

## **Interpersonal power dynamics between STEM faculty advisors and disabled graduate students: an arts-based research composition**

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The purpose of this arts-based research composition is to explore the interpersonal experiences and power dynamics between disabled STEM graduate students and faculty.

## **Abstract**

The hierarchical nature of STEM academic programs creates a substantial interpersonal power differential between graduate students and faculty. Research advisors often control a graduate student's funding, research topic, and acceptance to their graduate program and have significant influence over a student's career prospects. Understanding the power differential between graduate students and faculty offers the STEM community multiple opportunities to positively impact the academic journey, professional advancement, health, well-being, and lives of graduate students. Data was collected through two phases of qualitative interviews with seven disabled STEM graduate students. This paper presents an amalgamation of the participants' paraphrased quotes from interviews regarding their experiences in the form of a poem. This composition reveals a spectrum of interpersonal interaction between graduate students and faculty, including supportive interactions (listening, advocating, affirming, openness, and flexibility), and violence (harassment, discrimination, gaslighting/denial, outing, and abuse). This paper explores harmful interpersonal practices that need to be interrupted and supportive practices that can be modeled. Additionally, this paper highlights the need for institutional structures to provide better support and accountability to faculty so that the norms of STEM graduate education can change.

## **Problem**

The hierarchical nature of STEM higher education programs creates a power differential between graduate students and their faculty research advisors. Research advisors often control a graduate student's funding, research topic, and acceptance to their graduate program [1]. Faculty often have significant influence over a student's career prospects [2]. Additionally, the one-on-one pedagogical approach to Ph.D. and research-based master's programs can leave students vulnerable to faculty harassment and abuse [2]. Graduate students are often under a high level of emotional, physical, and psychological stress [3], [4], [5]. Interpersonal abuse is one of the most common sources of graduate student stress [5]. Understanding the power differential between graduate students and faculty offers the STEM community multiple opportunities to positively impact the academic journey, professional advancement, health, well-being, and lives of graduate students. It can support us in interrupting harmful interpersonal practices and modeling supportive practices.

## **Approach**

Data was collected through two phases of exploratory semi-structured qualitative interviews with seven participants under the University of Colorado Boulder IRB protocol 21-0217. The participants and methods are fully discussed in Beardmore [6]. Participants included STEM graduate students who

self-identified as being disabled or having one or more disabilities. This paper does not present the results in ordinary prose, that is, writing that follows a basic grammatical structure organized into sentences and paragraphs [7]. Instead, it presents an amalgamation of the participants' paraphrased quotes from interviews regarding their experiences in the form of a poem. Amalgamating the participants' quotes into a collective form adds a layer of protection to the participants' confidentiality [8], [9], [10]. The “revelatory distillation” of poetic prose can capture and reveal ideas and experiences while positioning the participants as the creators of knowledge and understanding [11]. This format has been previously embraced by scholars (e.g., [10], [12]). Poetic prose counters the hegemonic norms and “neurotypical” expectations of Western “academic” writing by embracing the beauty of the neurodiverse brain, “Mad” mind, and “Crip” body [13], [14], [15].

## **Significance**

This work spotlights the interlocking systems of oppression that promote differences in power tied to social identities through the perspectives of disabled STEM graduate students. It confronts institutional structures, perspectives, and practices that promote ableist violence and the devaluation of disability in STEM academia. This composition also highlights opportunities for practices that enable the STEM community to challenge these oppressive systems and perspectives.

## **Results (The Poem)**

### **Listening**

Luckily my advisor was really open to listening to me.  
He saw that I didn't have to struggle as much as I was struggling.

When I was diagnosed with ADHD I went to my advisor and said  
"Hey, the reason why i'm not working on my dissertation",  
"is because literally, I don't care".  
"But I'm trying to fix that".

Luckily, his children had autism and ADHD  
He was very understanding of what I was going through.  
He said "you know that actually makes a lot of sense".  
It is really nice to have an advisor that just knows what's going on in my head.  
Man, he knocks it out of the park every day.  
He reminds me  
"If you can't concentrate on this task today",  
"you have X days to push it off and do other things".  
He really helps me manage my workload.  
And I'm really grateful for that.

### **Advocating**

Luckily he was the chair of the department, so he was willing to talk with the professors.  
He would tell them I am going through some shit.

“Just help her out”.  
“This isn't me playing favoritism”.  
“This is me saying, she has a medical condition that she just does not want to talk to you about.”  
It was super helpful,  
having that one person to advocate for me.  
Without having him there to do that for me, I probably would have dropped out.

#### Sharing without consent

My advisor went on to tell all prospective PIs details about my medical situation.  
He really poisoned the well for me.  
No one wanted to take me on.

#### Even arguing can bring understanding

My propensity to wait until the deadline did not agree with my advisor,  
in the slightest.  
He and I actually fought about it.  
But I think that the argument  
"Opened his eyes" to what I was dealing with.

#### Denying students' reality

My advisor took me on because he believes mental illnesses aren't real.  
He believes that if he ignores my PTSD, it'll go away.  
He told me that the big pharmaceutical companies were swindling me  
And I was taking meds that were no better than sugar pills.  
He told me that therapy is a waste of time.  
He has told me about the mental health state of many other people in the lab  
-that I'm not supposed to know about-  
And I'm sure he's told them about me.  
In a lot of ways it's great.  
He doesn't treat me any differently.  
He doesn't talk down to me.  
But I just know that if I have another crisis,  
he won't be understanding.  
He won't give me the sort of flexibility I need.

People are just ignorant and say ignorant things.  
They live their regular standard life so it's hard to relate  
They try to be nice about it but we're just very different  
So I think the compassion is there,  
but the understanding is not.

It's really hard for me to know for sure that no one is supporting me.  
Or is it just me feeling that way because I'm in this situation?

## Affirming students

There are good advisors.  
I hadn't been diagnosed yet but  
I told my advisor "i'm pretty sure I have anxiety"  
And he said "well I have anxiety and i'm pretty sure you have anxiety".  
He was very accepting of my needs  
If I needed to go home he would text  
"hey, I don't know the details"  
"I don't want the details"  
"but I heard that you're not feeling well. let me know, if you need a ride or anything else"  
That was just...  
super sweet.

## Being open about their own journey

The openness of the faculty members...  
They say all the time...  
"oh I go to therapy"  
Or "I struggle with this or that"  
Being able to see them be successful...  
That's so empowering.  
They've already made it  
They graduated.  
That's why they're your Professor.  
That's why they are your advisor.  
They still go to therapy and they promote us doing the same.

## How flexible are expectations?

STEM schools are way too intense  
If you don't hate yourself you're not working hard enough.  
I don't tell my advisor much about what is going on mental health wise.  
I do tell him when i'm at home it's hard for me to work,  
because I don't have a great home life.  
He seems to be okay with that,  
but it's still that expectation...  
that you're going to get things done.  
The same rigor is always there.

## Checking in on work life balance

But my advisor has rules with us.  
Every week, we have to tell him about a personal and a professional accomplishment.  
He's just as strict on the personal as the professional.  
If you say,

“All I did was work this week”,  
He's gonna get on to you and say “go do something fun”.

#### Funding

My advisor is probably one of the most supportive people we could have in the department.

Whatever problems we share with him,  
he'll take up the mantle to help us out.  
When he saw that I was having issues with my funding,  
He was determined to find a way for me to stay.

Before I talked to him,  
It had been exhausting all the time.  
I was doing research and working two jobs.  
One was more like manual Labor so,  
it was exhausting from every angle.  
And I was also supposed to be prepping for my fieldwork.  
But I had no time to do that, so it was just yeah it was a bad time.  
God mental health wise it was horrible.

#### Afraid to ask for help

The students say don't ask for help.  
You're going to single yourself out.  
You're going to make it harder on yourself.

Just last week, two weeks ago?  
I was talking to my advisor about helping another student.  
-A student he knows is experiencing a psychotic episode-  
He told me I should think seriously about helping someone selfish enough to ask for help.  
He said, "Think about it. If you needed help you wouldn't burden other people. You would solve the  
problem yourself. This is the person I may ultimately need to ask for help.

#### Being open to questions

One of my biggest issues is feeling stupid when I'm asking for help.  
But my advisor has been pretty open to my questions.  
He realizes everyone is struggling.  
I used to be so bad about asking for help,  
but now, it's so much easier to reach out and talk things over.

#### Not expressing when a request is too much

I asked my advisor for an accommodation.  
He did it.  
I didn't think anything of it.

Then when he was firing me he said...

the accommodation was unreasonable  
He never said anything.  
He never told me it was difficult.  
He never told me he felt inhibited.  
He just quietly held it against me.  
I'm now afraid of asking for accommodations.  
I think he felt like he didn't know how to interact with me.

I don't think he is any order of magnitude worse than other PIs.  
I think he's about typical.  
There was a moment when he said, "I feel like I've failed you."  
It took everything I had to not say "yes, you did."  
What I said was "most PIs would have."

Advisors don't know what to do

It came out that my advisor had so much insecurity...  
so many doubts about how to interact with me.  
He felt like he tried everything.  
From my end...  
He tried nothing.  
There's a lot of good intentions out there,  
but people don't have the training.  
They don't have the resources.  
And they don't know how little they know.

If I could change one thing,  
I would make more resources easily and shamelessly available.  
Even providing training that helps with verbiage would be very helpful  
It would help advisors have constructive conversations  
Instead of derailing their students.  
What could that look like for someone who is experiencing Depression?  
What might be triggering for someone with anxiety?

## **Discussion**

The current system that is common in STEM where faculty advisors largely control the destiny of their doctoral students, has sometimes resulted in cases of exploitation and harassment [16], [17]. Faculty PIs may not have been trained in the norms of positive mentoring and perhaps are passing on the practices that they themselves encountered and believe to be normal. Further, PIs are often constrained within a "culture of productivity" where labor is situated as a commodity and labor efficiency is valued over an individual's needs, preferences, and well-being [18]. Navigating a culture of productivity makes it difficult for a PI to balance the needs of their students against the need to fund their research, meet tenure requirements (keep their job), and meet externally mandated degree requirements/timelines for their students. Yet, the results demonstrate that some PIs are able to effectively support their students.

This composition reveals a spectrum of interpersonal interactions between graduate students and faculty. Advisors provided support through representation, empathy, flexibility, listening, advocacy, affirmation, openness, securing student funding, and checking in. Advisors also engaged in unsupportive actions such as sharing a student's disability status without consent, denying students' reality, not clarifying if an accommodation request is too much, and not discussing accommodation/flexibility options with the student. Advisors may not know what to do, and students may become afraid to ask for help. Such power can impact students' access to academic support, professional advancement, and well-being.

Systems of oppression and negative interpersonal interactions are detrimental to all students, but perhaps uniquely damaging for disabled students who are multiply nonnormative. There is increasing awareness that disabling conditions are common. Failing to support individuals is both unethical and damaging to the scientific and engineering capabilities of the nation. But we can imagine a future where the unique abilities and disabilities of each individual are respected as normal facets of being human. Faculty advisors value these differences and behave appropriately by respecting students' privacy, setting realistic expectations, and providing appropriate accommodations. Programs discuss a range of abilities and health issues as a normal part of the education process. The norms of STEM doctoral education can change, supported by institutional structures that provide education to faculty and hold them accountable. Experiences that support the well-being and thriving of disabled doctoral students should become the norm.

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