

Supplemental Material

CBE—Life Sciences Education

Tuma *et al.*

Supplemental Online Materials for

The Darkside of Development: A Systems Characterization of the Negative Mentoring Experiences of Doctoral Students

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Screening survey questions

1. We are interested in the quality of mentoring that graduate students experience as they do research. How would you rate the overall quality of your mentoring relationship with your graduate advisor? A rating of -3 is extremely negative or unfavorable, 0 is neutral, and +3 is extremely positive or favorable. (*Likert Scale*)

	-3	-2	-1	0	1	2	3
Relationship with Advisor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. As a whole, how would you rate the quality of your graduate studies? A rating of -3 is extremely negative or unfavorable, 0 is neutral, and +3 is extremely positive or favorable. (*Likert Scale*)

	-3	-2	-1	0	1	2	3
Graduate Studies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Please describe your ratings. What factors or experiences prompted you to select these ratings? (*Text Entry*)

The following questions are about your personal characteristics and will help the researchers ensure they have received input from students who represent a broad range of personal characteristics.

1. What best describes your degree status?
 - PhD Student
 - PhD Candidate
 - Postdoctoral researcher

- Prefer not to respond
2. How many years of your PhD have you completed?
 - 1 years
 - 2 years
 - 3 years
 - 4 years
 - 5 years
 - 6 years
 - 7 years
 - 7+ years
 - Prefer not to respond
 3. What gender do you most closely identify with?
 - Female
 - Male
 - Trans
 - Non-binary
 - Prefer not to respond
 4. With which ethnicity do you most closely identify?
 - Hispanic or Latino/Latina
 - Not Hispanic or Latino/Latina
 - Prefer not to respond
 5. With which race(s) do you most closely identify? Please choose all that apply.
 - American Indian or Alaskan Native
 - Asian
 - Black or African American
 - Native Hawaiian or other Pacific Islander
 - North African or Middle Eastern
 - White
 - Prefer not to respond
-
6. We may want to contact you for an interview to better understand your experience. You would receive a \$25 Amazon gift card for participating in an interview. If you are willing, please enter your name and address below. **Please note that we will keep your information confidential but we need your name and contact information in order to schedule an interview.** *(Text Entry)*

First and last name:

Email Address:

Interview Protocol & Questions

Introductory comments & verbal consent

Thanks for responding to our survey about your research experience and the mentoring you experienced during your graduate education. You agreed to participate in this study when you responded to the survey, but I want to check in and see if you have any questions before we proceed with the interview portion. I'd like to make an audio-recording of our conversation so I can be sure we capture your comments accurately and completely. We will transcribe your comments and replace any identifying information with pseudonyms. We will only use the transcript in our study, so no one else will hear your voice or know that you participated in the study or made specific comments about your research and mentoring experiences. Do you have any questions for me at this point?

And are you comfortable with my making a recording of our conversation?

- If yes, start recorder
- If no, then explain that we will be taking notes to make sure we capture their comments as well as possible

Proceed with questions.

Interview Questions

1. Let's start with you telling me a bit about your graduate experience. What institution are you at and what department are you housed in? What is your graduate research about? Is your research largely benchwork, computational, or fieldwork?
2. We are especially interested in problematic or negative mentoring experiences students have during their graduate education because the positive aspects are well documented. You rated the mentoring you experienced as [less than ideal]. Was there a particular person you had in mind or were you thinking about the mentoring you received in general? Was this your thesis advisor?
3. What made your relationship with this individual / the mentoring you experienced negative or problematic?
4. What qualities, characteristics, and/or attitudes of the individual / the mentoring that made the situation negative or problematic?
5. Were there any specific situations that made your relationship with the individual negative or problematic?
6. Did you or the individual try to address these issues? If so, how? And how successful was that? If not, why not?
7. How did these negative or problematic aspects of the mentoring you experienced affect you personally on a day to day basis? And for thinking about your future?
8. Is there anything else that you would like to share about your experience?
9. Do you have any questions for me?