

**Pathways of Women Who Are Deaf or Hard of Hearing
to Faculty Careers in Higher Education**

Carol E. Marchetti¹, Susan B. Foster², Sara Schley³, Margaret B. Bailey⁴, and Denise Kavin⁵

¹Professor of Statistics, Rochester Institute of Technology

²Professor Emeritus of Secondary Education for the Deaf, Rochester Institute of Technology

³Professor of Secondary Education for the Deaf, Rochester Institute of Technology and Director
of Learning Sciences, Georgia Institute of Technology

⁴Professor of Mechanical Engineering, Rochester Institute of Technology

⁵Assistant Dean and Executive Director of Outreach, Placement and Specialist Projects, National
Technical Institute for the Deaf, Rochester Institute of Technology



Author Note

Carol E. Marchetti  <https://orcid.org/0000-0002-3586-8024>

Sara Schley  <https://orcid.org/0000-0003-1327-4572>

Margaret B. Bailey  <https://orcid.org/0000-0003-1711-1252>

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Correspondence concerning this article should be addressed to Carol Marchetti, Rochester
Institute of Technology, 85 Lomb Memorial Drive, Rochester, NY 14623. Email:

cemsma@rit.edu

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Established by the US Congress in 1965, the National Technical Institute for the Deaf (NTID) is one of the nine colleges of Rochester Institute of Technology (RIT). Located in upstate New York, Rochester has the largest per capita population of d/Deaf or Hard-of-Hearing¹ (DHH) working age persons² in the country (Walter & Dirmyer, 2012). Like Gallaudet University in Washington DC, NTID has some of the highest numbers of DHH women faculty on a postsecondary campus in the United States in combined Lecturer, Pre-Tenure, and Tenured positions; in 2016, 41% of all NTID faculty were DHH, and 51% of the faculty were women (Destler & Buckley, 2016, p. 117).

Even though women and DHH faculty are well-represented at postsecondary schools for the deaf such as NTID, DHH women faculty are still considered part of a group described in the literature as “underrepresented and marginalized” within academia. Institutions of higher learning serving a focused population were established, in part, in response to the failure of traditional colleges and universities to meet the needs of minority students. Such institutions often have relatively high percentages of minority faculty, including Diné College (Navajo Nation), Howard University (Students of Color), and Laredo Community College (Hispanic/Latino). In these settings, the majority students reflect the communities from which students are drawn. For example, Laredo College student enrollment is 95% Hispanic and

¹ Lowercase “deaf” refers to the audiological condition of not hearing, and uppercase “Deaf” to a particular group of deaf people who share a language (American Sign Language) and a culture (Padden & Humphries, 1988). The term “hard-of-hearing” encompasses people with a mild-to-moderate hearing loss, deaf persons who don’t have/want a cultural affiliation with the Deaf community, or both (*Deaf Life*, October 1997 as cited in National Association of the Deaf, 2019).

² While “people-first” language such as “individuals who are DHH” is emphasized by many advocates, terms like “DHH academic” are considered acceptable because deafness is considered to be part of one’s identity in the deaf community (Najarian, 2008; Burke & Nicodemus, 2013; Smith, 2013).

Latino. This in turn creates a need for faculty who bring cultural and communication experience and skills to the campus.

Yet women and members of other minority groups are underrepresented in general among tenured faculty in academia. Finkelstein et al. (2016) found that women hold only 37.6% of tenured faculty positions. In addition, they found that underrepresented minority groups (defined as African Americans, Hispanics, and Native Americans) hold only 10.2% of tenured faculty positions.

In 2012, RIT was awarded a five-year institutional transformation grant from the National Science Foundation's ADVANCE program. The primary mission of ADVANCE is to increase the participation and advancement of women in science, technology, engineering, and mathematics (STEM) careers in academia. A secondary mission is to conduct social science research that examines one or more areas relevant to the project's overarching mission. The ADVANCE program at RIT aims to influence long-term changes to transform the university's culture by refining and strengthening institutional structures, improving the quality of women faculty's work life including reward structures, aligning systems of power and resources to support and sustain progress, and enhancing the working environment using symbolic measures which emphasize issues of meaning and significance within the organization. As part of the social science research of the project, the program examined the unique challenges experienced by DHH women faculty. The goal was to document the experiences of DHH women in higher education and use the results to identify potential strategic interventions, opportunities, and resources that may mitigate barriers encountered *en route* to careers in academia. Our investigation revealed four areas critical to academic career success (1) career pathways; (2) mentoring; (3) networking; (4) level of satisfaction with career progress.

This paper focuses on the first topic, the career pathways of DHH women who sought, secured, and maintained academic positions in higher education. What worked best for them? How did they handle barriers to achieving their goals? What can we learn from them that may help future generations of DHH women and other underrepresented groups pursue and achieve their career goals? This paper is organized in five sections (1) review of the literature; (2) research process; (3) results; (4) discussion and recommendations; (5) limitations and further research.

Literature review

Underrepresented faculty groups in academia experience marginalization. Women and minority faculty are questioned about their legitimacy as academics and lack access to institutional resources that promote professional socialization (Aguirre, 2000). Relationships with senior colleagues play a role in understanding the organization, trusting in one's competency, and feeling a sense of belonging, yet pre-tenure women are less satisfied than men with these relationships (Ponjuan et al., 2011).

Williams et al. (2014) found that both women of color and White women in STEM disciplines experience pervasive gender bias, but in different ways. Women of color faced “double jeopardy,” a combination of racial bias and gender bias. DHH women faculty also encounter “double jeopardy.” Many studies have shown that DHH professionals are excluded from spontaneous and informal conversations, leading to marginalization and isolation (Bristoll & Dickinson, 2015; Foster & MacLeod, 2003; Punch et al., 2007; Stapleton, 2015; Trowler & Turner, 2002). Schley et al. (2019) discusses the pushback that DHH women faculty experienced when implementing a series of professional development opportunities focused on their own needs. There is a need for more research on the career development of underrepresented women

academics in general, and specifically of those who experience marginalization on more than one front.

Barriers to career development and advancement

Using Swanson and Woitke's (1997) definition of career barriers as "events or conditions, either within the person or in their environment, that make career progress difficult" (p. 446), we note that significant barriers exist for marginalized groups seeking careers in higher education, including women, people of color, LGBTQ+ people, and people who are DHH. Research shows that DHH individuals encounter questioning of their intelligence and abilities (Gibson, 1996; Punch et al., 2004) and that employer attitudes toward DHH people impede job attainment and retention (Kurz et al., 2016; Perkins-Dock et al., 2015). Lack of knowledge within the hearing population about deafness and hearing loss creates an additional career barrier for DHH individuals. In Punch et al.'s (2006) survey of hard-of-hearing high school students in predominantly hearing schools, more survey respondents considered people's lack of understanding of their hearing loss as a barrier (68%) than the hearing loss itself (48%). This additional burden takes a toll. DHH employees experience greater levels of fatigue, psychophysiological stress, and stress-related sick leave than their counterparts with no hearing loss experience (Punch, 2016).

A position in academia does not provide DHH faculty relief from this additional burden. Stapleton (2015) describes DHH faculty having to educate hearing populations about their cultural differences and needs as well as needing to defend their intelligence. Woodcock et al. (2007) report that DHH academics often feel they must convince potential colleagues that they can do the job and, once awarded tenure, they may not be encouraged to seek promotion. Academic career success can be linked to strong networking and collegiality, but DHH people are denied access to both internal and external networks due to communication differences.

Social Cognitive Career Theory (SCCT)

Social Cognitive Career Theory (SCCT) is a framework to understand factors that influence career development and career pathways leading to academia. Anchored in Bandura's (1977, 1986) general social cognitive theory, SCCT emphasizes the role of a) self-efficacy beliefs; b) outcome expectations; c) goal representations in career development (Lent et al., 1994, 2000; Lent & Brown, 2019). According to SCCT, *self-efficacy* is a changeable set of self-beliefs that are specific to particular performance domains (e.g., data analysis or technical writing) that have complex interactions with other personal, behavioral, and contextual factors. SCCT is focused on a person's self-confidence in whether they can do something. *Outcome expectations* are a person's beliefs about the probable outcomes of performing specific behaviors. A person's interest in a specific academic or career-relevant activity depends partly on the outcomes that are expected to result from participation and the relative value or importance of the personal outcomes. *Goal representations* include concepts such as career plans, decisions, aspirations, and expressed choices. SCCT focuses on cognitive-person variables (e.g., self-efficacy, outcome expectations, and goals) and on how these variables interact with other aspects of the person and their environment; including how their gender, race, ethnicity, social supports, and social barriers help shape career development (Lent et al., 1994).

When people perceive that a barrier blocks a career interest, they are less likely to pursue that interest as a career goal (Brown & Lent, 1996). Even people with well-developed interests in a specific career path will be unlikely to pursue that path if they perceive (either accurately or inaccurately) significant barriers to entering or advancing in that career. Thus, *perceived barriers* are important factors in career development.

Success in a specific performance domain (e.g., mathematics) tends to raise self-efficacy, while repeated failures in this area lower self-efficacy. People are likely to develop disinterest (or

even aversion) toward activities in which their self-efficacy is low or when they expect neutral or negative outcomes (Lent et al., 2002; Lent et al., 2013). People are less likely to translate their career interests into goals, and their goals into actions, when they perceive that their efforts are impeded by adverse environmental factors (e.g., insurmountable barriers or inadequate support systems). By contrast, the perception of positive environmental factors (e.g., few barriers, adequate support systems) will facilitate the translation of one's career interests into goals and goals into actions (Lent et al., 2000; Lent et al., 2013).

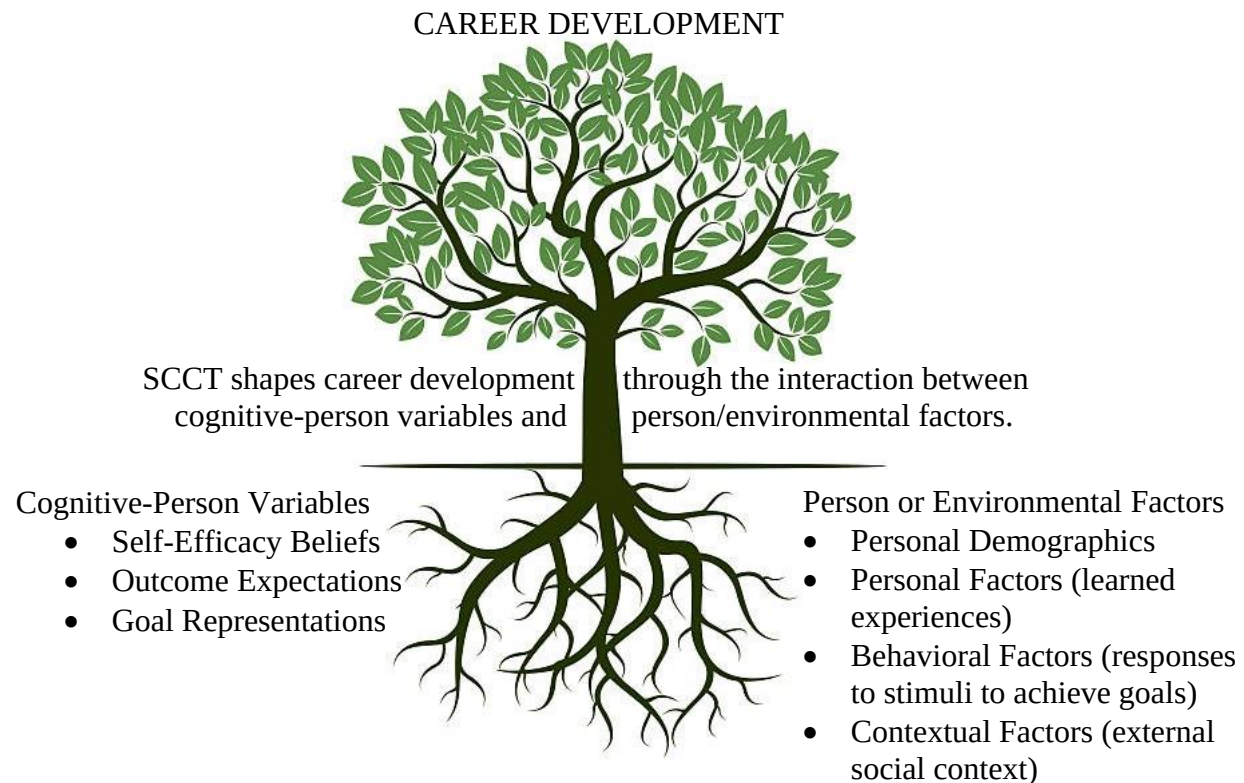
Career decision self-efficacy is positively related to career exploration intentions and engagement for young adults in general (Turner & Lapan, 2002), as well as for students with learning disabilities (Ochs & Roessler, 2004). Luzzo et al. (1999) found that college students with disabilities reported significantly lower levels of career decision-making self-efficacy than those without disabilities. There is also evidence, consistent with SCCT, that perceived barriers impede career development (Leal-Muniz & Constantine, 2005; Ma & Yeh, 2010; Constantine et al., 2005). In their study of hard-of-hearing high school students in predominantly hearing classes with itinerant teacher support, Punch et al. (2006) found that most students demonstrated minimal awareness of helpful strategies or job accommodations. In line with SCCT, some had prematurely ruled out potentially rewarding career options on the basis of faulty outcome expectations or self-efficacy beliefs.

In Figure 1, we provide a graphic representation of SCCT. The roots of the tree represent cognitive-person variables including self-efficacy beliefs and personal, behavioral, and contextual factors; the branches and leaves represent career development. SCCT shapes career development through the interaction between cognitive-person variables and personal or environmental factors. In this study, we investigated the barriers that DHH women faculty faced

in their career development and their pathway to academia, and we focused on understanding the nature of their support systems and the actions they took to achieve their career goals.

Figure 1.

Shaping Career Development: Social Cognitive Career Theory (SCCT) as a Tree



Research Process

This study set up focus group interviews to explore the experiences of DHH women faculty. The first goal was to document individual and contextual factors that inhibit or facilitate the ability of DHH women faculty to access career development venues and establish pathways to preferred careers, and then to identify supportive factors that may strengthen career development for DHH women moving forward. In this section we describe participant recruitment, data collection, and data analysis.

Facilitated discussion of the experiences of DHH women faculty who have attained and held positions within the same academic setting over an extended period of time fits Williams

and Katz's (2001) definition of a focus group. In this setting, interactive conversation is different than other qualitative methods in that it grounds the conversation within a given cultural context, in this case DHH women and Deaf culture, that may not surface in individual interviews or survey research (Barbour & Kitzinger, 1999). The experiences and opinions shared by participants illuminate and explain their career development and pathways towards academia.

Recruitment of focus group participants used two strategies. The first was an "opt-in" approach. Potential subjects were informed through email about a focus group opportunity and responded to the researchers in order to request information and register to participate. Those who received the invitation maintained control through either responding or deleting the message without further contact (Kaufman et al., 2012). To disseminate information about this opportunity for DHH women faculty, email messages were sent to all NTID faculty and staff, and the NTID Deaf Professional Advisory Group (DPAG). The second recruitment strategy was a "snowball" method in which individuals who had responded to a study announcement were encouraged to discuss the project with others who they believed might also be interested in participating (Atkinson & Flint, 2001). DHH women faculty who responded to the initial email were sent a follow up message about "spreading the word." When the team concluded that all interested participants had been included, a total of 13 interview participants were confirmed and organized in two separate 90-minute sessions; seven participants in one session and six in the other.

Focus group processes and goals were shared with participants and the informed consent form was explained prior to starting the interview. Background information was collected at the start of the session regarding participant disciplines, current positions, titles and ranks, length of employment at RIT/NTID, highest degrees attained, and hearing status (d/Deaf, hard of hearing, or hearing). Sign language interpreting support was available for all participants and spoken or

voice-interpreted comments were recorded on audiotape. The option of video recording was explored with participants, but the consensus of interviewees was that they were more comfortable with audio only.

Two members of the research team, one DHH and one hearing, co-facilitated the conversation with a semi-structured approach, encouraging but not requiring participants to share their experience and ensuring that everyone had an opportunity to participate in the conversation. Four topics were covered within the 90-minute session: career pathway, perspectives on mentorship (as mentee or mentor), experiences with networking at RIT or elsewhere, and level of satisfaction with career progression at RIT/NTID. Specific questions for the four topic areas generated and guided conversation, but facilitators also allowed participants to shape the discussion within the topics. Additionally, participants were asked to share stories and examples that further clarified their experiences.

The background information collected from the focus group participants was summarized by discipline area, current position, title and rank, length of employment at RIT/NTID, highest degree attained, and hearing status. Transcripts of the audio recordings of the interviews were analyzed using a “grounded theory” approach in which data are systematically reviewed and organized in ways that confirm or contradict existing knowledge or yield new knowledge regarding the phenomena under study (Bogdan & Biklen, 1982/1992; Glaser & Strauss, 1967).

The analysis of focus group data began with a close reading of the full transcripts to identify basic units of relevance, or “codes.” Once the major codes were identified, transcripts were further analyzed by sorting participant comments within the codes. These codes were then examined for links that help to explain the topic under study. This paper focuses on the first topic; career pathways and critical influences on the factors that facilitated or impeded the career pathways of the DHH women academics. (See the Appendix for the full list of interview

questions related to career pathways.) The goal of this research and analysis are to authentically represent the stories of the interviewees and to identify possible connections, implications, and recommendations deriving from their collective understandings and opinions regarding the topics raised in the interviews.

Results

The focus group participants reflected diverse backgrounds in regard to highest degree attained, discipline area of that degree, tenure and rank status, and years of employment at RIT (see Table 1). All participants identified as d/Deaf or hard of hearing.

Table 1.

Demographics of Focus Group Participants (n=13)

Demographics	Number of Participants
Highest Degree Attained	
Ed.D.	2
Ph.D.	1
M.S.	8
M.A.	2
Discipline Area of Highest Degree	
STEM/SBS	7
Non-STEM/non-SBS	6
Experience in STEM/SBS Fields	
STEM/SBS	11
Non-STEM/non-SBS	2
Rank: Pre-tenured and Tenured	
Assistant Professor	4
Associate Professor	2
Rank: Non-Tenure Track	
Lecturer	4
Senior Lecturer	2
Assistant Research Professor	1
Years Worked at RIT	
Range	1.5-35

Communication preferences among participants included American Sign Language (ASL), voice, or a combination of communication modes.

Participants were asked to describe paths they followed during their career journeys and how they achieved their current academic positions. This included a short summary of family, early years, schooling, higher education, and employment. Most participants came from hearing families, though some had one or more immediate DHH family members. Schooling included residential/day schools for DHH students, mainstream schools, a combination of both over the years, and additional experiences such as summer camp for DHH children. Some had parents with high levels of education while others had parents with less formal education. As each participant described her experiences, and the critical events that impacted her journey, two significant themes emerged 1) influence (positive or negative) from key individuals; 2) intrapersonal skills such as self-reflection, adaptability, and independent learning. These themes align with the elements of SCCT (Lent et al., 1994, 2000; Lent & Brown, 2019). The influence from key individuals shaped the participants' self-efficacy beliefs and outcome expectations. The self-reflection and adaptability impacted participants' career development goal representations. Independent learning was driven by participants' belief that beneficial outcomes could be expected.

Influence from key individuals

Participants described specific individuals who were influential in supporting their career development, including parents, teachers, advisors, doctors, and others. Frequently this support involved confronting obstacles often presumed to be inherent to deafness and hearing loss, but there were also stories related to gender or cultural assumptions about women in academia, particularly in STEM fields. While most participants shared stories of support and encouragement, others described encountering people who only saw barriers.

Positive influence of key individuals in career development. Most participants' stories described key individuals who were a positive influence in their lives. These individuals included

DHH and hearing people, family and outsiders. The common denominator was recognition of potential in the individual and efforts to motivate and support the individual in fulfilling her potential. In some cases, the influence was recognizing a participant's skill or interest and encouraging them to pursue it.

Parents were influential in many ways. In one example, the participant referred to her parents as role models who expected that she too would one day complete a Ph.D. Another participant noted that her mother was a math major and worked as an engineer at a time when there were not many women in that field. Her father was also an engineer, as were several of her siblings. As she recalls, "It was just very normal for me to focus in the engineering or math fields." One participant described her parents' role in engaging her to select and pursue a degree in optical technology: "My parents were not going to allow me to become a tennis bum." As a result, she toured the lab of an optometrist that she knew, adding that "he had a big influence on me deciding on that program."

In some instances, support took the form of advocacy. One participant recalled that her mother embarked on a search for the best education for her after she became deaf at an early age. Her mother's research identified a well-known school for the deaf, and the family moved to be near that school. In another example, a participant remembered her father as an active advocate for her in mainstream schools: "My father [. . .] made sure that I got the best interpreters throughout my education." For one participant, her father influenced her career through the toys he bought for her.

Definitely, it was my father who influenced me, had the strongest influence. As a young girl I looked up to him. I was a daddy's girl growing up. . . . and he would bring like cool science techie toys home that I could play with. Things that are popular now but weren't so popular back then. The . . .the acid rain pH test kit

and, um, so after a storm the next morning I'd play with that kit and so that's where my love of science really developed.

Support and encouragement often came from more than one source, or a single individual who took on more than one role. One participant noted that her sign language interpreter went above and beyond in supporting her: "The interpreter also became my tutor as well and [. . .] helped me move along throughout high school." Another participant recalled her teachers at school were role models who inspired her career development.

Below, a participant describes how a combination of interactions with teachers and professionals, largely coordinated by her mother, worked together to encourage her interest in computers.

I know it was my biology teacher in high school that influenced me. And there was another teacher that got a new Apple computer. And that got me interested in the computer programs and that was the first time I ever saw a computer. My biology teacher noticed that it was a good fit for me so . . . the teacher pushed me. I rebelled initially because I didn't know anything about a computer. . . . My mother took me to a company near my home and introduced me to a computer programmer. And I talked with them and they showed me this computer paper, printout. And I was so surprised at what it could do. So, again I thought it was a good fit for me.

Similarly, another participant's mother helped re-conceptualize her future by challenging the cultural norms of their community, while her teacher gave her the needed push to apply to colleges.

My family didn't go to college and many of my classmates did not go to college and so I thought, right, the expectation was to get married at 18 and have children.

And that was always what my vision was because that was the norm. And then my mom said to me, you know, “Why don’t you go to college?” And my biology teacher really pushed me to go to college. And I realized looking back, wow, I mean I’m happy that I didn’t settle at 19 and end up with a bunch of children. I do have a bunch of children anyway, but it didn’t happen in that order.

Another participant recalled that she would often explain things to her parents, and this instilled in her a joy of teaching. With additional support from some of her professors, she found her calling as a teacher of ASL.

One participant described a single lesson in a high school social studies class that proved highly influential in her decision to study sociology.

He happened to bring in a paper [bag] for the class and he had things in the bag. He dumps the bag out. It was like a recycling program initially. There weren’t food items or anything but newspapers and what not. And he says, “Now from this house where I’ve collected this bag of garbage tell me from what you see who lives in this house.” So we had to make some assumptions about who lived there based on what we saw from the refuse of their house. And so it was like an archaeological dig, so to speak. I mean, we didn’t go to another country to dig through the soil but it was how we interpreted the findings from someone’s home to make some assumptions of who lived there. So that was, a way to understand people’s ways of life. And I liked that idea of exploring things in that way. It was more of a sociology approach.

In each case, these key individuals recognized participants’ potential in different vital contexts and supported their development in diverse ways.

Negative influence of key individuals in career development. Not all influential individuals in participants' lives were positive, and in some cases their influence threatened to derail the participant's pursuit of career goals. In this regard, one participant recalled that while there were many good teachers she wanted to emulate at her school, some were "not so good." Generally, negative feedback she received was based on (often false) assumptions about women and/or deafness. In another instance, others charged with advising or supporting the DHH students did not do so in an informed or constructive manner, as reflected in the comment of a participant who noted that neither her high school counselor nor speech therapist encouraged her to attend college. Several participants stated that even their parents did not encourage them to pursue higher education. Sometimes these challenges were grounded in stereotypes about what a DHH person, and in particular a DHH woman, could accomplish. These barriers were grounded in the norms of that time, and several participants acknowledged that the cultural expectations were quite different then: "At the time [. . .] there were maybe a lot of cultural biases so my parents were thinking about things that were good for women."

One participant recalled that her college guidance counselor told her she could not enter the program she had selected after graduation because her English and math scores were too weak; she suspected that this comment could be based on gender bias since there were no women in the program at that time, hearing or DHH. Another participant described the negative reaction she received from doctors when she discussed her goal of becoming a teacher:

They would question my ability to become a teacher. That was my plan. And they were like, "Oh no you can't ever become a teacher because you can't talk right."

And I was like, you know, "I could be a teacher at a school for the deaf. I want to teach deaf students." And they're like "Oh no, a principal would never hire you."

And so I would leave those appointments so confused.

Before the passage of the Americans with Disabilities Act (ADA), many deaf and hard of hearing individuals had to go through hoops and be prepared to learn in an environment without access services. One participant described barriers in attitude as well as communication that she faced when applying to college.

And when I applied to college the chairperson of the Special Ed department interviewed me, sat sideways with a cigar in his mouth talking the whole while, chewing gum at the same time and I was supposed to try to speech read that. But I was accepted and that was the test that they gave me to see if I could speech read well enough to survive in the program. There were tremendous barriers.

Intrapersonal skills used to navigate barriers en route to career goals

Each of the focus group participants held a teaching or research position at an institution of higher education—some in tenured or pre-tenure positions, and others within the non-tenure track ranks. Regardless of whether their route was direct or meandering, barrier free or filled with roadblocks; they successfully arrived at a destination that many men or women, hearing or DHH, do not achieve. Coming from diverse families, attending diverse schools, and with varying levels of support, each of these women leveraged the opportunities that came their way and overcame the challenges that threatened to derail them. From their stories, several individual characteristics emerged as central to their success, allowing them to come back from disappointments and discover alternative routes to achieve their goals. Organized below are their stories of self-reflection, adaptability, and independent learning which illuminate the resilience they demonstrated when faced with challenges.

Self-Reflection. In self-reflection an individual contemplates the past, evaluates progress, and envisions new pathways based on current resources, skills, and opportunities. One participant embarked on a career only to discover that it did not meet her expectations. Rather

than continuing in an unsatisfying position, she re-conceptualized her goals while maintaining the essential elements of her passion.

I couldn't deal with blood and medicine and I thought the only other way to do that is to become a teacher. And yet many women are teachers and so I thought as a teacher I have a way to understand what my world would look like. . . .

Her transition into another career involved self-reflection and the willingness to persevere despite the inherent risk in making a change.

Another participant found herself without a job when her department was closed; her reaction was to retool her skills and join another department. "I actually went out and worked in the field for a short time developing skills and moved into that [new] area." Self-reflection was also key for a participant who made the decision to return to school for a doctorate later in life.

Several people were like, "What? You're too old," and I didn't care. I said, "You know what? I'm going to take the risk." I've got the bad and the good, and I saw the pros and decided to go for it. I was taking a risk and seeing it in a positive light. I have no regrets on making that decision. In fact, now I understand that I have more experiences, I am older, I'm wiser, I have a greater ability to engage in debate and express my feelings. I'm more confident at this point in my life, more so than maybe young women students are a bit more hesitant and more unsure. . . . I'm happy with my decision and where I am now in my career.

Adaptability. Actions resulting from self-reflection often require adaptability such as the acquisition of new skills, relocation, or the assumption of new roles and responsibilities. Where others might be reluctant to make significant changes, the focus group participants generally embraced change and persevered. Two participants described facing barriers to careers in

medicine. Both recall intense disappointment. However, they also displayed adaptability and resilience by choosing to consider alternative career options.

When I was in high school, my vision was to become a doctor because I loved watching medical programs on TV. Even though there was no captioning at that time I was still fascinated with the doctor shows. Unfortunately, everyone was against my vision. They all told me that I couldn't. Even my parents told me that I couldn't do it. I couldn't become a doctor. So, at that point I reconsidered and I thought, well I need to come up with another dream.

Even today . . . I still wish I could have become a doctor. And then I thought to myself, "Well, what's next?" I had to come up with another idea, so I thought maybe science. I was strong in high school science. Or computer science. So, I thought, "Why not? I am good with math as well."

Occasionally participants used the principles of efficiency as a strategy. One completed her bachelor's degree in history but when she enrolled in graduate school, she learned that she could complete a degree in English more quickly than a degree in history. She chose the quicker route, which enabled her to begin her career at NTID earlier than if she had studied history. Another participant leveraged a barrier into a professional career.

I applied to graduate school at [a major Midwestern mainstream university]. At that time the ADA [Americans with Disabilities Act] just passed and there was not a lot of information about the ADA. So, I had a hard time negotiating with the university to get the access services that I needed. I had to do research on the ADA and present . . . all the legal information to them to convince them to provide interpreters. And I thought, boy, I really like this area. Access and support

services for deaf students in higher education and how to help them succeed. It ended up being an interest of mine.

Independent Learning. Several of the participants described their early years as a time of isolation, and they sought out ways to learn independently. As noted earlier, television was one source of information, as reflected especially in the stories of how medical programs influenced them to consider careers in medicine.

Another major source of information was books. In the excerpts below, participants link their attachment to reading with their isolation in mainstream settings, and also the powerful role that reading played throughout their lives and careers.

Growing up I was isolated and exposed to reading a lot of books. I was always drawn into the world of books. Books were able to tell me about people and helping other people and learning about doctors and teachers and what they do and how they help people and how they inspire people. And so, I was always drawn into the world of books. That gave me the idea to become a teacher so that I could influence other people's lives. . . . Books were my friends. I had no one to socialize with. I used books as my friends, and I read a lot. It exposed me to a lot of the world through reading. There was one book written by a doctor that just fascinated me. He wrote probably five books, and I just was immersed in that reading and wanted to be so much like him.

My [hearing] sister was more of a social butterfly. I was more of a bookworm. . . . you know, a deaf student in a mainstream environment, you kind of bury yourself in books.

I really don't have a degree in deaf cultural studies. . . . There really were no academic offerings in the field at that time. . . . But you know, I read Carol

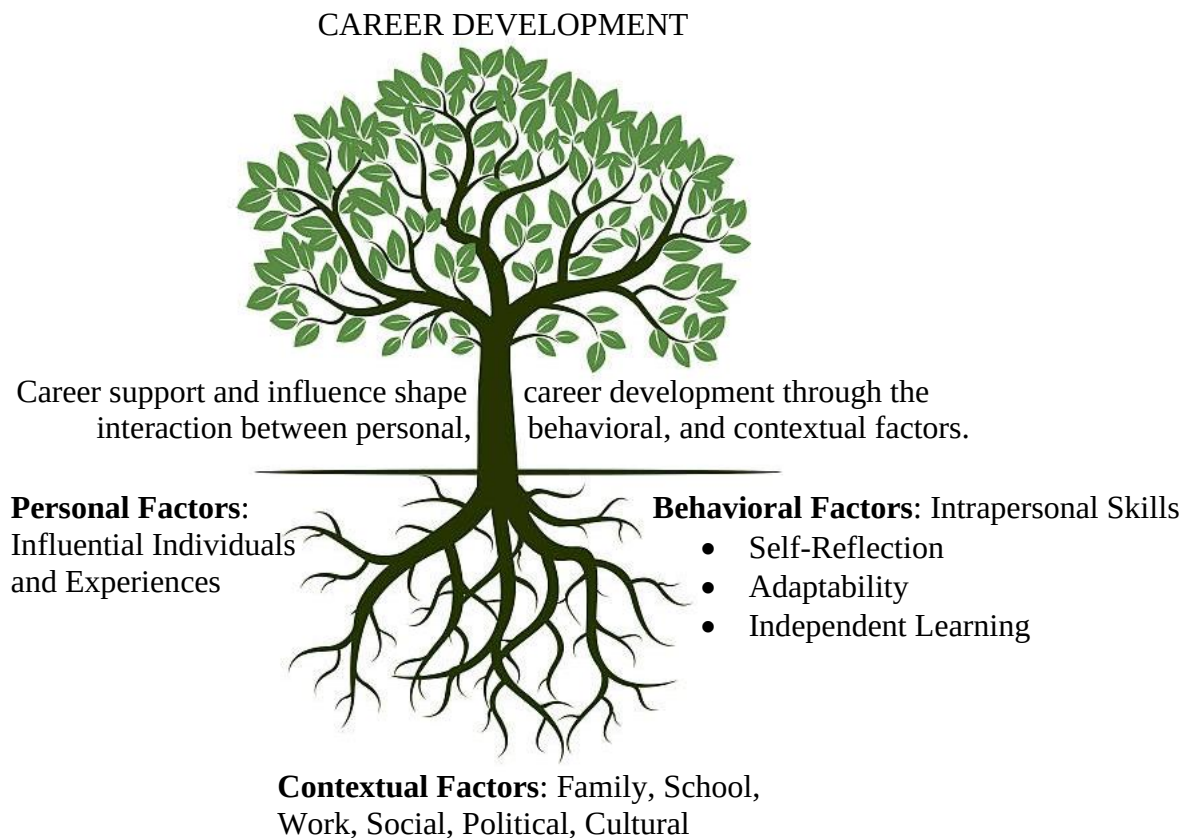
Padden and Tom Humphries' book, [*Deaf in America: Voices from a Culture* (1988)] and that talked about the hard-of hearing student experience. It was a light bulb moment for me . . . to know that that's who I am. That's me. . . . It was such a powerful insight for me at the time.

In building upon past successes and failures, the participants demonstrated the resilience that was integral to career progress and intimately connected with the influence of key individuals and the experiences of the women within their unique and diverse contexts. As researcher Brené Brown says, "Resilience is more available to people curious about their own line of thinking and behaving" (Baer, 2015). When participants recalled major turning points in their career journeys, it was almost always mediated by strategic self-reflection. This occurred when they changed their goals, hit a serious barrier, selected or changed majors or professional disciplines, moved from one employment context to another (e.g., industry to academia), or had a "light bulb moment." Whether it was recognizing that "sitting in a chair all day" was not what they wanted, assessing the pros and cons of going back to school later in life, discovering an interest in teaching, or rebounding from setbacks; the ability to weigh choices and implement decisions involved reflection and planning.

Figure 2 is a variation of Figure 1, showing SCCT as a tree in which the roots interact to shape career development. Figure 2 focuses on career support and influence and provides greater details of the personal, behavioral, and contextual factors specific to the DHH women faculty. The roots reflect distinct and different influences that sustain a career over time, representing influential individuals and experiences, intrapersonal skills, and a variety of contexts; branches and leaves of the tree represent career pathways.

Figure 2.

Shaping Career Development: Career Support and Influence.



Discussion and Recommendations

The women interviewed in this study set their education and career goals at various times and in different ways. Some just knew from a very young age; others set their goals at the encouragement of parents or teachers. The stories they shared suggest that these women were highly resilient. Rather than give up on their goals, they circumvented barriers when possible or adapted and continued to move forward—even in the face of limited access to services and limited support from others. But their stories were not only or even mostly about barriers; their experiences included the myriad roles that key individuals played in their lives—such as parents, teachers, advocates, and role models—who supported them and found ways to facilitate

achievement of their goals.

What are the lessons learned from this study? We learned that the women who participated in the focus group interviews had to work hard to get there. Very little came easily to them and often the barriers were daunting. They succeeded in part because of support they received from others and the messaging (often from parents) that they were capable of achieving their goals. But mostly they succeeded because of their beliefs about themselves and their determination to persist even in the face of setbacks and failures. In doing so they often had to change course, reflect on where they came from and where they were going, adapt to new circumstances, and continue to believe in their ability to make progress. Within the construct of SCCT, these women had strong beliefs in their self-efficacy, high expectations for the outcomes of their actions, and specific personal goals. They were able to take action to challenge and overcome barriers in their career paths because they believed in themselves and had the support of family, teachers, and others.

The career pathways followed by the focus group participants and the actions and tools applied throughout their journeys suggest several recommendations for supporting the academic career success of DHH women:

1. Facilitate informal support systems.
2. Establish formal support structures and mentoring network.
3. Develop action-oriented skills.
4. Recognize that career development is a lifelong endeavor.
5. Promote institutional change in higher education.

SCCT emphasizes the role of self-efficacy beliefs, outcome expectations, and goal representations in shaping career development. Informal and formal support systems are possible sources for the type of key individuals who shaped the self-efficacy beliefs and outcome

expectations of our DHH women participants. Self-efficacy is a key element of career success, and is connected to the perceptions and expectations of others, including mentors and department chairs. Many of the experiences mentioned by the interview participants occurred early in their lives; but as they sought to build or grow their careers, DHH women faculty faced similar challenges, many of which are linked to systemic ableism and stigmatizing beliefs about deafness. Thus, career development programs that encourage reflection, adaptability, and independent learning should be available throughout DHH women faculty's careers; but more importantly, higher education institutions should embrace disability as an integral part of diversity, something to be desired rather than accommodated. This research supports five interventions.

Facilitate informal support systems

DHH women faculty can leverage informal systems of support to make valuable introductions, encourage research collaborations, and promote inclusive conversations. At the same time, higher education administrators and faculty need to understand the impact that even a casual exchange can have on an individual. Focusing on what a DHH woman cannot do may curtail a person from envisioning a career goal as achievable. Supervisors and colleagues must present an alternative to the negative cultural and social attitudes that focus on limitations rather than possibilities. Having an individual who champions a DHH woman can be a critical factor in their success.

Establish formal support structures and mentoring networks

Given the evidence for the critical influence of career self-efficacy and perceived career barriers on career development, formal support structures are needed to improve career self-efficacy and reduce career barriers for marginalized faculty. Research suggests that improving the mentoring of marginalized faculty can be especially helpful (Diggs et al., 2009; Stanley,

2006; Turner et al., 2008) and the role of the department chair in facilitating mentoring relationships particularly important (Settles et al., 2006). Foster and MacLeod (2004) found that, among DHH graduates of RIT who became supervisors in primarily hearing work settings, having a mentor was a main and persistent element in their career success. A network model of multiple mentors may be a better approach than the usual hierarchical model of a single experienced mentor (de Janasz & Sullivan, 2002; Girves et al., 2005; Sorcinelli & Yun, 2007).

Develop action-oriented skills

Actions taken by the faculty based on intrapersonal skills such as self-reflection, adaptability, and independent learning were key to their career successes. Can experiences be created that further support DHH women in continuing to develop the action-oriented skills that were helpful in envisioning and pursuing their careers? Are there materials and other resources that can help supervisors and mentors of DHH women faculty in this regard? If not, can they be created? Working with faculty to identify opportunities for action in their career development is crucial, as supported by the SCCT model (see Lent & Brown, 2019; Lent et al., 2000; Lent et al., 1994).

Recognize career development as a lifelong endeavor

Career development is a process that persists throughout one's professional life. While the focus group interviews invited participants to reflect on their career development through the present, their stories continued after they achieved their positions in academia. The applications of self-reflection, adaptability, and independent learning did not stop with the selection of a career discipline. Rather, these types of actions became a reflexive habit. The pattern is one of keeping a general goal or goals in mind and then retooling the journey based on experience. In this manner one participant, who initially applied her computer skills in industry, decided that

“sitting at a computer typing all day” was not what she wanted; she completed further education in a different discipline.

It is important to note that even when a goal has been achieved the journey continues. Individuals will change as they respond to circumstances within and outside of the workplace. Their experience and skills will be further honed as they seek new positions, promotions, or other forms of career advancement, encountering new barriers that must be overcome. This suggests that programs and development opportunities should be ongoing, rather than short-term and/or occasional. Faculty development programs and initiatives which encourage reflection and change at important transition points of a career (rather than only while on the tenure track) are warranted (see Schmalz et al., 2019).

Promote institutional change in higher education

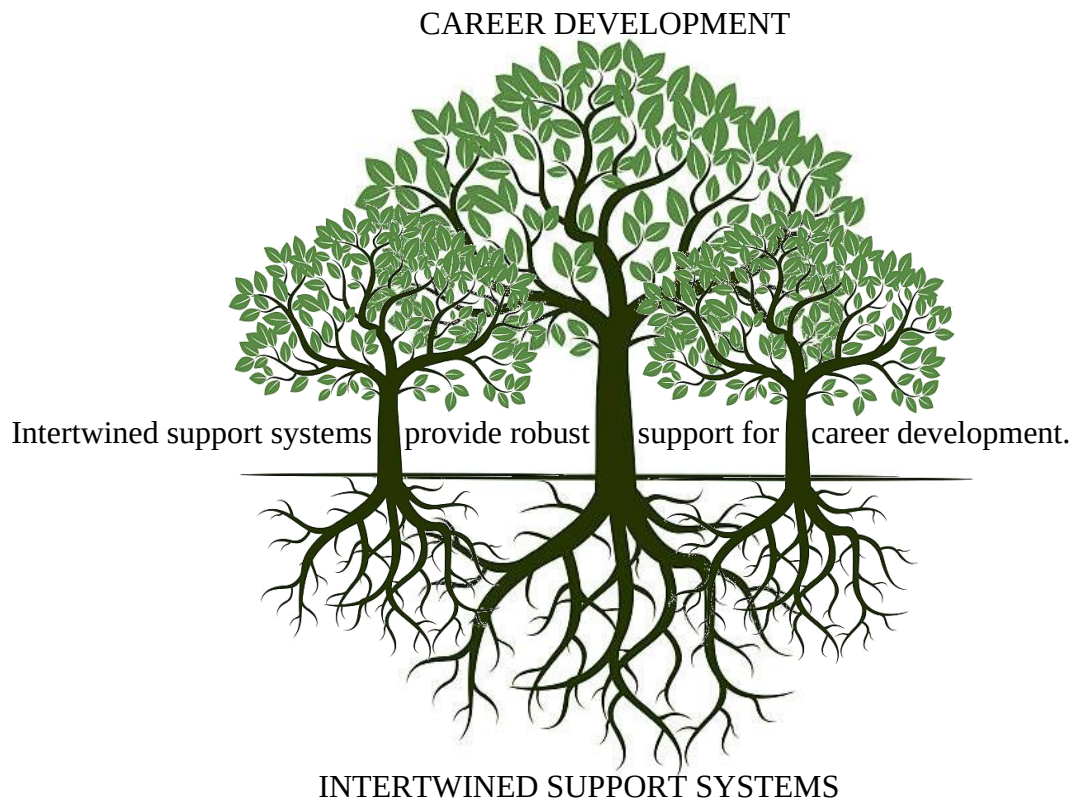
Institutions of higher education are not prepared for disabled faculty. Some shy away from hiring DHH faculty because of the “burden” of providing accommodations (Smith & Andrews, 2015) or due to potential pushback from other groups who may perceive that resources are being diverted to provide this accommodation (Schley et al., 2019). It is imperative that colleges and universities change the narrative around disability. Typically, disabilities are discussed in terms of legal requirements of access to buildings and communication (e.g., ramps, interpreters, and signage). Disability is not often included in discussions of diversity on campus, but diversity takes shape in multiple ways; including gender, ethnicity, cultural background, sexual orientation and identity, and disability. Dolmage (2017) underscores including disability in the discussion of intersectionality. Campuses need to begin viewing disability as an identity, like other arenas of identity. Kerschbaum et al. (2017) consider disability disclosure in higher education with the aim of understanding the needed changes in culture and environment in academia. Within this volume of collected works, Sanchez (2017) ponders the potential benefits

to relationships and critical thinking if we were to regularly engage in conversation about disability, without assuming that those with disabilities will initiate such discussions or disclose personal details. Pickens (2017) dares us to better understand how the behavioral expectations regarding disability, race, and gender function in our environment or face continued ableism, racism, and sexism that disadvantage diverse faculty. These authors encourage institutions to embrace disability as an integral part of diversity, something to be desired, rather than merely accommodated. At a time when many colleges and universities expend considerable effort at making educational spaces more broadly inclusive to other facets of identity, it would be appropriate to include disability identity in these efforts and discussions.

The DHH women interviewed for this study used the impact of key individuals, and intrapersonal skills such as self-reflection, adaptability, and independent learning to interpret and respond to their experiences in ways that facilitated the continued pursuit of their goals and the rebalancing of multiple goals and responsibilities. Figure 3, with multiple trees as part of a larger ecosystem, provides a broader view of career success than Figures 1 and 2. In this ecological model, the career journeys of DHH women may be interconnected, as neighboring trees with intertwining root systems. As the careers of DHH women evolve and grow, they may influence and support other DHH women and the context within which they work, thus creating further opportunities for others. This might include professional collaborations, mentoring and/or sponsorship of junior colleagues, or simply regular meetings of DHH women (face-to-face or virtually) to share experiences, ideas, and networks.

Figure 3.

Shaping Career Development: Ecological Model of Support and Influence.



In the same way, the root system of a tree not only provides nutrients, but also anchors the tree from storms. Neighboring trees often intertwine roots to create a stronger support system. Redwoods grow to be the tallest trees and aspens to cover the most ground based on this principle. By bolstering and encouraging each other, DHH women faculty act as neighboring trees. They build a reciprocal support system that, like the redwoods, enhances their success and, like the aspens, increases their numbers in academia. In short, DHH women faculty benefit from strong roots and helpful neighbors, and we may be able to better support their career paths by understanding the role of informal support systems, establishing formal support structures, encouraging action, and recognizing that a career path is lifelong. With this in mind, we now examine the limitations of the current study.

Limitations and Further Research

The focus group interviews completed for this project had a total of 13 participants. This data, while rich, should be considered an exploratory study and basis for further research. We suggest larger research efforts continue to study the factors impacting career pathways such as the influence of key individuals and the intrapersonal skills of adaptability, independent learning, and self-reflection.

The career journeys shared through the focus group interviews uncovered the individual histories of the participants in this study, conveyed through specific experiences and events. The complexity of such career journeys may be better conveyed through the construction of complete examples or more detailed biographies. We learned about the patterns and significant moments that participants shared but not about the connections between these moments that shaped the individual over a lifetime. As a result, we recommend that future research consider conducting a series of in-depth biographical interviews with individual participants that would allow time for reflection to more fully capture the life and career course of the individual.

Carol Marchetti is a Professor of Statistics within the College of Science, Rochester Institute of Technology. She conducts research in statistics education, deaf education, cooperative learning, team knowledge building, and gender equity in STEM. She served as co-PI on RIT's ADVANCE Institutional Transformation grant, leading initiatives on faculty salary equity and objective faculty data. With co-author Bailey, she is currently leading the NSF ADVANCE Partnership Project, "Let's Talk Money: Building Community Understanding of the Institutional Compensation System" (#2121930).

Susan B. Foster, Ph.D., Professor Emeritus of Secondary Education for the Deaf within the National Technical Institute for the Deaf, Rochester Institute of Technology, conducted research regarding access for deaf and hard-of-hearing people in educational and employment settings for 30 years, with a focus on universal design in pedagogy. She served as key personnel on RIT's ADVANCE Institutional Transformation grant, leading social science research focused on deaf and hard-of-hearing women faculty.

Sara Schley, Ed.D., is a Professor of Secondary Education for the Deaf (Rochester Institute of Technology) and the Director of Learning Sciences in the Coulter Dept. of Biomedical Engineering (Georgia Institute of Technology). She investigates how educational settings are improved when underrepresented students and students with disabilities are included in the faculty development process. She was PI on NSF grant #I625581, "Collaborative Research: Accessible STEM Instruction with Deaf Students—Supporting Faculty in Pedagogical Exploration and Innovation." She is currently co-PI on NSF RED project #1730262, "IUSE/PFE:RED: Transforming for inclusion: fostering belonging and uniqueness in engineering education and practice."

Margaret Bailey, Ph.D., P.E., Professor of Mechanical Engineering within Kate Gleason College of Engineering, Rochester Institute of Technology, focuses on Thermodynamics, engineering and public policy, engineering education, and gender in STEM. She serves as the Principal Investigator on several NSF funded efforts, including the large-scale ADVANCE Institutional Transformation grant which increases the representation and advancement of women STEM faculty. This multi-year effort resulted in impactful programs, practices, policies and a dedicated ADVANCE unit within the Provost Office. Dr. Bailey is the co-author on an engineering textbook used worldwide in over 250 institutions and author of over 85 peer-reviewed publications.

Denise Kavin, Ed.D., has been with the National Technical Institute for the Deaf (NTID), a college of the Rochester Institute of Technology in Rochester, New York, for over 15 years. She presently serves as Assistant Dean for Outreach, Placement and Special Projects and co-principal investigator with DeafTEC: Technological Education Center for Deaf and Hard-of-Hearing Students, a National Science Foundation Advanced Technological Education National Center of Excellence. In her work, she also provides oversight of NTID's new Regional STEM Outreach Center, a partnership with the Alabama Institute for Deaf and Blind, serving the nine-state Southeastern region.

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Appendix A

Interview Topics and Questions

Interview Topics:

- Career Pathways
- Perspectives on mentorship (as mentee or mentor)
- Experiences with networking at RIT or elsewhere
- Level of satisfaction with career progression at RIT/NTID

Career Pathways Questions:

Question 1: Please describe the key events and thought processes that led you to your field of study. For example, was there a single moment or perhaps a series of experiences that led you to pursue a career in your field? Please give an example.

Question 2: What were the greatest influences leading you to pursue a career in your field (STEM/SBS or other)? Please give an example.

Question 3: Were you ever discouraged or encouraged by someone to pursue an academic career in your field? Please explain.

Question 4: Did you have any doubts about pursuing your career? Please explain.