

Using Self-Efficacy to fight Imposter Syndrome

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1. What is Imposter Syndrome?
2. What is self-efficacy?
3. How can we build self-efficacy in ourselves AND others?

We will:

1. Define and articulate what self-efficacy is and its four sources
2. Articulate your role in your own self-efficacy
3. Identify signs of self-efficacy that resonate when conducting research/classroom related tasks
4. Assess the influence of others on their research self-efficacy
5. Devise strategies for supporting others' self-efficacy in research.

What is Imposter Syndrome?

- Coined in 1978 by clinical psychologists Pauline R. Clance and Suzanne A. Imes.
- The feeling that that you are a fraud and **do not** deserve the success you have achieved.
 - We tell ourselves that any success we have was a result of luck, timing, or tricking others into believing we are more intelligent and competent than we actually are.

What are some ways that this might affect your daily life? Your relationships? Your career?

What is Self-efficacy?

One's belief in one's ability to succeed in specific situations or accomplish a task.

- Sources
 - Mastery experience
 - Vicarious experience
 - Social persuasion
 - Emotional/physiological states

Sources of Self-Efficacy



Anatomy of a success experience (Handout #1)

Think of a significant moment in your career thus far, a time when you had an outstanding experience or achievement that boosted your confidence to do coursework or research.

Discussion (pairs):

- How did that significant moment happen? What were the events, people, and experiences that contributed to the success?
- What factors contributed to your sense of efficacy?
- Were some efficacy sources more common than others in your success story? If so, what are they?

Take a few minutes to review the Self-efficacy toolbox

Reflect:

- Which factors would your mentor(s) typically address?
- Which factors are less well addressed?
- What pieces can you easily do?

Write down a challenging task at the top. Break the task down into 2-3 steps. Place them in sequential order beginning with the skill you believe needs to come first on the bottom step.

Discussion (pairs):

What are ways that you could support or find support to increase your self-efficacy at **one** of these steps using **at least three** of the sources of self-efficacy. Be sure to consider:

- The four sources of self-efficacy (Handout #2)
- Frequency of strategies
- Immediacy of strategies (timing)
- Methods for strategies (form)

You have written the first draft of your research proposal. You spent a lot of time working on the proposal and are really pleased with the progress you made as a researcher and writer since joining your mentor's research lab.

You have received an email from your mentor with this feedback:

I have included some edits for grammar and clarity in the document. The proposal needs substantial work before I see it again. You have cited a lot of prior research in the introduction and literature review, but it is disorganized and difficult to follow. The method and expected results sections are okay, but I am not convinced of the importance of this research based on this draft. Once you have made these changes, let me know and I will take another look. I do not want to waste any more of my time on this until this proposal has been drastically improved.

Guiding Questions for Discussion

1. How do you feel right now? Write down some of the emotions and/or physical responses you are feeling.
2. What are some of the assumptions that you find yourself making about the person giving you this feedback?
3. How might this feedback influence your confidence or self-efficacy to continue to prepare this research proposal for publication?
4. How might this feedback influence your confidence to write future successful research proposals?
5. What other sources (i.e., individuals, messages, or experiences) could you look to that could increase your self-efficacy to revise this research proposal?

Now, consider the same feedback framed in a different way:

This is a good first draft of the research proposal. I have included some edits for grammar and clarity in the document. I can tell that you have put in a lot of time and effort into reviewing the literature. The method and expected results are clearly articulated and are explained in a way that should be accessible to a broad audience, which should leave us well-prepared to present and eventually publish this work. The implications section needs some work, particularly where you are trying to make the case for the importance of this study. I think you could also spend a little more time in the introduction setting up the study and doing a little foreshadowing for the reader. I would like to review the proposal again once you have addressed these comments, and I have every confidence that you can get this draft to where it needs to be.

1. How do you feel after receiving this feedback compared to the previous example?
2. What are the assumptions you find yourself making about the person giving you this feedback?
1. What is the intent behind each of these feedback examples? Is it the same?

A friend of yours is planning on applying to graduate school. The deadline is quickly approaching, and she mentions that she has been procrastinating on getting started with her application because she is not sure she can write a good statement of interest. You think that she may be experiencing imposter syndrome and low self-efficacy.

Guiding questions:

- What are some questions you could ask to determine if this is related to her confidence or other factors (e.g. interest)?
- What do you think is one important thing your friend might want to hear to keep her engaged in writing her statement
- Knowing what you know about the four sources of self-efficacy, what can you do to boost her confidence?

Physics Research Mentor Training Curriculum



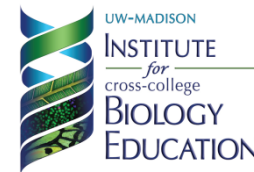
Sessions	Topics
Week 1	Getting Started and Project Design
Week 2	Establishing Expectations
Week 3	Maintaining Effective Communication
Week 4	Assessing Understanding
Week 5	Fostering Independence
Week 6	Mentoring Challenges and Solutions
Week 7	Addressing Diversity
Week 8	Dealing with Ethics
Week 9	The Elements of Effective Mentoring
Week 10	Developing a Mentoring Philosophy

Developers of the original
training materials:

Jo Handelsman
Christine Pfund
Sarah Miller Lauffer
Christine Maidl Pribbenow

Developers of the physics
training materials:

David Ernst
Eric Hooper
Catherine Mader
Christine Pfund
Monica Plisch
Alejandro Rodriguez-Wong
Chandra Turpen



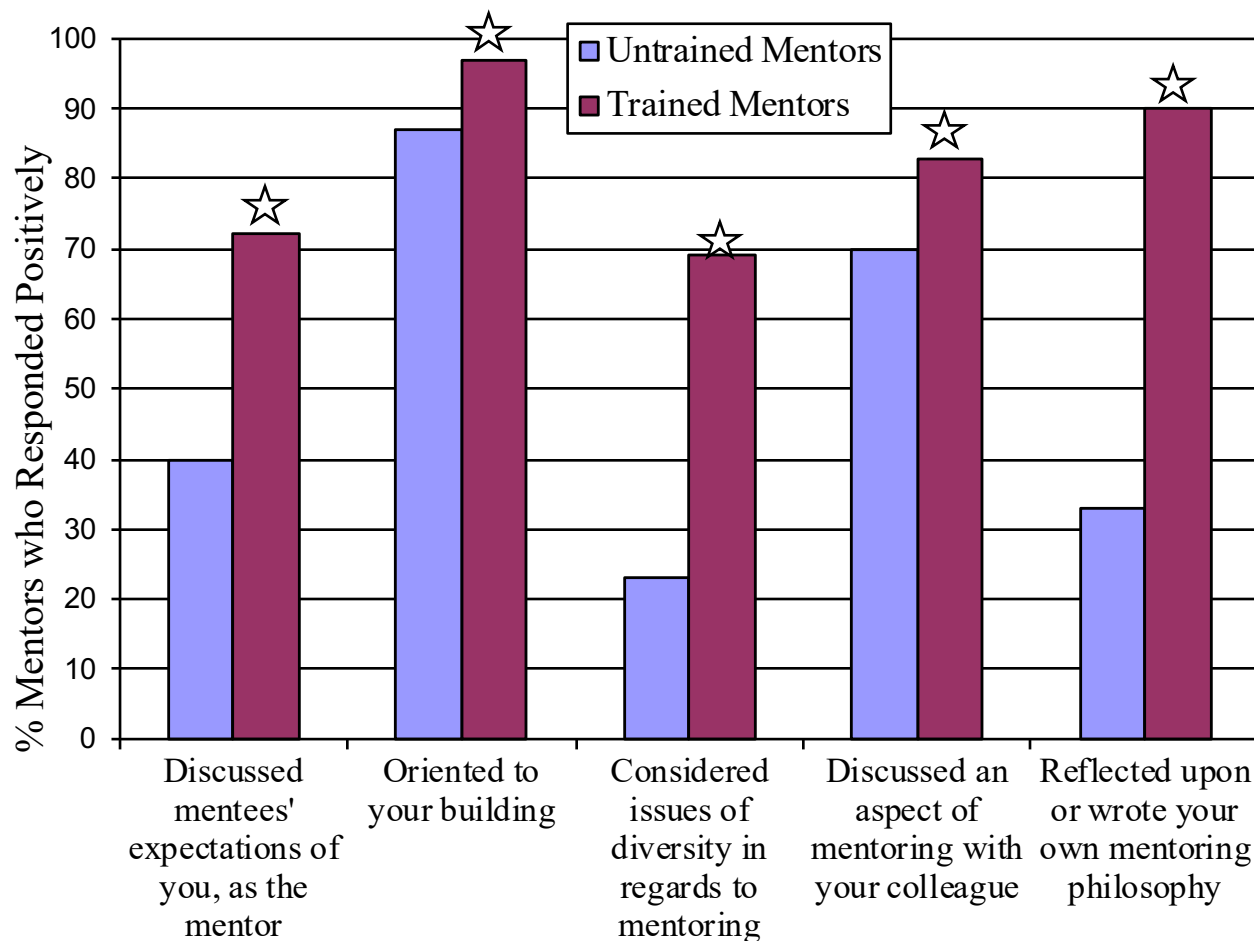
William Oberwein has been doing research with Professor Garcia's research team for a year as part of the McNair Scholars program. The McNair program prepares high potential students from disadvantaged backgrounds for graduate school. William is the oldest of 8 children in his family and grew up on a dairy farm in northern Wisconsin. He started his undergraduate career majoring in Dairy Science, but switched to biochemistry after earning A grades in his introductory chemistry and biology courses. He is a natural in the lab, very detail oriented, productive and a team player. He seems to really enjoy doing research.

As William begins his senior year, his graduate student research mentor, Ruth, asks him how he did on the GRE and to which graduate training programs he is applying. In response, he says, "Oh, I haven't taken the GRE yet. I'm still thinking about it." She is surprised, but doesn't push the issue. Later, she asks Jorgé, a post-doc in the lab with whom William occasionally works, whether he has spoken with William about graduate school. Jorgé shares that he has overheard William say to his peers in the McNair program that graduate school is not for him and that he is planning to return to the family farm when he graduates. "I'm not sure I can cut it in graduate school," says William.

Guiding Questions for Discussion

1. What are the main themes raised in this case study?
2. What might be some signs that the mentee is not feeling efficacious?
3. What are some questions that Ruth could ask to determine if this decision is related to his confidence or other factors (e.g., interest?)
4. What do you think is one important thing that the mentee might want to hear to keep him engaged in research?
5. How do you know when a student is feeling efficacious or confident?
6. In the research experience/lab structure, what are some potential threats to self-efficacy besides the research task itself?
7. What are three ways that you could help build the mentee's research self-efficacy? That is, what might you say or do that could help the mentee believe in his ability to successfully do research and go to graduate school?

Changes in Behavior of Mentors



Pfund, *et al.* Science 311, 473 (2006).