaching generally. The site includes information for prospective teachers and GFO resources for faculty to use: presentations for faculty and students, ready-to-print posters/brochures/flyers, facts and data, research-based messaging, motivation and avenues for engagement, and other components.

Get the Facts Out YouTube Channel

The Get the Facts Out YouTube Channel contains professional videos designed to be used as recruitment and informational resources about the teaching profession. The channel also contains recorded research presentations about the project and sample Get the Facts Out webinars. This year, we expanded this repository to contain other GFO-related videos produced by GFO champions or their institutional or professional-society colleagues.

What is the impact on technology transfer?

Nothing to report

What is the impact on society beyond science and technology?

There is a growing body of research that provides evidence that increasing the number and diversity of qualified STEM teachers could open more doors for socioeconomically disadvantaged students and students from underrepresented groups, whether they ultimately pursue STEM careers or not (many employers recognize the value of the thinking skills learned by students of STEM). Additionally, increasing the number of qualified STEM teachers will improve public knowledge and attitudes about STEM fields.

In addition, it has become clear that faculty from colleges of education as well as school district recruitment specialists find the GFO resources to be effective recruitment resources for teachers in all fields, not just science and mathematics. In particular, the resources are very appropriate for recruiting special education teachers, another very high need teaching area.

What percentage of the award's budget was spent in a foreign country?

Nothing to report

Changes/Problems

Changes in approach and reason for change New tag line and emphasis

We have changed our tagline in many places, and our overall emphasis, from “Changing the conversation around STEM teaching careers” to “Repairing the reputation of the teaching profession.” This is because of our growing understanding of the mechanisms that perpetuate widespread misperceptions of the profession, in particular (a) media stories that distort the facts or emphasize the negatives, and (b) STEM faculty’s perceptions that their colleagues and their students do not value teaching. We are now aiming in a more explicit way to shift the culture of STEM departments toward more acceptance and discussion of the value of teachers and STEM teaching careers. Specific changes to activities are still being planned.

Virtual and In-Person Outreach

As the pandemic receded somewhat a few times in the last year, GFO PIs and Change Agents were sometimes able to attend conferences or site visits in person. Still, most opportunities for engagement were virtual. The workshop presentations we adjusted in the previous year were modified slightly as we learned more about effective virtual presentations.

We shared what we learned with Change Agents and Champions, and learned much from them, through our various communication mechanisms. This included making recordings of effective presentations publicly available, discussing experiences and findings at All-Change-Agent meetings, and sharing information on our Champion listserv.

Website transition to new hosting service

This year, due to a significant increase in website traffic, we moved our website (without changes) from the Pantheon hosting service to one provided by Generation Web. We believe this will be less expensive, provide greater security through regular software updates, and give us more accurate and useful analytics about website use. We anticipate contracting with Circuit Media again to provide occasional support for managing the website.

Actual or Anticipated problems or delays and actions or plans to resolve them

Nothing to report

Changes that have a significant impact on expenditures

We have seen some cost savings as well as some additional demands compared to the original budget that was developed five years ago. Cost savings has been seen with the lower-than-budgeted level of travel (for advisory board and Change Agents). However, we are seeing much higher demands than anticipated for Champion support with the growing number of Champions, and additional resource development and testing that are needed to support the needs of the GFO users. These additional needs are being met by the Mines team of Adams, the project manager, and research associates. We are shifting the small savings from the impact of these two virtual years to support more staff time to continue with Champion support, resource development, and national virtual GFO outreach.

In our year 1 report we shared that the original consultant who was engaged to conduct “Message Testing”, Drew Westen of Westen Strategies, was unable to perform the work. We engaged a new marketing expert and shifted testing responsibility to our Research Team. This work continues within the originally allotted budget, and we plan to continue this work in Year 5 with a focus on faculty perceptions related to advising students about the teaching profession. In particular we will pay special attention to responding to recent events related to violence in schools and publicity around teacher stressors due to student lost learning.

Finally, we have found that the external evaluator is continuing to spend more time on the project than anticipated. Her input has been very valuable, and we’d like to continue to engage her at this level.

Significant changes in use or care of human subjects

The Colorado School of Mines IRB-review exemption was updated to add new investigators: the new project manager and three new research assistants.

Significant changes in use or care of vertebrate animals

Nothing to report

Significant changes in use or care of biohazards

Nothing to report

Change in primary performance site location

Nothing to report

Special Requirements

Responses to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.

Nothing to report