

Supplemental Material

CBE—Life Sciences Education

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Supplemental Material

1. Initial/Baseline Interview Guide

Because this interview is part of the EXCEL¹ evaluation plan, your consent to participate is included in the one consent form that you have signed.

But as a reminder, your information will be kept confidential. We will not use your name in relation to any information that you provide to us. In addition, any specific details that you mention (related to specific faculty members, classes, places, or students) will be masked anytime we use your data. The digital recordings will be kept confidential. At the conclusion of the study, the recordings will be destroyed. You will never be identified by name in any reports, publications, or presentations.

You may ask any questions you have now. If you have questions later, you may contact XX. If you have questions or concerns about your participation as a research subject, please contact the [home institution] Institutional Review Board (IRB)

EXCEL Experiences

What do you think about your experiences in EXCEL so far?

Have you connected with the other EXCEL students? Do you have friends in EXCEL? Why or why not?

What are you most excited about (related to your EXCEL training sequence) in the coming years?

What are you the most nervous about (related to your EXCEL training sequence) in the coming years?

How do you feel about [institution under study] (in general)? Probe: classes, extracurricular activities, professors, students

What would enhance your experience?

Personal Background

Talk about yourself as a child.

¹ Pseudonym

Where did you live? Did you move a lot?

What was your family like?

What kind of student were you in elementary and middle school?

Did your family face any challenges that you remember vividly? If so, please describe them.

Talk about yourself during high school.

What were your experiences like?

What kind of student were you?

What activities did you participate in?

What were your friends like?

What are you planning to major in at [home institution]?

Why did you pick that major?

How does your family feel about that choice?

Are there other majors that you are considering? Why or why not?

Interest in Science

What got you interested in science?

What got you interested in biomedical or health research?

Why were you interested in applying to EXCEL?

How did you find out about the program?

How important was EXCEL in terms of your decision to attend [home institution]?

How did you feel when you were accepted to the program?

How did your parents respond?

Did you tell anyone at your high school? Why or why not?

Did you have a mentor in high school? Why or why not?

If yes, how did they help you?

Do you currently have a mentor?

If yes, how do they help you?

What do you expect from a mentor?

If you have a mentor at [home institution], do you feel your expectations are being met?
Why or why not?

How would you describe your ideal mentor?

What concerns do you have about mentorship?

You are a successful student, or you would not have been accepted into EXCEL.

What do you think inspired you to be successful?

Assets

(Educational Endowments): Where did you go to high school?

What were your high school math and science classes like?

How were your teachers in general?

Do you feel well-prepared for college-level math and sciences classes?

How would you assess your English writing skills? Do you struggle with English? If so, how do you plan to improve?

(Science Socialization/Identity): Can you picture yourself as a scientist or researcher?

Why or why not?

Do you see your personality and background as compatible with a science career?

Why or why not?

Do you identify as a scientist?

What does that mean to you? What is a scientist?

If not, what would you need to learn or do in order to be a scientist?

Have you ever felt excluded or discriminated against as you have participated in science, classes or research? What happened? (Probe: Was it related to gender, race, ethnicity, language, etc?)

(Network Development): Do you know other people who are researchers or scientists?

Do you have a role model who is involved in science or biomedicine?

If so, who is this person? How did you meet them? How do they help you?

(Family Expectations): How does your family feel about you pursuing a research career?

Do they have any reservations about it?

Do you think they understand what a research career entails? Why or why not?

(Material Resources): How concerned are you about making ends meet (that is, money) right now?

Do you contribute financially to your family? If so, in what ways?

Do you take care of/provide for anyone else? How does this influence your experiences at [home institution]?

Does your family contribute financially toward your education? If so, in what ways?

In terms of your living expenses, do you live at home?

Where do you live? (What part of town?)

What do you pay in monthly expenses?

Do you have your own car?

Is it ever hard to get to [home institution]? If so, please describe.

Did your family face financial difficulties when you were growing up?

What about now?

Are the resources provided to you by EXCEL useful?

Would you like something different? What?

Long Term Goals

What are your long term goals...

...in terms of your career and profession?

...in terms of your personal life?

Where do you see yourself...

...5 years from now?

...10 years from now?

...20 years from now?

Do you hope to have children? Why or why not?

Where do you think you'll be living later in your life?

...can you picture yourself living away from [home] ...The US Southwest?

Why or why not?

What might be challenging about leaving?

What might be exciting about your leaving?

Fear and Challenges

The idea behind EXCEL is for you to earn a Ph.D. and become a researcher. How does that make you feel?

What is exciting about that?

What makes you nervous?

What do you think will be most challenging about this path?

Can you picture yourself doing research away from [home] (and your family, if applicable)?

How does this make you feel?

When thinking about the EXCEL program, how would you assess your stress level?

If not low: What is causing the stress specifically? How is the stress affecting you? What you are doing to address this stress?

Is there anything else you'd like to mention about yourself, your aspirations, or your fears that we did not cover today?

2. Summer Mid-Point Interview Guide

(NOTE: This interview was conducted over the phone while the student was away doing research).

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Arrival and Getting Started

Tell me about getting to your university. (How did you get there? How was arriving? How have you been getting around since getting there?)

Tell me about your summer research experience so far.

Tell me about the structure of the lab you are involved in. Do you work with faculty, grad students, post-docs, undergraduates, etc.? What is the predominant gender and race make-up of the people in your lab?

Mentor(s)

Do you currently have a mentor? (Post-doc, grad student?)

Do you have more than 1 person you consider to be a mentor?

Tell me about your mentor. (Repeat these questions if student identifies more than 1 mentor)

What kind of communication do you have with your mentor?

How would you rate your mentor in... (after each of the following questions: Why?)

...psychological and emotional support?

...support for setting goals and choosing a career path?

...academic subject knowledge?

...support aimed at advancing your knowledge in your chosen field?

...as a role model?

How often do you communicate with your mentor?

Have they helped you or taught you something new? How do you feel they are helping you? What do you think you learned?

Do you think you will have a lasting relationship with your mentor? Do you plan to stay in contact with this mentor? If yes: how? (email, phone, texting)

What expectations did you have for your mentor when this experience started? Are those expectations being met? Why/why not?

How is the town? The University? Your living space? What is the gender/race/class makeup of these spaces?

Do you feel comfortable calling a professor by their first name instead of Dr. so and so? Why/Why not?

Peers

Have you connected with the other students participating in the program at your school?

Tell me about some of the students you have met so far.

If has made connections with students: How do you connect with these students? Out of the students you've connected with, have they helped you or taught you something? How do they help you? What have they taught you?

Do you think this/these connection(s) will lead to (a) lasting relationship(s)? Do you plan to keep in contact with them? How do you plan to keep in contact?

If the student hasn't made connections: why do you think you haven't you made connections with other students? Are there groups of students with whom you don't feel as connected to?

Belonging

Do you feel comfortable within the (town/community, the university, your living space, your research training environment)?

Tell me about a time when you felt like you did belong.

Tell me about a time when you felt like you didn't belong.

Can you tell me about a problem or dilemma you've encountered during your summer research experience? How did you handle it? Did you reach out to your mentors/peers? Why/Why not?

Back in Fall 20XX when you were interviewed you said ____about your expectations for the summer research experience. Have your feelings about the experience changed? Why/why not?

Tell me about the best part of this experience so far. Why do you consider this the best part? Were any peers involved in this experience? If yes: How were they involved?

Tell me about the worst part of this experience so far. Why do you consider this the worst part? (Was it related to gender, race, class, language etc.?) Were any peers involved in this experience? If yes: How were they involved?

How do you define a scientist? Back in Fall 20XX you defined a scientist as ___ and ____ about yourself being a scientist. Has this changed? Why/Why not?

Do you identify as a scientist right now? Why/why not? Do you think other students in your program identify as scientists? Why/why not? Does it matter who is asking the question? (Authority vs. peer)

Have you ever felt like you've had to hide a part of your identity with others in the lab, or do you feel comfortable to be yourself? Why/Why not?

Do you feel like you are experiencing or have experienced imposter syndrome? Imposter syndrome is when you feel as though you are going to be exposed as a fraud or when you do not believe you are at the same level as the other people you are working with in your research experience. If yes: Tell me about what happened that made you feel this way.

Do you feel like you are experiencing or have experienced academic intimidation, this is when you feel intimidated within academic settings? If yes: Tell me about what happened that made you feel this way.

Do you feel like you are experiencing or have experienced stereotype threat, this is when you under perform in a situation where you feel as though you might conform to stereotypes (around your gender, your race, your class, etc.)? If yes: Tell me about what happened that made you feel this way.

Tell me about what you have done outside of working in the lab or doing research. Was this with other students from the program?

Preparation and Skills

Do you feel like you were prepared for this summer research program? How were you prepared? (research skills, academic skills, professional interaction skills, leaving home) Why didn't you feel prepared?

Did you find the travel panel with the students and the parents in April useful? Why/Why not? (presentation, student panel, parent panel)

Tell me about skills you think you have learned at this point in the experience. How do you think will these skills be useful to you going forward? Is there something you want to learn that you haven't? If yes: What is your plan to learn these skills?

How would you rate your professional development right now? (language, writing skills, reading skills) Why? What do you think you still need to learn?

How would you rate your ability to successfully complete tasks/succeed in certain situations? Why? What do you think you still need to learn?

How do you feel about presenting a poster with results of your research at the end of this experience?

What are your post-graduation plans at this point? (research career, grad school, etc.?) Do you think this summer experience has helped you clarify your plans? Why/why not?

Back Home

Have you kept in contact with people back at [home institution] during this experience? How do you keep in contact? Have you had anyone visit you? If yes: Tell me about that visit. If no: Do you have plans to have someone visit before it is over? Who are they?

In terms of finances how concerned are you about making ends meet right now?

How much would you say your monthly expenses are?

Are your parents sending you money?

If yes: how much?

Do you send money back to your parents or family?

If yes: how much?

How does your family feel about you being away while you participate in this research program?

Do you feel like your family understands the work you are doing? Why/why not?

If family doesn't understand: Tell me how you cope with this. (peers, mentors, friends outside the program?)

Is there anything else you'd like to tell me now, about your summer experience?

Thank-you for your time! I'll be contacting you once you return to [home institution], to schedule a final interview to see how everything went.

3. Final Interview Guide

(NOTE: This interview was conducted face-to-face soon after the student returned from his/her summer research program).

Because this interview is part of the EXCEL evaluation plan, your consent to participate is included in the one consent form that you have signed.

But as a reminder, your information will be kept confidential. We will not use your name in relation to any information that you provide to us. In addition, any specific details that you mention (related to specific faculty members, classes, places, or students) will be masked anytime we use your data. The digital recordings will be kept confidential. At the conclusion of the study, the recordings will be destroyed. You will never be identified by name in any reports, publications, or presentations.

You may ask any questions you have now. If you have questions later, you may contact XX. If you have questions or concerns about your participation as a research subject, please contact the [home institution] Institutional Review Board (IRB).

Reflections

Tell me about your overall summer research experience.

Probes: What new things did you learn? How does this experience relate to you pursuing a research career?

Have you kept in contact with other students or individuals from your lab? Why/why not?

If has kept in contact: what kind of contact do you have with them? (informal/formal) how do you contact them (texting, emailing, phone calls..?), how often do you contact them? What would be an example of why you would contact them?

Have you kept in contact with your mentor from this experience? Why/why not?

What kind of contact do you have with them? (informal/formal) how do you contact them (texting, emailing, phone calls..?), how often do you contact them? When is the last time you contacted them?

Did you ask your mentor for a letter of recommendation? Why or why not?

During summer you stated ____ about your expectations for your mentor and ___ about these expectations being met. Tell me about how this changed/did not change since we last talked.

Tell me about the best part of the overall summer experience. Why do you consider this the best part? What was the best part of doing research? Being away? The university? The students? The mentors/post-docs/grad students?

Tell me about the hardest part of the summer experience. Why do you consider this the worst part? (Was it related to gender, race, class, language, nativity, etc.?) What was the worst part of doing research? Being away? The university? The students? The mentors/post-docs/grad students?

During your summer experience we discussed identifying as a scientist. Has this changed after this experience? (Increased/decreased) Why/Why not?

After participating in this summer experience, tell me about your thoughts on pursuing a research career. Are they the same? Have your intentions to pursue a research career strengthened or weakened? Why?

How do you think your (race, gender, nativity and English language comfort) shaped your overall experience during summer?

How do you think (the lab, your mentor, your peers, the university) shaped your overall experience during the summer?

Overall did you feel comfortable within the (town/community, the university, your living space, your research training environment)?

Can you talk about a time during the summer when you really felt like you were part of things?

Can you talk about a time over the summer when you felt like you didn't belong?

Can you recall a time over the summer when you felt like you had to hide part of your identity in order to fit in?

Overall do you feel like you were prepared for this summer research experience? How were you prepared? (research skills, academic skills, professional interaction skills, leaving home) Why didn't you feel prepared?

Tell me about skills you think you have learned through participating in this summer program. How do you think will these skills be useful to you going forward?

How would you rate your professional development right now? (language, writing skills, reading skills) Why? What do you think you still need to learn?

How would you rate your ability to successfully complete tasks/succeed in certain situations? Why? What do you think you still need to learn?

Mid-way through summer you said you wanted to ____ after graduating. Now that the experience is over do you still feel the same? Why/why not?

Would you go back and do this experience again?

With the same mentor? Why/why not?

Would you consider going to graduate school there? Why/why not?

If you could change different things about this experience what would they be? Why? If no: Why not?

Did you present your research at your host institution? If yes: Tell me about that experience.

How do you feel about the research symposium at [home institution] on September 30th? Do you feel prepared? Why/why not?

How does your family feel about the experience?

Do you think your parents views have changed on you pursuing a research career?

Is there anything else that you want to tell me about your summer research experience?

I really appreciate your time in talking with me again about this!