Year 3 Faculty Strategy Implementation Summary

By: Besnik Abrashi (Research Assistant)

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About this Report

The Faculty Strategy Implementation (FSI) survey is appended to the end of the PTaP.HE to ascertain the degree to which GFO materials are used. In order to learn about Professor's responses to the FSI, we administered the survey directly to this group. We are not able to identify Professors individually within the broader responses to the PTaP.HE. We added some specific questions to the survey about gender, department, and whether the professors are tenured or not.

Research questions and statements include:

- How much opportunity do faculty have/seek to influence their students? (Q52-55)
- How do faculty hear about GFO? (Q56-59)
- Faculty usage of and experience with GFO resources
- Modification of GFO materials
- Anticipated future usage or non-usage of GFO resources
- Other impacts of GFO - Is GFO inspiring action/change?

(Free response questions or questions with "other – specify" sections have numbers stating how many times that general answer was mentioned by respondents. Responses with no number next to it means it was only mentioned once)

Comparisons between Year 1 and Year 3 results are made in red.

Demographics

There were approximately 535 respondents that took part in at least one question of the FSI survey. The average amount of responses was around 500 for the earlier questions and decreased to around 50-100 responses per question.

Out of the 533 responses to the question about gender identification, the results are:

Faculty Gender Information (n = 533)		
Gender	**Respondents**	**Percentage**
Male	177	33.2%
Female	321	60.2%
Other	35	6.6%
Total	**533**	**100.0%**

Out of the 535 responses pertaining to which department the respondents are affiliated with, the results are:

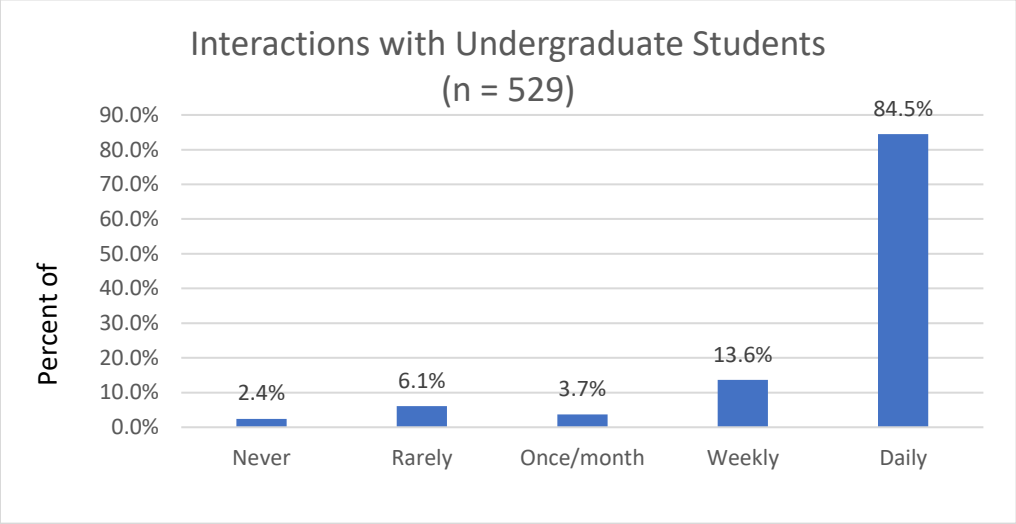
Faculty Department Information (n = 535)		
Department	**Respondents**	**Percentage**
Math	171	32.0%
Chemistry	129	24.1%
Physics	169	31.6%
Comp. Science	7	1.3%
Engineering	13	2.4%
Biology	30	5.6%
Earth Science	13	2.4%
Other	3	0.6%
Total	**535**	**100.0%**

Out of the 534 responses pertaining to whether the respondents were tenured or not, the results are:

Faculty Tenure Information (n = 534)		
Type	**Respondents**	**Percentage**
Tenured/TT	373	69.9%
Non-Tenured	161	30.1%
Total	**534**	**100.0%**

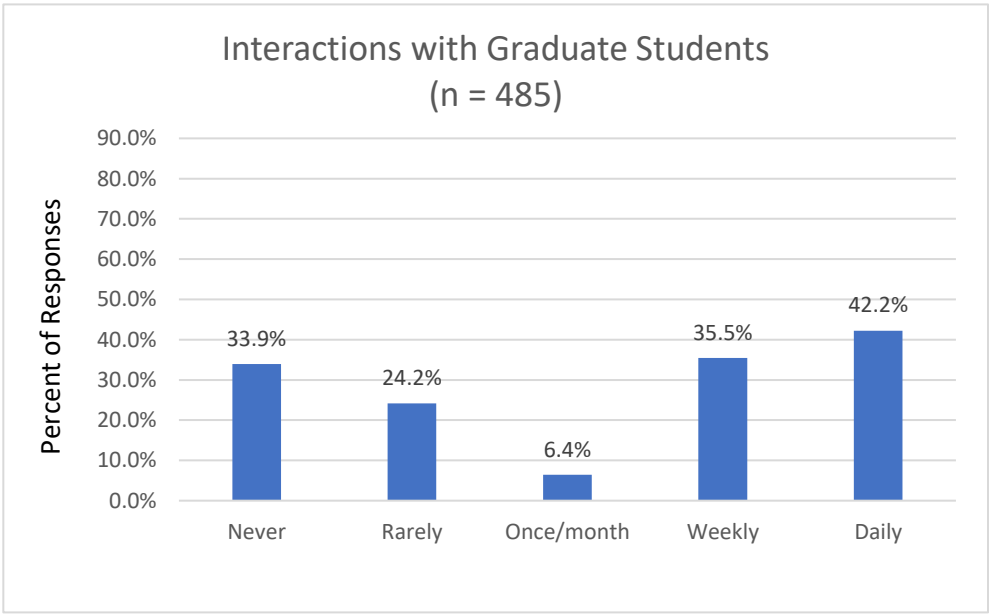
Communication and Conversation between students and faculty

Respondents were asked how often they interact with undergraduate and graduate students in classes, meetings, labs, office hours, or other contexts as part of their university role during a typical year. The vast majority of respondents interact daily with their undergraduate students, and weekly/daily with graduate students. There were a significant number of respondents that never communicate with their graduate students.

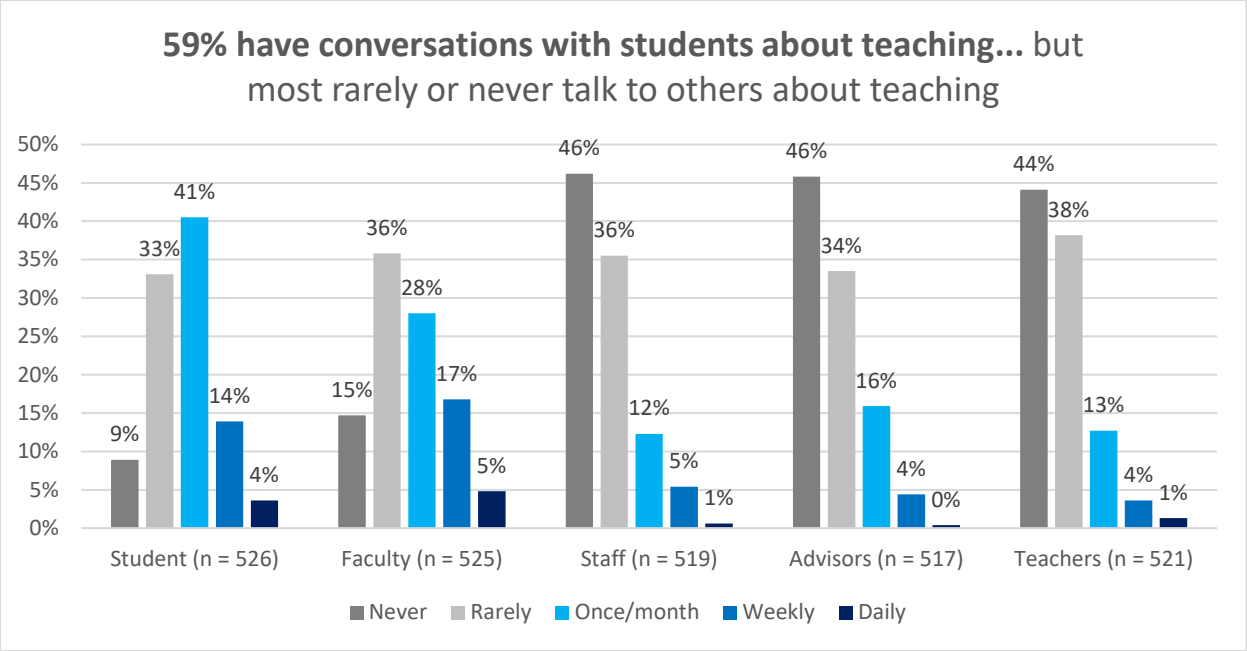


In comparison to Year 1, the results are similar with the majority of respondents communicating daily with their students. Year 1 had a majority of 93.2% while Year 3 had 84.5%.

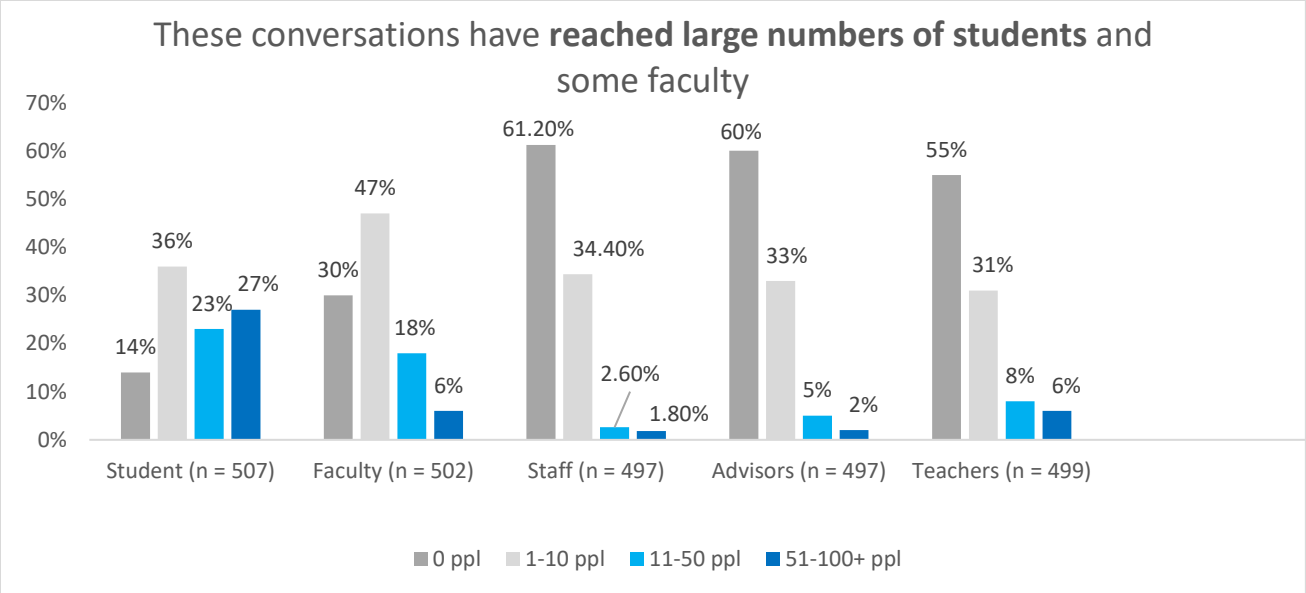
For the category of "never", Year 1 shows 1.9% and Year 3 shows 2.4%.

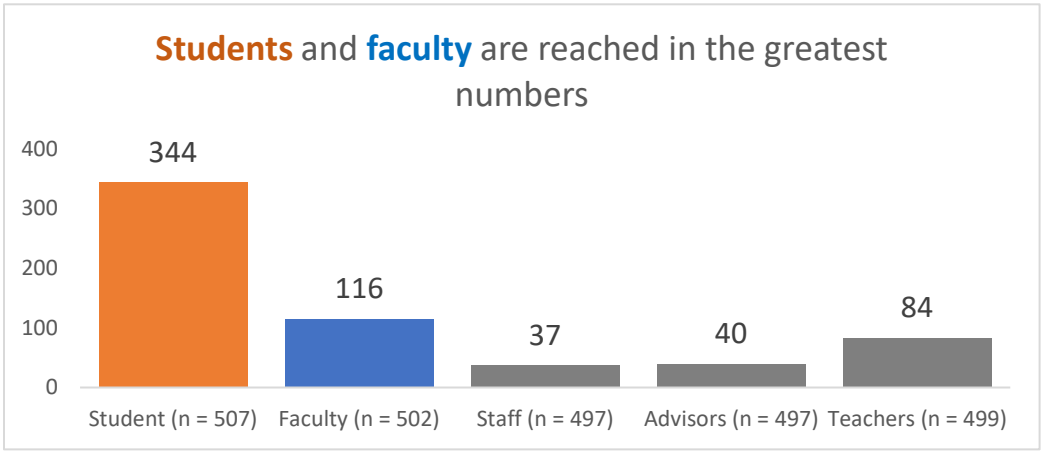


Respondents were asked how frequently they had had a conversation about teaching as a profession with students, faculty, staff, advisors, and local teachers, within the past year. Most of the respondents typically never or rarely had these conversations with these different groups.

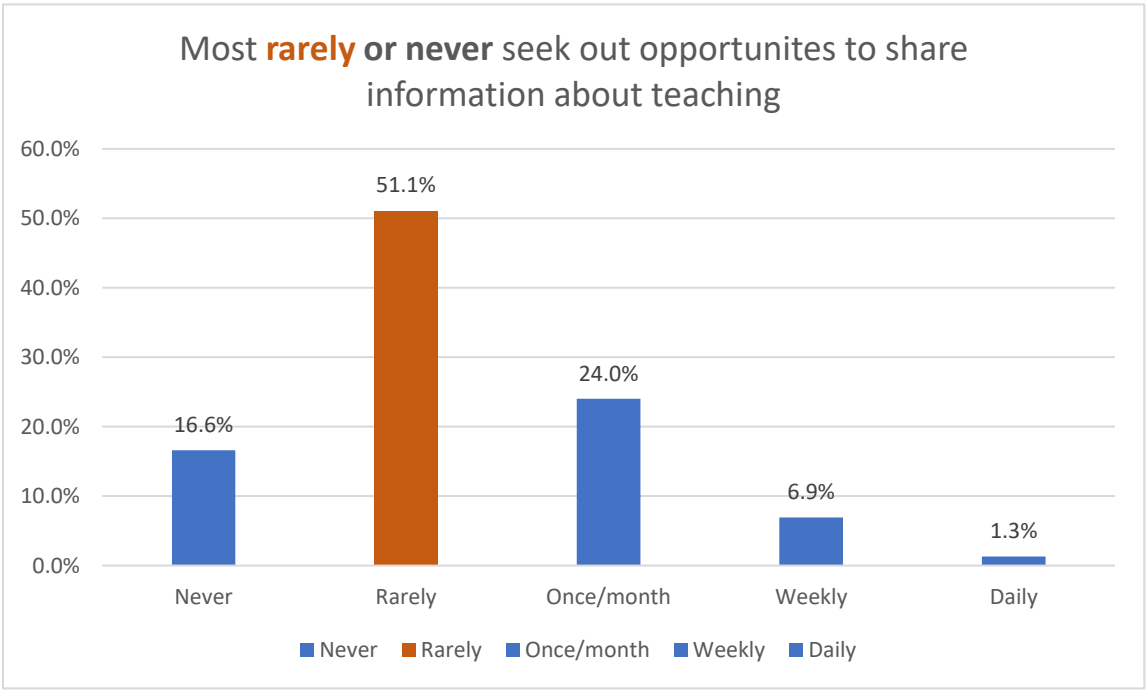


We then asked the faculty respondents how many members of each of the following audiences do they believe they have reached through conversations about teaching or the use of other materials on a scale of 0 to over 100 people. Most respondents indicated 0 people or between 1-10 people.





We also asked respondents how often they actively seek out opportunities to share information about teaching as a profession with others. Over 50% of the respondents rarely sought out opportunities to share information, while the majority of the other respondents either never share or only share about once a month.



Have faculty heard of GFO?

We asked respondents if they have heard of GFO and how. A majority of the responses said they have never heard of GFO.

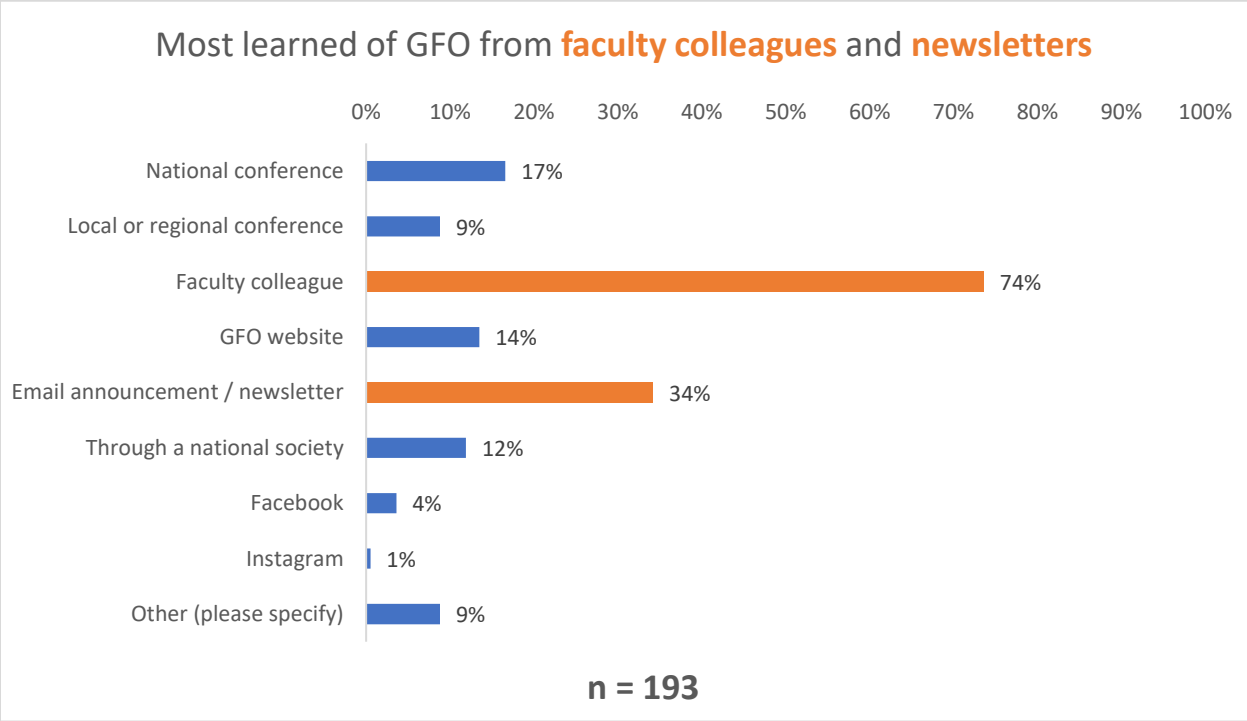
Values	Total (excl. missing for question)	
	532	
	#	*%*
Yes	190	35.7%
No	301	56.6%
Unsure	41	7.7%

Year 1 had 23.4% of participants say they have heard of GFO

We then mentioned that GFO is a longitudinal NSF study focused on changing the conversation around STEM teacher recruitment by correcting common misperceptions about the teaching profession and that it is a partnership between the Colorado School of Mines, the American Physical Society, the American Association of Physics Teachers, the American Chemical Society, and the Association of Mathematics Teacher Educators. The result led to 28 respondents to say yes.

Values	Total (excl. missing for question)	
	40	
	#	*%*
Yes	28	70.0%
No	12	30.0%

Respondents were asked where they have heard of GFO. 73.6% of responses were under "Faculty colleague." Social media seemed to be the least used source for learning about GFO.



The "other" responses are summarized below:

- Last year's survey - **7**
- PhysTEC - **3**
- Department - **2**
- On campus presentation
- NOYCE
- Twitter
- UTeach

Year 1 and 3 yielded similar results with "faculty colleague" being the majority response for how faculty have heard of GFO. Although, the majority in Year 1 (48.6%) was much smaller than Year 3 (73.6%).

Respondents were asked to identify a person or venue that referred GFO to them. Most of the responses seem to be colleagues/other faculty.

Faculty/Colleagues: (in alphabetical order)

Wendy Adams - 4	Jennifer Doktor - 2	David Klassen - 1	Paul Miller - 5
Thomas Brown - 3	Steve Elliot - 3	Joseph Kozminski - 1	Carolyn Mitten - 1
Jennifer Burris - 1	Paige Evans - 1	Vince Kuo - 1	Jennifer Nielson - 10
Seth Bush - 1	Michael Everest - 1	Chuhee Kwon - 2	Richard Pearson - 4
Terri Chambers - 1	Sarah Formica - 10	Earl Legleiter - 4	Bryan Rebar - 1
Matthew Chedister - 2	Gerrald Greivel - 1	Ray Levy - 1	Barbara Reisner - 1
Jennifer Clinkenbeard - 4	Josh Grossman - 2	Joanne Lieberman - 1	Leah Shields - 1
Tonya Coffey - 1	Gemunu Gunaratne - 1	Karen Magee-Sauer - 1	Robin Smith - 2
Judith Covington - 1	Chance Hoellwarth - 5	Duane Merrell - 4	Gay Stewart - 4

Physics = Blue

Chemistry = Yellow

Math = Red

National Societies and Conferences:

PhysTEC - 6	AMTE - 3	PIMSER - 1	APS - 3	GFO - 3
ACS - 6	MTEP - 2	CESAME - 1	AAPT - 4	IBL - 1

Universities/departments:

California State University Long Beach
Brigham Young University
West Virginia University
Florida State University
Rowan University
University of Tennessee at Martin
Emails from Departments and Department Chairs

Usage of and experience with GFO Information

Respondents were asked whether they have used GFO information for themselves or for others. The results were 60/40 with the majority answer being no.

Values	Total (excl. missing for question)	
	220	
	#	*%*
Yes	89	40.5%
No	131	59.5%

Year 1 results had 29 faculty say Yes and 93 faculty say No.

For those that said yes, we asked if the respondents would specify how they used GFO materials and in what context.

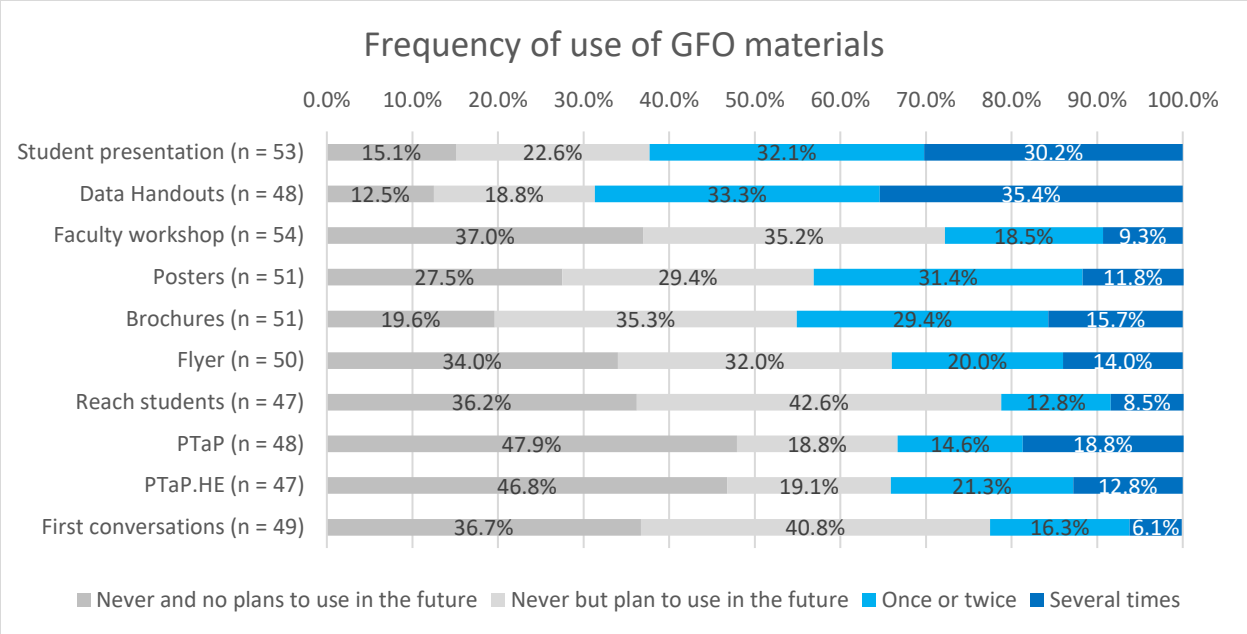
Their specified responses are summarized below:

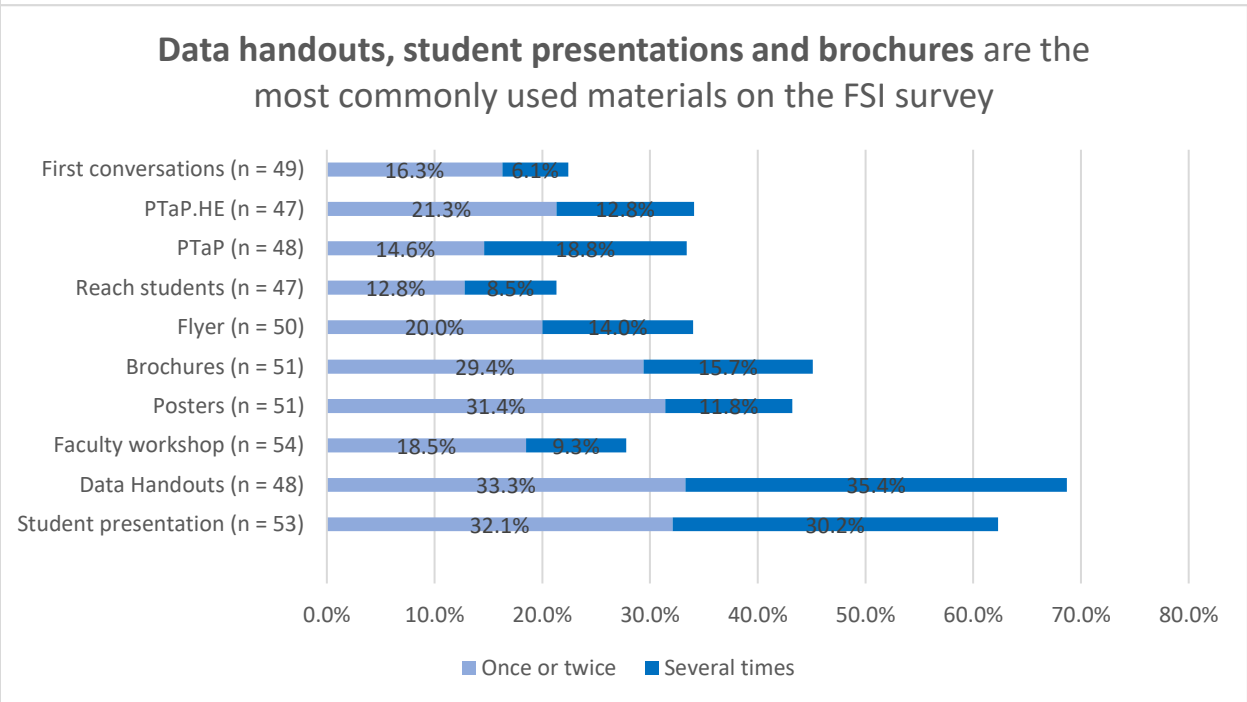
- A majority of respondents advised or informed students about teaching as a career path and salary information. - **20**
- Professors shared GFO information with faculty and students with some being through email, conversations, and individual meetings. – **15**
- Several professors shared GFO information through some sort of advertisement which includes Brochures, Online Posts, Flyers, Posters, and Videos. – **12**
- Several respondents taught about GFO statistics in their respective classes. – **8**
- A few professors made or used presentations of GFO information. – **7**
- A few professors used GFO information in order to recruit teachers. A couple of these recruitment efforts were for the NOYCE program. - **6**
- A few professors shared the survey with students and other faculty. - **5**

Year 1 results were fairly similar to Year 3

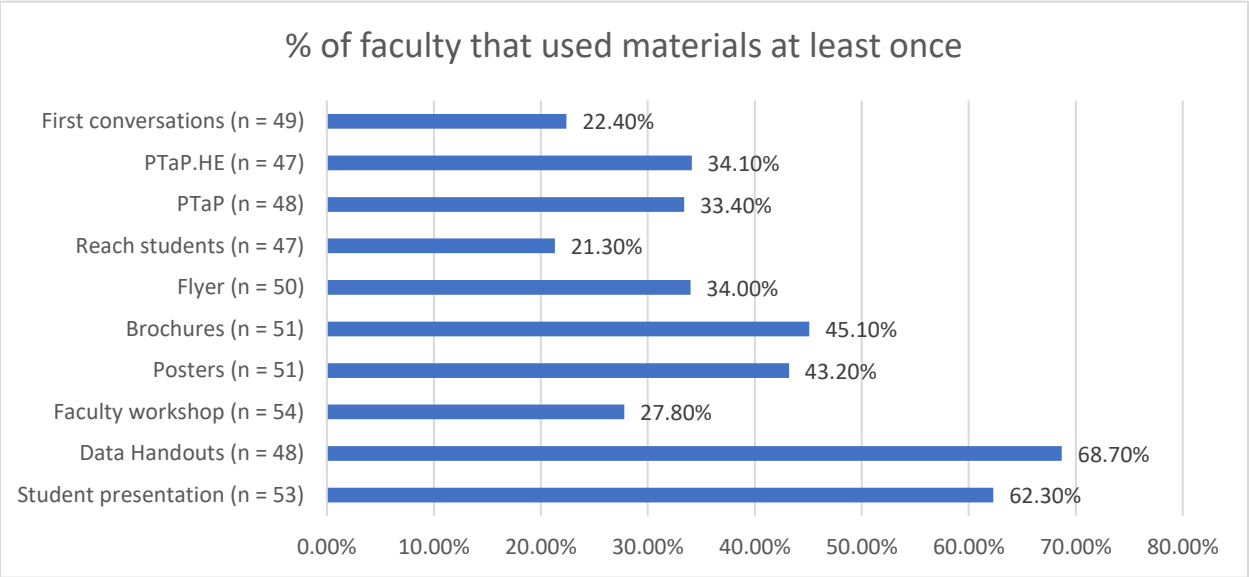
- Shared materials in class through presentations - **12**
- Discussed with colleagues, faculty, and students wanting to go into the teaching field – **9**
- Have not used materials yet – **4**
- Gave workshops to students and faculty – **3**
- Shared materials in advising meetings – **3**
- Used pamphlet, brochures, and posters for recruitment efforts – **3**
- Modified data to reflect local data (Virginia) and our specific department - **2**
- Talked about teacher salaries – **2**
- Distributed materials at a conference I attended
- Integrated them into NOYCE scholars program

Respondents were asked how frequently they have used GFO materials including, student presentation, faculty workshop, posters, brochures, flyers, reaching students via various venues, PTaP survey, PTaP.HE survey, and first conversations guide





Year 1 had similar results for frequent use of materials. Student presentation, brochures, and flyers were the most used materials. The only discrepancy was that Year 3 had a significant number of respondents use the PTaP student survey.



Other responses include:

- I've just used word-of-mouth information.
- I didn't answer two because I didn't know what they meant.
- I do not know what a PTaP or PTaP.HE survey is.

Respondents were asked if they used GFO data in their recruitment efforts without using the pre-made sources. Some gave simple yes or no answers. The elaborated answers are summarized below:

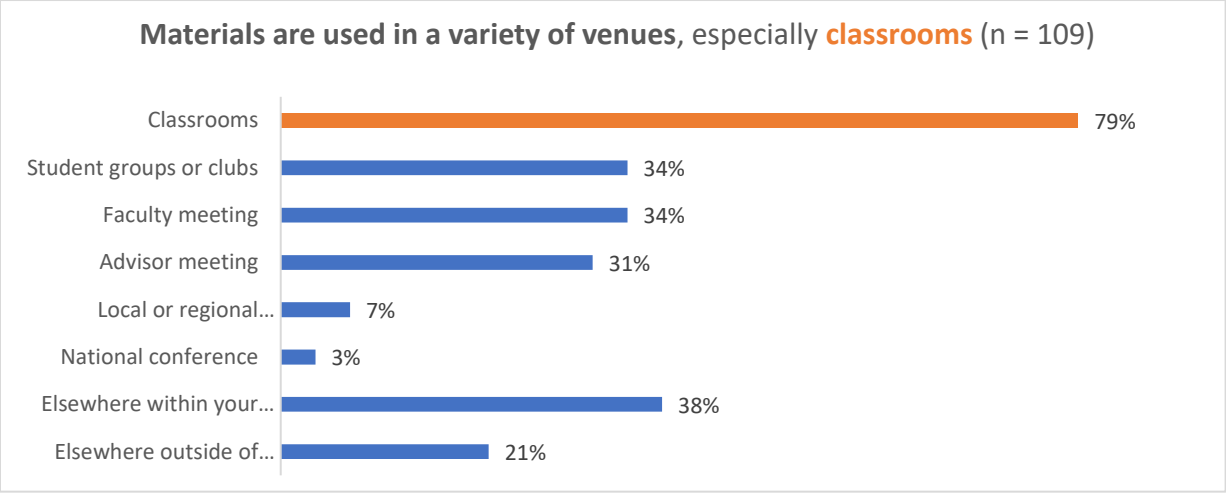
Yes: (18 – 58.1%)

- Incorporated GFO slides and facts into current class materials, presentations, and custom exercises – **8**
- Modified/Added info on posters, brochures, flyers, slide decks. Some to reflect local data. - **3**
- Communicated with students about information through email, message boards, or 1-on-1 conversations. - **3**
- Used facts to show students how teaching in STEM is a feasible career. – **3**
- Used Slide Decks and Flyers

No: (13 – 41.9%)

- Found GFO resources to be comprehensive and effective
- Curious about information meeting
- Does not talk with students

Respondents were asked in which venues they have used GFO messages or materials.



Other responses include:

- In 1-on-1 conversations primarily in office hours - **2**
- Provost's meetings of academic leaders on campus
- Department website
- Math and science events on campus
- Webpage

Respondents (faculty that have heard of GFO and HAVE used the materials) were asked if there were other ways that GFO has influenced them, other than the use of specific materials. The elaborated answers are as follows:

- No - **5**
- Salary and satisfaction info is impactful/changed perspectives - **5**
- Busted teaching myths/Correcting misconceptions - **3**
- Increased confidence/decreased discouraging for recommending teaching as a profession - **2**
- Changed focus of department to do more recruiting
- Started implementing info into teaching and course content

Year 1 results featured similar and different results compared to Year 3

- Better informed about teacher salary and retirement benefits – 2
- Perception towards 7-12 science teaching is more favorable
- Having accurate and up-to-date info changed my mind and allows to provide correct evidence to students
- Fixed some of my misconceptions
- More proactive in sharing info about the critical shortage of HS STEM teachers
- Easier to advise students
- Confirmed my commitment to preparing teachers
- Suggestions for recruitment strategies

Respondents were asked which of the materials they found the most helpful and if they were pleased with the outcome. The responses are as follows:

- Posters and data revolving around teacher satisfaction and salaries including regional data- **6**
- Flyers and slide decks – **4**
- Organization of website – **2**
- Have not seen the materials - **2**
- Data sheets
- Brochures and fact sheets were useful for students considering multiple career paths
- Challenge of answering the survey questions honestly and considering how valuable grade 7-12 teachers are
- The pre-made materials. Not sure about outcome yet. No increase in chemistry teachers.

Year 1 results were similar other than the mythbusters presentation and different facts.

- Brochure – **5**
- Flyer – **2**
- All have been helpful – **2**
- Presentations – **2**
- Too soon to say – **2**
- Pamphlet
- Pre-existing presentation is easy to start, I will modify as needed
- Prepared power points and sharable workshop materials
- Facts about pensions and geographic mobility

Respondents were asked what challenges they encountered when presenting these materials.

- No challenges - **9**
- Incorporating local data takes time, but makes an impact (Worcester Polytechnic Institute, MA)
- Time is an issue. Just give me something to hand out with talking points and I will do it.
- Access to faculty. Data mining makes more progress at changing misconceptions, but its hard to get the time for it.
- Overcoming political bias. Education is often used politically citing low pay, horrible conditions, etc. GFO does a good job making clear, correct, and non-political info.
- Students don't read the information and don't want to be teachers
- Having info handy/being organized
- Trying to engage over Zoom
- GFO website is mostly written – helpful to have other displays of info for differently-abled people who prefer audio or video information

Year 1 results were fairly different. The one similarity was struggles in finding local data. Every other response brought up a unique point.

- Hard to convince students/not enough interest in teaching – **3**
- Struggled to find local data/info – **3**
- Poor resolution of materials
- GFO slides too long/took too much time
- Printing costs
- Quality of life slide not effective
- Difficult for participants in conversations to stop talking because they become so passionate about the information

Responses about modifying materials

Respondents were asked if they have modified any of the GFO materials to better suit their needs.

Values	**Total** (excl. missing for question)	
	49	
	#	*%*
Yes	14	28.6%
No	35	71.4%

Year 1 had 10 respondents answer yes and 10 answer no.

The specific materials that were modified are summarized below:

- Presentations/slides - **6**
- Flyers - **4**
- Posters - **3**
- Brochure - **2**
- Regional location information
- Paraphrased webpage info

How did you modify them?

- Adopted local data - **3**
- Adjusted dates for recruitment sessions
- Incorporated pieces of them into interactive web exercises
- Made it discipline specific: Math, Chem, Physics, etc.
- Changed names of schools and figures
- Merged, reframed, and trimmed some material and info
- Paraphrased
- Added personal and dept. contact info
- Photos of students
- Streamlined or made relevant

Year 1 results were very similar to Year 3.

- Added local salary and benefit information – **3**
- Added department information – **2**
- Modified template due to poor resolution
- Eliminated slide
- Re-created my own data tables
- Added our own materials

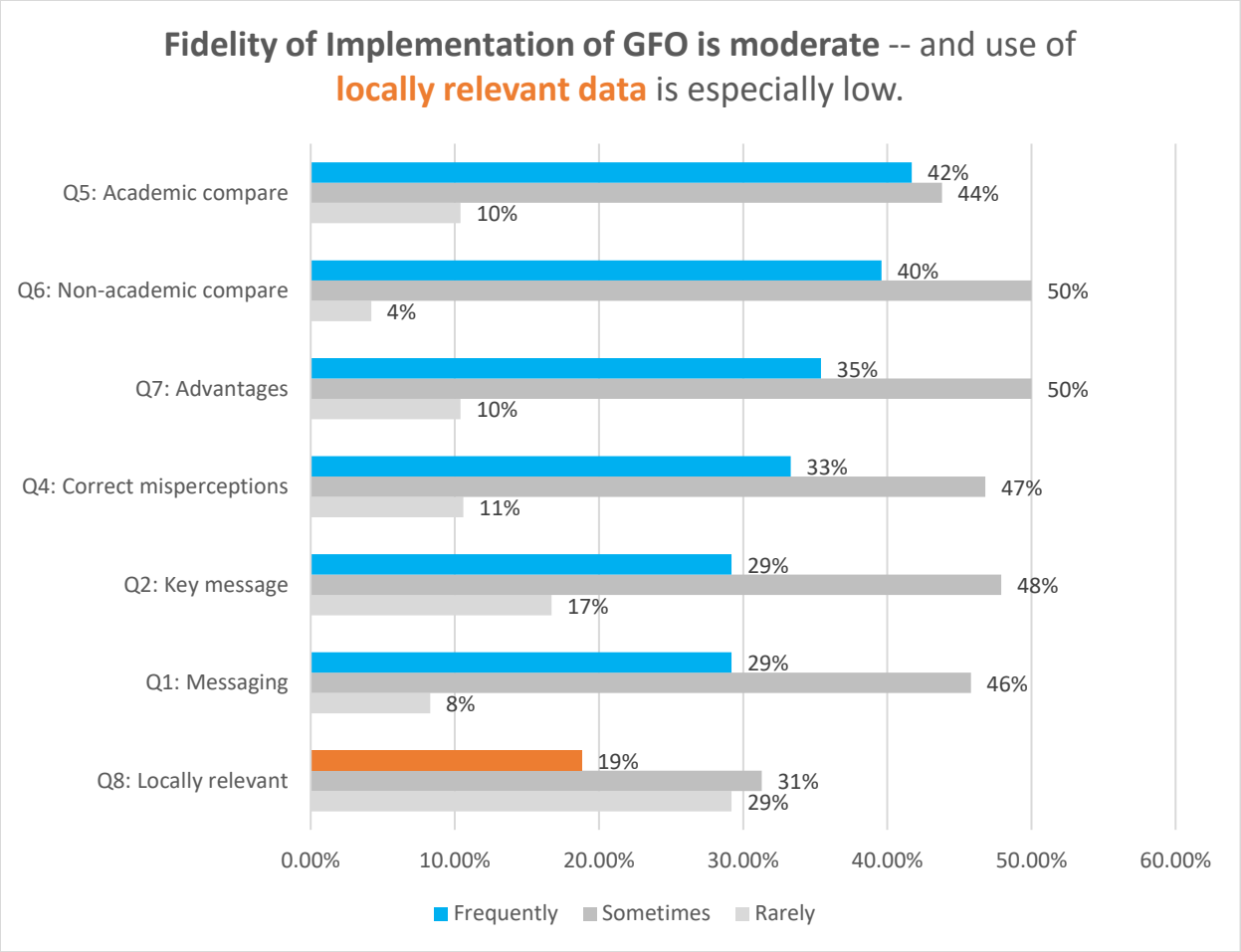
Why did you modify them?

- Made slides more relevant for audience/specific area - **6**
- Recruit students to specific time and place
- Made presentations more interactive
- Customized to a broader range of STEM disciplines
- Made to be more discipline specific. Too much variation between science disciplines for a general brochure
- Target audience was mixed, so I needed to modify to engage audience differently
- Language and continuity of webpage
- Tested to see if they could modify

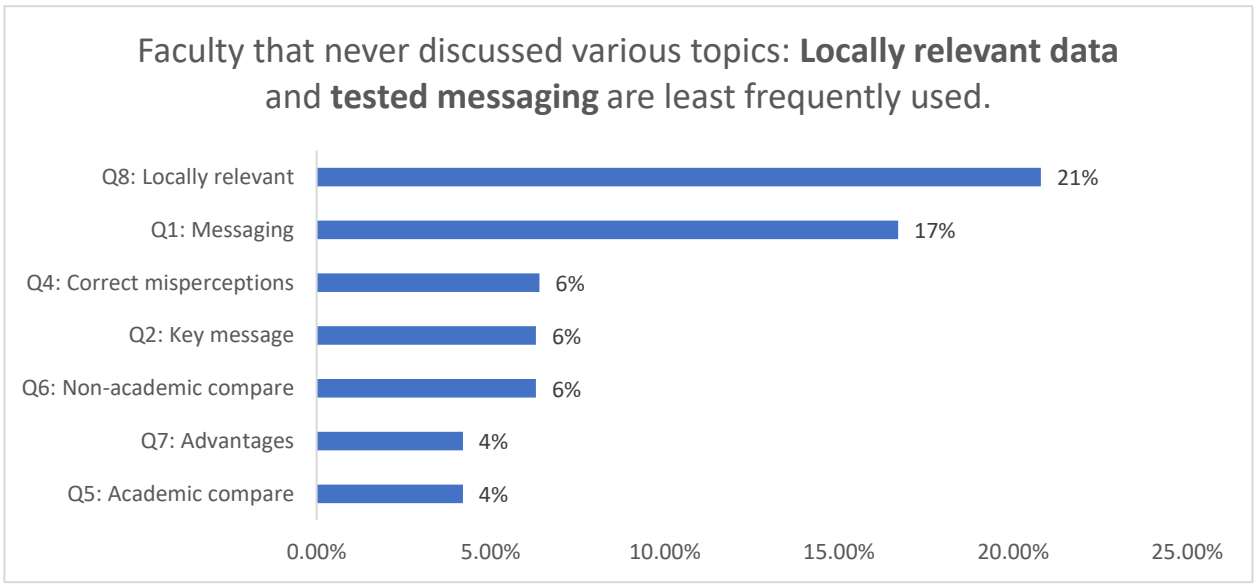
Future usage or non-usage of GFO resources

Respondents were asked how often they discussed these various topics while discussing grade 7-12 teaching, since GFO, including:

1. Used messaging from GFO
2. Emphasized the key message of GFO in interactions with others
3. Avoided voicing misperceptions about teaching as a profession
4. Corrected common misperceptions about teaching as a career when voiced
5. Compared benefits of teaching as a profession to other academic careers in a positive light
6. Compared benefits of teaching as a profession to other non-academic careers students can get with the same degree in a positive light
7. Mentioned less commonly known advantages of teaching as a profession, such as work-life balance or flexibility in the classroom
8. Shared locally relevant data about teaching as a profession

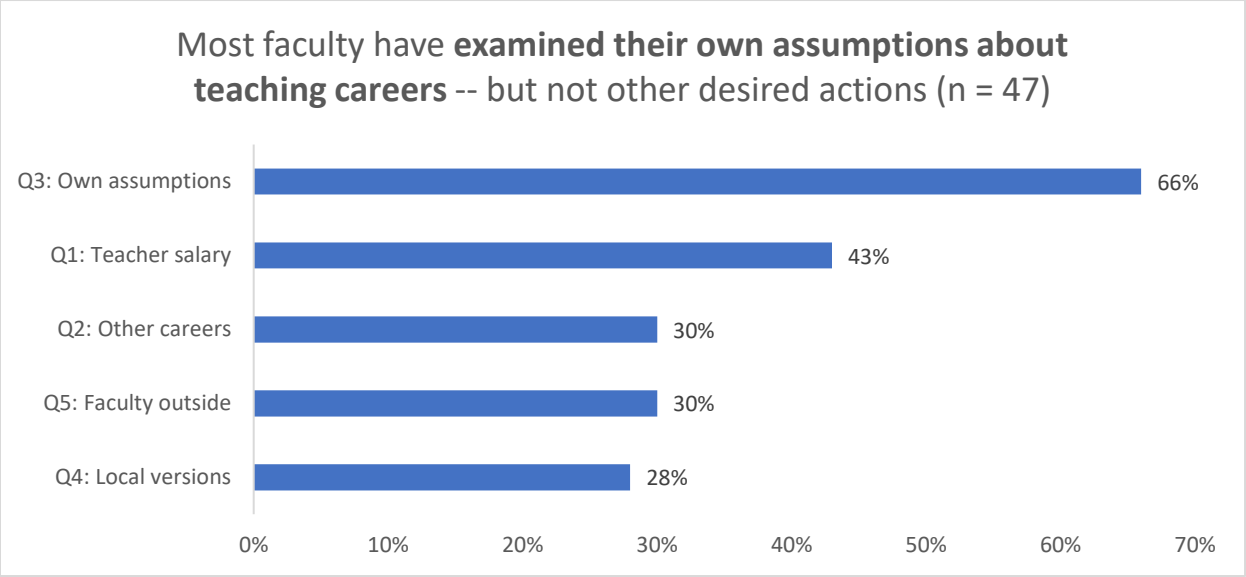


(Omitted question 3 due to poor wording that skewed results)

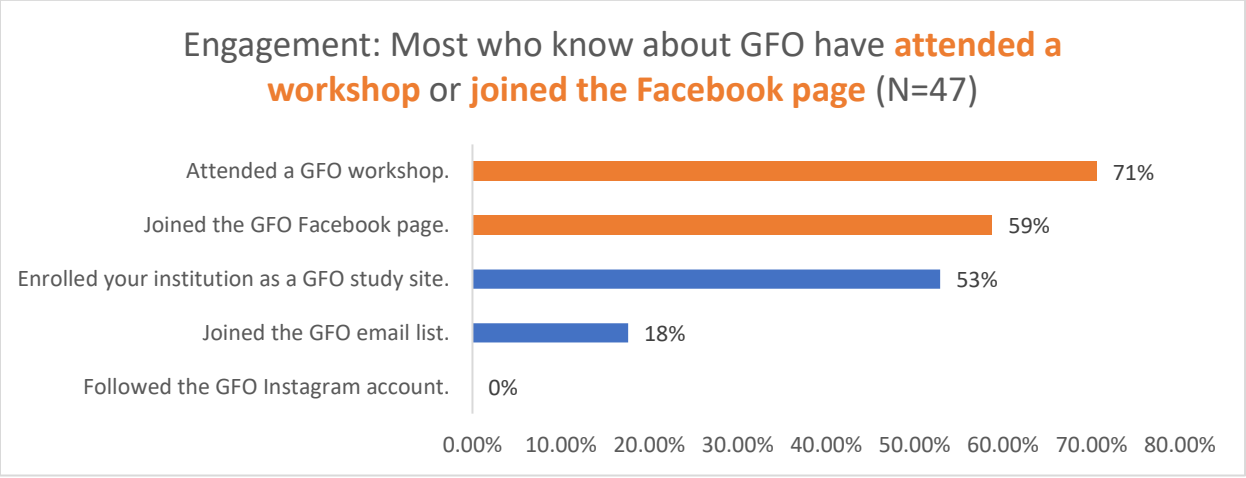


Respondents were asked since learning about GFO if they have:

1. Looked up or examined local salary, retirement, and other benefit data for grade 7-12 teachers.
2. Looked up or examined local salary, retirement, and other benefit data for other careers students can get with the same degree.
3. Examined your own assumptions or perceptions of grade 7-12 teaching as a career
4. Created local versions of GFO resources or materials.
5. Spoken to faculty outside of your institution about GFO



6. Attended a GFO workshop
7. Joined the GFO Facebook page
8. Joined the GFO email list
9. Followed the GFO Instagram account
10. Enrolled your institution as a GFO study site



Other responses:

- Through AAPT, PhysTEC, and GFO
- Data requests. Discussions of alternative ways to engage students. Suggestion on PTaP
- Became a change agent and mentor champions
- Email list

Respondents were asked if they have any other comments or suggestions for the GFO team.

- How to recruit during a pandemic? Losing teachers faster than replacement
- How to find local data/info? (CSULB)
- I already encourage students to pursue teaching so the project was an irritant, but hopes it does some good and gets more students to consider teaching
- This is all well and good, but our department does not have time to present this information
- Very valuable resource. Keep it up!
- Some wording on survey questions can skew results
- Information source
- Salary info is probably accurate nationwide, but not locally.
- Survey is too long. Find 20 most important questions and go with that.

Year 1 results:

- Wording of question 60 is rather odd. (*How frequently have you used the following GFO materials)* The phrasing makes it seem like a yes or no question. The option of frequently does not seem appropriate since you only need to do it once a year. - **3**
- Slides need to be updated with cuts to loan forgiveness program from Trump administration
- I have only used the presentation. I do not have access to the other materials, but would love to have them – and the ability to modify for my institution
- I just heard of the program a month ago. I will probably do lots of the things you are asking about this summer, but I have not gotten to them yet.

Respondents (faculty that have heard of GFO, but have NOT used the materials) were asked if there were other ways that GFO has influenced them, other than the use of specific materials. Most responses said "no" and the other responses include:

- Use it indirectly
- Corrected misperceptions
- I have to read and absorb the material
- Salary and benefit info help disproved preconceptions, but I don't believe those facts are true in Utah
- Positive perspective on teaching as a career
- Share facts I learned from a GFO presentation with students
- Not really. Good intention, but a hopeless goal since this information is not appreciated by society. It feeds more talented kids into a frustrating and thankless career.

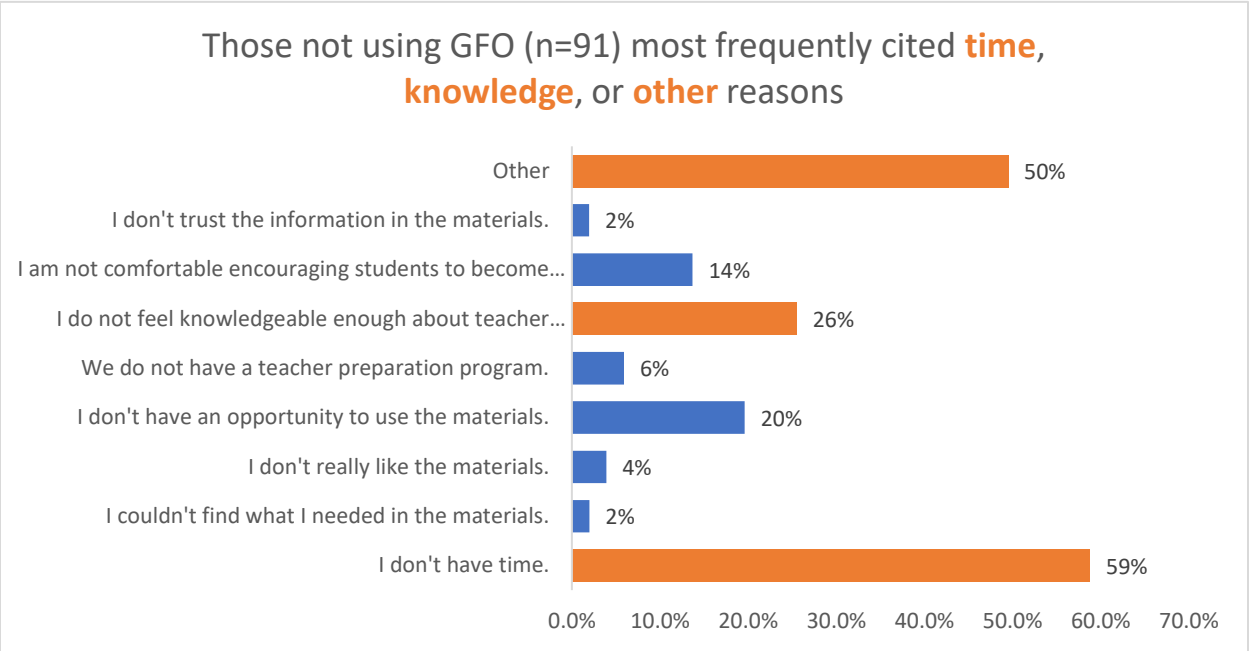
- Facts are useful in discussion with others and are surprising
- Learning the facts has helped me better contextualize teaching careers in comparison to my impressions of academic and industry careers.
- I have only heard the name
- I support all types of STEM careers. Interesting to learn about the misconceptions
- Filling out the surveys and seeing the information after I fill it out
- I only became aware of the materials yesterday
- ACS membership

Respondents were asked if they would be interested in using some of the GFO materials on their campus.

Values	**Total** (excl. missing for question)	
	131	
	#	*%*
Yes, I am interested	56	42.7%
No, thank you	75	57.3%

For those respondents that replied no, we asked if they could tell us the main reason why they do not plan on using GFO materials.

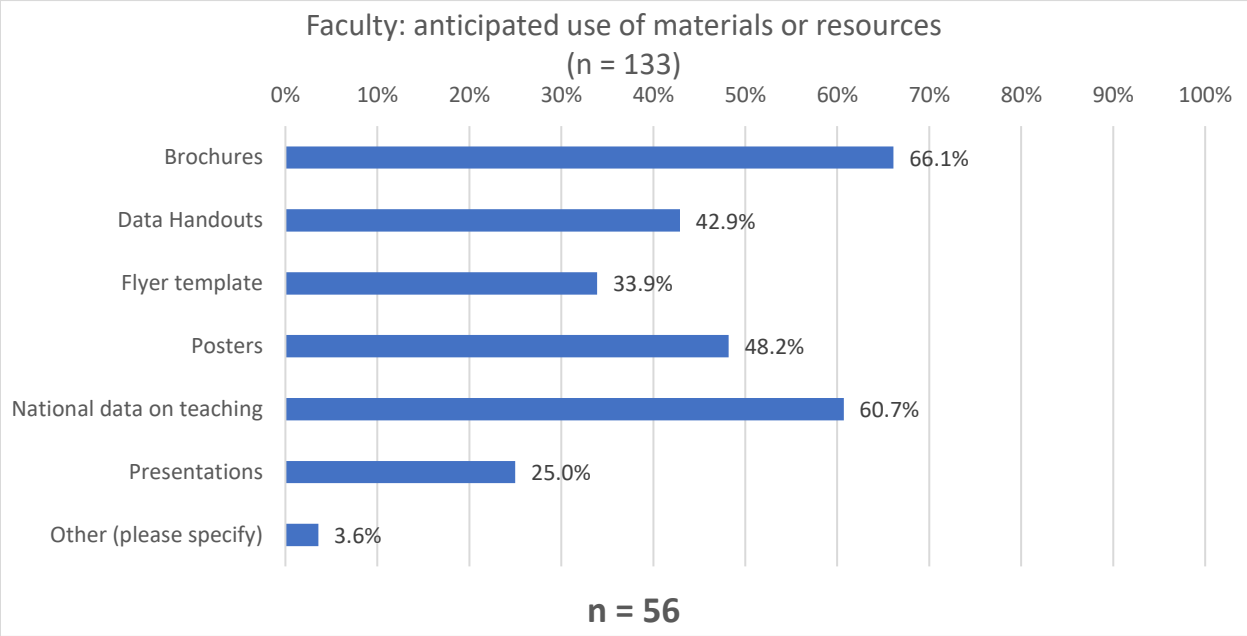
1. I don't have time
2. I couldn't find what I needed in the materials
3. I don't really like the materials
4. I don't have an opportunity to use the materials
5. We do not have a teacher preparation program
6. I do not feel knowledgeable enough about teacher preparation to use these materials
7. I am not comfortable encouraging students to become teachers
8. I don't trust the information in the materials
9. Other



Other responses:

- We have other faculty who focus on this info – **5**
- I work remotely – **2**
- The framing of salary and satisfaction seems misaligned with my needs
- I deal with this in other ways. Not opposed to it, just not something I need.
- I guess it isn't the site ai
- Material on website seems redundant to material out there
- Already have these materials
- Talk to classes and refer them to additional people and resources
- Not sure when I can post the info
- I personally shy away from direct advocacy of this sort, though I'm interested in knowing the facts
- I didn't expect this to take this long. I'm frustrated and have other things to do
- I can look them up on the website when needed
- We already have them and participate
- I will direct others to the material, but I don't plan to present it in a class
- I try to use GFO messages embedded into my regular instruction.

For those that replied yes, we asked <u>which of the materials they would use</u>.



Other responses include:

- Email information
- Invited speakers

We asked respondents <u>how they anticipate using these materials.</u>

- Share/discuss with or handout materials to students via email, class, or meetings – **22**
- Posting materials and information in visible places for students – **9**
- Share with advisors/use in advising meetings - **9**
- Share/make available to department – **2**
- Passively

We asked respondents <u>why they anticipate using these materials</u>.

- Help students make informed decisions and figure out their careers – **12**
- Teaching is a valuable career and we need more science teachers – **7**
- To get information out during lectures - **3**
- Help get more students into the teaching field – **3**
- They are easier to hand out - **2**
- Students should be aware of how to transition into the field of teaching
- Students often think about changing their major
- Students spend a lot of time in the department and are likely to pick them up or read them while studying or doing research
- They are passive