

**National Institute of Standards and Technology (NIST)
Summer Undergraduate Research Fellowship (SURF)
Alumni Discussion Guide for Qualitative Interviews**

1. INTRODUCTION AND WARM-UP (5 MIN)

My name is ____ and I am with Camper Consulting calling on behalf of NIST's Summer Undergraduate Research Fellowship (or "SURF") program. NIST has asked my firm to perform an independent assessment of the SURF program. Our contact at NIST is Susan Heller-Zeisler, Senior Academic Program Manager.

Thank you for agreeing to participate in this discussion. Your comments are, and will be kept, completely anonymous and confidential. Your name will not be linked to your comments in any way. We are simply interested in hearing your candid feedback and experiences relating to the SURF program. I would like to ask your permission to record our conversation, for my own reference, so I do not need to take notes during our discussion. Would that be ok? [IF YES, CONTINUE AND RECORD. IF NO, CONTINUE AND DO NOT RECORD.] Thank you, let's begin.

- a. First, I'd like to ask you a few general questions. Please tell me a little about yourself.
 - i. Are you currently employed at a full-time job, pursuing an advanced degree, something else?
 - ii. If working/employed:
 1. What is your field of work? Professional title and job responsibilities?
 2. How long have you been in this field? At this company/organization?
 3. What are your interests outside of your job or career?
 - iii. If pursuing an advanced degree:
 1. Tell me about your graduate work.
 2. Where attending school.
 3. Degree pursuing, field of study.
 - iv. Other
 1. Probe as appropriate.

2. EARLY STEM INTERESTS/EXPOSURE (5 MIN)

Objective: to understand students' mindset about STEM fields of study prior to the SURF fellowship. This line of questioning will set a baseline for gauging the level of impact that SURF had on the student pursuing (or not) a STEM field of study after participation.

- a. Tell me a little about your undergraduate experience in general.
 - i. What were your interests when you entered college? Did you have an academic field of focus – what was it?
 - ii. When did you become interested in STEM-related fields, if at all? (If they mention SURF here, probe to understand if initial interest in STEM fields began prior to their SURF fellowship or if SURF was the driver).
 - iii. What would you say were the pivotal experiences or events that influenced your pursuing that field of work/study?
- b. After becoming interested in a STEM-related field as an undergrad, what were your thoughts, plans, or intentions when it came to pursuing the field of study?

- i. At that point, had you thought about pursuing a post-graduate degree in that area?
In what field?
- ii. Had you thought about the profession or career you were interested in pursuing?
In what field?
- c. What undergraduate internship or fellowship programs did you apply to? Which ones did you go on to participate in?

3. SURF PROGRAM CONSIDERATION (5 MIN)

Objective: to provide context and motivation for the SURF application decision. Establish perceived value proposition offered by the program at this stage of the consideration process. Identify weaknesses or information gaps.

- a. How did you first hear about the NIST Summer Undergraduate Research Fellowship (SURF)? (e.g. school adviser, professor, peer, other?)
 - i. How did this fit with your areas of academic interest at the time?
 - ii. What were your impressions of the SURF Program at the time – *before* participating?
- b. What features or aspects of the program appealed to you in these early stages of consideration – *before* being accepted and participating in the program?
 - i. What made you apply to the SURF program? (unique selling points)
- c. What, if anything, did not appeal to you about the program when you were considering it?
- d. How did you feel the program might benefit you *personally*? What did you think you could/would get out of the program?
- e. What were your impressions of the application process?
 - i. To what extent was your adviser or professor involved?

4. SURF PROGRAM EXPERIENCE (30 MIN)

Objective: to gather student feedback and perceptions about the SURF program. Understand program strengths and weaknesses (even if anecdotal at this stage in the data collection process).

- a. Let's shift gears and talk about your experience with the program itself. What were your general impressions of the SURF Program? [probe as appropriate]
- b. Generally speaking, how would you rate your overall satisfaction with your SURF Program experience? Please respond based on your own personal experience and not how you think others may view the experience. A "5" means you were "Very satisfied" and a "1" means you were "Not satisfied at all." You may use any number between and including 1 and 5.
- c. Thank you, that is helpful. I'd like to understand more about your experience. Let's start at the beginning...
 - i. **Placement:** Tell me about the laboratory you were placed with.
 - 1. How did this match with your interests at the time? (was it a good fit, ok fit, not a good fit?). Did the "fit" change as you continued?

2. Were you placed in a field of interest that you requested in your application? IF NO: What impact did that have on your experience, if any?
 3. Did you ever request a change in placement? For what reason(s)?
 4. What, if anything, could have been improved about the placement process?
- ii. **Research projects:** Tell me about the research project(s) you were assigned (Interviewer: get a brief description of the nature of the work performed).
1. How were you introduced to the research and given instruction about your role and the tasks that you would be responsible for?
 2. Did the research project(s) match your interests? In what way(s)? What interested you/did not interest you?
 3. Did you feel you were contributing to something meaningful – i.e., the “bigger picture” of research in this field? Why or why not?
 4. Did you feel you were an integral part of the research team? In what way/give examples.
 5. Did you gain increasing independence over the course of the summer?
 6. What, if anything, could have been improved about the research assignment?
- iii. **Adviser:** Describe the nature of the relationship with your adviser.
1. About how many hours a week did your adviser spend with you?
 2. Do you feel you had a true mentor-mentee relationship with your adviser? In what way?/why not?
 3. Did you get the technical guidance you needed to perform your work? In what way(s)? Give examples.
 4. Did you have your adviser’s full support?
 5. Did you continue your relationship with your mentor after your SURF Program experience? IF YES: how, if at all, has that relationship influenced you or your choices and opportunities?
 6. If you were a SURF adviser today, what things would you do the same as your adviser? What things would you do differently to possibly enhance the mentor-mentee relationship?
- iv. **Research Sharing/Lectures/Colloquia:**
1. What, if any, opportunities were provided to share research peer-to-peer with other SURF students?
 2. What, if any opportunities were provided to hear and learn from experienced NIST researchers (aside from your adviser)?
 3. Did you attend lectures/seminars, and if so, how did your attendance contribute to your overall SURF Program experience?
 4. Were there any conference opportunities supported by NIST during your SURF experience?
 5. How, if at all, did you benefit from any networking opportunities provided, either directly or indirectly by NIST? With NIST researchers or staff? With other SURF students?

v. Final Report and Presentation:

1. Did you feel prepared when it came time to write about and present your research experience?
2. Did you feel you had enough material to present about your SURF research experience?
3. Did you feel your research experience would be interesting to others?
4. What, if anything, could be improved about the student reports/presentations experience?

vi. Social and Living arrangements: Describe the living experience, accommodations, and interactions with peer SURFers.

1. Did you reside in SURF program housing or at your own residence? Pros/cons?
2. Were there enough SURF-organized activities and opportunities to meet others in your SURF class? Describe. (*Note: opportunity to validate linkage between social opportunities and SURF class size cited during Immersion interviews*).
3. Were there student-organized activities and opportunities to meet others? Describe.
4. Did you make lasting friendships with any of your SURF peers that continued after the SURF summer?
5. What could be improved about SURF Program living arrangements? How could social opportunities be improved?

- d. Let's go back to the 5 point scale you used earlier to rate your overall experience with your SURF Program experience. This time, please rate each of the following areas we just talked about. A "5" means "very satisfied" and a "1" means "not at all satisfied." Of course you may also use any number in between 1 and 5.

INTERVIEWER READ LIST AND OBTAIN RATING FOR EACH ONE. FOR EACH RATED "LOW (1-3)" AND NOT MENTIONED EARLIER, PROBE FOR THE REASON FOR THE LOW RATING:

- i. Application process
- ii. Placement
- iii. Research project(s)
- iv. Adviser
- v. Research Sharing/Lectures/Colloquia
- vi. Final Report/Presentation
- vii. Social and Living arrangements

- e. SURF Alumni sometimes mention both tangible and intangible benefits from the SURF Program.
- i. What are some of the tangible benefits or outcomes you feel you gained from SURF?
 - ii. What are the intangible benefits?

5. PROGRAM IMPACT AND INFLUENCE ON STEM LEARNING (10 MIN)

- a. You mentioned earlier that you are now involved in _____ (career or academic

pursuit).

- b. Tell me about your path to your current position starting with earning your undergraduate degree.
 - i. Undergraduate degree earned
 - ii. Post graduate work: education attainment and field(s) of study
 - iii. Past jobs/employment
 - iv. Current job/employment, Job title/level
 - c. How, if at all, did your experience in the SURF program impact where you are academically and/or in your career today?
 - d. How does the role of SURF compare to other influencers in your life at that time? If you were to rank order how family, friends, college coursework, college advisers, the SURF program, and other internship programs or jobs impacted your chosen field of study, which would be in the top three for “most impactful”? Bottom three or “least impactful”?
 - e. What benefits do you feel were immediate, within the first year after your SURF fellowship? What benefits were mid-term (2-4 years)? What benefits were long-term, that perhaps you are still experiencing today? (5+ years – if that length of time is applicable to the respondent)?
6. WRAP-UP (5 MIN)
- a. Based on your own experience, if you could give one piece of advice to the SURF Directors who manage the program to make SURF a better experience for incoming students, what would that be?
 - b. Thank you very much for your time.

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