

Non-Academic Careers for STS Graduate Students: Hopping off the Tenure Track

Thomas S. Woodson¹  · Matthew Harsh² · Rider Foley³

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Abstract Science, Technology & Society (STS) graduate programs primarily train graduate students to work in tenure track academic jobs. However, there are not enough tenure track academic jobs to match the supply of STS graduate students, nor does every STS graduate student want to become an academic. As a start to addressing these challenges, we hosted workshops before the 2017 Society for the Annual Meeting of the Society Studies of Science and the 2018 ST Global conference. In those workshops, panelists with PhDs in STS and related fields and working in non-academic faculty careers such as government agencies, non-profit foundations, and industry emphasized that students must showcase how their skills are useful to non-academic organizations. The panelists offered a wealth of stories on how their STS perspective supported their careers, yet most had faced implicit and explicit mentoring from STS faculty that ran counter to their career aspirations. The conversations centered on reframing research and conveying to potential employers how their STS training would support their future careers. A takeaway point that resonated with many participants was the need for STS graduate programs to rethink how they market themselves, recruit students, and critically reflect upon the measures of success. By implicitly steering graduate students solely towards an

✉ Thomas S. Woodson
Thomas.woodson@stonybrook.edu

Matthew Harsh
mharsh@calpoly.edu

Rider Foley
rwf6v@virginia.edu

¹ Stony Brook University, 1412 Computer Science, Stony Brook, NY 11794, USA

² Social Sciences Department, California Polytechnic State University, Bldg. 47, Rm. 13, 1 Grand Avenue, San Luis Obispo, CA 93407, USA

³ Engineering and Society, University of Virginia, Thornton A218, Charlottesville, VA 22904, USA

academic career, STS graduate training will miss an opportunity to make a positive impact on society.

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Introduction

Science, Technology & Society (STS) graduate programs primarily train graduate students to succeed in tenure track academic jobs. Yet not every STS graduate student wants to become an academic and even if they all did want to seek careers in academia, there are not enough tenure track academic jobs to match the supply of STS graduate students. While this mismatch is not entirely surprising, graduate programs are not designed to best prepare their students with training or mentorship for careers outside of academia. Cyranoski et al. (2011) showed that from 1998 to 2008, there was a 40% growth in the number of PhDs in the world, and in high income countries like the USA, academia and industry have not been able to fully utilize all the PhDs. Specifically, STS scholars, whose training spans sociology, anthropology, public policy, history and philosophy, are often not aware of the value placed on their expertise in other sectors like industry, non-profit organizations, or government agencies. Thus, there is a critical need to train STS graduate students for careers outside of academia and expand their horizons to a range of employment opportunities. In the absence of such training, there will continue to be far more STS graduates seeking academic positions each year than open positions. Not only will this lead to more disillusionment among STS graduate students and ultimately hurt the field, but it prevents STS from having a more significant impact outside of academia.

As a first step to confronting this challenge, we hosted two workshops to generate dialogue and make connections between professionals with non-tenure track academic careers and STS graduate students. The first workshop was hosted the day before the 2017 4S annual meeting in Boston and the second workshop was during the 2018 ST Global conference in Washington D.C. Each workshop was divided into two parts. First, the workshops featured a panel of STS PhDs working in the government, non-profit or private sectors. Each panelist offered brief opening statements on their career journey before the floor was opened to questions from the audience. The second part of the workshops focused on skills building and preparing non-academic job applications and were led by professional career counselors from MIT and Virginia Tech. Our goals for the workshop were to:

- (1) introduce current STS graduate students to their predecessors working outside of academia;
- (2) help STS students learn how their skills can make them competitive in non-academic job markets; and
- (3) give a voice to STS graduates working in non-academic careers and afford them an opportunity to give back to the field by contributing to the training and development of graduate students.

Finally, an indirect goal was to initiate and cultivate dialogue between non-academic STS professionals and STS graduate students that might last beyond the limited time in the workshop, i.e., long-term mentorship. This paper shares the main takeaways from the workshops and offers suggestions for training STS graduate students in non-academic careers.

Expectations and Norms

“First, can you get away from that stigma of not wanting an academic job?”

The first challenge for a student pursuing a non-tenure track academic career is that they must fight the strong current pushing them towards an academic job. Their advisors, other students, and the department culture often make implicit and explicit remarks that STS PhD students should want to pursue a career in the academy and that defines what it means to be successful. To overcome the assembly line of graduate school to academic faculty jobs, graduate students must understand what they want and fight for their careers. As one panelist stated, “If you can, re-evaluate the expectations that are being exposed by the faculty.” Another panelist said that STS graduate need to consider, “what you love and don’t love about an academic job.” Then make your decision and own it and be clear about it.

Another issue that STS students need to understand when considering a non-academic position is that these types of jobs have different sets of norms, values, and ways to communicate. Students must understand that academia is a game with rules (implicit and explicit) and the pathway to graduation is a maze to navigate. Once the student matriculates and lands a non-academic job, they must learn the new game with its rules and they will need to explore the new maze-like pathways that lead to success in that profession.

Pathways to Non-Academic Jobs

“Embrace uncertainty in your career.”

For almost all the panelists, the pathway to a non-academic career was a winding road. While some panelists were post-docs that transitioned to community development and outreach, others used their research skills to work in non-academic research environments like in the US federal government or think tanks. A common theme among the panelists was that students need to have an open mind and be prepared when a non-traditional job opportunity arises. For example, a student could be doing field work with a community partner and discover that the organization needs a new manager, or a student may meet a person at a conference that is looking to hire a researcher. When those opportunities arise, students need an open mind to pursue those leads.

Another key step is that PhD students must make themselves visible to non-academic employers. If students stay in the academic bubble, it will be hard for them to find a non-academic job because employers cannot find them. For one

panelist it is important to “Get some D.C. experience,” while for another panelist it is important to cultivate a LinkedIn profile and presence on social media platforms to gain visibility. Further, STS graduate students need to create a non-academic resume and attend career fairs at their universities. PhD students should even consider going to non-academic conferences. Their faculty advisor or department might not pay for this trip, but making connections can be invaluable to finding a future job.

Mentors and Coaches

“Coaches and mentors can help formulate a vision ... and then a strategy.”

The panelists often referred to the importance of mentorship from both their STS faculty adviser and from people outside of their graduate program. As one panelist suggested, “I follow people not jobs, I found people that are important and worked as an apprentice under those people.” That was understood to imply that the value of a good mentor was better than a good job. Early in a person’s career the value of mentorship and guidance was incredibly high and impactful. Cultivating opportunities for STS graduate students to meet professionals in non-academic organizations is very important. Thus, it is essential to create more opportunities for professionals from other sectors to showcase their work at STS conferences. As one panelist said, “Collect mentors from across industry” and then you can have references from outside of academia, which is a key indicator that the candidate will succeed.

Peer mentors play a key role, as they offer insights into divergent experiences and help fellow graduate students reconsider the expectations that they place on themselves. Finding opportunities to cultivate peer-mentorship relies on trusting relationships that are insulated from faculty influence. The value of peer mentors was called a “wealth of advice” that should not be ignored.

There was a cautionary tone to some of the talk about mentors and coaches. As one person said, “Remember to make your own decisions” and another said, “Remember it is your life and I am serious about that.” Both of those statements suggested that mentors and coaches can be supportive, but that the decisions made need to be owned by the STS graduate students, and students need to feel empowered and have autonomy to make decisions.

Boundary Crossing and Knowledge Integration

“You are connecting social worlds, an integrator, translator.”

For many panelists, one of the most important things they learned in graduate school was their training in facilitation and translation, which allowed them to cross boundaries. Those skills enabled them to have careers connecting scientists to public policy or government agencies and academic research. Others found that their STS training enabled them to convey complex messages to different audiences by first understanding the policy and then working to help others understand what

that meant and how it might impact their organization. This supported the creation of new networks and revealed unexpected allies that could support their organization or specific events held by their organization. As one panelist asserted, STS graduates have unique methodological skills that allow them to “explore alternative ways of thinking about problems.”

Another panelist suggested that their STS training really helped them to “coordinate and manage science in a productive manner,” which was rewarded throughout their career. The panelist stated that their training allowed them to read and understand multi-disciplinary work and to find ways to identify projects that had strong interdisciplinary components, rather than parallel efforts by researchers from two disciplines working on disparate facets of a larger system. If students can convey this skill to future employers, they will not have trouble finding a non-academic job.

Converting Academic Research Skills into Professional Skills

“Demonstrate an ability to communicate to a broader audience.”

One of the main tasks a STS PhD student must do to get a non-academic job is to translate the skills they learned in graduate school to a potential employer. STS students learn research methods, how to analyze complex arguments, write, and present information. However, some PhD students walk into interviews discussing their dissertation research on a narrow field. Writing a dissertation is important, but other skills are more relevant to an employer, and therefore, should be highlighted in interviews.

STS graduates can write long, high-quality analytical pieces, but in non-academic jobs, they must write succinctly. Most non-academic jobs require employees to write and read short memos, documents and decision pieces. STS grads can write these types of pieces, but in some cases, they must re-learn how to craft their argument in a few paragraphs or pages. STS graduates must also minimize their use of disciplinary language and learn to speak and write to broader audiences. Again, these skills can be learned, but STS graduate programs do not facilitate acquiring these abilities. To be successful in non-academic careers, STS graduate students should try to write short pieces describing their work or take classes that will support their ability to draft non-academic reports, memos or other formats. With that said, some panelists emphasized that in many non-academic careers, it is rare to be named an author of a document. Rather, they tend to be anonymous writers that support an organization. When this happens, the students could get mentioned in the acknowledgments or receive a letter of reference from the lead authors.

Finally, STS students must apply other communication skills not formally taught in PhD programs. In industry, face to face interactions, presenting to a diverse audience, communicating through images and visuals (like a website), and interacting with the media could be important aspects of the job. These skills are especially important if the student works in a smaller organization where they have

a range of roles. During graduate school, it is useful to practice media interviews and design a personal website.

Breaking Through the Glass Door

“There is an art of the informational interview.”

One challenge students face is discovering what opportunities are available and whether that “dream” job is desirable for them. To overcome this hurdle, students need to learn the art and craft of informational interviews (not to be confused with job interviews). This was discussed as a way to learn about the organization, the values and culture of the place, as well as upcoming opportunities. Panelists strongly suggested to find a way to make a direct connection with the person that they are requesting the interview from, and then work to offer something of value to them. Students should find ways to cultivate that first informational interview into a professional relationship that can be built upon and nurtured.

Moving STS Forward

The organizers of this workshop are not in traditional STS departments but rather we reside in engineering schools. In part, this work comes out of our reflections on our training, how it compares to engineering education, which is geared toward industry, and the need for the knowledge of STS to penetrate industry and non-profit sectors. However, because we do not work in traditional STS departments, we have limited agency to directly change STS graduate programs. Therefore, we chose an alternative path and explored this issue further with the STS practitioners outside of academia and graduate students in training. Based upon those conversations, we believe that preparing STS graduate students to enter non-academic professions will have long-term implications for both graduate curricula and for the institutions that hire STS graduate students.

There are a variety of things graduate programs can do to help students pursue non-academic careers. Graduate programs need to reconsider how they market themselves and recruit students, and they must reevaluate the metrics of a successful career. They should also do things such as including discussions of non-academic careers in program orientation, inviting non-academic speakers for seminars, give credit for internships or “co-ops” and coordinate with career offices for non-academic job career placement.

Alongside the graduate program, student advisors play a vital role in encouraging students to pursue diverse careers and they need to really listen to the student’s motivation and take seriously sentiments about non-academic jobs. Supervisors should discuss non-academic jobs at the beginning of a graduate degree, help students network with their contacts outside of academia, encourage research related to how STS skills are relevant outside of academia, and encourage students to write pieces, such as an op-ed or blog.

As Mascarenhas (2018) recently detailed, the professoriate in STS is skewed white and male, and one way to enlarge the applicant pool and diversify the population of prospective students that enroll and graduate from STS programs is to make non-academic jobs a viable path for their students. Pivoting STS graduate training to include non-academic jobs preparation will not be easy, but it is important for the expansion of the field and to have societal impacts beyond the academy.

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