

Lessons Learned from Mentors and Postdocs in a Multi-Campus Postdoc-to-Faculty Program

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This paper shares lessons from postdoctoral scholars and their mentors participating in the National Science Foundation -funded Re-Imagining STEM Equity Utilizing Postdoc Pathways (RISE UPP) program. A scaling of the University System of Maryland's Alliances for Graduate Education and the Professoriate (AGEP) PROMISE Academy, RISE UPP is designed to broaden participation in the STEM professoriate through professional development of postdocs, improving academic climates, enhancing mentorship, and creating pathways for postdoc-to-faculty transitions. A key element of the program is expanding and enhancing mentoring by encouraging multi-mentor networks, which research has shown to be more effective than the traditional one-on-one faculty-postdoc dyad. This report presents evaluation findings from surveys, focus groups, and reflective journal prompts completed by faculty mentors and postdoctoral fellows. The evaluation explored mentor training, institutional supports, mentoring relationships, and the impact of mentoring on beliefs, attitudes, and behaviors. Input from both groups illuminated the value of reciprocal mentoring relationships and areas needing improvement. Postdocs reported receiving strong support not only from their primary research mentors but also from an extended mentoring community that included peers and external mentors. These connections were cited as vital to their wellbeing, professional development, and career navigation. At the same time, postdocs noted challenges, especially around how intersectionality shaped their experiences. Mentors, in turn, reported that mentoring RISE UPP fellows contributed to their own growth and sense of purpose. They identified challenges including a need for clearer expectations, more targeted training, and greater alignment of mentoring practices with program goals. Overall, the findings underscore the importance of structured, community-based mentoring for postdocs. Lessons learned point to specific strategies for enhancing mentor development, building inclusive mentoring networks, and designing scalable, equity-focused postdoctoral programs. We will discuss recommendations and implications for future initiatives.

Keywords: Postdoc, effective mentoring, faculty, mentoring support, multi-campus

Introduction

Mentoring for postdoctoral scholars in STEM is traditionally a hierarchical dyadic model between a faculty mentor and a postdoctoral scholar mentee (Byars-Winston & Dahlberg, 2019). In recent years, national surveys and the National Institutes of Health Re-envisioning NIH-Supported Postdoctoral Training Working group have highlighted concerns around postdoctoral scholar mentoring (Berger, S., & Schwetz, T. A., 2023; National Postdoctoral Association, 2023; National Postdoctoral Association, 2025). Mentoring training, like that developed by the Center for the Improvement for Mentored Experiences in Research (CIMER) has improved the mentoring experience in STEM (Pfund et al., 2014).

Literature Review

Furthermore, the literature has identified concerns around mentoring relationships and support for minoritized scholars seeking to transition to faculty roles in the academy (Espino & Zambrana, 2019; White-Lewis, 2022). Best mentoring practices point to trainees having multiple mentors for support (Montgomery & Page, 2018). In this report, we examine the impact of mentoring practices from the Re-Imagining STEM Equity Utilizing Postdoc Pathways (RISE UPP) program, an NSF funded initiative to broaden participation in the STEM professoriate through collaborative programming across institutions within state university systems. RISE UPP fellows participate in inter-institutional professional development

and campus visits. Through the program, they are assigned external faculty mentors from other participating institutions, meet regularly with other fellows (peers) across campuses, and receive mentorship from program staff.

Methodology & Evaluation

Participants and Data Collection

To investigate the impact of mentoring within the RISE UPP program, researchers used a qualitative approach to gather in-depth reflections from both mentors and postdoctoral fellows. Six RISE UPP mentors (N = 6) completed a series of eight open-ended reflective journal prompts designed to examine key elements of the mentoring experience, including mentor training, institutional support and resources, the effectiveness of mentoring relationships, and shifts in their own thinking, beliefs, attitudes, and behaviors. Eight postdoctoral fellows (N = 8) also completed open-ended journal prompts, offering insight into how mentoring shaped their postdoctoral experiences. Additionally, five of the eight fellows participated in a semi-structured focus group conducted via Zoom, a secure online videoconferencing platform. With participants' consent, the focus group was audio and video recorded, and the recordings were transcribed using an artificial intelligence-based transcription service to support systematic data analysis.

To protect participant confidentiality, no demographic information (e.g., race, gender, sexual orientation, institutional affiliation) or other personal identifiers were requested in the journal prompts. During the focus group, participants were invited to select pseudonyms, which were used throughout data reporting and analysis. The pseudonyms chosen were not linked to any real names or identifying information, ensuring the privacy and anonymity of all participants.

Data Analysis

Qualitative data—including reflective journals from both mentors and postdoctoral fellows, as well as focus group transcripts from postdoctoral fellows—were analyzed thematically. A combination of open coding and sociologically constructed coding was used to examine the data.

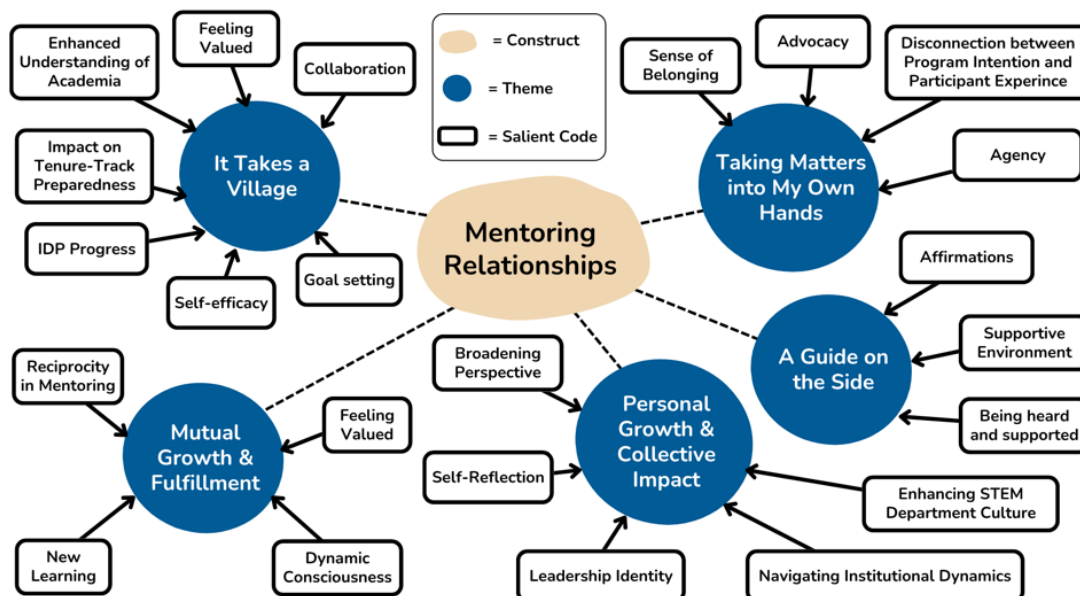
Open coding allowed for an inductive exploration of the data without prior assumptions, while sociologically constructed coding was employed to identify recurring phrases and patterns of interest (Coffey & Atkinson, 1996; Strauss & Corbin, 1990). Coding was conducted in multiple stages, beginning with independent open coding by two researchers, followed by collaborative refinement of a shared codebook. Inter-rater reliability was addressed through consensus-building discussions to reconcile discrepancies and ensure consistent interpretation of the data. Considerations of evaluator positionality were documented and critically reflected upon throughout the process, including through recorded conversations among coders that explored individual perspectives, assumptions, and potential biases.

The findings highlight an overlap of topics explored in both the reflective journals and focus group discussions. Overlapping topics are marked with an asterisk to indicate their presence in both reflective journals and focus group data collection. Narrative inquiry served as the overarching analytical framework to examine participants' experiences, enabling simultaneous attention to both methodology and phenomena (Clandinin, 2013). A codebook was developed to generate a priori codes, which were then mapped to emergent themes derived from the focus group data, facilitating a deeper understanding of the impact of mentoring on the postdoctoral experience.

Results

Five central themes emerged as shared perspectives across mentors and postdoctoral fellows and are used to organize the study findings. These themes reflect key insights into the mentoring experience within the RISE UPP program, highlighting both individual and collective dimensions of growth, support, and professional development. To illustrate each theme, we present two representative quotes drawn from participant reflections. While space constraints limit the inclusion of additional voices, each selected quote encapsulates the broader sentiments expressed across the dataset. Additionally, a figure is provided to visually display the five themes alongside their most salient codes, offering a clear and accessible overview of the data's conceptual organization.

Figure 1.
Core Themes Defining Mentoring Relationships within the RISE UPP Program



Theme 1: Mutual Growth and Fulfillment

The theme reflects the dual benefits mentors experienced through their involvement in the RISE UPP program. Journal responses revealed that mentoring postdoctoral fellows was not only a source of personal satisfaction and professional enrichment but also an opportunity to contribute to the academic pipeline by supporting future faculty. Mentors described the experience as deeply rewarding, citing feelings of fulfillment, expanded perspectives, and meaningful personal growth. They noted that mentoring offered opportunities for new learning—particularly through exposure to their mentees’ diverse backgrounds and ways of thinking—and reinforced their own career goals and sense of purpose. In guiding postdoctoral fellows, mentors also reflected on the importance of creating inclusive academic spaces and recognized the mutual exchange of knowledge and insight that occurs in effective mentoring relationships.

I have come to appreciate even more that people want different things from a career in academia, and in order for our science and scholarship to flourish, we need to create space for people to approach problem solving in ways that fit their goals.

For mentors actively engaged in community-based mentoring, journal responses describe the experience as transformative and enriching. Participants emphasized how mentoring fostered their own personal growth while offering continuous opportunities for learning. Community mentoring not only supported mentee development, but also enhanced mentors’

professional insight and sense of purpose. One participant mentioned: “Community mentoring provides a rich experience that is transformative for me as a mentor and a learner. Engaging with mentees deepens my understanding of effective mentoring.”

Theme 2: It Takes a Village

Postdoctoral fellows emphasized the essential role of their broader mentoring communities in providing support, affirmation, and empowerment throughout their professional journeys. These communities often extended beyond their primary research mentors (within the institution) to include secondary mentors (outside the institution) assigned by the RISE UPP program, departmental mentors, and other informal support networks. Fellows consistently acknowledged the profound impact these collective mentoring relationships had on their growth, not only in advancing their careers but also in shaping their understanding of effective mentoring. Through these connections, participants reported learning to mentor others, gaining clearer insight into their own mentoring needs, and building enduring relationships that continue to influence their development.

The community was truly fantastic. I not only gained valuable knowledge and skills, but I also built lasting connections with colleagues who have become both professional contacts and personal friends. These relationships extend far beyond the duration of the program, providing me with a supportive network of peers I can reach out to for advice, collaboration, or

simply to share experiences. Being part of this community has created a sense of belonging, and I feel more connected to my field than ever before. It's empowering to know that I have a network of like-minded individuals to rely on as I navigate my professional journey.

Postdoctoral fellows reported a notable increase in their confidence in pursuing tenure-track positions, attributing this growth to the collective support, encouragement, and validation received from their mentors and broader mentoring communities. These networks play a vital role in their professional preparation, particularly in practical areas such as refining job talks and developing application materials. Community mentoring not only enhances participants' readiness for the academic job market but also underscores the power of a supportive community in shaping and sustaining their career trajectories. One participant said: "My confidence has increased tremendously. I have received great validation and confidence-building from my mentoring community. Their support has made me feel very confident that I can succeed in a tenure-track position."

Theme 3: Personal Growth and Collective Impact

Mentors describe their experiences in the RISE UPP program as deeply transformative, noting that mentoring significantly advanced their own professional development while also contributing to a broader, more supportive academic culture. All mentors (100%) reported that their mentoring had a high to very high impact on their own growth, highlighting how the process fostered internal shifts in perspective, enhanced leadership skills, and deepened their understanding of institutional dynamics. A participant mentioned: "My role as a mentor has profoundly contributed to both my professional and personal development by enhancing my leadership, networking, and collaboration skills, increased empathy and understanding, self-reflection, and understanding of institutional dynamics."

Beyond personal development, mentors emphasize that effective mentoring is a vital faculty responsibility with far-reaching influence. They advocate for mentoring to be formally recognized as a key component of academic work, citing its role in faculty advancement, institutional climate, and the development of future scholars. By mentoring others, they not only cultivate their own leadership capacities but also contribute to the recruitment, retention, and success of the next generation. These reflections illustrate how individual growth through mentoring can generate meaningful, collective impact within the academic community. One participant stated: "I believe that mentoring helps to foster an inclusive, supportive environment that benefits the department culture."

Theme 4: A Guide on the Side

Postdoctoral fellows view their mentors as trusted companions and consistent sources of support, helping them navigate the complex challenges and emotional demands of their academic journeys. Rather than directing from above, mentors create safe, affirming spaces where mentees feel heard, validated, and empowered to express vulnerability. Their presence offers both emotional grounding and strategic guidance. In one powerful example, a mentor helped a participant consider a constructive exit strategy, not as a failure, but as an intentional act of agency and self-preservation. These moments highlight the quiet yet profound impact of mentors who walk alongside their mentees—listening, encouraging, and offering perspective—ultimately shaping not just professional outcomes but personal resilience and confidence.

And I feel like from this program and from the mentorship that I've gotten, I feel like it's really helped me to see that it's possible, and it's helped me to see myself in a position, an academic position and also see the ways in which I can do academia.

One postdoctoral fellow offered a powerful reflection on the quiet yet impactful role of mentorship in shaping their academic aspirations. While most participants did not explicitly identify mentoring or the mentoring community as central to their sense of belonging or intersectionality, this individual shared that having a mentor who looked like her served as a profound source of motivation to pursue a career in academia. This example highlights how mentors, simply by being present and relatable, can inspire and empower mentees in meaningful ways. It underscores the importance of representation and identity alignment—not through directive influence, but through the subtle, validating presence of a mentor who affirms a mentee's place and potential within the academic landscape.

As a Black woman, being connected to a Black woman mentor through this program tremendously helped my sense of belonging in academia. It also helped me see that what I hope to do with my career is actually possible, and it helped me gain insight into how to navigate an academic career as a Black woman.

Theme 5: Taking Matters into My Own Hands

One participant recounted the challenge of securing a secondary mentor through the RISE UPP program. Rather than allowing this obstacle to hinder their development, the participant proactively cultivated an informal mentoring network by engaging with a social group for Black researchers on campus. This self-initiated approach not only filled a critical gap but also underscored the importance of

shared intersectional identities within mentoring relationships. The participant emphasized that, particularly when a primary mentor is not a person of color, having access to a community that reflects one's lived experiences is vital for fostering a deeper sense of belonging and support.

The one problem that I'll mention is that I was supposed to receive a secondary mentor, but that never happened. However, I have formed an informal community of mentors on my campus as part of a Black researchers' social group. It has been nice to have the perspectives of mentors from a more similar background to myself, especially because my primary mentor is not a person of color. Having this group has definitely strengthened my sense of belonging.

Conclusion

The findings from this evaluation demonstrate that the needs of postdocs vary and can best be addressed and supported by a community-based multi-mentor model. While the dyadic model of mentoring still persists in the postdoctoral landscape, there have been increased discussions and research indicating that mentoring support works best when provided by a community of mentors. This community includes both peers and more senior colleagues who help shape opportunities for professional development of postdoctoral fellows as they prepare to convert to tenured-track faculty (Keller & Lindwall, 2020; Enekwe & Aumiller, 2024). The RISE UPP fellows note that programmatic activities contribute to their professional and career development, as well as their personal growth, particularly through the expansion of their professional network, increased access to resources, intentional career planning, skill development, and community. Specifically, fellows indicated that their mentoring community was an invaluable component of the program that offered critical support, affirmation, and empowerment. The above-stated indicators of psychosocial mentoring supports (NASEM, 2019) enhanced their feelings of agency as they navigated their postdoctoral journey and prepared for academic positions.

One of the program goals was to help create pathways to convert postdoctoral fellows to tenure-track positions. Though not all of the postdocs engaged in a predetermined conversion process through RISE UPP, those who did indicated that the program's support systems and sponsorship opportunities enabled 60% of the postdocs who participated in the focus groups to secure tenure-track faculty positions. Further, the participants expressed a sense of hopefulness about pursuing tenure-

track roles in STEM, even outside the parameters of the RISE UPP program. They attributed this optimism to the support of key project personnel who acted as a safety net, helping them navigate the challenges of intersectionality in the STEM workforce, particularly the "double or triple bind" of race/ethnicity, gender, and disabilities.

While RISE UPP fellows indicated they benefited from their peer community, assigned faculty mentors, and program staff, the evaluation uncovered areas that are in need of improvement. Feedback from participants indicated a disconnect between the program's goals and the experiences of postdoctoral fellows. Postdocs reported that while their contracts ambiguously stated an "intention to convert" to tenure-track positions, this intention often lacked clear benchmarks. Despite assurances, several postdocs indicated uncertainty as they approached conversion, thus leaving them to pursue tenure-track positions through traditional, competitive channels. Additionally, some participants expressed concerns about being overburdened with departmental responsibilities without adequate support or recognition.

Another area for improvement that participants noted is the need for departmental-level mentors, sponsors, and champions. While there were indications of personal support from program leadership that was deemed highly valuable, the lack of acknowledgement of similar support at the departmental administrative level is a notable concern. This gap suggests an uneven distribution of mentorship and sponsorship and a need to strengthen institutional support systems beyond the program leadership to ensure sustainable and equitable support structures for participants.

Lastly, the feedback surrounding the fellows' feelings about their academic climate highlights the importance of cultivating an environment that acknowledges, addresses, and supports the unique intersectional experiences of postdoctoral fellows. It highlights the value of safe spaces where individuals feel heard and supported, a quality the participants directly attributed to their experience in the RISE UPP program. These insights point to the necessity of systemic changes to provide meaningful support and promote equity for postdocs, especially those navigating complex intersectional identities.

The successes and challenges of the RISE UPP program highlight opportunities for institutional approaches to postdoc-to-tenure track conversion programs to engage in intentional and meaningful program activities. Institutions should provide structures that allow postdocs to enhance their peer and senior colleague networks through formal and informal mechanisms, such as matching multiple mentors, hosting community gatherings, and providing career and professional development opportunities for both mentors and mentees. Additionally,

programs should create clear communication channels with detailed information at the onset of the postdoctoral fellows' recruitment and should persist throughout their postdoctoral appointment and into their tenure track appointment. Communication should include conversations with the postdoctoral fellows' mentors and perhaps the department chair or person of influence. In tandem, leadership should recruit senior administrators and influential faculty members at all participating institutions to serve as champions for both the conversion and matchmaking processes. Lastly, program leadership should establish formalized departmental mentorship programs and provide training for department administrators on inclusive mentoring, sponsorship, and leadership practices to better equip them to support postdocs, particularly those navigating intersectional challenges.

References

- Berger, S., & Schwetz, T. A. (2023, June 9). *Re-envisioning NIH-supported postdoctoral training (Advisory committee to the director postdoc working group)*. National Institutes of Health Advisory to the Committee Director Meeting.
- Byars-Winston, A., & Dahlberg, M. L. (Eds.). (2019). *The science of effective mentorship in STEM*. National Academies Press. <https://doi.org/10.17226/25568>
- Clandinin, D. J. (2013). *Engaging in narrative inquiry*. Left Coast Press.
- Coffey, A.J. & Atkinson, P.A. (1996). *Making sense of qualitative data*. SAGE Publications, Incorporated.
- Enekwe, B. & Aumiller, J. (2024). The need for mentoring constellations. *Inside Higher Ed*. <https://www.insidehighered.com/opinion/career-advice/carpe-careers/2024/07/08/grad-students-and-postdocs-need-mentorship>
- Espino, M. M., & Zambrana, R. E. (2019). "How do you advance here? How do you survive?" An exploration of underrepresented minority faculty perceptions of mentoring modalities. *Review of Higher Education*, 42(2), 457-484. <https://eric.ed.gov/?id=EJ1201678>
- Keller, T. E., & Lindwall, J. (2020). Investigating a multiple mentor model in research training for undergraduates traditionally underrepresented in biomedical sciences. *UI journal*, 11(1), <https://www.understandinginterventionsjournal.org/article/12476-investigating-a-multiple-mentor-model-in-research-training-for-undergraduates-traditionally-underrepresented-in-biomedical-sciences>
- Montgomery, B. L., & Page, S. C. (2018). *Mentoring beyond hierarchies: Multi-mentoring systems and models*, 1-25. Paper commissioned by the Committee on Effective Mentoring in STEM. <https://nap.nationalacademies.org/resource/25568/Montgomery%20and%20Page%20-%20>
- National Academies of Sciences, Engineering, and Medicine. (2019). *The state of scientific reporting: Recommendations for improving the quality, accuracy, and transparency of scientific data*. National Academies Press. <https://doi.org/10.17220/12597.1>
- National Postdoctoral Association (2023). *Postdoctoral Barriers to Success*. https://www.nationalpostdoc.org/page/npa_publications
- National Postdoctoral Association (2025). *2025 NPA Postdoctoral Needs Assessment Report*. https://www.nationalpostdoc.org/page/npa_publications
- Peterson, S. M., Anderson, C. M., & Wolgemuth, J. R. (2023). Mentoring, mothering, sistering, and friending: building a caring mentoring community. In R. A. Rehfeldt, T. M. Cihon, & E. B. Rasmussen (Eds.), *Women in behavior science: Observations on life inside and outside the academy* (pp. 102-122). Routledge. <https://doi.org/10.4324/9781003216773-8>
- Pfund, C., House, S. C., Asquith, P., Fleming, M. F., Buhr, K. A., Burnham, E. L., Eichenberger Gilmore, J. M., Huskins, W. C., McGee, R., Schurr, K., Shapiro, E. D., Spencer, K. C., & Sorkness, C. A. (2014). Training mentors of clinical and translational research scholars: A randomized controlled trial. *Academic Medicine*, 89(5), 774-82. doi: 10.1097/ACM.0000000000000218.
- Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Sage Publications, Inc.
- White-Lewis, D. K., Romero, A. L., Gutzwa, J. A., & Hurtado, S. (2022). "Moving the science forward": Faculty perceptions of culturally diverse mentor training benefits, challenges, and support. *CBE—Life Sciences Education*, 21, 1-10. doi/pdf/10.1187/cbe.21-08-0217