

Episode 50 – NASEM Summit on Reimagining STEMM Graduate Education and Postdoctoral Career Development: An Interview with Joerg Schlatterer

Brian Mitchell: Welcome to this special edition of Grad-Post. This marks the 50th episode of Grad-Post, and in commemoration of this milestone, we have a very special guest. Joining us today is Dr. Joerg Schlatterer - a well-known voice in the graduate education community - to talk about a recent National Academies Summit on graduate education. Joerg, welcome.

Joerg Schlatterer: Thank you so much for the invite, Brian.

Brian Mitchell: So, I've known you for over 10 years now, ever since we were both at the National Science Foundation in the Division of Graduate Education. Tell us a little bit about what you did at NSF, and what you've been doing since then.

Joerg Schlatterer: Absolutely. So, I had the privilege to serve as a program director at the National Science Foundation, specifically in the EHR [Education and Human Resources] directorate, back then, nowadays, Education, and there I worked in the Division of Graduate Education, and I had the opportunity to co-lead the NSF Graduate Research Fellowship Program. That was my primary responsibility, but also I tapped on, leading the GROW program, which is the Graduate Research Opportunities Worldwide. And also CCE STEM, Cultivating Cultures for Ethical STEM Research.

I must say, the highlight for me working there was really to be part of an outstanding team of dedicated and inspiring professionals that really care about making a difference in the graduate education landscape in STEM overall.

Brian Mitchell: And I agree with you. I really enjoyed my time there, and working with you, and having the same colleagues. So, you did this National Academies report. Tell us more about the National Academies - it goes by NASEM - and this summit on Reimagining STEMM Graduate Education and Postdoctoral Career Development. I was able to attend most of it online, and I really enjoyed it very much. How did it come about? Who was there, and what did you discuss?

Joerg Schlatterer: Absolutely. Thank you for joining the summit online, and I was excited to see that the National Academies provided both opportunities to be in the Kavli Lecture Hall directly here in Washington, D.C, but also joining the great conversations online. So, this summit, the Summit on Reimagining STEMM Graduate Educational Postdoctoral Career Development, was held this summer in July, in Washington, D.C, and also virtually. It was supported by the National Academy of Sciences Board of Higher Education and the Workforce, and by a generous gift by the [Kavli Foundation](#). The overall summit builds on a conversation series that happened in 2024, which focused on the roles and expectations of STEMM graduate students and postdocs aiming to identify actionable strategies to sustain the U.S. STEMM research enterprise while improving training and career development for early career scholars.

So, I learned about this opportunity, and I was honored to be asked to be a co-chair for that particular summit because it came at a time where several challenges arose in the overall graduate and postdoctoral education space. Some of our colleagues there said it's a "polycrises," and it was a timely conversation. But, reflecting on 2025, there was funding instability, there were immigration policy changes restricting international talent to come to the United States to actually help do work towards innovation, and to really make major progress towards the world's largest problems - and to solving those problems. Of course, there are challenges in the employment prospects for graduate students and postdocs with growing uncertainties for a career in academia. We are just coming out of a pandemic and no one knew how that all will shake out. There seems to be a path forward, but there are so many uncertainties, especially in the higher education space for all

kind of trainees, including graduate students and postdocs. So, these pressures created, really, an urgent need to rethink how possibly graduate and postdoctoral systems can develop to ensure resilience and adaptability.

Brian Mitchell: What were some of the key takeaways and some of the keynote speakers?

Joerg Schlatterer: The result of this summit was not really a report with strict recommendations: "Here's what you have to do." There were [so many reports in the past](#) that tapped really on graduate and postdoctoral education that we felt it was more time to ask thought-provoking questions or systems-provoking questions that really mobilize a group of professionals that share the common interest to really think through measures that could create a more inclusive, contemporary education system that supports overall prosperity here in the United States, and in the global context. So, we touched on conversation topics like the current challenges in the funding landscape, and those challenges are across the board, right, reaching from federal funding, from state funding, from philanthropic resources. There are challenges all over. How should graduate education be financially supported? How should a postdoctoral researcher be supported? What are the funding sources that enable the young, talented individuals to contribute to any kind of research progress.

We of course had to tap into an economic analysis showing how postdocs earn actually less over time compared to peers who skipped this entire educational stage. It was actually mind-boggling to see those numbers in front of you, and you question yourself, hmm, if I would have skipped my postdoc, what would I do now? Not that I would skip my postdoc because it was a life-changing and rewarding experience. But just from the economic perspective, they're hard questions to ask. What is the true financial value of that particular educational space?

In the graduate student experience space, again, it reflects the financial insecurity, and also, knowing that a large number of graduate students - more than 50% very likely in STEM overall - come from abroad. How does the immigration system in the United States really enable international talent to contribute to economic growth, to innovation here in the United States, while also preparing the future workforce that can choose to leverage their talent here in the United States, which has been done so often, over the last decades? So the US innovation system - I would put a bold statement out there - is really based on international talent that help us strive. How does the immigration system really impact the ability to provide the appropriate graduate education?

And of course, we reflected on innovative projects that were partially part of the NSF Innovations in Graduate Education [IGE] system. For example, I still remember Dr. Corey Kunyoshi's talk about individual development plans. Right now, many funders use those to really make sure research grant recipients do their due diligence to support the graduate students and postdocs to the best possible extent in their career and professional development, but it seems to be more or less a checkbox activity. But there are ways how institutions could rethink leveraging the work of the [I3IDP project](#), led by Dr. Kunyoshi, how to measure, actually, the impact of individual development plans as they are used on a campus. If there is not much impact in any of the IDP framework dimensions, then rethinking, how do we position ourselves as a department or as an institution overall to achieve exactly the outcomes that we want to have? But clearly, the data suggests we are not there. So what do we have to change in our system to enable our students to really move towards a rewarding career.

An important topic was also the question, what is the role of industry in the future of graduate education and postdoctoral training? Until now, the major role was really, okay, if there's an internship opportunity, we offer it, and then students apply and might have this privilege to learn about a different research culture, right, in a completely different setting, and learning hands-on how it is for a for-profit organization. Since

the higher education system actually prepares the next generation of the workforce that enters industry, what role should actually industry play in financing the graduate education system here in the United States? There's no clear answer, there can't be a clear answer, but those questions must be asked.

Reflecting on the fact that U.S. graduate and postdoctoral education is, of course, or has been, phenomenal already, but there are other countries around the globe that do phenomenal work as well. They build different systems, different environments that, really help getting trained, help moving forward research projects, help moving forward, new discoveries that ultimately lead to exceptional new products and new applications for human mankind. So, looking beyond the United States education environment, towards Asia, towards Europe, and other areas, was really quite enlightening.

And one thing I shouldn't miss, of course, we listened also to graduate students and postdocs that just came out of their experience to hear their honest reflections on how they perceived this temporary educational experience in their programs. And they were certainly reflections that echo observations in previous reports and call for action, especially, I think, about the mentoring space, etc. But it is so critical to really have the individuals on the table, or on the stage in this case, that could really report, hands-on, or whatever the term is, on their own experiences, right? So, it was really nice to listen to young individuals, to the future generation of STEMM leaders. And ultimately, the entire summit really was aiming to start the creative flow to bring people together that could think about systemic change in the higher education system that supports graduate students and postdocs, and combining some bottom-up approach to top-down structural reform and inside-out cultural shifts.

I was happy that I was not the only one putting that together. We had a phenomenal planning committee, and working with Julie Posselt, who was the co-chair for the entire summit, it was just wonderful to see the large variety of thoughts and concerns that we brought all to the table to draft the entire program.

Brian Mitchell: So, let me follow up with a few questions and comments here, if I may. You mentioned the IGE program at NSF, the Innovations in Graduate Education, and just as a preview, I'm going to interview one of those... the leaders of one of those programs at the University of Pittsburgh for [the] next episode, hopefully, but sometime in the spring. And so, that's one program that I think is important, and is really trying to do new and important things: develop test cases, and then see how they can disseminate some of those new approaches to graduate and doctoral education, especially in the STEMM area, so I'm glad you mentioned that.

Maybe we can talk a little bit further about the financing aspect. You said there were industrial sponsors there, how industry might more directly support graduate education and training, either through internships or through direct funding. I know your conversation was a little bit above the federal policy level, but you mentioned in the international student population, and there have certainly been developments in the H-1B visa program, changes to graduate education loan financing that impact students' abilities to attend, graduate programs. So what were some of the discussions regarding specifically financing as it relates to affordability? Let's say students being able to afford to actually go to graduate school. We see now that there's definitions of professional programs that are in flux. What were some of the key takeaways and some of the ideas that came out of this summit, specifically regarding financing?

Joerg Schlatterer: There are many different ideas, but certainly it needs additional discussions to come up with a robust plan, how to approach possible other funding strains. So, I think in terms of industry engagement, yes, I think the internships will continue to be an important experience for any kind of students, or even for postdoctoral researchers, just to learn about opportunities in the different environment, in the other research environment that really focuses on making money. It's very likely more focused on applied research. Very likely, anything what would be funded through industry or through corporations would focus

more on applied research, which is also a critical thing to keep in mind. We cannot focus only on applied research. That doesn't make sense. All the innovations we benefit from, right, from our cell phone, let's say, quantum dots, for example. [Dr. Bawendi got the Nobel Award](#) for that, with several other colleagues. [These] were all projects which were risky early on, and no one knew what the outcome will be. So, funding projects and research ideas that do not lead to a certain outcome will be extremely critical to solve the big challenges of the future.

That said, and I'm not sure exactly how actually we could coordinate different corporations to provide funding to really address those areas where there's no certain outcome, right? So, of course, if you invest money, you want to have something out of it. So, there needs to be more conversation around the fundamental research aspect. But, of course, aligning research areas at universities to corporate structures that are in their region, right, would make sense to really build research programs that align with the research mission or the overall mission of that company in that area. And one thing which I would like to highlight here is another [IGE project from North Carolina, the Accelerate to Industry program](#) that really beautifully taps into the local resources and regional resources and infrastructure to align, actually, graduate education with the industry needs and provide opportunities.

One other thing, I want to mention was that there were considerations on how does the final product of graduate education have to look like? Does it have to be a thesis? So far, it has been a thesis, but could it be a business plan for a startup company? Could it be a patent application or a patent together in collaboration with the university, with the industry partner, or with the university alone? So we should think more broadly - what is the level, what is the threshold where we think, okay, that young individual, or let's say, that individual that went to a training period, regardless if it's at a graduate student level or postdoctoral level, what is this threshold where we say, well done, move on? You graduate, or you should move on from your postdoctoral experience, right? How does it look like in the future? It doesn't have to be necessarily a thesis project.

Brian Mitchell: Was there any discussion on diversity, equity, and inclusion topics? Let's use the term "representation." How do we improve representation in our graduate programs? What was suggested and what was talked about?

Joerg Schlatterer: I think the summer of 2025 was a very interesting time to touch on that topic. I think there were still some shock waves going through the community that reflected the recent changes in guidelines and recommendations. That said, there was also some sense of optimism, because for the last couple of years, and decades, actually, there was a strong effort, and many of them are based on Julie Posselt's work, to build equitable environments in graduate education.

So there have been already many, many programs and systems in place that create ways to provide access to individuals that didn't have access before. There were ways how to really shape the mindset of the next generation of faculty members and university administrators that are in charge of recruiting strategies or recruiting processes. So, overall, I think there is some optimism that the groundwork that was done over the last years and decades will have paid off to have the right mindset to provide access and to do the outreach necessary to really communicate through every important group that could contribute to the graduate education environment, or to research progress. That there are opportunities, and institutions are willing to support them.

Brian Mitchell: So, you mentioned Julie Posselt - she's fantastic - and Julie, if you're listening, you're welcome on this podcast at any time. She summarized the discussion in your report, and one of them stood out to me, I'll quote it here. She said, "We need coordination and strategy. If we don't have this, we are missing opportunities for moving, convening, and norm setting." She went on to say later, though, that "no

one's in charge" - those were the words in the report - of U.S. graduate education. And you talked about systematic change, bottom-up. So, if no one's in charge, who should be leading this coordinated effort to implement some of these ideas and changes that you talked about?

Joerg Schlatterer: Well, Julie, again, is spot on, and Julie, I really hope you take Brian up on the offer to be on this podcast series as well. So, coordination and strategy are essential, but truly, no one owns the graduate education system in the United States. It can't be based on one single entity at all. It has to be shared. It is a true community effort. We need coalitions of people and organizations that really care deeply about graduate education and can actually communicate effectively with faculty, students, and policymakers, and the broader public the value of graduate education. I think that is one of the most important things that we have to keep in mind. We not only need educational researchers and the big decision makers on the table. We need people that could communicate and articulate, actually, the value of the entire enterprise we call graduate education or postdoctoral training.

My personal concern is that, very likely all the wonderful efforts that experts put together to advance graduate education falls flat if the society, the United States and globally views science or STEMM overall as something bad. We don't want to engage with that term of "science" - with scientists - because they don't help us. So we have a communications problem. We need good communicators, and very likely also colleagues from the social sciences around the table to craft the right messaging to not only policy makers and university administrators, but most importantly to society, to the global society, to make the point that the future of our home - the Earth - relies on scientific progress, and it's important to invest. The payoffs are not immediately visible. But decades later, as we see every year in October, when Nobel Awards are given, decades later, we recognize and celebrate those brilliant minds that had a bold idea early on in their career. There were some people that trusted them, provided possibly some funds to enable them to do the great work. And not only funds, trusted them to mentor students, to mentor postdocs in a way that holistically, that research project will succeed. So, this is really, really, really important.

Julie and I, we have worked on a wonderful project for several years together. It was an NSF Includes project, which we call the [Inclusive Graduate Education Network](#). And there, we really focused on the principle of collective impact. I can share with you: collective impact is hard. It's not easy, and Julie and I, we could share with you stories of failures, but also the beauty of successes that could collective impact really create. Through the iGen work, for example, we really created a lot of training for departments, specifically for faculty members and department chairs and admissions professionals for building admissions processes that are equitable. We, under that umbrella of IGEN, the Inclusive Graduate Education Network, we built programming around long-standing bridge programs in physics. So, for example, in my home discipline, chemistry, we established the [ACS Bridge program](#), which actually is part of a larger enterprise, the ACS Bridge Project, recognizing that the program mirroring the activities in physics, it's really important to bridge the time between undergraduate research or undergraduate education and entering graduate education, and then also making sure that they succeed in graduate education in a timely manner.

But there are other areas where we have to provide more access. So we have to provide access in any other kind of transition point, unrelated to the actual bridge program. For example, postdoctoral researchers, how to transition out from their training into the workforce, educating about options, educating about self-assessment measures, educating them about decision-making processes in the career and professional development space, goal-setting processes. But also, we established a graduate school boot camp – "readiness boot camp" - for undergraduate students that are not in the Bridge program, but just opening the door, providing more access, and there, again is an opportunity for industry partners to really contribute actively to build those kind of programs, to test those programs, to make sure that we prepare holistically

the next generation of professionals that enter industry, government, non-profit research, or non-profit organizations, or academia, which was a more traditional approach of graduate education.

But again, back to your question. Sorry, I deviated here just a little bit, but who should lead this effort? Again, there's not one person, but it must be a network of professionals, of professional societies, of universities, funding agencies, and advocacy groups, working together to set norms and share data about graduate education and postdoctoral training. That's the only way to create, really, a graduate education system that is inclusive, resilient to the future pressures - and there will be other pressures - and to respond to the needs of science and society.

Brian Mitchell: Well put. So, if I haven't already, I will put a link to this report, the proceedings in brief, that are available. What happens from here? Will there be further reports? Are you taking this on the road somewhere? What happens to all the information you collected?

Joerg Schlatterer: Well, first of all, thank you for sharing the proceedings, because that is the major product of that particular convening. However, Julie, and let me also give a shout out to Rian Dahlberg and Sarah Rovito, part of the National Academies of Sciences, who beautifully and professionally helped really shape the entire summit. So, we met after the summit and we thought, okay, what are the next steps? We cannot just let it go, and nothing really happens. So, we put together, actually, a discussion guide for the local community. So, we have a discussion guide - and I have it actually in front of me - and it's not published yet, but I hope to be. Julie's testing that right now in her own community. But it's a discussion guide with a lot of questions for faculty members, for graduate students, for postdocs, to have peer-to-peer discussions on what's happening on their campus, what are the opportunities, what are the risks in the local environment. Ideally, after those discussions, we will bring those groups that have used the discussion guides together to see what are the common themes? Where could we find similarities and the common level where we could have a larger, larger scale conversation again.

Brian Mitchell: So, there will be some follow-up to that discussion guide? You're going to actually collect the data, information, process it, and release it?

Joerg Schlatterer: So, let me say that this way. We're testing first the discussion guide, and then depending on how the test goes, but I could imagine that we would share this discussion guide more broadly. It would be a missed opportunity if you don't follow up with institutions that have used the discussion guide to see if there are opportunities to bring people back together. But again, this doesn't happen in isolation. We need supporters for this kind of activity, so if there's any funder who is interested in continuing the conversation, I don't say reach out to Brian Mitchell, but, you know, the National Academy of Sciences is a phenomenal organization that brings thought leaders together.

Brian Mitchell: Absolutely. So, thank you for chairing that summit and continuing the discussion on graduate education in a national and international context. I think it's really important, and I very much appreciate, personally, the work that you and Julie have done.

Thank you for joining me today, Joerg, and to all of our listeners. All the links in my podcast are available on my website at gradpost.com, that's G-R-A-D dash P-O-S-T. There you'll find additional information and resources to help you start your adventure for your advanced degree.

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