

Supplemental Material

CBE—Life Sciences Education

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Supplemental Materials

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Interview Protocol

Interview Objectives:

1. To connect aspects of an individual's identity, demographics, institutional demographics to their access to building or tapping into all existing supports
2. To assess whether participants perceive that their department / home institution is supportive of engagement in Biology Education Research (BER) and their engagement in BER in particular.
3. What supports / needs remain unfulfilled or are newly identified to carry out BER

Part 1: Introduction and Ground Rules

Welcome and thank you for coming today and participating in this interview! My name is _____ and I am a researcher associated with the CC Bio INSITES network. This network focuses on providing supports for CC faculty interested in conducting and participating in Biology Education Research (BER). We define participation in BER as any actions or behaviors related to research in biology education including reading relevant literature, collecting or analyzing data, writing or presenting about BER, and engaging in BER collaborations.

You're here today because we'd like to hear from network members like yourself. We want to learn about your experiences and thoughts with regard to the network, the supports it provides, and how it may be related to any salient identities of yours. Your honest comments on these topics will help us learn the impacts of the network and how to best improve it.

We've developed a set of questions to guide this discussion.

Before we begin, here are some tips that will help make our discussion today run smoothly. First, there are no right or wrong answers, only different points of view. We hope that you will feel free to share your thoughts and opinions and anticipate this interview to last between 1 - 1.5 hours for this research study. All opinions that you'd like to share are valuable to us.

If you remember something you'd like to share after the interview is complete, feel free to email further thoughts to me after the meeting.

A little bit about privacy. We promise that your name will not be used in any reports about this project. You are welcome to use a nickname or to make up a name if you don't want to use your real name during this conversation.

I will be recording today's discussion via Zoom's record function. This helps us make sure we don't miss anything that you say. The notes and recordings will not be shared with anyone outside of the research team. At any time if you do not want the recording of the discussion to continue, we can turn recording off. You will not be personally identified or named in any reports from the research.

Finally, we want to remind you that this is a research project and to make sure you understand your rights as a participant in this discussion. Most important for you to know is that you can choose whether or not to answer any of the questions I ask. Participation is voluntary. Responses in no way impact your receipt of services from the CC Bio INSITES program.

Before the interview, you were emailed the study consent form saying that you agree to partake in this part of the research study. By staying and participating, you are showing that you understand why you are here and that you agree to participate.

Before we start, do you have any questions about any part of the research study? Is there anything that's unclear?

Part 2: Interview Questions

1. Before joining the CC Bio INSITES network, please describe your BER goals and progress.
2. Describe how you became interested/involved in Biology Education Research (BER)?
3. Why did you want to conduct BER?
4. Did you encounter barriers in conducting BER? If so, please take a minute or two to identify and list these barriers on this shared GoogleDoc, and then we will discuss. [*Pause for 1-2 minutes*] What barriers did you face, if any, to successfully conducting BER?
5. CC Bio INSITES strives to help mitigate or remove barriers to BER by providing various supports. Please describe, if at all, how CC Bio INSITES has assisted with mitigation or removal of barriers.
6. What barriers do you still face, if any, to successfully conducting BER research?
 - a. Are these barriers similar to what you have encountered in the past?
 - b. What types of supports are needed to navigate these barriers?
 - c. How can CC Bio INSITES be changed to better offer these supports?

The next set of questions ask you about various salient identities that you hold. These include racial or ethnic identities, institutional identities (e.g., being a part-time faculty or from a rural institution), or other identities. These can be positive, negative, neutral influences.

7. Describe your sense of belonging with regard to the broader BER community. What has contributed or detracted from this sense of belonging?
8. Please take a few minutes to type out on this shared GoogleDoc your most salient identities and how they influence your BER work, and then we will discuss. For example, an individual who identifies as the first in their family to go to college may feel more or less supported or included based on the language used by others in the BER community. [*Pause for 5 minutes*]
9. How, if at all, have your identities influenced your experiences participating in the broader BER community? [*Pause for 5 minutes*]

- a. How have these identities influenced (e.g. bolster/limited) your access to supports or barriers encountered?
10. How, if at all, have your identities influenced your experiences participating in the CC Bio INSITES network? Again, these can be in positive, negative, neutral ways.
 - a. How have these identities influenced (e.g. bolster/limited) your access to supports or barriers encountered?
11. Do you perceive your local academic unit (e.g., department, college, local academic community) to be supportive or not of your engagement in BER? Please describe these supports.
 - a. Has your engagement in BER and/or CC Bio INSITES influenced your perception of your academic unit's support?
 - b. Has your engagement in CC Bio INSITES or BER influenced the way your unit supports you?
12. What role, if any, do you hope to play in the BER community going forward?
 - a. *[if responses are very positive so far, feel free to follow up with this question:]*
Describe how your engagement in CC Bio INSITES or BER has influenced your department or colleagues' approach to education, if at all.

Thank you so much for your time!

Focus Group Protocol

Focus Group Objectives:

1. To better capture how the CC Bio network is providing for social, intellectual, and resource supports for its participants.
2. To better understand the importance of social supports and its influence on the other two forms of supports

Part 1: Introduction and Ground Rules

Welcome and thank you for coming today and participating in this focus group! My name is _____ and I am a researcher associated with the CC Bio INSITES network. This network focuses on providing supports for CC faculty interested in conducting and participating in Biology Education Research (BER). We define participation in BER as any actions or behaviors related to research in biology education including reading relevant literature, collecting or analyzing data, writing or presenting about BER, and engaging in BER collaborations.

You're here today because we'd like to hear from network members like yourself. We want to learn about your experiences and thoughts with regard to the network and the supports it provides. For example, we may ask questions like "how helpful has the network been thus far in supporting your CC BER projects?" Your honest comments on these topics will help us learn what helps and doesn't help CC faculty to engage with BER.

We've developed a set of questions to guide this discussion and will provide time for all who wish to respond to do so after each question.

Before we begin, here are some tips that will help make our discussion today run smoothly. First, there are no right or wrong answers, only different points of view. We hope that each of you will feel free to share your thoughts and opinions, even if they're different from what others have said. We will take turns speaking so that we can keep to the timeframe of 1 - 1.5 hours for this research study. All opinions that you'd like to share are valuable to us.

While it's usually best for your opinions to be shared with the group, there might be a time when people feel uneasy about sharing their thoughts out loud. Because of this, we encourage each of you to email thoughts that you would prefer not to say aloud to the facilitator after the meeting. I will also be available after the focus group is over in case you want to tell me something else one-on-one.

A little bit about privacy. We promise that no one's name will be used in any reports about this project. You are welcome to use a nickname or to make up a name if you don't want to use your real name during this conversation. We also encourage everyone to keep what's said here private (stays here) and not discuss other people's comments outside of this group.

I will be recording today's discussion via Zoom's record function. This helps us make sure we don't miss anything that anyone says. The notes and recordings will not be shared with anyone outside of the research team. At any time if members of the group do not want the recording of the discussion to continue, we can turn recording off. No one will be personally identified or named in any reports from the research.

Finally, we want to remind you that this is a research project and to make sure you understand your rights as participants in this discussion. Most important for you to know is that you can choose whether or not to answer any of the questions I ask. Participation is voluntary. Responses in no way impact your receipt of services from the CC Bio INSITES program.

Before the focus group, you were emailed the study consent form saying that you agree to partake in this part of the research study. By staying and participating, you are showing that you understand why you are here and that you agree to participate.

Before we start, does anyone have any questions about any part of the research study? Is there anything that's unclear?

Part 2: Focus Group Questions

The CC Bio INSITES network strives to offer three different types of supports to network members. They are social, intellectual, and resource support, and are defined as follows:

Social support is defined as emotional support, camaraderie, and encouragement that is gained through social interactions with other network members. This type of support is defined by the supporting individual having the disposition and desire to support and encourage you.

Intellectual support is defined as access to knowledge that supports engagement in Biology Education Research (BER). For example, having a network member explain how to do a certain analysis or forming a collaboration with someone because they have specific expertise would be forms of intellectual support. This type of support is defined by the supporting individual having the knowledge or skill needed to assist you.

Resource support is defined as access to resources that enable Biology Education Research (BER) work. For example, if a network member provides another member with access to an IRB, journal articles, or funds to do BER this would be considered resource support. This type of support is defined by the supporting individual having the resources to assist you or ways for you to get those resources.

1. Of the three different supports--social, resource, and intellectual--which do you find to be important in enabling you to conduct Biology Education Research (BER)? Why?
 - a. Could you rank the supports in order of most to least important for you personally as a BER researcher?
 - b. Do you provide that type of support (the most important ranked) to those in the CC Bio INSITES network? Please describe.

We are now going to talk about each of these supports in greater depth. In particular, if the network has provided you with each:

2. Has the CC Bio INSITES network provided you with **social support**? If so, please describe these supports with any examples.
 - a. Please describe any specifics (e.g. Who, When, Where) of these supports.
 - b. [*If participants name individual people, ask:*] How was that person able to offer you that support?
3. Has the CC Bio INSITES network provided you with **intellectual support**? If so, please describe these supports with any examples.
4. Has the CC Bio INSITES network provided you with **resource support**? If so, please describe these supports with any examples.

Thank you so much for your time!

Supplemental Tables

Supplemental Table 1: Description of the CC Bio INSITES program components.

Program Component	Frequency	Timeline	Incentive / compensation	Description
Full Network Meetings	Annually	May 2018 - May 2021	Travel and accommodations provided Stipend \$1000 / person	Annual network meetings in which participants engaged in professional development related to CC BER. Meetings were held in late Spring each year. Meetings one and two were conducted in-person at the HHMI headquarters in Chevy Chase, Maryland for 2.5 days each. Meetings three and four were held virtually via Zoom for 1.5 days each. Meeting themes and topics included: <ol style="list-style-type: none"> 1. Sparking CC Bio INSITES: Network Launch Meeting - focus on defining participants' areas of BER interest and developing research questions 2. Strengthening CC Bio INSITES: Mentoring for Success - focus on learning qualitative and quantitative research methods and developing relationships with skilled INSITES analysis mentors 3. Communicating our INSITES - focus on active presenting styles and successful communication of BER results 4. Reflections and New Directions - focus on reflecting on the challenges of the past year (i.e., start of the COVID pandemic, defining (or re-defining) new research goals and orienting members to new professional development opportunities
Journal Clubs	Bi-weekly	June 2018 - March 2019	None	Journal clubs were held in which participants engaged in discussions of recently published biology education research. Papers were chosen by facilitators or participants and were provided one week ahead of journal club meetings. Discussions were ~1 hour long.

Professional development workshops for abstract writing	Bi-weekly	February 2020 - March 2020	None	Abstract writing workshops in which participants worked on a draft abstract in alignment with the Society for the Advancement of Biology Education Research Abstract Rubric were held every other week. Participants came prepared with several sentences written to align with one abstract category for feedback. During the workshops they received feedback from peers and had an opportunity to edit their sentences. Workshops were one hour long
Professional development workshops for quantitative analysis	Every three weeks	March 2021 - June 2021	\$500 compensation for doing three, \$400 for doing two, and \$200 for doing one	Quantitative analysis workshop in which participants worked to learn common statistical techniques used in education research (e.g., regression, ANOVA) and psychometrics (e.g., Exploratory and Confirmatory Factor Analysis) were held every third week. The free open-source program R was used for all analyses. Participants engaged in pre-workshop activities designed to introduce the analysis topics. During the workshops participants engaged in troubleshooting pre-workshop activities and learning additional techniques. Following each workshop, participants had opportunities to work on their own analyses with support from workshop facilitators. Workshops were two hours long.
Professional development workshops for BER article writing	Every three weeks	July 2021 - September 2021	\$500 compensation for doing three, \$400 for doing two, and \$200 for doing one	Article writing workshops in which participants learned about aspects of the article drafting and submission, such as how to select a journal, how to find and apply formatting standards, and how to anticipate reviewer and editor expectations at a journal were held every third week. Participants came to workshops with different sections of a draft manuscript prepared and had opportunities to receive feedback on that section during the workshop. They also met with editors and monitoring editors of different journals and had the opportunity to ask questions about the submission and revision process. Workshops were two hours long.
Access to	As needed	Continuous	Up to \$1000 total /	Research teams could request funds to support their BER

funds for conducting research		starting in year 1	research team	work, including funds for software, survey platforms, journal/book access, IRB approvals, and travel to convene with collaborators
Access to analysis consultants	As needed	Continuous starting in year 2	Up to 20 hours of consultation paid for	Research teams could request funds to support quantitative or qualitative data analysis efforts, including payments for statistical consultation or in support of collaborative data analysis with experienced BER scholars.

Supplemental Table 2: Codebook for barriers/constraints themes.

Theme	Definition of Theme	Code	Definition of Code	Illustrative Quote	Number of Interviews
1) Time constraints	CC faculty (CCF) are not typically provided dedicated time for research. Without dedicated time, faculty cannot conduct (through performing essential tasks), or learn to conduct BER.	BER practices requiring more time	Specific skills that CCF express not having enough time to learn or to conduct. This includes data analysis, completing an IRB, sharing results, and a regular time commitment to do BER.	"Well, I mean, it's time-consuming to learn statistics and the data analysis" -Maddie (I)	9
		Non-agentic time constraints	Non-agentic reasons CCF do not have time to conduct BER. Non-agentic means that CCF express an external locus of control indicating an absence of personal choice or agency in defining priorities; CCF have professional work or personal priorities which take away the time they have to pursue BER.	"Yeah, just Community College faculty teach a full load every semester. There is no time allocated for doing research. So the time that you have is spent on teaching, and doing lessons, and grading, and working with students. But not research." - Maddie (I)	8

		<p>Agentic time constraints</p>	<p>Agentic reasons CCF do not have time to conduct BER. Agentic means that CCF express an internal locus of control; CCF choose to prioritize their time in doing other important tasks rather than pursue BER, showing personal choice or agency.</p>	<p>"That I have other stuff, too, that I like to do. And I think that's, that's probably been the biggest, you know, the biggest barrier outside of everything else is that I'm not willing to give that stuff up. I've, I did, I've done it before for grad school, and when my kids were little and stuff like that, and I'm just not willing to do it now." -Elizabeth (I)</p>	<p>11</p>
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<p>2) Desire for BER Skills and Knowledge</p>	<p>CCF express needing to build the skills and know how to conduct or begin conducting BER. This may include knowledge of where to look for resources. This is different from time constraints where an individual wants to learn but does not have time.</p>	<p>Desired areas of knowledge</p>	<p>CCF express not knowing how to carry out certain research elements in BER and needing new knowledge in order to do so. This includes knowledge of how to do analysis, prepare an IRB protocol, and obtain funding and resources.</p>	<p>"I think some things that we found thought initially were really overwhelming were things like not having the knowledge to do the statistical analyses. So like, lack of like, knowledge, I guess, that we didn't feel that, yeah, that we didn't feel like we were experts in doing a lot of the types of steps that are necessary for analyzing a lot of this dataset. That it was something that we, we were really comfortable doing statistics and biology data sets, but then doing things like survey statistics was completely different." - Jessica (I)</p>	<p>14</p>
		<p>Perceived need for BER qualifications</p>	<p>CCF feel a lack of perceived qualification to do BER. This was often rooted in their prior experience, training, or education, which was not based in BER. They express feelings of imposter syndrome.</p>	<p>"And so I know a lot of us in our group felt a little bit overwhelmed when we first started diving into this [BER] and realizing that there was so much more to it that we just didn't understand because we had never performed this type of research before." - Jessica (I)</p>	<p>10</p>

<p>3) Lack of incentives or rewards</p>	<p>Professional expectations and incentive structures emphasize teaching and service, not research. Administrators signal that they do no value research by not providing incentives or teaching releases or counting research as service, etc. Without formal incentives, CF may not see CC BER as a valued endeavor.</p>	<p>Lack of incentives from administration</p>	<p>There is a lack of incentives for CCF to engage in BER. The lack of incentives stems from CC administrations/departments not offering incentives such as teaching releases, credit toward promotion and tenure, or monetary stipends for CCF to conduct research. Incentives are related to factors that motivate one to do BER before the BER work is done.</p>	<p>"There's no way that I can argue to do biology education research if I'm not incentivized for it. I need, there has to be an incentive. And I'd love to say that I'm just gonna do it for the sake of doing it because it's all those things that we're talking about, it keeps me involved and etc. I just can't, my life is too crazy. I just need that extra bit of incentive. And maybe that makes me a little transactional. So that's one of the reasons to get grants and so forth for me is so that I can actually pay myself to do some of this work." - Vanessa (I)</p>	<p>12</p>
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		Lack of rewards	There is a lack of rewards for CCF who engage in BER. CCF do not receive formal or informal affirmation of their work and do not get monetary compensation. Therefore, CCF do not feel that doing BER is seen as a valuable or a worthwhile professional endeavor. Rewards are related to appreciative compensation provided after the BER work is done.	"someone external has to decide this is important and decide to fund it. And it has to be prestige, time, money, something has to go to your institution that's actually meaningful to the institution, which is money. And something which, you know, is going to say, you know, "This is a valuable asset."" - Cameron (I)	9
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<p>4) Stereotypes and Implicit Attitudes of CCF</p>	<p>As a Community College Faculty (CCF) in BER tensions can arise between teaching and research roles, expectations as a CCF, and stigmas from four-year BER members.</p>	<p>CC stigma or misconception</p>	<p>Stigmas or misconceptions related to a CCF's ability to do BER from the broader BER community. These stigmas often prevent CCF from feeling they belong in BER. This includes misconceptions about the rigor of BER performed by CCF.</p>	<p>"Like the subtle ways that sometimes Community College instructors are felt to be less of an academic participant, mostly because a lot of I believe there's, and this is something that definitely held true when I was a grad student that it was looked down upon to go into community college. And you were basically told, once you go into community college, you can never go back and do research. And that, you know, you go and become a community college instructor because you aren't good at research or because you failed at something previously in your life. So I feel like there's kind of these like, subtle biases and lots of subtle biases that we see among other academic institutions, or people from other academic institutions, especially if they've never really fully experienced what it's like to be a community college instructor" - Jessica (I)</p>	<p>12</p>
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		Identity misalignment	CC faculty have a strong "teaching identity," but may have a weaker or absent "research identity." This stronger teaching identity could hinder engagement in BER since there is a perceived tradeoff of engaging in teaching or research.	"But then you get into I took this job because I love teaching. And if I had to choose between teaching and research, what would I do? And I'm not sure. I'm not sure that research would come out on top of that. So I don't I mean, I don't know how to overcome the time thing" - Kathleen (I)	2
5) Lack of administrative and/or peer support	Administrators or CCF peers may view CC BER as at odds with normal CC roles and responsibilities and may therefore express skepticism about individuals engaging in CC BER.	Lack of buy-in or pushback for BER	CC administrators or peers are unconvinced of the value of BER and resist collaborating or providing support to CCF conducting BER. This category also includes a fear of potential consequences if colleagues or administrators find out CCF are doing research (e.g. CCF fear these individuals will assume they are not putting enough time into their teaching).	"Yeah, so we don't get anything, we almost get a little bit of a--what's the word I'm looking for not slack, the opposite of slack-- lip, I don't know. A little bit of attitude. The people at my institution, and I don't know this is only at my institution, it's sort of like, "Well, if you have the time to do that, then we should give you more of a teaching load". It's more, it's more sort of thrown in our face in terms of, sort of, we should be spending our time doing something else. Or we're obviously being paid too much, because we're doing research. That kind of thing." - Nymphadora (I)	9

		Lack of community support	CCF do not have a research community to rely on for their BER work. They also may not be able to find willing mentors to help them conduct BER. This can lead to feelings of isolation.	"I definitely felt like at the very beginning, a little bit of an outsider, especially when attending some of the conferences that didn't have like solely Community College instructors." - Jessica (I)	9
6) Limited access to infrastructure	CCF has limited access to needed Infrastructure to do BER, including funding, administration (e.g., IRB offices), research tools (e.g., statistical programs), information (e.g., access to journals), and personnel support (e.g. postdocs or grad students). These tools are necessary to both learn about and conduct BER.	Lack of funding	CCF do not receive money from external or internal sources (e.g. department) to fund BER pursuits. Includes funds for travel, professional development, literature, software/analysis, and publishing	"I kind of realized this after talking to some, like R1 research people in BER, they're often surprised to find out how little we get as far as professional development or travel funds at community colleges. And they, they assume everyone has the same, you know, large pot of money to travel whereas most Community College's like even in our area where we get a little bit more than some, it's, you know, 500 to \$1,000 a year which isn't much. You might be able to go to one conference, but then on top of that There's a lot of barriers to getting that money because not many people use it." - Jessica (I)	9

		Lack of structural support	CCF's home institutions do not provide supports such as access to data for BER, support for personnel such as graduate students or IRB officials, or access to professional networks to find collaborators or mentors.	"But in going on, and kind of like branching off and thinking about doing research on my own, I'm realizing that, you know, we might need to have like more access to more statisticians to help us out. And it's not something that we necessarily have at our Community College. So if we were at a university, we could probably just go over to the psychology department or the stats department and find a grad student or someone that would be willing to jump on board with our research. But at community colleges, we don't have access to people like that. And so I think maybe having some way of finding people that are interested in joining up with Community College researchers and willing to work with us would be really nice and helpful." - Jessica (I)	11
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Supplemental Table 3: Codebook for intellectual, resource, and social supports.

Theme	Definition of Theme	Code	Definition of Code	Illustrative Quote	Number of Interviews
1) Intellectual	CCF have access to knowledge that supports engagement in BER. This includes help with research, new shared opportunities, and collaborations.	Sharing new opportunities	New opportunities shared by other network members include being a reviewer, participating in workshops or conferences, leadership roles, funding opportunities, and novel connections to other networks or groups.	"Some of the people that you learn and network with, that are at important places like the National Academies or HHMI, or, you know, what is it that I do that connects me in and then that starts giving you invitations to other things you, you get on people's radar." - Joan (I)	7
		Help with research	Help provided by the network may include skills learned in professional development/workshops, analysis support, receiving feedback, and other information about doing BER that they did not previously know.	"in the second HHMI meeting, we started to analyze data. So we did get help from people to figure out how to analyze what we had, when we started to, I just don't know, we'll kind of have one way of analyzing it. And I know, I got the tools and kind of how to do it." - Teresa (I)	14

		Collaborations	CCF form collaborations with other CCF from their own institution or from other institutions, or with skilled and/or experienced biology education researchers. These collaborators add value to their BER.	"And so I've found other researchers at other universities that are willing to help with some of the other research that I'm conducting at my school." - Jessica (I)	12
2) Resource	CCF have access to monetary or non-monetary resources that enable BER work. These resource include access to an IRB, journal articles, or funds to do BER.	Non-monetary	The network provides CCF with access to literature, IRB, software, personnel, and data that they would not otherwise have access to.	"So this is where CC bio INSITES has been crucial because they connected all of the projects up in our second year in-person meeting with early-career faculty who have that ability to help us and it was in different areas." - Joan (I)	9
		Monetary	The network provides CCF with money for conferences or publishing or gives CCF a stipend.	"So I think with CC bio INSITES, it was really helpful that they provided us with some funding to attend some of these conferences." - Jessica (I)	8

		Collaborations	CCF form collaborations with other CCF from their own institution or from other institutions, or with skilled and/or experienced biology education researchers. These collaborators add value to their BER.	"And so I've found other researchers at other universities that are willing to help with some of the other research that I'm conducting at my school." - Jessica (I)	12
3) Social	This type of support is gained through social interactions, encounters, and experiences with other individuals such as those from the INSITES networks or colleagues from the broader BER community. This includes emotional support, camaraderie, and encouragement that is gained through social interactions with other individuals (e.g. network members or not).	Community interactions	INSITES has given CCF the opportunity to connect with other CCF and become a part of the community. They feel supported and motivated by others in the community with the same goals and objectives in doing BER.	"But as SABER as a whole, I don't, I don't feel as much of a connection, but having those familiar faces, and that sort of understanding of CC BER, certainly helps with my identity within the overall community. So having, you know, I forget and I in 2019, I think there was like 30 faculty, a CC faculty at Sabre, and I was like yeah, I know those people from the network. And so I can go talk to them about research ideas, or their projects or other things that are happening in Sabre, that that helps me feel like I belong." - Cassandra (I)	15

		Admin and peer support	Administrators and peers support CCF's BER work by allowing them to conduct their research and not posing a barrier to them. Not necessarily directly encouraging, but not discouraging BER. Admin and peers (usually INSITES CCF) provide support by holding CCF accountable in their BER progress. Furthermore, CCF are encouraged to continue their BER work when admin and peers provide words of affirmation for them or their work that make the CCF feels as though their work matters.	"It is very supportive. My chair, like I said, he's the other person in my college, and he's part of the CC Bio INSITES. Very supportive, when I want to teach in a different way, he allows me to and, you know, with, if I explained to him that Yep, go free. Whatever scheduling-wise, and all of that." - Maria (I)	14
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		Giving back to the community	CCF feel a part of the BER community when they help others do BER work.	<p>"I would like to eventually be a member contributing research of my own to the bio education research community, you know, with the support I again, because I am not at a four-year institution, I don't have a lot of other people to ask for assistance. You know, with the research process that I would see the the the Bio INSITES network being a really important tool for me to get help at the different steps and You know, depending on how long this network lasts, you know, maybe somewhere down the road being able to help other people sort of join the community." - Sam (I)</p>	6
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Supplemental Table 4: Codebook for origins of barriers or supports for CCF.

Theme	Code	Definition of Code	Illustrative Quote	Number of Interviews
INSITES Personnel - support or barrier	INSITES leadership	The supports or barriers that come directly from the CC Bio INSITES leadership (Lisa Corwin, Jeff Schinske, Apryl Nenortas, or Linnea Fletcher)	"I would like to add that the leadership is wonderful. The leadership of CC bio INSITES--they walk the talk, they are empowering. When I was saying that, it's hard when you when the trust is shaken to them, and that's never been the case. They work very hard and intentionally to build, and foster, and nourish that trust. And that has been a huge part for me to why I feel very privileged and very grateful to be part of this community." - Maddie (I)	11
	Other INSITES members	The supports or barriers that come from INSITES peer collaborators, INSITES mentors, or other people affiliated with INSITES (e.g. funding agency representatives).	"And I worked with Jenny McFarland, who used to be in our department, and she was involved in it. And she saw that I was interested in that sort of thing. She was sort of my mentor, and she basically told me about all the opportunities that were available and invited me to take part in them." - Nymphadora (I)	13
External Personnel - support or barrier	CC peers or personnel	The supports or barriers from CC people not affiliated with INSITES, often other CC faculty.	"I would say yeah. Before COVID, I could answer and say yes, definitely. Especially since then, a couple of faculty learned about cc bio insights and then they started voicing that this is great, we need to do some of this work. So yes." - Maddie (I)	5

	Non-CC peers or personnel	The supports or barriers from non-CC people who are a part of the broader BER community/scientific community.	"And one of my thesis advisors was Robin Wright, from the University of Minnesota who really helped, I guess, inspire me. And she told me when I got my Ph.D., she gave me a book that was called "Scientific Teaching" and basically left me with a, "Just because you're not going on to a postdoc or a research-based field, doesn't mean you have to stop doing research", and kind of challenged me to keep going, keep trying to do it. And I guess I took that to heart when I started at my first teaching job, which was at a different community college." - Vanessa (I)	8
	Administrators	The supports or barriers from the administration at the CCF's home institution (e.g. Department Chairs, Deans).	"It is very supportive. My chair, like I said, he's the other person in my college, and he's part of the CC Bio INSITES. Very supportive, when I want to teach in a different way, he allows me to and, you know, with, if I explained to him that Yep, go free. Whatever scheduling-wise, and all of that." - Maria (I)	8