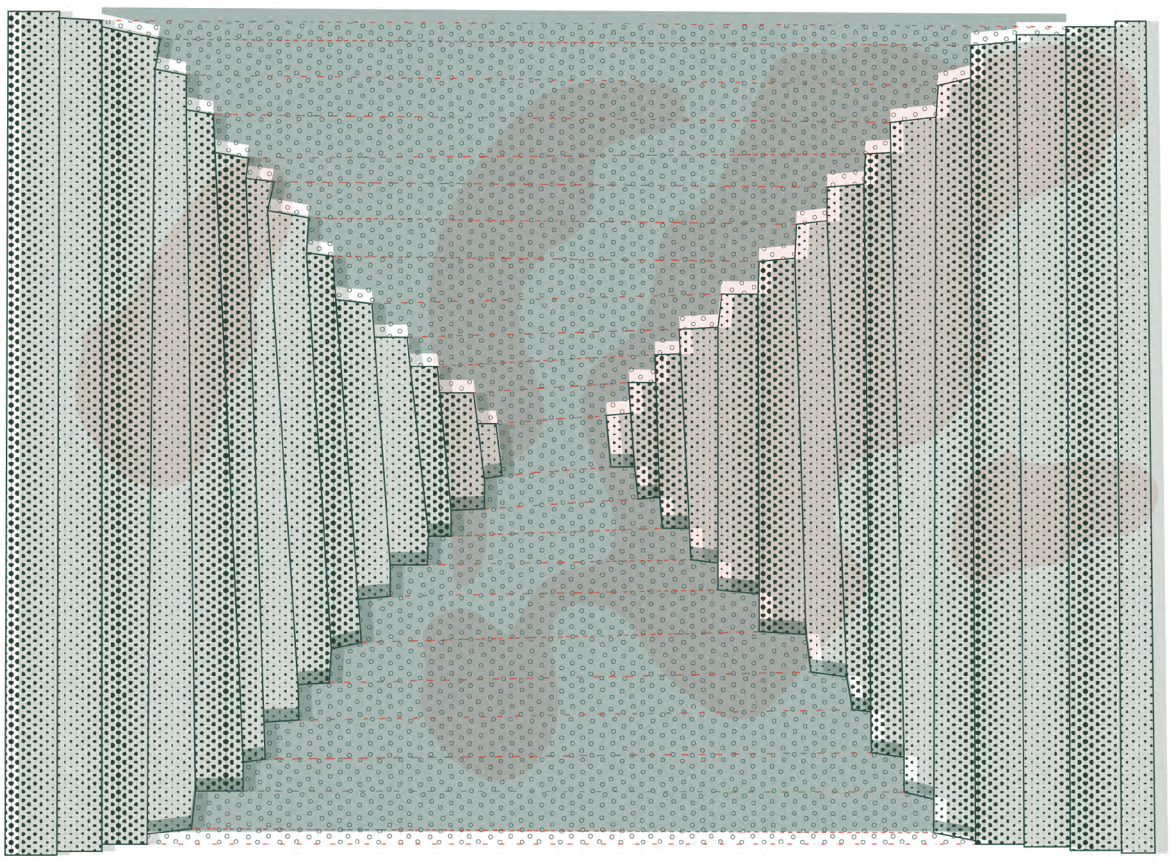
SCIENCE POLICY CAREERS FOR PHD-TRAINED SCIENTISTS



STEPH GUERRA, PHD DANIEL POMEROY, PHD R. JASON HEUSTIS, PHD

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SCIENTIFIC CITIZENSHIP INITIATIVE
AT HARVARD MEDICAL SCHOOL

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The Scientific Citizenship Initiative (SCI) at Harvard Medical School works to make science more socially responsive and responsible by empowering scientists to collaboratively engage with and lead their communities and society.
We offer tailored training programs and responsive analysis to provide the skills and mindsets for effective leadership, communications, and ethics, that are typically not taught in STEM curricula.

We envision a future in which scientists are active citizens, working as interdisciplinary problem-solvers inside and outside of academia.

For more information, please visit sci.hms.harvard.edu

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200 Longwood Ave. Goldenson 509
Boston, MA 02115
sci.hms.harvard.edu

sci@hms.harvard.edu
@SCI_HarvardMed

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SUMMARY

For a PhD-trained scientist, transitioning to a career in science policy can seem daunting. It may be unclear which skills are most needed and how to best acquire them. To assist students interested in this field, the Scientific Citizenship Initiative conducted a study over the summer of 2019 to identify skills and experiences that lead to a successful career in science policy.

The findings of this report are based on semi-structured interviews with individuals working in various science policy sectors. The participants represent a diverse set of academic backgrounds, including a variety of Science, Technology, Engineering and Math (STEM) PhDs and those with degrees in, or related to, public policy.

Virtually all of those interviewed, regardless of academic background, actively participated in volunteer and extracurricular activities during their time in graduate school. These same individuals credit their successful career transition to these activities, specifically calling out internships and fellowships outside of academia as a vital part of their training. Other valuable activities included science outreach, teaching and mentoring, and leading or founding extracurricular and community organizations.

Participants identified a variety of skills, including technical, operational, and professional skills – including interpersonal skills– that are important for success in a science policy career. Across the entire group of study participants, the most valuable skills attributed to career success were science communication, both oral and written. In addition, study participants frequently discussed the necessity of humility and respect to ensure a successful transition from academia to science policy.

Specific challenges scientists face when transitioning to science policy careers are also discussed in this report. However, such challenges were hard for participants to generalize due to the diversity of individuals across scientist and non-scientist cohorts.

Finally, the report investigated the skills and knowledge obtained from public policy degrees that could be included in STEM PhD training by speaking to individuals trained at policy schools.

By identifying skills and experiences needed for a successful policy career transition, the Scientific Citizenship Initiative aims to develop coursework and programming that will better prepare trainees for a variety of careers.

METHODS

There are many routes to a career in science policy, but most can be categorized into one of two groups: 1) people with technical scientific backgrounds and 2) people with policy backgrounds. Therefore, this study sought people from each of these groups to gain their perspective on both their own academic training and their perception of the other group's training. The study also included a third group consisting of people who have significant experience managing or mentoring those working in science policy. This group was included to provide a party of "external observers" and who could comment on the abilities and deficits they have observed in each of the other groups. In this sense, their answers serve as a validation of the responses from the other two groups. The parameters of these groups are as follows:

- Cohort 1: Ten (10) PhD-trained scientists who had made the transition into policy careers from academia.
- Cohort 2: Eight (8) science policy professionals who received either their masters or PhD in public policy or a related field from policy school.
- Cohort 3: Eight (8) mid-to-late career science policy professionals from varying academic backgrounds who have extensively hired, mentored, and/or managed individuals transitioning to a science policy career from either a scientist or policy school background.

This study was conducted by gathering qualitative information and data from semi-structured interviews (and a pre-interview survey) with science policy professionals working across multiple sectors, including the government, university, private, and non-profit organizations, and from across the country (though most were in the DC area).

The twenty-six (26) science policy professionals interviewed were identified through personal and professional connections of the study authors and their colleagues. A slate of twenty or more individuals per cohort was initially identified and then final participants were selected to create a balance of career profiles primarily focused on diversity across sectors and government-level (local, state, national). Participants were contacted via email and after agreeing to participate were sent a pre-survey prior to either an in-person or phone interview.

The pre-survey was filled out by 80% of final participants. The purpose of the pre-survey was to orient the participants to the purpose of the study, gather career information and context for the interviewer, and to obtain data related to skill development and extracurricular experiences during graduate school.

The semi-structured qualitative questions used for the interviews were identical for Cohorts 1 and 2. A separate set of questions was used for Cohort 3. All questions sets can be found in the Appendix. Interviews generally followed this list of questions with opportunities for divergence and flexibility in real-time. The analysis outlined in this document is a result of a careful review of semi-structured interview notes and pre-survey answers. Themes within, between, and across the three cohorts were identified.

RESULTS

SKILLS FOR SCIENCE POLICY SUCCESS

All participants in this study were asked to identify the skills that are necessary for a successful career in science policy in an open-ended manner during qualitative interviews. The responses covered a range of topics, including technical, operational, and professional skills. Across all participants, the most frequent response was communication skills, either in oral or written form.

In addition, respondents identified topics more frequently associated with personality traits, such as humility and respect and curiosity and openness, as important skills. These responses demonstrate the fact that these traits are not immutable and can be learned and changed over time. Therefore, for the purposes of this report, we include them as "skills" in all discussions. The chart below outlines the most frequent responses across all three cohorts.

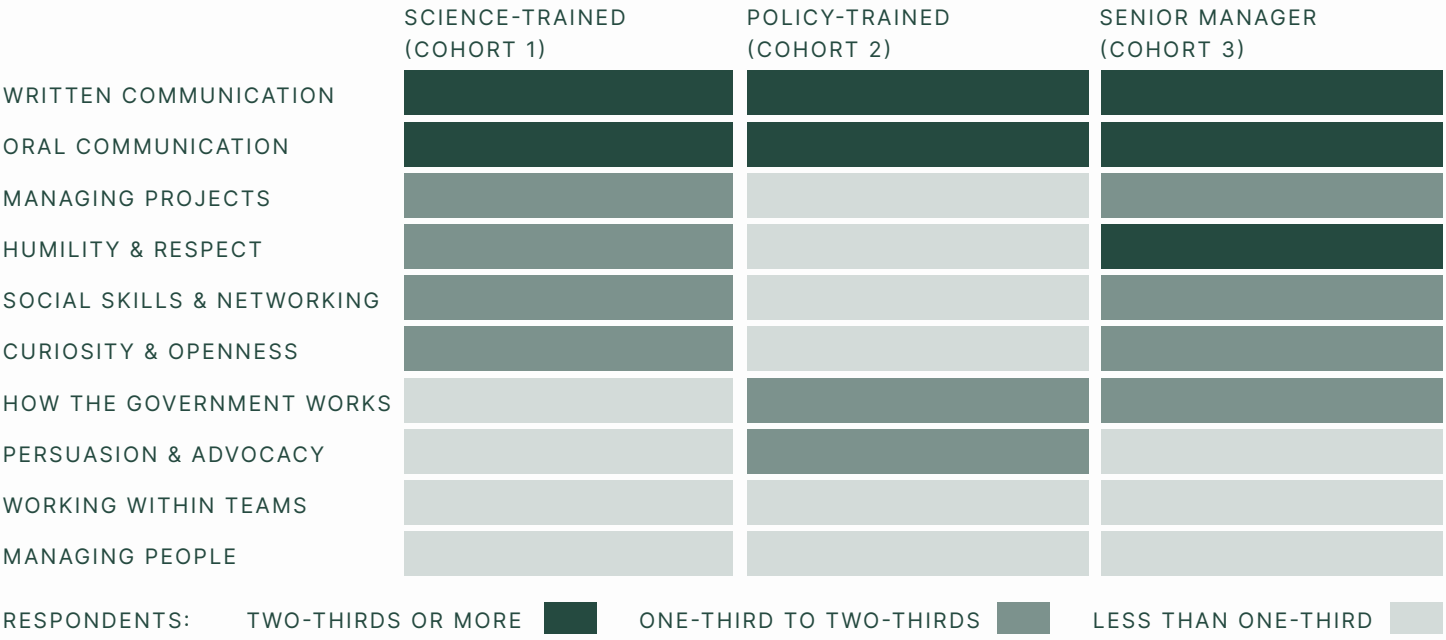

Figure 1 - Most cited skills and experiences necessary for a successful career in policy, ordered by cohort.

Of the top 10 skills cited for a science policy career, written and oral communication were the most common among all three cohorts. Otherwise, the more popular responses from Cohort 1 were less likely to be identified by Cohort 2 and vice versa. This finding could be indicative of the fact that the two cohorts bring complimentary skills to a science policy career (see further discussion in "Science versus Policy Background" section).

Cohort 3 tended to collectively emphasize all the skills noted by Cohorts 1 and 2, except that they were less likely than policy-trained professionals (Cohort 2) to cite persuasion and advocacy as necessary skills and more likely than both Cohorts 1 and, especially, 2 to underscore the need for humility and respect. For mid-late career managers and mentors, we speculate this emphasis on humility and respect could reflect their experience providing feedback to staff and mentees and the range of experiences they have acquired working with external stakeholders.

SCIENCE VS POLICY BACKGROUND

BENEFITS OF SCIENCE BACKGROUND

Cohorts 1 and 3 were asked to identify the benefits that a science background provides for a science policy career. There was a noted absence of discipline-specific expertise in responses from Cohort 1. Instead, their answers focused on persistence, problem-solving, understanding of uncertainty and nuance, knowledge of the scientific process, and resilience (i.e. experience with failure). By contrast, Cohort 3 did indeed discuss topic-area expertise in addition to analytical skills, curiosity about the world, perseverance, and being trained to ask the right questions as key attributes of a scientist that make them successful.

GAPS IN SCIENCE BACKGROUND

These same two cohorts were asked about the challenges that a scientific background presents for those transitioning to a policy career. Cohort 1's answers focused on lack of social skills in practice, insight into how government works, practical 'real world' job skills (i.e. understanding of confidentiality, working quickly), and communication skills. Some also pointed to the scientific ego as a hindrance, and perhaps that is why they identified humility and respect as a valuable mindset. However, many were quick to emphasize that these skills can be learned through practical experience.

Cohort 3 similarly highlighted lack of insight into how government works, and of real-world practical skills as major deficits for those trained in technical scientific disciplines (Cohort 1). However, many in Cohort 3 stated these are general problems and do not necessarily apply to every scientist transitioning to policy, especially among those that voluntarily elect to change careers through fellowships. This cohort also had similar responses with regard to the scientific ego. For example, one respondent said, "scientists need to understand that science policy is about policy, not science" with another adding "science and facts are not the primary decision maker for policymakers, just one of many."

BENEFITS OF POLICY BACKGROUND

Participants from Cohort 2 were asked to identify the benefits policy training provided to their careers in science policy. The goal of this question was to determine if there were parts of public policy training that can and should be adapted by SCI or other organizations. They identified the following as valuable aspects of their training: theoretical background for navigating the government, understanding formal frameworks for policy analysis, practical policy skills (writing policy memos, briefs, talking points, budget management, etc.), understanding persuasion in politics, and communications skills.

Cohort 3 was also asked this question with regard to their trainees from policy backgrounds. Their answers agreed with Cohort 2. They also added that formal policy training provides the advantage of broad exposure to lots of policy issues, understanding of how to get things done in a policy context, and an inherent curiosity of the policy world.

GAPS IN POLICY BACKGROUND

Cohort 2 participants described deficits that came with their training and they mostly centered around lack of topic-area expertise, understanding of scientific technicalities, familiarity with the university research system, and knowledge of the scientific process. These are all strengths that scientists bring to a science policy career according to Cohorts 1 and 3.

When asked about the challenges that non-scientist public policy graduates face when transitioning to a career in science policy, Cohort 3 similarly highlighted lack of subject matter expertise and technical skills. Moreover, Cohort 3 discussed how public policy graduates are often less disciplined in their data analysis and statistical methods than those that come from a PhD STEM background. However, they also pointed out that public policy graduates and STEM PhD graduates often face the same challenges during the career transition, in particular how to digest and filter information, how to listen thoughtfully, and how to read between the lines. These skills are most often developed through experiential learning on the job and is why Cohort 3 most often recommended fellowships and internships as a mechanism to prepare for a science policy career.

SCIENCE TO POLICY BACKGROUND COMPARISON

In addition to directly comparing and contrasting responses from Cohorts 1 and 2, participants from Cohort 3 were asked to provide their perspective on how the transition to science policy for these cohorts differ. They universally declined to make sweeping generalizations, pointing out that the diversity within each population is so great that it is impossible to say with certainty that “scientists are lacking this” or “non-scientists know how to do that”. Therefore, this question posed to Cohort 3 did not prove fruitful for the purposes of this study.

However, Cohorts 1 and 2 did choose to answer this question. Members of Cohort 2 (public policy-trained) concluded that Cohort 1 (technical science-trained) faces unique challenges related to being succinct, understanding the utility of persuasion over just stating facts, and having short time frames for work. Meanwhile, Cohort 1 expressed that Cohort 2 is more comfortable with brevity, risk, and the need for politics and how that is different from partisanship. Again, participants emphasized that these are generalizations.

Interestingly, the disadvantages of STEM PhD training (as outlined by Cohort 1) and of policy training (as outlined by Cohort 2) happen to be strengths in the opposite cohort. This finding argues that science policy teams should draw on people from both backgrounds, and that people from different training backgrounds have much to learn from each other.

PERFECT FIT BETWEEN SCIENCE AND POLICY SKILLS

BENEFITS OF SCIENCE TRAINING	BENEFITS OF POLICY TRAINING
• Resilience and persistence	• Understanding how the government works
• Analytical skills and curiosity	• Interpersonal skills training (e.g. persuasion)
• Familiarity with uncertainty and nuance	• Broad exposure to policy issues
• Knowledge of the scientific process	• Practical policy skills (e.g. memo writing)

GAPS IN SCIENCE TRAINING	GAPS IN POLICY TRAINING
• Unfamiliarity with how the government works	• Partial topic-area expertise
• Insufficient communication skills training	• Unfamiliarity with the scientific method
• Reduced interpersonal skills practice	• Poor knowledge of the university research system
• Misunderstanding of policy inputs	• Limited exposure to science policy

Figure 2 – Interviews for this report found that the skills developed through scientific training (blue) complement those provided in a policy background (lime) and that a successful career in science policy needs a combination of both.

SKILL DEVELOPMENT OF SCIENTISTS

This study also examined how the 10 STEM-PhD holders from Cohort 1 learned fifteen key career skills. These skills were derived from a PLoS ONE paper that examined transferable skills and job satisfaction for science PhD students. In the pre-survey deployed in our study, participants were asked two questions that assessed where they learned these skills, in either a curricular or extracurricular context.

We found that only three skills were reported to be primarily learned in a curricular setting: discipline-specific knowledge, data analysis, and the ability to gather and interpret data. Problem solving, oral communication, and written communication were developed roughly equally in and out of the formal training experience. However, the remaining ten skills were most often learned in extracurricular settings. These results present evidence that graduate schools should both support PhD students who wish to engage in extracurricular activities and provide additional training within the course of a formal PhD program.

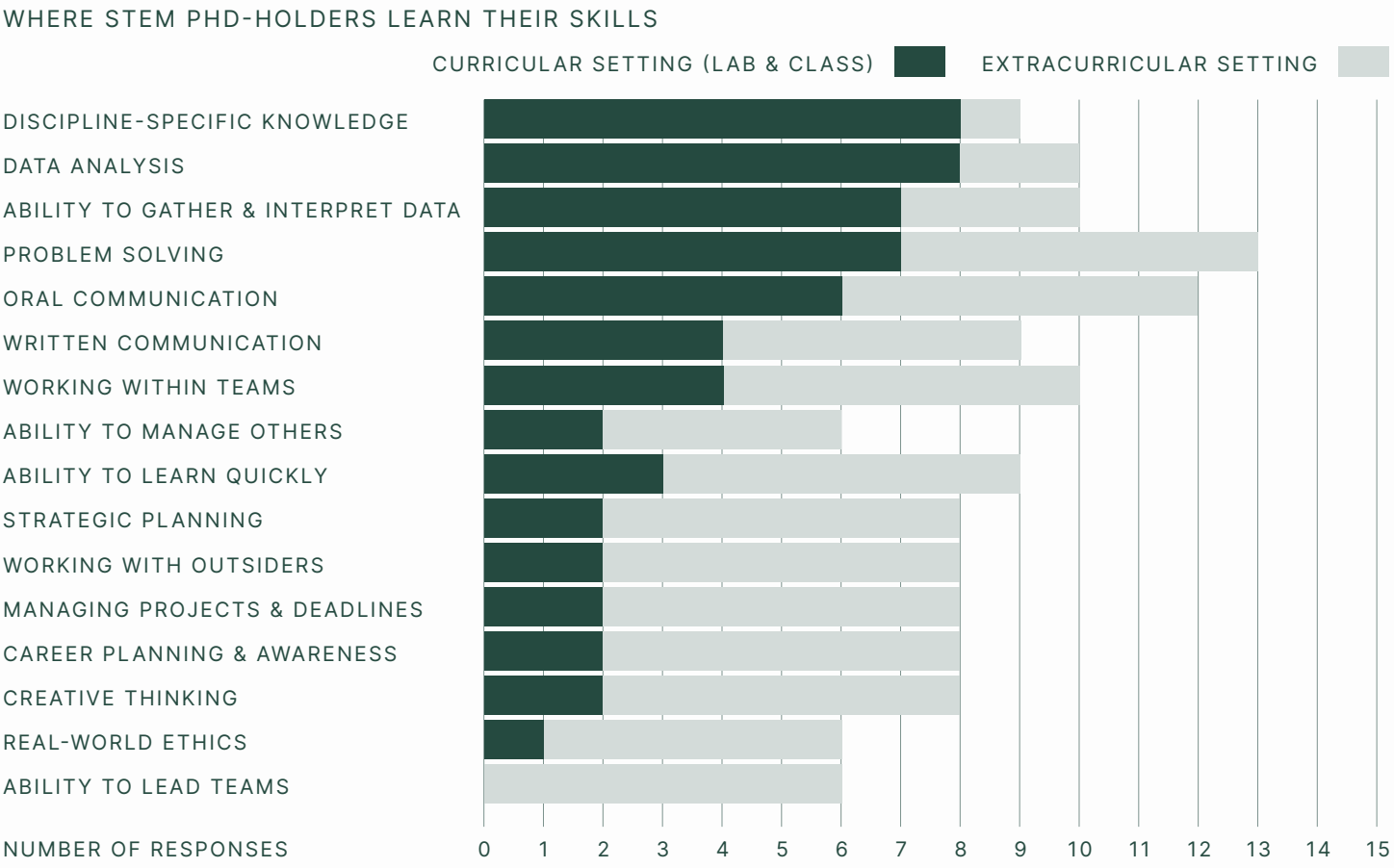

Figure 3 - The results listed here are the number of answers given for skills learned in curricular (dark green) or extracurricular (light green) settings. This data is based only on those professionals who transitioned to science policy, following formal training as a STEM PhD (n = 10). Participants could choose one, neither, or both settings for each skill, meaning the number of responses can be greater than the participant sample.

Skill development in graduate school, both in curricular and extracurricular settings, was also discussed informally during the qualitative semi-structured interview. The following quote from one participant sums up many of the conversations surrounding this topic: "If I only did the curriculum and not the outside activities, I don't think I'd be here right now." This sentiment was echoed throughout the interviews in which scientists espoused the value of their extracurricular activities to their professional development. Cohort 2 was quick to credit internships during graduate school as a key feature of their training, but they less frequently participated in additional extracurricular activities. When they did, the individual participated in fewer extracurriculars than an individual who received training from a STEM PhD program.

All participants were also asked to identify the types of outside activities graduate students could participate in to help them prepare for a career in science policy careers. Some of the most common activities pursued by the study participants include fellowships and internships, science communication and outreach, leading and/or starting new extracurricular groups, and teaching and mentoring.

12 WAYS TO PREPARE FOR A SCIENCE POLICY CAREER WHILE IN GRADUATE SCHOOL

- Enroll in fellowships
- Take cross-registered courses
- Join professional societies
- Engage with university government relations
- Read science policy foundational texts
- Teach and mentor others
- Take part in student government
- Find a mentor outside the lab
- Read the news
- Lead and found extracurriculars
- Participate in informational interviews
- Engage in science outreach and communication

CONCLUSION

This report outlines the skills needed to be successful in a science policy career and suggests activities to help develop them. We found that STEM PhDs working in this field see themselves as strong in analytical skills, familiar with nuance and uncertainty, knowledgeable of the scientific process, and persistent; whereas, policy-trained professionals see themselves as strong in interpersonal skills and practical policy skills, knowledgeable about the government, and familiar with policy. We also found the skills with each academic background to be complementary to each other, with the benefits of each training matching the gaps in the other.

Hiring managers and mentors generally agree with the self-assessments made by these two groups. However, they also noted that all of the skills combined are necessary for both the development of good policy and for personal success in the field. This suggests that individuals should attempt to fill these gaps in their training prior to transitioning to a career in science policy.

Currently, these skills, and many others, tend to be learned outside of a formal academic setting. Therefore, there are significant opportunities to provide useful career development training within a STEM PhD program – by more effectively connecting students to experiential learning resources and by developing new teaching components to fill gaps in the curriculum. Because our interviews showed that such experiential learning was crucial for success in science policy careers, this report argues that they should be recognized as not just extra-curricular but as important career development. Additionally, when developing new training, STEM programs may be able to look to public policy programs to identify how to best integrate training for these skills into the curriculum.

Our intention in designing and conducting this project was to compile useful information for STEM training programs that are interested in assisting their trainees with a career transition to science policy. By developing additional programs based on the findings in this report, STEM fields can better serve the needs of students and lower the barriers to entry for this transition. Through this work we also found that STEM PhDs bring important and unique skills to this sector. Therefore, these training programs will not only benefit the careers of students but may also serve to meet an important national need.

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APPENDIX

1. COHORT-SPECIFIC SUMMARIES

Below is a selection of relevant, anonymized quotes from the qualitative interviews, separated by each cohort. Some sentences have been minimally edited and shortened for clarity.

COHORT 1

“Every scientist should know how the sausage is made- work in community, panels, influencing policy. You owe the system back because you were endowed with this privilege.”

“Scientists need to respect the fact that they don’t know everything about the policy world.”

Concerning advice to STEM Ph. D. graduate students:

“Observe a lot more. Start by observing and learning.”

“Science is one of many inputs to policy, but definitely not the only one.”

Regarding recommendations for scientists willing to transition to science policy:

“It’s important to understand what body and person you’re talking with. That is the most valuable skill set for a successful career in science policy. Knowing who these people are and how to influence them is so important.”

“Understand how government works takes about eight months.”

“Scientists are less willing to take risks with statements and positions; they feel the need to be thorough and are afraid of being viewed as political thereby tainting their scientific independence. Non-Scientists are more comfortable with brevity, risk, and the need for politics and how that is different than partisanship.”

“Capitol Hill is run by a bunch of 24-year-olds and there are actually a lot of highly trained scientists, but they work under the radar.”

On advice to STEM Ph. D. graduate students:

“Be a good scientist first, you can’t critically evaluate the process if you’re not strong enough.”

“There is rarely a short-term deadline pressure in science, that is the biggest difference between science and policy.”

“Not every scientist needs to be a good communicator.”

COHORT 2

“Not being a scientist myself, I felt imposter syndrome. I had to learn the details of the research process and how funders can influence policy.”

“Science policy is a team sport and a contact sport. Scientists may have the advantage here because they are used to working on teams.”

“Until you go into government, you don’t really understand it. You can learn it a bit in masters programs but it’s not enough.”

“science policy is a frustrating job. It takes years to make a teeny change often because of the political environment. It can be a frustrating experience.”

“Policy world tends to reward generalists but puts specialists in a box.”

“More and more, the policy issues we deal with have a scientific element. This is going to increase so we need scientists to provide this technical advice.”

“We are constantly learning throughout our careers; you need to be comfortable with this. Continuing education is so important. Your degree is not the end of your learning process.”

COHORT 3

“Any scientist can benefit from the knowledge that Washington DC does more than just send you money.”

On advice to STEM PhD holders:

“It’s important to truly know yourself and the type of roles that you thrive in. Do you want to be a generalist or a specialist? Do you want to work behind the scenes or upfront? Internal reflection is so important.”

“Scientists need to understand that science policy is about policy.”

“Differences between life scientists and physicists exist as well, it’s important to keep in mind these cultural differences too.”

“Most scientists have been focused on data analysis and statistical methods but not as focused on outcomes as non-scientists.”

“In academia, faculty advisors and mentors don’t have a breadth of information and resources about science policy.”

Asked on advice for scientists willing to transition to science policy:

“Find formal and informal ways to do policy work during graduate school either through internships and fellowships or create your own opportunity. If you want to be a good basketball player, you can’t just read, watch, and talk about basketball skills, you have to play it!”

2. SURVEY QUESTIONS FOR SEMI-STRUCTURED QUALITATIVE INTERVIEWS

Below is a selection of relevant, anonymized quotes from the qualitative interviews, separated by each cohort. Some sentences have been minimally edited and shortened for clarity.

COHORT 1: SCIENTISTS WHO HAVE TRANSITIONED TO POLICY

Introduction- Thank you so much for agreeing to speak with me for this project. As I outlined previously, this is a small informal study with the goal of identifying skill set strengths and gaps that scientists bring to policy careers. I will be interviewing scientists who transitioned to policy (like you), policy folks who went to school for policy, and senior managers who have hired/mentored/managed both scientists and non-scientists in policy careers. The goal of speaking to you is to elicit your personal narrative and identify common themes that can be used for future curriculum and program design.

1. Can you tell me more about how you realized you wanted to pursue a career in science policy?
2. What skill sets are necessary for success in a policy career? Do these skill sets differ by type of policy career? (i.e. local/state/national, agency/legislative/professional society) **Based on the roles that they themselves held
3. As you were starting your career in science policy, what skill sets did you already have that made the transition easier?
4. During your time in graduate school, how did you prepare for a career in science policy?
5. What skills did you learn in graduate school that were the most valuable to your future career?
6. How, when, and where did you develop those skill sets?
7. What skill sets did you develop quickly on the job? What skill sets took more time to develop?
8. What made starting a career in science policy challenging?
9. What skill sets were you lacking at the start that made starting a career in science policy challenging?
10. How do you wish your graduate school experience could have better prepared you for a career in policy? Could you give me an example? 11. Are there any other thoughts related to the topic of skill set development for science policy careers that you'd like to share?

Conclusion- Thank you so much for participating. I am interviewing about twenty-five people over the course of the next few weeks and plan to compile the results of the qualitative interviews into an informal report that will be openly accessible. I'm happy to share the report with you when it's finished if you'd like.

COHORT 2: TRADITIONALLY TRAINED POLICY PEOPLE

Introduction- Thank you so much for agreeing to speak with me for this project. As I outlined previously, this is a small informal study with the goal of identifying skills strengths and gaps that scientists bring to policy careers. I will be interviewing scientists who transitioned to policy, policy folks who went to school for policy (like you), and senior managers who have hired/mentored/managed both scientists and non-scientists in policy careers. The goal of speaking to you is to elicit your personal narrative and identify common themes that can be used for future curriculum and program design.

1. Can you tell me about how you realized you wanted to pursue a career in policy? Science policy?
2. What skill sets are necessary for success in a policy career? Do these skill sets differ by type of policy career? (i.e. local/state/national, agency/legislative/professional society) **Based on the roles that they themselves held
3. As you were starting your career in science policy, what skill sets did you already have that made the transition easier?
4. During your time in graduate school, how did you prepare for a career in science policy?
5. What skills did you learn in graduate school that were the most valuable to your future career?
6. How, when, and where did you develop those skill sets?
7. What skill sets did you develop quickly on the job? What skill sets took more time to develop?
8. What made starting a career in science policy challenging?
9. What skill sets were you lacking at the start that made starting a career in science policy challenging?
10. How could your graduate school experience have better prepared you for a career in policy? Can you give me an example?
11. Are there any other thoughts related to the topic of skill set development for science policy careers that you would like to share?

Conclusion- Thank you so much for participating. I am interviewing about twenty-five people over the course of the next few weeks and plan to compile the results of the qualitative interviews into an informal report that will be openly accessible. I'm happy to share the report with you when it's finished if you'd like.

COHORT 3: SUPERVISOR RESPONSIBLE FOR MENTORING AND HIRING BOTH GROUPS

Introduction- Thank you so much for agreeing to speak with me for this project. As I outlined previously, this is a small informal study with the goal of identifying skill set strengths and gaps that scientists bring to policy careers. I will be interviewing scientists who transitioned to policy, policy folks who went to school for policy, and senior managers who have hired/mentored/managed both scientists and non-scientists in policy careers (like you). The goal of speaking to you is to elicit your personal narrative and identify common themes that can be used for future curriculum and program design.

1. Can you tell me about how you realized you wanted to pursue a career in science policy?
2. What are the skill sets that are most valuable when making a transition to a science policy career?
3. You've worked with and mentored a lot of people as they begin their careers in science policy. What has been a universal challenge that all of your mentees face as they transition to policy work?
4. You've mentored scientists transitioning to policy work. What strengths do scientists bring to this career?
5. What aspects of a scientist make the transition to policy work challenging? How could scientists better prepare for a policy career?
6. You've mentored non-scientists transitioning to policy work. What strengths do these more traditionally trained individuals bring to a science policy career?
7. What challenges do non-scientists face when transitioning to a science policy career?
8. Could you summarize the differences in the learning curves you see in a scientist versus a non-scientist who works in science policy?
9. What advice would you give to a scientist who is interested in entering the science policy field? What should they know and how should they prepare?

3. PRE-SURVEY QUESTIONS

Below is a reproduction of the online form that was forwarded to respondents before the qualitative interview took place. This was made using Google Forms and distributed via email.

SKILL SETS FOR SCIENCE POLICY TRANSITION PRE-SURVEY

Thank you for agreeing to be part of Harvard's Scientific Citizenship Initiative's project to identify skill sets necessary for a successful transition to a science policy career. Please fill this survey out at least 24 hours prior to your scheduled interview so that Steph can use this information to help structure your interview and make the best use of your hour-long session. First, some basic information. Please note we will not be attaching names to quotes or gathered information in this project, either for survey responses or for in-person discussions.

Name

_____

Current Position Or Organization

_____

Description Of Current Position (Day-To-Day Duties, Tasks, Responsibilities)

_____

_____

_____

Previous Policy Positions And Organizations (Particularly Those In Science Policy)

_____

_____

_____

Graduate Degree And Subject Area (If Applicable)

Which Policy Fellowship Have You Completed? (If Any)

☐ Mirzayan Fellowship

☐ AAAS STPF Executive Branch

☐ AAAS STPF Legislative Branch

☐ PMF

☐ None Of The Above

☐ Other: _____

In Your Job, Have You Hired, Mentored, And/Or Managed Others In Policy?

◯ Yes, I Have Hired/Mentored/Managed Scientists Transitioning To A Policy Job

◯ Yes, I Have Hired/Mentored/Managed Non-Scientists Transitioning To A Policy Job

◯ Yes, I Have Hired/Mentored/Managed Both Scientists And Non-Scientists Transitioning To A Policy Job

◯ No, I Have Not

◯ Other: _____

The Transition To Science Policy

These Questions Are Meant To Discuss Your Personal Transition To Science Policy And Perhaps Unveils Ways This Transition Can Be Made Easier For Other Scientists.

Why Did You Decide To Pursue A Career In Policy?

_____

_____

_____

How Difficult Was The Transition To A Policy Job Form Graduate School Or Your Previous Position

Easy ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ ◯ Hard

What made the transition easier and/or harder for you?

What was the most valuable course(s) you took in graduate school for preparing for a policy career?

Did you participate in any of these activities in graduate school? Please check all that apply:

☐ Internship

☐ Science outreach in the community

☐ Leadership position in extracurricular organization

☐ Student government

☐ Starting a company

☐ Applying for a patent

☐ Teaching

☐ Physician shadowing

☐ Consulting

☐ Science policy student group or activities

☐ Writing for non-scientists (blogging, tweeting, etc.)

☐ Monitoring undergraduates or younger students

☐ Not applicable

☐ Other: _____

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Skills for a Successful Transition to Policy Work

These questions are meant to spark your thinking about the purpose behind this project. We will discuss these in more depth during the structured interview but please give some of your initial thoughts here to help guide our in-person discussion.

What skills were most useful to you as you were transitioning to a science policy job?

What skills do you think you were missing as you were transitioning to a science policy job?

Which of the following skills were you TAUGHT in graduate school? In other words, which were an intentional part of your graduate school curriculum either via coursework, laboratory, or otherwise offered by your institution? *

☐ Data analysis

☐ Discipline specific knowledge

☐ Ability to gather and interpret information

☐ Ability to learn quickly

☐ Creative/innovative thinking

☐ Oral communication skills (with any audience)

☐ Written communication skills (with any audience)

☐ Ability to manage others

☐ Ability to lead teams

☐ Career planning and awareness skills

☐ Problem solving

☐ Working within teams

☐ Managing projects and deadlines

☐ Real-world ethics

☐ Ability to work with people outside your organizations

☐ Ability to set vision and goals

☐ Other: _____

Which of the following skills did you develop outside of your official graduate school curriculum? In other words, during extracurriculars, internships, community work, etc. *

☐ Data analysis

☐ Discipline specific knowledge

☐ Ability to gather and interpret information

☐ Ability to learn quickly

☐ Creative/innovative thinking

☐ Oral communication skills (with any audience)

☐ Written communication skills (with any audience)

☐ Ability to manage others

☐ Ability to lead teams

☐ Career planning and awareness skills

☐ Problem solving

☐ Working within teams

☐ Managing projects and deadlines

☐ Real-world ethics

☐ Ability to work with people outside your organizations

☐ Ability to set vision and goals

☐ Other: _____

If you developed valuable skill sets during graduate school outside of the classroom and/or the laboratory, where did you develop them? *

_____

If you've hired/managed/mentored scientists and non-scientists as they transition to science policy, how were their incoming skill sets different?

_____

_____

_____

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220 Longwood Ave.
Goldenson, 509
Boston, MA 02446

sci@hms.harvard.edu
http://sci.hms.harvard.edu