

## Supporting Information (SI Appendix)

### Widespread distribution and unexpected variation among science faculty with education specialties (SFES) across the United States

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## SI Appendix Materials and Methods

### 1. Sample and data collection

#### a. Overview

Science Faculty with Education Specialties (SFES) are defined as individuals in science departments who self-identify as university science faculty or academic staff members who take on specialized roles within science education in their discipline, either as part of their official job expectations or because they chose to focus on science education beyond their own classroom teaching and more than typical faculty in science departments. The research design for this study used a non-probabilistic, non-randomized sampling approach that generated a sample that may or may not be representative of the entire population of SFES. Below we describe the reasons for choosing this method of sampling, efforts made to make the sample as broad as possible, and the relationship between the sampling method and our interpretation of the results.

#### b. Rationale for employing a non-probabilistic, non-random sampling approach

The primary rationale for employing a non-probabilistic, non-random sampling approach in this study was that U.S. SFES are an emerging phenomenon that has not previously been described or characterized. There are currently no sources to which we could go that could provide a national list of SFES (i.e., sampling frame) from which we could have constructed a probabilistic, randomly selected sample of SFES.

#### c. Efforts made to maximize the breadth of the sample within this approach

Given that a probabilistic, randomized sample was not possible, we employed a volunteerism approach to construct a broad convenience sample that could provide information on the nature and extent of SFES across the U.S. To maximize the breadth of this convenience sample, we developed a list of likely SFES who would be eligible study participants. This was accomplished through a National SFES Search conducted via email between September 2009 and March 2011. Invitations for individuals to self-identify as SFES were sent to over a dozen professional societies in the sciences that have members involved in science education, as well as to multiple science education societies. Recipients of these invitations were further asked to forward the invitation to other individuals who they thought were likely to be SFES. The result was a database of 973 individual names of likely SFES with contact email addresses.

Inclusion criteria to be invited to participate in this first study of SFES in the U.S. were intentionally kept broad, so as to minimize exclusion and have a convenience sample with as much breadth as could be achieved. Of the registrants from the National SFES Search, there were 841 individuals who self-identified as SFES, who were located inside the U.S., and who were identified as college- or university-based educators, and who included an email address. These individuals constituted our convenience sample and were invited by email to participate in our study and to forward the study invitation to other likely U.S. SFES. Between March and June 2011, 427 individuals participated in our national study without compensation. Assuming that the majority of those participants had previously registered with us as likely SFES, ~44% participated in the study.

Of the 427 surveys we received, the following were excluded from analysis: incomplete surveys ( $n = 77$ ), surveys submitted by individuals who reported they were: a graduate student ( $n = 1$ ), a postdoctoral fellow ( $n = 2$ ), not SFES ( $n = 40$ ), or not in a science department ( $n = 18$ ). Analyses presented are based on data

from 289 individuals with n-values for responding SFES varying per question. To prevent inadvertent or indirect disclosure of research participants, data were reported in aggregate.

#### **d. The relationship between the sampling method and interpretation of the results**

Given the level of knowledge of SFES at the current time and the necessity of using a non-probabilistic, non-random, non-comprehensive sampling approach, our results may not be representative of the entire U.S. SFES population. We offer a few additional considerations about our sample. First, the data are self-reported and may suffer from over-reporting at the extremes, i.e., there may be more responses from faculty who want to vent or to brag. Second, for smaller subgroups only larger effect sizes would have been detectable, e.g., comparisons between Geosciences and Physics require effect sizes greater than 30%. Another limitation is that the sample had too few respondents from community colleges (AA-granting institutions) to include their data in statistical comparisons by institution type; such comparisons were limited to SFES from PhD-granting, MS-granting, and primarily undergraduate institutions. Despite these limitations, we believe the data provide some useful measures of the SFES model at the national level. We anticipate that readers will be interested in considering to what degree the findings generalize to their own institution and discipline. Furthermore, the findings can inform discussions about U.S. science faculty engaged in science education efforts, including assumptions and potential impact associated with these positions.

### **2. Statistical analyses**

We completed Pearson's chi-squared and McNemar's tests to compare SFES subpopulations at the  $P < 0.05$  level. Chi-squared statistics are Pearson's unless specifically noted to be McNemar's. Pearson chi-squared tests of independence were used to assess whether paired observations, e.g., responses of SFES from different institution types, were independent of each other. A chi-squared probability of  $< 0.05$  was used to justify rejecting the null hypothesis that the values were unrelated to each other. McNemar's test (1) was used to compare paired proportions, such as comparing SFES from different institution types and disciplines who were "seriously considering leaving" their "position" or "field." A chi-squared probability of  $< 0.05$  was used to justify rejecting the null hypothesis that there were no differences between two correlated proportions, such as the proportions of faculty responding about leaving their position and field. Logistic regression analysis was used to test for factors associated with funding success in science education. Logistic regression was carried out using IBM SPSS Statistics Version 20. Results and evidence supporting the constructed model are summarized in Tables S8 and S9. Probability values less than 0.05 were used to reject the null hypothesis for all statistical tests.

In order to describe a more complete picture of SFES at each institution type, non-tenure/d-track SFES were included in the descriptive and statistical analyses. Inclusion of non-tenure/d-track SFES did not change statistical significance at the  $P < 0.05$  level.

### **3. Operational Definitions**

**a. Other Science.** SFES positions were distributed across four science discipline departments [Biology (39.4%,  $n = 114$ ), Chemistry (23.9%,  $n = 69$ ), Geosciences (8.3%,  $n = 24$ ), and Physics (14.2%,  $n = 41$ )], as well as Other Science (12.1%,  $n = 35$ ). "Other Science" represented positions not clearly designated as one of the previous four science disciplines, and examples include departments of Life and Environmental Sciences, Natural Sciences, Physical Sciences, Veterinary Science, and Exercise Science.

**b. Other Institution Types.** SFES positions in our sample represented all types of U.S. institutions of higher education, including community colleges (2.4%,  $n = 7$ ), primarily undergraduate institutions (22.8%,  $n = 66$ ), Master's-degree granting institutions (22.1%,  $n = 64$ ), Ph.D.-granting institutions (50.2%,  $n = 145$ ), and Other institution types (2.4%,  $n = 7$ ). "Other institution types" represented institutions that SFES respondents found hard to categorize as one of the previous four institution types, and examples include medical science, other health science, and field stations.

**c. Hired-SFES and Transitioned-SFES.** Two subpopulations of SFES were identified: Hired-SFES (49.1%,  $n = 142$ ) were specifically hired to fill SFES roles and Transitioned-SFES (34.6%,  $n = 100$ ) transitioned to SFES roles from their initial faculty roles (2, 3), while the remaining SFES were unsure

(16.3%,  $n = 47$ ). PUI SFES had the lowest proportion of Hired-SFES compared to MS-granting and PhD-granting institutions ( $P = 0.002$ ).

**d. Formal Training.** Formal training in basic science was defined as post-baccalaureate training by way of a postdoctoral position and/or Ph.D. or M.S. degree. Formal training in science education was defined as post-baccalaureate training by way of a postdoctoral position, Ph.D. or M.S. degree, K-12 teaching credential, and/or NSF GK12 or another graduate fellowship in science education.

**e. PhD SFES, MS SFES, and PUI SFES.** The analyses for SFES differences by institution type focused on three sub-populations: SFES at Ph.D.-granting, M.S.-granting, and Primarily Undergraduate Institutions, respectively labeled as PhD SFES, MS SFES, and PUI SFES. These terms are merely labels that signify the institution type of the SFES, not the level or type of training held by individual SFES.

## SI Appendix Additional Analyses

### 1. SFES Disciplinary Distribution

SFES were found across disciplines and across institution types (Table S1).

### 2. SFES Differences Across Institution Types

Because of a low response rate, respondents from Community College and Other institution types were excluded from analyses by institution type.

**a. SFES Perceptions of Time Spent on Professional Activities.** When asked about time spent on professional activities relative to non-SFES peers, the profiles of PhD SFES compared to MS and PUI SFES diverged for both teaching and research (Table S2).

**b. The Structure of SFES Positions.** SFES positions, in terms of rank and tenure-status, diverged across institutions types (Tables S3, S4, and S5).

**c. SFES Perceptions of Job Expectations.** Perceptions of job expectations diverged among PhD, MS, and PUI SFES. Many SFES (60.7%) reported having similar job expectations compared to non-SFES peers, however PhD SFES had the lowest proportion (49.3%) reporting so, compared to MS SFES (69.4%) and PUI SFES (74.2%;  $\chi^2 = 14.0$ ,  $df = 2$ ,  $P = 0.001$ ). Specifically, some SFES reported job expectations that were similar to those of non-SFES with respect to obtaining external grant funding (58.4%), publishing peer-reviewed articles (67.2%), and mentoring research students (56.6%). In all cases, however, PhD SFES had the lowest proportions (44.9%, 51.1%, 43.6%) reporting that these job expectations were similar to those of non-SFES, in contrast to MS SFES (87.5%, 94.8%, 72.2%) and PUI SFES (66.1%, 77.4%, 71.7%) (respectively,  $\chi^2 = 28.3$ ,  $df = 2$ ,  $P < 0.001$ ;  $\chi^2 = 39.4$ ,  $df = 2$ ,  $P < 0.001$ ;  $\chi^2 = 19.4$ ,  $df = 2$ ,  $P < 0.001$ ).

**d. Formal Science Education Training.** A significantly higher proportion of MS SFES (60.9%) had formal training in science education than did PhD SFES (39.3%) or PUI SFES (34.8%;  $\chi^2 = 11.0$ ,  $df = 2$ ,  $P = 0.004$ ). For example, 32.8% of MS SFES had earned K-12 teaching credentials, compared to 15.2% of PhD SFES and 13.6% of PUI SFES ( $\chi^2 = 10.6$ ,  $df = 2$ ,  $P = 0.005$ ). Yet, MS SFES still had significantly higher proportions of individuals with formal science education training even when those with only K-12 teaching credentials ( $n = 16$ ) were removed from the analysis ( $\chi^2 = 8.2$ ,  $df = 2$ ,  $P = 0.017$ ). Of note, 42.2% of MS SFES had doctoral degrees and/or post-doctoral training in science education, compared to 30.3% of PhD SFES and 25.8% of PUI SFES.

**e. SFES Funding Success.** For the purpose of this analysis, we have defined funding success as obtaining \$100K or more in their current position. This is a metric of career funding success. In terms of reaching this \$100K threshold (Fig. 2Bb), a higher proportion of PhD SFES (51.4%) obtained funding to support Science Education Research, compared to MS SFES (33.9%) and PUI SFES (20.3%;  $\chi^2 = 18.9$ ,  $df = 2$ ,  $P < 0.001$ ). Similarly, a higher proportion of PhD SFES (46.8%) obtained funding to support Undergraduate Science Education, compared to MS SFES (30.6%) and PUI SFES (28.1%;  $\chi^2 = 8.6$ ,  $df = 2$ ,  $P = 0.013$ ). Higher proportions of PhD SFES (34.8%) and MS SFES (32.8%) obtained funding to

support K-12 Science Education, compared to PUI SFES (23.4%);  $\chi^2 = 2.7$ ,  $df = 2$ ,  $P = 0.026$ ). While we have used \$100K as our threshold for funding success, some SFES obtained over \$1 million in total funding: PhD SFES (37.6%), MS SFES (29.7%), and PUI SFES (19.7%).

In terms of those who applied for funding and obtained funding, the success rate for PhD SFES was higher in all three science education arenas than for MS and PUI SFES (Fig. 2Bc, Tables S6 and S7). For Science Education Research, the success rate for PhD SFES was 49.7%, compared to MS SFES (32.8%) and PUI SFES (19.7%;  $\chi^2 = 17.3$ ,  $df = 2$ ,  $P < 0.001$ ). For K-12 Science Education, the success rate for PhD SFES was 85.7%, compared to MS SFES (55.6%) and PUI SFES (62.5%;  $\chi^2 = 11.0$ ,  $df = 2$ ,  $P = 0.004$ ). For Undergraduate Science Education, the success rate for PhD SFES was 66.0%, compared to MS SFES (52.8%) and PUI SFES (51.4%;  $\chi^2 = 3.4$ ,  $df = 2$ ,  $P = 0.187$ ). These findings suggest an advantage for obtaining funding at PhD institutions.

### **3. Factors that Contribute to SFES Funding Success**

Logistic regression analysis identified four factors that were statistically related to science education funding success (Tables S8 and S9). Not surprisingly, SFES who applied for funding in science education ( $P < 0.001$ ) were 16.054 times more likely to receive funding in science education. Also, those in tenure track positions ( $P = 0.017$ ) were 2.323 times more likely to receive funding than those in non-tenure track positions. SFES at PhD institutions ( $P = 0.008$ ) were 3.054 times more likely to receive funding in science education than those at PUI institutions and 2.15 times more likely than those at MS institutions. Lastly, SFES who obtained basic science research funding ( $P = 0.022$ ) were 2.511 times more likely to receive science education funding. We were unable to detect significant correlations for disciplinary field ( $P = 0.582$ ), and quite strikingly, for formal training in science education ( $P = 0.302$ ).

1. McNemar Q (1947) Note on the sampling error of the difference between correlated proportions or percentages. *Psychometrika* 12:153-157.
2. Bush SD, et al. (2008) Science Faculty with Education Specialties. *Science* 322(5909):1795–1796.
3. Bush SD, et al. (2011) Investigation of Science Faculty with Education Specialties within the largest university system in the United States. *CBE Life Sci Educ* 10(1):25-42.

## **SI Survey Instrument**

### **A National Study of Science Faculty with Education Specialties (SFES)**

#### **Informed Consent Letter**

A National Study of Science Faculty with Education Specialties (SFES) in the United States

Dear Colleague,

You are being asked to participate in a research study conducted by Dr. Seth Bush from the Department of Chemistry & Biochemistry at Cal Poly San Luis Obispo. Dr. Bush is part of research team that includes: Dr. Nancy Pelaez at Purdue University, Dr. James Rudd at CSU Los Angeles, Dr. Michael Stevens at Utah Valley University, Dr. Kimberly Tanner at San Francisco State University and Dr. Kathy Williams at San Diego State University.

You were selected as a possible participant in this study because you were identified to us as a college or university science faculty or academic staff member who has specialized science education responsibilities beyond those of typical science faculty on your campus. Your participation in this study is voluntary.

#### **PURPOSE OF THE STUDY**

The purpose of this study is to investigate the characteristics, experiences, and responsibilities of Science Faculty with Education Specialties (SFES) in the United States.

#### **PROCEDURES**

You will be asked to complete an on-line survey that asks you questions about your current professional position and professional activities, as well as your perceptions about issues related to your position. If you volunteer to participate in this study, you will complete the survey anonymously using a secure website. You will be giving us permission to read, analyze, and report data resulting from your anonymous responses to the survey. The survey should take approximately 45 minutes to 1 hour to complete.

#### **POTENTIAL RISKS AND DISCOMFORTS**

You are unlikely to be exposed to any potential risks or discomforts by participating in this study.

#### **POTENTIAL BENEFITS TO YOU AND/OR SOCIETY**

There may be some direct benefits to you by participating in this study. You may find the survey enhances your awareness of one or more issues that impact your professional success. Reported findings may include information that would have the potential for improving your administrative support, financial support, and career opportunities. Higher education, and science education in particular, will potentially benefit from an investigation of the experiences of this group of faculty. University administrators, faculty candidates, and faculty hires will have data that may enhance hiring and retention success for this type of faculty position.

#### **PAYMENT FOR PARTICIPATION**

You will not be paid for participating in this research project.

#### **CONFIDENTIALITY AND ANONYMITY**

Your identity will be kept strictly confidential during the entire research process, and the survey data itself will be collected anonymously. We are interested in the set of responses as a whole, not a particular individual's responses. Anonymous data or findings from this study might be included in various publications or presentations. The survey data will be stored in a secure, locked location for up to five years from the collection date.

#### **PARTICIPATION AND WITHDRAWAL**

You can choose whether to participate, and you may withdraw from the study at any time. Choosing not to participate or choosing to withdraw at any point will mean that your responses will not be included in data analysis or reporting for research purposes.

## IDENTIFICATION OF INVESTIGATORS

If you have any questions or concerns about the study, please feel free to contact Dr. Bush, who can be reached at (801) 756-2746 or by email at [sbush@calpoly.edu](mailto:sbush@calpoly.edu).

## RIGHTS OF RESEARCH PARTICIPANTS

If you have questions or concerns regarding the manner in which the study is conducted, you may contact Steve Davis, Chair of the Cal Poly Human Subjects Committee, at (805) 756-2754, [sdavis@calpoly.edu](mailto:sdavis@calpoly.edu), or Susan Opava, Dean of Research and Graduate Programs, at (805) 756-1508, [sopava@calpoly.edu](mailto:sopava@calpoly.edu).

Thank you in advance for your time. Seth Bush

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\*1. I have read the procedures described above. By checking "Agree" below, I am electronically signing this document and consenting to participate in this study. Agree    Disagree

### **Overview ...**

While all college and university science faculty are education specialists in some regard through their teaching responsibilities, here we define Science Faculty with Education Specialties (SFES) as faculty either:

1) who have been specifically hired in science departments to specialize in science education beyond typical faculty teaching duties.

OR

2) who have transitioned after their initial hire to a role as a faculty member focused on issues in science education beyond typical faculty teaching duties.

This National Study of Science Faculty with Education Specialties (SFES) in the United States intends to collect descriptive information about SFES across different science disciplines and across different types of higher education institutions. In addition, the study also aspires to collect evidence from university science faculty or academic staff who occupy a variety of positions – not just tenured/tenure-track positions – and who are engaged in a variety of activities related to science education.

To capture the characteristics of this varied population, the survey contains the following eight sections:

1. On Your Position ...
2. About Your Teaching Activities ...
3. About Your Scholarly Activities ...
4. About Your Service Activities ...
5. About Your Professional Training ...
6. About Your Professional Satisfaction ...
7. For the Future ...
8. About You ...

At the beginning of each section, there will be an introductory page that gives an overview of the content of the section.

As SFES ourselves, we have attempted to streamline the survey to minimize the time required for its completion. That said, we have endeavored to create a survey that will enable you to fully describe your situation, with ample opportunity to provide optional, open-ended comments. You should expect to spend 45 minutes to 1 hour completing this survey. To minimize potential technical difficulties in completing the survey, we encourage you to complete it in one sitting if at all possible. If this is not possible, please continue to use the same computer and the same browser, so that you can return to your same survey in progress.

While we have designed this survey to capture the SFES experience for individuals across disciplines and types of institutions, we acknowledge that there may be places where you are unable to fully express the

nature of your current professional position. Please use the comment boxes at the end of each section and at the end of the survey to share additional information about your situation that you feel is important.

Thank you in advance for your time and thoughtfulness in completing the survey.

### On Your Position ...

In this section of the survey, you will be asked about whether you consider yourself an SFES, the characteristics of your current academic position, and how others in your institution may perceive your position.

2. What year were you hired into your current position? Year: (XXXX)

3. Consider your current position. Mark all that apply.

I have specialized science education role(s) beyond typical science faculty on my campus and beyond my classroom teaching.

Specializing in science education was part of my official job expectations when I was hired.

Specializing in science education was NOT part of my official job expectations when I was hired but it IS CURRENTLY.

Specializing in science education has NEVER been part of my official job expectations.

I am enfranchised in my campus's academic governance system (e.g., I am able to serve on the faculty senate or vote at faculty meetings).

My current position is a tenured/tenure-track position.

I had tenure before first adopting a specialized science education role.

I am a university science faculty or academic staff member.

None of these apply.

4. At what rank were you hired in your current position?

Emeritus	Lecturer	Other
Full	Instructor	If Other, please elaborate.
Associate	Adjunct	
Assistant	Visiting Professor	

5. What is your current rank?

Emeritus	Lecturer	Other
Full	Instructor	If Other, please elaborate.
Associate	Adjunct	
Assistant	Visiting Professor	

Based on our definition of SFES as faculty either:

1) who have been specifically hired in science departments to specialize in science education beyond typical faculty teaching duties. OR

2) who have transitioned after their initial hire to a role as a faculty member focused on issues in science education beyond typical faculty teaching duties.

6. Do you consider yourself to be a Science Faculty with an Education Specialty (SFES), as described above? Yes No, I don't consider myself to be an SFES because ... (please comment)

7. Which of the following best describes your current position as a Science Faculty with an Education Specialty (SFES)?

I was HIRED into a science faculty position, specifically to specialize in science education beyond typical faculty teaching duties

I TRANSITIONED into a specialized science education role, beyond typical faculty teaching duties, after being hired into a science

I am not sure either of these choices best describes my position because ... (please comment)

8. What is the full name of the SCIENCE DEPARTMENT that houses your position? \_\_\_\_\_

9. Which field designation best reflects the SCIENCE DEPARTMENT that houses your current position?  
 Biology Chemistry Geoscience Physics Other If Other, please elaborate.
10. Were you hired 100% into this SCIENCE DEPARTMENT?  
 Yes No. Briefly describe how your appointment is structured. \_\_\_\_\_
11. Approximately what percentage of your current appointment (assumed to be 100%) is ...  
 to the SCIENCE DEPARTMENT that houses your position? (0%-100%, by 5% increments)  
 outside of the SCIENCE DEPARTMENT that houses your position? (0%-100%, by 5% increments)
12. Which best describes your INSTITUTION?  
 Institution Type: Public Private Other  
 Student Enrollment: Less than 500; 500-999; 1000-4,999; 5000 - 9,999; 10,000-19,999; 20,000-29,999; more than 30,000  
 Institution Classification:  
 Community College or two-year degree granting Institution  
 Primarily Undergraduate Institution  
 Master's-degree granting Institution  
 Ph.D.-granting Institution  
 Other  
 Institution State: (US States and Territories)  
 Other (please specify)
13. Not including yourself, does your department or college currently have any Science Faculty with Education Specialties?  
 Department: Yes No  
 College: Yes No  
 Other (please specify): Yes No
14. Please choose one of the following responses to indicate to what extent you agree with each statement.  
 Strongly agree Agree Disagree Strongly disagree No basis for judgment  
 I am fulfilled by my current position.  
 I am doing the job I thought I was hired to do.

**About Your Teaching Activities ...**

Considering your current position.

In this section of the survey, you will be asked about the TEACHING activities, responsibilities, and opportunities you have as an SFES. Please only consider the activities associated with your current position in answering the questions below.

15. Compared to typical non-SFES faculty members in my department, I currently teach \_\_\_\_\_ units per quarter or semester.  
 many more  
 more  
 about the same number of  
 fewer  
 far fewer  
 no basis for judgment  
 Please feel free to comment on the amount of time you spend on teaching. \_\_\_\_\_
16. Have you taught or are you currently teaching courses in the following categories? Mark all that apply.  
 Lower division majors core  
 Upper division majors core  
 Majors elective  
 General education



Service courses for other programs (not related to K-12 teacher training)  
Interdisciplinary courses  
Graduate majors core  
Graduate majors elective  
Methods course for future K-12 teachers  
Science courses specifically for future K-12 teachers  
Science courses specifically to support in-service K-12 teachers  
Undergraduate level courses in science education  
Graduate level courses in science education  
None of these apply  
Other courses (please specify)

17. Are there courses that you are currently expected to teach that non-SFES faculty are NOT expected to teach? Yes No

18. Are there courses in the following categories that you are currently expected to teach that non-SFES faculty are NOT expected to teach? Mark all that apply.

Lower division majors core  
Upper division majors core  
Majors elective  
General education  
Service courses for other programs (not related to K-12 teacher training)  
Interdisciplinary courses  
Graduate majors core  
Graduate majors elective  
Methods course for future K-12 teachers  
Science courses specifically for future K-12 teachers  
Science courses specifically to support in-service K-12 teachers  
Undergraduate level courses in science education  
Graduate level courses in science education  
None of these apply  
Other courses (please specify)

19. Are there courses that you are currently precluded from teaching because of your SFES status?  
Yes No

20. Which of the following categories of classes are you currently precluded from teaching because of your SFES status? Mark all that apply.

Lower division majors core  
Upper division majors core  
Majors elective  
General education  
Service courses for other programs (not related to teaching)  
Interdisciplinary courses  
Graduate majors core  
Graduate majors elective  
Methods course for future K-12 teachers  
Science courses specifically for future K-12 teachers  
Science courses specifically to support in-service K-12 teachers  
Undergraduate level courses in science education  
Graduate level courses in science education  
None of these apply  
Other courses (please specify)

21. Please choose one of the following responses to indicate to what extent you agree with each statement.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment  
I am currently fulfilled by my teaching activities.  
I am teaching the courses that I thought I was hired to teach.  
I am teaching course(s) that I do not want to teach because I am an SFES.  
I am teaching course(s) that I did not expect to teach because I am an SFES.

22. Please feel free to make additional comments about your teaching situation as an SFES. \_\_\_\_

In this section of the survey, you will be asked about the SCHOLARLY activities, responsibilities, and opportunities associated with your current academic position.

Here, we define scholarly activities broadly. Scholarly activities can include research, but are not limited to research. Below, you will be asked questions about four specific arenas of scholarly activities in which SFES may engage.

These arenas are:

- |                               |   |
|-------------------------------|---|
| 1) Basic Science Research     | 3) K-12 Science Education Activities          |
| 2) Science Education Research | 4) Undergraduate Science Education Activities |

We realize that there will be some overlap in the four arenas delineated above. In addition, you will also be asked questions about your scholarly activities overall.

Please only consider the activities associated with your current position in answering the questions below.

23. Compared to typical non-SFES faculty members in my department, I spend \_\_\_\_ of my time engaged in scholarly activities.

- much more
  - more
  - about the same amount
  - less
  - much less
  - no basis for judgment
- Please feel free to comment on the amount of time you spend on scholarly activities. \_\_\_\_

In responding to the following questions, please consider Basic Science Research to be research in the sciences that does not include science education.

24. In your work as an SFES, are you currently involved in BASIC SCIENCE RESEARCH? Yes   No

Consider your scholarly activities that focus on the arena of BASIC SCIENCE RESEARCH.

25. In your current position have you: (mark all that apply)

- Published articles in peer reviewed journals that relate to your scholarly activities in this arena?
- Applied for grants to support your scholarly activities in this arena?
- Presented results of your scholarly activities in this arena at regional, national or international conferences?
- None of these apply.

26. Considering your current position, to what extent do you agree with the following statements?

- Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment
- Publishing in this arena advances my own personal scholarly interests.
  - Obtaining grant money in this arena advances my own personal scholarly interests.
  - Presenting at regional, national or international conferences in this arena advances my own personal scholarly interests.
  - My department is supportive of my scholarly activities in this arena.
  - I am expected to engage in this arena differently than my non-SFES peers.

Engaging in this arena is important for my career development, including tenure and/or promotion.  
I am currently fulfilled by my scholarly activities in this arena.  
I am doing the scholarly activities that I thought I was hired to do in this arena.  
PRIOR to my hiring, I had the impression that my department had a culture supportive of research in this arena.  
CURRENTLY, I feel that my department has a culture supportive of research in this arena.

### **About Your Scholarly Activities ...**

In responding to the following questions, please consider the following description of Science Education Research.

Here we ask that you consider any research in science education including but not limited to: research on issues of student conceptions, teaching and learning strategies, equity and diversity in the sciences, discipline-based science education issues, and the role of scientists in science education generally.

27. In your work as an SFES, are you currently involved in SCIENCE EDUCATION RESEARCH?  
Yes No

Consider your scholarly activities that focus on the arena of SCIENCE EDUCATION RESEARCH.

28. In your current position have you: (mark all that apply)  
Published articles in peer reviewed journals that relate to your scholarly activities in this arena?  
Applied for grants to support your scholarly activities in this arena?  
Presented results of your scholarly activities in this arena at regional, national or international conferences?  
None of these apply.

29. Considering your current position, to what extent do you agree with the following statements?  
Strongly agree Agree Disagree Strongly disagree No basis for judgment  
Publishing in this arena advances my own personal scholarly interests.  
Obtaining grant money in this arena advances my own personal scholarly interests.  
Presenting at regional, national or international conferences in this arena advances my own personal scholarly interests.  
My department is supportive of my scholarly activities in this arena.  
I am expected to engage in this arena differently than my non-SFES peers.  
Engaging in this arena is important for my career development, including tenure and/or promotion.  
I am currently fulfilled by my scholarly activities in this arena.  
I am doing the scholarly activities that I thought I was hired to do in this arena.  
PRIOR to my hiring, I had the impression that my department had a culture supportive of research in this arena.  
CURRENTLY, I feel that my department has a culture supportive of research in this arena.

In responding to the following questions, please consider K-12 Science Education Activities as including but not limited to K-12 curriculum development, teacher preparation and professional development projects, and diversity and outreach projects.

30. In your work as an SFES, are you currently involved in K-12 SCIENCE EDUCATION ACTIVITIES?  
Yes No

Consider your scholarly activities that focus on the arena of K-12 SCIENCE EDUCATION.

31. In your current position have you: (mark all that apply)  
Published articles in peer reviewed journals that relate to your scholarly activities in this arena?  
Applied for grants to support your scholarly activities in this arena?  
Presented results of your scholarly activities in this arena at regional, national or international conferences?  
Conducted research in this area?  
None of these apply.

32. Considering your current position, to what extent do you agree with the following statements?  
 Strongly agree Agree Disagree Strongly disagree No basis for judgment  
 Publishing in this arena advances my own personal scholarly interests.  
 Obtaining grant money in this arena advances my own personal scholarly interests.  
 Presenting at regional, national or international conferences in this arena advances my own personal scholarly interests.  
 My department is supportive of my scholarly activities in this arena.  
 I am expected to engage in this arena differently than my non-SFES peers.  
 Engaging in this arena is important for my career development, including tenure and/or promotion.  
 I am currently fulfilled by my scholarly activities in this arena.  
 I am doing the scholarly activities that I thought I was hired to do in this arena.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of ACTIVITIES in this arena.  
 CURRENTLY, I feel that my department has a culture supportive of ACTIVITIES in this arena.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of RESEARCH in this arena.  
 CURRENTLY, I feel that my department has a culture supportive of RESEARCH in this arena.

In responding to the following questions, please consider Undergraduate Science Education Activities as including but not limited to curriculum development, instructional training for faculty or graduate teaching assistants, and recruitment/retention outreach projects.

33. In your work as an SFES, are you currently involved in UNDERGRADUATE SCIENCE EDUCATION ACTIVITIES? Yes No

Consider your scholarly activities that focus on the arena of UNDERGRADUATE SCIENCE EDUCATION.

34. In your current position have you: (mark all that apply)  
 Published articles in peer reviewed journals that relate to your scholarly activities in this arena?  
 Applied for grants to support your scholarly activities in this arena?  
 Presented results of your scholarly activities in this arena at regional, national or international conferences?  
 Conducted research in this area?  
 None of these apply.

35. Considering your current position, to what extent do you agree with the following statements?  
 Strongly agree Agree Disagree Strongly disagree No basis for judgment  
 Publishing in this arena advances my own personal scholarly interests.  
 Obtaining grant money in this arena advances my own personal scholarly interests.  
 Presenting at regional, national or international conferences in this arena advances my own personal scholarly interests.  
 My department is supportive of my scholarly activities in this arena.  
 I am expected to engage in this arena differently than my non-SFES peers.  
 Engaging in this arena is important for my career development, including tenure and/or promotion.  
 I am currently fulfilled by my scholarly activities in this arena.  
 I am doing the scholarly activities that I thought I was hired to do in this arena.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of ACTIVITIES in this arena.  
 CURRENTLY, I feel that my department has a culture supportive of ACTIVITIES in this arena.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of RESEARCH in this arena.  
 CURRENTLY, I feel that my department has a culture supportive of RESEARCH in this arena.

Consider your current scholarly activities as a whole, including your efforts in Basic Science Research, Science Education Research, K-12 Science Education Activities, and Undergraduate Science Education Activities.

36. To what extent do you agree with the following statements.  
 Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment
- My department is supportive of my scholarly activities.  
 I am currently fulfilled by my scholarly activities.  
 I am doing the scholarly activities that I thought I was hired to do.  
 I am expected to garner about the same amount of grant money as non-SFES faculty members in my department.  
 I have the same academic freedom in developing research projects as my non-SFES peers.  
 I am expected to publish about the same number of peer-reviewed research articles as non-SFES faculty members in my department.  
 I am expected to mentor about the same number of research students (undergraduate, graduate and/or postdoctoral) as non-SFES faculty members in my department.  
 I have adequate lab space to accomplish my scholarly activities.  
 UNLIKE my non-SFES peers, I am pressured to apply for grants that do not support my research or other personal scholarly interests.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of RESEARCH in basic science.  
 CURRENTLY, I feel that my department has a culture supportive of RESEARCH in basic science.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of RESEARCH in science education.  
 CURRENTLY, I feel that my department has a culture supportive of RESEARCH in science education.  
 PRIOR to my hiring, I had the impression that my department had a culture supportive of ACTIVITIES in science education.  
 CURRENTLY, I feel that my department has a culture supportive of ACTIVITIES in science education.

Consider your current scholarly activities as a whole.

37. In your current position...  
 (Response options: \$0; \$1 to \$10K; \$10K to \$49K; \$50K to \$99K; \$100K to \$499K; \$500K to \$1 million; \$1 million to \$2 million; \$2 million to \$5 million; \$5 million to \$10 million; More than \$10 million)  
 How much grant money have you obtained in total?  
 How much grant money have you obtained to support BASIC SCIENCE RESEARCH?  
 How much grant money have you obtained to support SCIENCE EDUCATION RESEARCH?  
 How much grant money have you obtained to support K-12 SCIENCE EDUCATION?  
 How much grant money have you obtained to support UNDERGRADUATE SCIENCE EDUCATION?
38. In your entire career as an SFES ...  
 (Response options: \$0; \$1 to \$10K; \$10K to \$49K; \$50K to \$99K; \$100K to \$499K; \$500K to \$1 million; \$1 million to \$2 million; \$2 million to \$5 million; \$5 million to \$10 million; More than \$10 million)  
 How much grant money have you obtained in total?  
 How much grant money have you obtained to support BASIC SCIENCE RESEARCH?  
 How much grant money have you obtained to support SCIENCE EDUCATION RESEARCH?  
 How much grant money have you obtained to support K-12 SCIENCE EDUCATION?  
 How much grant money have you obtained to support UNDERGRADUATE SCIENCE EDUCATION?
39. Some people have held multiple academic positions in their career. Please indicate the total number of years for your entire career as an SFES (including your current position). \_\_\_\_\_ Years
40. My department supports a graduate program.   Yes   No
41. The number of graduate student researchers available to participate in my scholarly activities is \_\_\_\_\_ the number available to participate in the scholarly activities of non-SFES faculty in my department.  
 much more than  
 more than  
 about the same as  
 less than  
 much less than

Please choose one of the following responses to indicate to what extent you agree with each statement.

42. PRIOR TO MY HIRING, my department had a GRADUATE curriculum for students interested in SCIENCE TEACHING equivalent to the curriculum for students interested in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

43. PRIOR TO MY HIRING, my department had a GRADUATE curriculum for students interested in RESEARCH in SCIENCE EDUCATION equivalent to the curriculum for students interested in RESEARCH in BASIC SCIENCE .

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

Please choose one of the following responses to indicate to what extent you agree with each statement.

44. CURRENTLY, my department has a GRADUATE curriculum for students interested in SCIENCE TEACHING equivalent to the curriculum for students interested in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

45. CURRENTLY, my department has a GRADUATE curriculum for students interested in RESEARCH in SCIENCE EDUCATION equivalent to the curriculum for students interested in RESEARCH in BASIC SCIENCE .

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

Please choose one of the following responses to indicate to what extent you agree with each statement.

46. PRIOR TO MY HIRING, my department had an UNDERGRADUATE curriculum for students interested in SCIENCE TEACHING equivalent to the curriculum for students interested in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

47. PRIOR TO MY HIRING, my department had an UNDERGRADUATE curriculum for students interested in RESEARCH in SCIENCE EDUCATION equivalent to the curriculum for students interested in RESEARCH in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

Please choose one of the following responses to indicate to what extent you agree with each statement.

48. CURRENTLY, my department has an UNDERGRADUATE curriculum for students interested in SCIENCE TEACHING equivalent to the curriculum for students interested in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

49. CURRENTLY, my department has an UNDERGRADUATE curriculum for students interested in RESEARCH in SCIENCE EDUCATION equivalent to the curriculum for students interested in RESEARCH in BASIC SCIENCE.

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Course(s)

Degree option(s)

50. Please feel free to make additional comments about your scholarly activity situation as an SFES. \_\_\_\_\_

This National Study of SFES in the United States expands on research published by our team on SFES in the California State University (CSU) system.

In order to make direct comparisons between United States SFES and CSU SFES, for the next two questions you will be asked to reflect on your scholarly activities using the same lens as our CSU study. The choices are similar to the four arenas of scholarly activities described earlier.

51. In your current position, what types of scholarly activities are you engaged in or have you engaged in?

Please mark all that apply.

Research in science education

Research in basic science (not related to science education)

Curriculum development

K-12 teacher development projects, e.g., recruitment, retention, professional development activities, etc.

University teacher development projects, e.g., TA training, faculty workshops, etc.

Other (please specify)

52. In your current position, what types of projects have you applied for grant funding to support?

Please mark all that apply.

Research in science education

Research in basic science (not related to science education)

Curriculum development

K-12 teacher development projects, e.g., recruitment, retention, professional development activities, etc.

University teacher development projects, e.g., TA training, faculty workshops, etc.

Other (please specify)

### **About Your Service Activities ...**

In this section of the survey, you will be asked about the SERVICE activities, responsibilities, and opportunities associated with your current academic position.

Here, service activities are broadly defined as including but not limited to committee work, coordination duties, teacher preparation, evaluation and assessment, and other service outside of your institution. Please only consider the activities associated with your current position in answering the questions below.

53. Compared to typical non-SFES faculty members in my department, I spend \_\_\_\_\_ of time engaged in service activities.

much more

more

about the same amount

less

much less

no basis for judgment

Please feel free to comment on the amount of time you spend on service. \_\_\_\_\_

54. Are there service activities in the following categories in which you have been engaged or are currently engaged? Mark all that apply.

Service in my department(s)

Service in the science college (e.g., College of Science, College of Natural & Social Sciences, College of Science & Engineering, ...)

Service in the education college (e.g., College of Education)

Committee service at the university level

Coordination duties for courses that include supervision and/or training

Coordination duties for courses that include curriculum development  
 K-12 teacher preparation activities for pre-service teachers, including recruitment efforts  
 Activities for in-service K-12 teachers, such as professional development workshops  
 Evaluation or assessment activities, such as program review, curriculum assessment, etc.  
 Other service activities in your professional field outside of your institution, e.g., professional societies,  
 grant agencies, etc. (please specify in the textbox below)  
 None of these apply.  
 Other service activities (please specify)

55. Are there service activities that you are currently expected to do DIFFERENTLY than non-SFES faculty in your department? Yes No

56. Which of the following service activities are you currently expected to do differently than non-SFES faculty in your department? Mark all that apply.

Service in my department(s)

Service in the science college (e.g., College of Science, College of Natural & Social Sciences, College of Science & Engineering)

Service in the education college (e.g., College of Education)

Committee service at the university level

Coordination duties for courses that include supervision and/or training

Coordination duties for courses that include curriculum development

K-12 teacher preparation activities for pre-service teachers, including recruitment efforts

Activities for in-service K-12 teachers, such as professional development workshops

Evaluation or assessment activities, such as program review, curriculum assessment, etc.

Other service activities in your professional field outside of your institution, e.g., professional societies, grant agencies, etc. (please specify in the textbox below)

None of these apply.

Other service activities (please specify)

57. Please choose one of the following responses to indicate to what extent you agree with each statement.

Strongly agree Agree Disagree Strongly disagree No basis for judgment

I am currently fulfilled by my service activities.

I am doing the service activities that I thought I was hired to do.

58. Please feel free to make additional comments about your service situation as an SFES. \_\_\_\_\_

### **About Your Professional Training ...**

In this section of the survey, you will be asked about your formal and informal professional training.

The first group of questions will ask you about your training in SCIENCE, while the second group of questions will ask you about your training in SCIENCE EDUCATION. Please keep this distinction in mind as you reply to the questions in this section.

Consider your professional training in SCIENCE.

59. Please identify your FORMAL training in SCIENCE. Mark all that apply, even if you have also done more advanced work.

Postdoc in science field in a science department or college

Postdoc in science field in a national laboratory

Ph.D. in science field from a science department or college

Masters Degree in science field from a science department or college

Bachelors Degree in science field from a science department or college

Minor in science field from a science department or college

Course work in science field from a science department or college

Graduate level research in science

Undergraduate level research in science



None of these apply  
Other formal training (please elaborate)

60. Please identify your INFORMAL or LESS FORMAL training in SCIENCE. Mark all that apply.
- Experience in private sector, e.g., industrial experience
  - Experience in the public sector, e.g., national labs experience
  - Sabbatical experience
  - On the job experience
  - Professional development workshops, seminars or short courses
  - Self taught
  - None of these apply
  - Other informal or less formal training (please elaborate)

Consider your current scholarly activities as a whole.

61. Please identify your FORMAL training in SCIENCE EDUCATION. Mark all that apply, even if you have also done more advanced work.
- Postdoc in science education in a science or education department
  - Ph.D. with an education emphasis from a science department
  - Ph.D. or equivalent degree from an education department
  - Graduate level research in science education
  - Undergraduate level research in science education
  - Minor in education
  - K-12 teaching credential
  - NSF GK-12 graduate fellowship
  - NSF Postdoctoral Fellowship in Science, Math, Engineering, or Technology Education (PFSMETE)
  - Other NSF sponsored graduate fellowship in science education
  - Other NSF sponsored postdoctoral fellowship in science education
  - None of these apply
  - Other formal training (including other NSF sponsored training) (please elaborate)

62. Please identify your INFORMAL or LESS FORMAL training in SCIENCE EDUCATION. Mark all that apply.
- Experience in private sector, e.g., industrial experience
  - Experience in the public sector, e.g., national labs experience
  - Sabbatical experience
  - On the job experience
  - K-12 teaching experience
  - Professional development workshops, seminars or short courses
  - Self taught
  - TA Training program in graduate school
  - Science education training programs in graduate school
  - Leadership experience on science education project
  - None of these apply.
  - Other informal or less formal training (please elaborate)

63. Aside from the training marked above, have you held any previous academic positions that provided training in science education?      Yes   No   If Yes, please elaborate.

#### **About Your Professional Satisfaction ...**

This section will ask a wide range of questions that center on your professional satisfaction associated with your current academic position. A subset of questions will ask you to make comparisons between SFES and non-SFES in your department. Although we are asking you to respond only about your current position, at the end of this section you will be given an opportunity to provide a career perspective and express any additional information about your current or past professional positions.

64. Please choose one of the following responses to indicate to what extent you agree with this statement.  
I am professionally satisfied in my current position.  
Strongly agree   Agree   Disagree   Strongly disagree   Prefer not to answer

65. Are you confident that the retention/tenure/promotion review committees at your institution are qualified to review your accomplishments as an SFES?    Yes   No.  
If "No," what would give you greater confidence in the review process? \_\_\_\_\_

Please choose one of the following responses to indicate to what extent you agree with each statement.

66. I am confident that the work I do is UNDERSTOOD by my ...  
Strongly agree; Agree; Disagree; Strongly disagree; No basis for judgment; Not applicable  
Department:  
Division:  
College:  
Institution:

67. I am confident that the work I do is VALUED by my ...  
Strongly agree; Agree; Disagree; Strongly disagree; No basis for judgment; Not applicable  
Department:  
Division:  
College:  
Institution:

68. I am confident that my \_\_\_\_\_ and I are in AGREEMENT about my JOB EXPECTATIONS.  
Strongly agree; Agree; Disagree; Strongly disagree; No basis for judgment; Not applicable  
applicable  
Department:  
Division:  
College:  
Institution:

69. SFES and non-SFES faculty in my department have similar job expectations.  
Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

70. The differences in job expectations between SFES and non-SFES have been directly articulated to me.    Yes   No

71. Please choose one of the following responses for each statement.  
(Response options: much more than; more than; about the same as; less than; much less than; No basis for judgment)  
My CURRENT salary is \_\_\_\_\_ the salaries of non-SFES peers in my department with similar years of service.  
My STARTING salary was \_\_\_\_\_ the salaries of non-SFES peers in my department with similar years of service.  
My START-UP PACKAGE was \_\_\_\_\_ the start-up package of non-SFES peers in my department.

72. My lab space is \_\_\_\_\_ the lab space of my non-SFES peers in my department.  
much bigger than  
bigger than  
about the same as  
about the same as because faculty in my department do not have lab space  
smaller than  
much smaller than

73. Briefly, what were your original reasons for taking your current position? \_\_\_\_\_

74. Briefly, what are the primary reasons you continue to stay in your current position? \_\_\_\_\_

75. Thank you for the information you provided about your current professional position in the previous questions.

We anticipate that some individuals – in particular those who occupy community college positions, who hold non-tenure track positions, who have held multiple academic positions in their career, or others with unique situations – may have additional information to share that was not specifically probed above. As such, we invite you to express any additional information about your current or past professional positions that you feel are important to share in this investigation of SFES in the United States. \_\_\_\_\_

76. Are you seriously considering leaving your current: POSITION, FIELD, or INSTITUTION?  
Yes No

77. I am seriously considering leaving my current \_\_\_\_\_.  
Strongly agree Agree Disagree Strongly disagree Prefer not to answer

POSITION:

FIELD:

INSTITUTION:

78. Have any of the following expectations placed on you led you to think about leaving? Mark all that apply.

- Teaching expectations
- Scholarly expectations
- Service expectations
- None of these apply

79. Which of the following issues have led you to think about leaving? Mark all that apply.

- The amount (load) of TEACHING is too high.
- The type(s) of classes that I am expected to teach.
- The type(s) of classes that I am restricted from teaching.
- The difference in teaching expectations between SFES and non-SFES.
- The amount (load) of SCHOLARSHIP is too high.
- The type(s) of scholarly activities that I am expected to do.
- The type(s) of scholarly activities that I am restricted from doing.
- The difference in scholarly expectations between SFES and non-SFES.
- The amount (load) of SERVICE is too high.
- The type(s) of service that I am expected to do.
- The type(s) of service that I am restricted from doing.
- The difference in service expectations between SFES and non-SFES.
- My current salary relative to non-SFES at my institution.
- My lab space relative to non-SFES at my institution.
- I lack confidence that the retention/tenure/promotion review committees at my institution are qualified to review my accomplishments as an SFES.
- OTHER ISSUES not identified above (please specify in the textbox below).
- Textbox to specify other issues not identified above.

80. If I had known about these issues before I accepted my current position, I would not have accepted.  
Strongly agree; Agree; Disagree; Strongly disagree; No basis for judgment; Not applicable  
Please explain. \_\_\_\_\_

81. Please provide more detail on your primary reason(s) for seriously considering leaving your  
POSITION, FIELD, or INSTITUTION? \_\_\_\_\_

### Conceptualization of SFES Positions ...

In this section of the survey, you will be asked questions about your views on the nature of SFES positions – their purpose and value – more generally across the United States.

In responding to these questions, please think beyond your own professional situation and your own SFES position. Please consider your understanding of the SFES phenomenon across the United States more generally.

82. What would you consider to be three most common reasons that a science department hires a Science Faculty with Education Specialty? \_\_\_\_\_

83. What are the three most valuable contributions that SFES COULD make to a science department?  
\_\_\_\_\_

84. What are the three most valuable contributions that YOU as an SFES ACTUALLY make to your science department? \_\_\_\_\_

85. What three types of formal training experiences - whether they are currently available or not - do you think would best prepare an individual for an SFES position? \_\_\_\_\_

86. What are the three most important pieces of advice you would offer to a beginning SFES? ? \_\_\_\_\_

87. Please think beyond your own professional situation and your own SFES position. Based on how you understand SFES across the United States more generally, complete the following sentence:

SFES positions are:

primarily teaching positions.

primarily research positions.

primarily service positions.

both teaching and research positions.

both teaching and service positions.

both service and research positions.

a combination of teaching, service and research positions.

Please provide any comments you would like to share about your responses.

88. Please think beyond your own professional situation and your own SFES position. Based on how you understand SFES across the United States more generally, please choose your level of agreement with the following statements.

The SCHOLARLY ACTIVITIES of SFES involve:

Strongly agree   Agree   Disagree   Strongly disagree   No basis for judgment

Basic Science Research

Science Education Research

K-12 Science Education Activities

Undergraduate Science Education Activities

89. Please feel free to make additional comments about what you think the nature, purpose, and value of SFES positions are around the United States in general. \_\_\_\_\_

This survey is the first phase of our National Study of SFES in the United States. In the next phase we plan to more thoroughly explore the institutional context of SFES in the United States. This section will ask questions anticipating future phases of this project.

### For the Future ...

90. Would you be willing to be interviewed about your SFES experiences and your conceptualization of SFES?   Yes   No



Greetings Colleague,

You have received this email because you may be a Science Faculty with an Education Specialty (SFES) or work with an SFES. As a research team of SFES ourselves, we conducted a study of SFES in the California State University system and published findings in *Science* magazine and *CBE—Life Sciences Education*. To better characterize SFES, we are expanding the scope of our study to the national level in the United States and would like to hear from you.

While all college and university science faculty are education specialists in some regard, we define SFES here as individuals who either: 1) have been specifically hired in science departments to specialize in science education, OR 2) have transitioned to a role as a science faculty member focused on issues in science education after their initial hire. This study continues to characterize SFES and their diverse roles in science education.

If you are an SFES or think you might be an SFES, we would very much appreciate your participation in a national survey of SFES across the U.S. at the link below:

<http://www.surveymonkey.com/s/UnitedStatesSFES> Your voluntary participation in this study would:

- 1) consist of answering questions in an on-line survey by APRIL 25, 2011.
- 2) be anonymous and voluntary.
- 3) require about 45 minutes of your time.
- 4) invite you to forward this email to colleagues in the U.S. who might be SFES.

You may find the survey enhances your awareness of one or more issues that impact your professional success. Reported findings may include information that could enhance your own career, as well as the fields of higher education and science education.

Please let us know you are out there and complete this survey today!

Thank you in advance for your time and willingness to participate in this research. Sincerely,

Seth Bush, California Polytechnic State University, San Luis Obispo  
Nancy Pelaez, Purdue University  
James Rudd, California State University, Los Angeles  
Michael Stevens, Utah Valley University  
Kimberly Tanner, San Francisco State University  
Kathy Williams, San Diego State University

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