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NOTES FROM THE FIELD

Programs and Opportunities for Early Career Mathematics Education Scholars

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ABSTRACT Early career mathematics education scholars face several challenges as they navigate academia. Some of these challenges relate to disparities in access to information and encouragement to apply to certain opportunities. In this paper, a diverse group of early career mathematics education scholars presents programs that have supported their work. The purpose of the paper is to serve as a repository of some of these programs for advisors, mentors, and scholars. Based on their experience securing these opportunities, the authors also offer advice and encouragement for future applicants. Ultimately, the paper contributes to demystifying academia and facilitating the search for opportunities for those joining the field.

KEYWORDS *early career, mentoring, professional development, academic community*

Introduction

Academia can be difficult terrain to navigate and comes with a plethora of challenges. For early career faculty, these challenges can include unclear tenure expectations, lack of work-life balance, and lack of community or collegiality at their institution (Greene et al., 2008). Additional challenges include developing a research program while learning to balance teaching and service expectations (Reys et al., 2009) and feelings of loneliness or competition (Rice et al., 2000). Isolation can also be a significant challenge. In the mathematics education field, some programs graduate multiple doctoral degree holders each year, while others only have one doctoral graduate every few years; on the faculty side, some programs may have up to 10 mathematics education faculty, while other programs only have one (Reys et al., 2019). Diggs and colleagues (2009) identify further barriers faced by faculty of color, including marginalization, racism, lack of power or status, lack of role models and colleagues with shared backgrounds, experiences

of cultural dissonance, and issues with development of one's "academic identity within and against the existing institutional structure" (p. 321). Women of color in STEM (and elsewhere) face the formidable barrier of simultaneous racism and sexism (Ong et al., 2011), what Malcom et al. (1976) have called "the double bind."

Attrition rates for both doctoral students and early career faculty indicate a clear need to address these challenges. The PhD Completion Project found an overall US PhD completion rate of approximately 57% (Council of Graduate Schools, 2007), and in a longitudinal study tracking attrition in STEM (science, technology, engineering, mathematics, and medicine) disciplines, almost 60% of those in STEM had left the field or stopped publishing within nine years (Kwiek & Szymula, 2024). The need for supporting early career scholars is clear, but significant inconsistency has been identified in the support received by untenured faculty (Greene et al., 2008). Many universities lack the resources or climate to adequately support doctoral students or early career faculty in developing research skills and productivity, particularly at less

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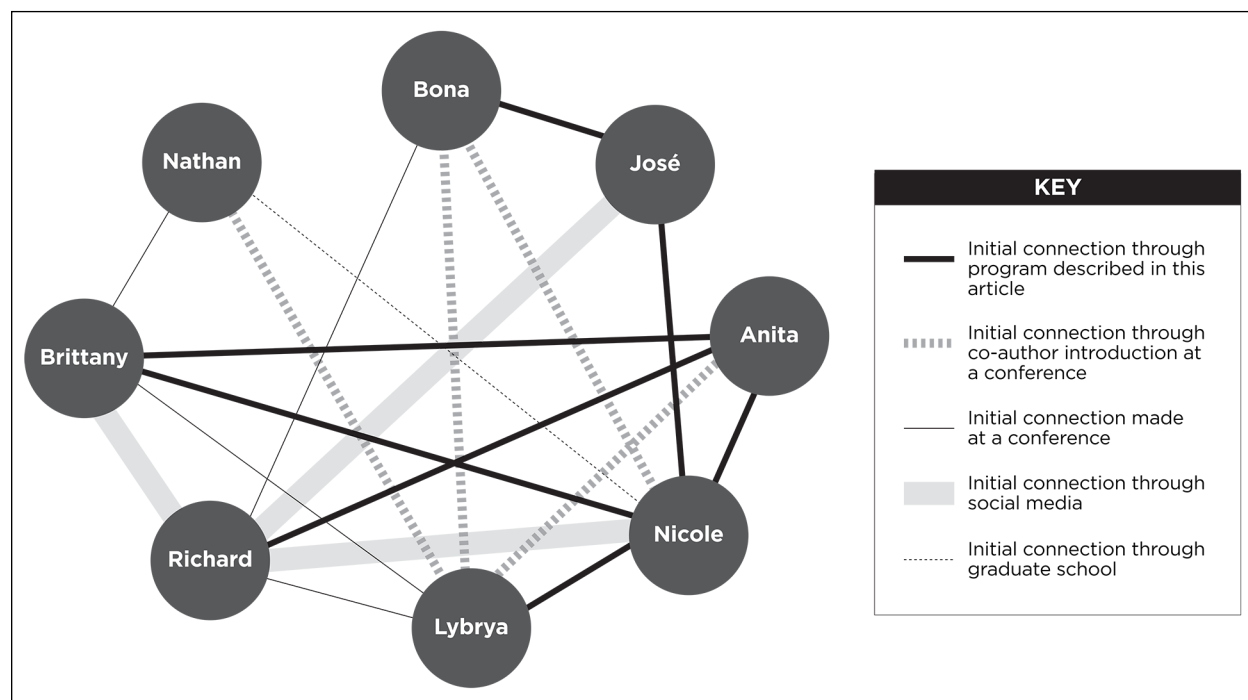
research-intensive universities (Levine, 2007). Furthermore, though mentorship may be an important support for navigating challenges in academia, Greene and colleagues (2008) found that 58% of the 96 untenured faculty they surveyed reported having an assigned formal mentor, and of those with an assigned mentor, only 17% found the relationship to be helpful.

Researchers studying the experiences of early career scholars have proposed structures for support. For example, Greene and colleagues (2008) developed a comprehensive support system for junior faculty, including research support (e.g., research collaborations with senior scholars or peers with established research programs, writing groups, research development centers), mentorship (along with mentorship training), limited service responsibilities, clear expectations, feedback on progress towards tenure, research start-up funds, additional conference travel funds, and a welcoming, collegial environment. In Borum and Walker's (2012) study examining undergraduate and graduate experiences of 12 Black women mathematicians, mentorship networks, research opportunities, and support systems contributed to the women's academic success. The authors noted that mentors who had shared identities with the women as well as mentors who did not have the same gender or racial identity were instrumental to their academic development.

Within mathematics education, various initiatives and programs have been created to provide early career

scholars with access to support structures, mentorship, skill development, resources, and networking opportunities. These programs have been created by professional organizations, funding agencies, or groups of faculty who have obtained grant funding. Though a number of these programs exist, many early career scholars are unaware of these opportunities for various reasons: they may have attended a smaller doctoral program, they may not have funding to attend conferences, their mentors or colleagues may be in a particular academic lane, or their mentors or colleagues may not be active in professional organizations or mathematics education social media or listservs, all of which can limit access to expanded professional networks and to information about opportunities. The authors of this article are a group of early career mathematics educators who have participated in and benefited from such programs. We are a diverse group in many ways—doctoral programs, location, type of role and institution, race, and gender—and we have all experienced how these programs can provide important opportunities for mentorship, skill building, access to financial and other resources, and development of professional networks, community, and academic kinship. Figure 1 demonstrates how we came to be connected to one another, with early career programs providing the most connections amongst the author group, followed by conferences, social media, and graduate school.

FIGURE 1
Sociogram of author connections



In this article, we share our knowledge of and experiences in these programs with other early career mathematics educators, as well as the faculty and administrators who advise them, so that we may serve as *gateways* rather than *gatekeepers* of opportunities in the field. In particular, we describe eight different programs or opportunities, which include fellowships, grants, service opportunities, and workshops (Table 1, included in the appendix, summarizes the programs described in this article). Each section is written by one of the article authors who participated in the program and includes a summary of the opportunity and a reflection on the author's experience in the program. Some programs are ongoing and others are not, but we include descriptions of these programs to demonstrate the types of programs that exist and to document the benefits that such programs have had on our early career development.¹ Table 2 (included in the appendix) provides a list of additional opportunities that can benefit early career scholars in mathematics education.

Fellowships

Service, Teaching, & Research (STaR) in Mathematics Education Fellows Program—Bona Kang

The “STaR Program” (Service, Teaching, and Research (STaR) in Mathematics Education) is an early career professional development program offered by the Association of Mathematics Teacher Educators (AMTE, n.d.). This program is led by a rotating team of advanced faculty and offers an opportunity for participants to expand their network with other early career mathematics education faculty across the nation through workshops and informal discussion sessions that support the navigation and understanding of various faculty expectations. Any tenure-track or continuing track mathematics education faculty in their first or second year can apply in late fall to be considered for a cohort of approximately 20 fellows the following summer. Accepted fellows are expected to attend a 5-day summer institute (usually in Park City, Utah) and the following AMTE conference, arriving the day before for a workshop day and reception. While the lodging and a

few selected meals at the summer institute are covered by the program, participating fellows are expected to use their home institution's endorsement funds and any supplementary funds to cover their own travel expenses for the summer institute and the costs entailed in participating in the AMTE conference the following year. Accepted fellows also become connected to a community of over 440 STaR fellows that are invited to the annual STaR reception at the AMTE conference, and are added to an email listserv through which they may receive or send various items, such as job calls, invitations to research studies, links to online depositories of data, etc.

I am an Asian immigrant and the only assistant professor focusing on mathematics education in an undergraduate teacher preparation program at a predominantly white small liberal arts institution. After my first year, I realized that I needed to pivot my research agenda to focus on preservice teacher education because my high teaching load limited my ability to continue classroom research in elementary schools. I also needed support in designing and teaching the sole mathematical preparation course to which elementary preservice teachers had access in the program. In the process of looking for an academic community, I decided to apply to the STaR program. I participated as a STaR fellow in 2023, and it has been one of the most positive and impactful experiences that has significantly expanded my previously limited professional network to one full of lively subgroups of collaborators and friendly colleagues I regularly connect with at conferences. The summer institute provided abundant opportunities to informally spend time with fellows every day outside of the planned events. These opportunities accelerated establishment of rapport and provided the foundation for deeper connections during sessions for manuscript feedback, topic-specific research and teaching groups, and informal discussion sessions on topics such as applying for grants, navigating the field as BIPOC scholars, balancing work-life expectations, preparing for promotion and tenure, establishing productive collaborations, and managing course loads. The program committee members, led by a group of advanced faculty in the field, also provided specific resources and dedicated their time to support the early scholars' success. While the outcomes may vary by fellow and cohort, such

¹ Shortly after we wrote this article (January 2025), federal mandates have dramatically reduced funding for some agencies and have terminated numerous active grants, including some of the grant-funded opportunities described in this article. These mandates jeopardize funding for many of these mentorship, grant, and service opportunities. The options available to early career mathematics education scholars may shift accordingly, and executive orders targeting diversity, equity, and inclusion initiatives may limit access to equity-focused opportunities in particular. This elevates the importance of ensuring that colleagues have information on resources available and demonstrates a need for professional organizations, universities, and senior scholars to begin exploring alternative funding sources to support programs and opportunities for early career mathematics education scholars. As we all try to navigate the uncertain landscape of education and education research, doctoral students, postdoctoral fellows, and early career faculty need the mentorship and support of our mathematics education community now more than ever.

resources provided me with two active, collaborative projects, and I have looked forward to informal reunions with my cohort at each subsequent conference. Fellows also shared various professional opportunities as well as resources for teaching, scholarship, service, and funding. Through this network, I obtained a position as a reviewer on the editorial board of a journal for the first time and received substantial support as I developed a new mathematics content course and updated my elementary methods course. While the personal and institutional context will impact individual fellows' experiences, I recommend this program for faculty who seek new and multiple opportunities to generate ideas and collaborative projects with other supportive faculty.

Community for Advancing Discovery Research in Education (CADRE) Fellows Program—Anita Sundrani

CADRE Fellows is part of a National Science Foundation-funded program that provides early career scholars the tools to be successful researchers in the field of STEM education. Over the course of six months, Fellows network with accomplished scholars, engage in learning activities, and are mentored through the Discovery Research PreK-12 (DRK-12) proposal review process. This opportunity is open to early career scholars, ranging from year one doctoral students to postdoctoral researchers, and would be a good fit for individuals with limited access to mentorship or a network of STEM education researchers at their home institutions or organizations. However, the eligibility criteria may differ from year to year. For instance, the 2025 cohort of CADRE Fellows must be located “in EPSCoR jurisdictions and rural areas” (CADRE, n.d.).

I first learned about the CADRE Fellows program through my doctoral institution's research newsletter. I was interested in the opportunity to expand my network and learn more about grant funding from experienced researchers while preparing to graduate with my PhD. The program took place between January to June and the organizers offered four key experiences for Fellows during this time:

- 1) CADRE Fellows orientation, where Fellows introduced themselves and shared their research interests and career goals with the group. The organizers also led a discussion around diversity, equity, inclusion, and justice and set the foundation for community building and learning experiences.
- 2) Monthly sessions on topics ranging from career pathways to developing partnerships for research. During

these sessions, Fellows read about the speakers and prepared questions in advance.

- 3) Peer-led personal writing projects focusing on one of four potential areas—an article for publication, grant proposal, research agenda, or cover letter for a position. Fellows selected their topic of interest and met once a month to work on their project. These meetings were peer-led using a provided structure that included a discussion prompt, time for writing, and debrief.
- 4) Mock NSF proposal review with an NSF program officer at the annual DRK-12 Principal Investigator (PI) meeting to gain a deep understanding of the review process and the multiple layers involved from proposal submission to awarding a grant.

One of the most impactful components of this program was learning about numerous opportunities that exist in the field of education. The monthly sessions provided space to learn about different careers in education and funding agencies. The program also provided an in-depth exploration of the NSF funding process through direct accounts of the proposal writing process and an opportunity to interact with DRK-12 awardees at the annual DRK-12 PI meeting. After completing the program, I felt better equipped to write a grant proposal and developed relationships with colleagues who could support me as I pursue funding for my work. I also gained a clearer understanding of career options adjacent to academia while I was on the job search, including research organizations and research centers connected to universities. I was then able to broaden my search to other roles that would allow me to apply the skills I acquired during my doctoral studies and still stay connected to the community I have built over the past five years. I eventually found a position at a research center based out of a school of education and was able to extend my research agenda and continue to pursue my personal research projects.

Quantitative Research Methods for STEM Education (NSF QRM) Scholars Program—Lybrya Kebreab

The National Science Foundation-funded Quantitative Research Methods for STEM (Science, Technology, Engineering, and Math) Education Scholars Program (NSF QRM) developed early-career education researchers' skills in design, measurement, and data analyses (University of Maryland, 2024). Throughout the year-long program, NSF QRM Scholars participated in several virtual workshops, a 2-day institute at the University of Maryland (UMD), as well as one-to-one mentorship

from experienced, UMD quantitative methodologists. The program assigned mentors to participants based on our accepted research proposals' areas of interest and prospective methodologies. Additionally, we received access to advanced computational and statistical software to design and implement our respective studies, which were presented publicly to each 20-person cohort. The collegial atmosphere encouraged multidisciplinary innovation and collaboration, offering various opportunities for feedback to improve our statistically complex research proposals on issues of equitable STEM.

The virtual workshops and in-person institute supported QRM scholars in learning to lead studies which necessitate advanced data analyses and state-of-the-art computational software. Further, the mentors guided us in the process for developing strong proposals for NSF funding for our research proposals and future research. The workshops and feedback offered unique opportunities to engage with quantitative research methodologies not typically found in dissertations. Currently, we are a part of a small but influential network of quantitative researchers who are passionate about using sophisticated data analyses to solve important equity-related issues in STEM. The advanced statistical knowledge and skills gained during my year as a QRM scholar have been invaluable to my development as an early-career researcher.

As a first-generation PhD, the NSF QRM program has been integral in culminating the development of my mathematics education researcher identity. I have transformed from identifying as an avid reader merely consuming mathematics education research to generating theories and knowledge in service of the field. Being the first in my family to complete a terminal degree, I found that establishing a sense of belonging and an authentic, niche identity in academic circles was sometimes an arduous, disheartening process. It is difficult to put into words the shock one experiences at the realization your childhood, young adult, and pre-doctoral STEM experiences may not have adequately prepared you for the unspoken expectations of the hidden curriculum in academia. Nonetheless, I persevered with the unending support of my dissertation chair, committee, and other mentors who supported me through the unexpected challenges to my identity development as a mathematics education researcher (Covey, 2020). This program helped refine the nuanced aspects of my identity and belonging as a unique contributor of advanced statistical studies in mathematics education.

I am incredibly blessed to have been guided by my advisor to apply and participate in the wonderfully

challenging NSF QRM Scholars Program. Hopefully, sharing these experiences will encourage senior faculty and researchers to (a) continue organizing more programs like this in their future NSF-funded endeavors, and (b) inspire kids in STEM from underrepresented groups to continue growing the field with their brilliance. My heartfelt appreciation goes out to NSF QRM Scholars Program's principal investigators, mentors, and staff who invested in an underprivileged Black woman passionate about science and mathematics. These experiences had a profoundly positive impact in my postdoctoral, university work as a STEM institute Project Manager/Mathematics Education Lecturer.

Institute on Mixture Modeling for Equity-Oriented Researchers, Scholars, and Educators (IMMERSE) Fellowship—Nathan N. Alexander

The Institute on Mixture Modeling for Equity-Oriented Researchers, Scholars and Educators (IMMERSE) is a year-long training fellowship that supports research scholars and educators in developing the necessary competencies to leverage modeling and statistical methods to conduct equity-oriented scholarship in education and human development (University of California, Santa Barbara, 2024). The scholarship on mixture models is rapidly expanding given its use in addressing issues of heterogeneity. Specifically, a recent set of studies have begun to exemplify the use of mixture models in equity-oriented literature to challenge the longstanding concerns about quantitative methods and researcher bias, and those methods historically used to extend features of “gap gazing” in mathematics and science education, which has been used as a deficit-oriented focus in statistics used to compare white students to non-white groups (Gutiérrez, 2008). In response, mixture modeling has been used to directly challenge ideas of homogeneity among populations grouped by race and ethnicity, as shown in the works of Slominski et al. (2024) and Suzuki, Morris, & Johnson (2021). This body of research in mixture modeling is part of a broader contemporary effort among quantitative scholars to integrate critical theories into education research and is one application of scholarship in the critical quantification and Quant-Crit (Quantitative Critical Race Theory) traditions (Frisby, 2024; Fong & Irizarry, 2025). Despite these recent advancements, there is still much potential for using mixture modeling to help reduce issues of bias and equity in educational statistics and quantitative modeling.

The IMMERSE fellowship program is a useful program for both research scholars and educators during any period of their career, and especially those scholars

earlier in their careers. As junior scholars, we may not be fully attuned into focused programs that provide technical support over an extended period of time. Programs of this nature provide an opportunity for scholars new to the academy to see ideas change and others take hold. The program is for those who wish to expand their knowledge of latent variable modeling and the associated class of statistical methods grouped under the umbrella of mixture models. A fellowship application is required for acceptance into the program, and fellows are required to demonstrate both their interests in equity-oriented quantitative research and their background in statistical methodologies. There are two options for the program, one for education researchers conducting discipline-based research and another program for equity-oriented researchers, funded by the National Science Foundation (NSF) and the Institute for Education Sciences (IES).

I started this program as the director of a research lab focused on developing a series of modules that would go on to inform future work teaching research skills to undergraduate and graduate students. However, participating in this program as a junior faculty member provided me with early training and preparation in a cohort of fellow researchers focused on expanding their data analysis in ways that attend more skillfully to our histories and cultural realities, our identities, and collective educational experiences. The year-long program begins with a series of pre-training modules that help to support participants with the setup of various technical apparatuses that will be utilized throughout the program and to build community. A weeklong in-person training is held to support fellows in the further development of their competencies in mixture modeling, and to establish research question(s) and collaborations. Upon completion of the in-person training, fellows are provided with extensive weekly support throughout the following academic year including a host of integrative activities. These activities range from guest speakers conducting research that leverages the mixture modeling methods, to writing group meetings, access to online tools, and resources for additional support. Refer to the appendix and the program website for more information.

Grants

Equity in Math Education Research Grants (EMERG) Program—Richard Velasco

In 2023, the National Academy of Education launched the Equity in Math Education Research Grants (EMERG) Program with generous donation from the

Gates Foundation (National Academy of Education, n.d.). EMERG provides early-career faculty (referred to as EMERG scholars) with the opportunity to conduct robust research on equity in mathematics education, particularly focusing on historically marginalized student populations. During the EMERG program's inaugural cycle, ten proposals were funded, with each EMERG scholar receiving \$113,000 to carry out their projects over a two-year period starting in the 2024-2025 academic year. A unique feature of the EMERG program is its mentorship structure. Proposals were not required to be fully developed at the time of submission because each EMERG scholar was paired with a primary mentor and grouped with two secondary mentors, forming an advisory triad. These mentors, all seasoned education scholars and members of the National Academy of Education, formed the EMERG scholar's advisory committee. Scholars were given the opportunity to select their mentors based on who they believed could best support their project goals. Although there will not be a 2025-2026 EMERG funding cycle, the EMERG Executive Board has announced plans for another cycle beginning in the 2026-2027 academic year, with applications due in Fall 2025. Eligible applicants will be early-career scholars (defined as having obtained a Ph.D. or equivalent within the past seven years) whose research addresses equity in math education, particularly for historically marginalized student populations. Ideal candidates will either belong to these populations or have significant experience working with them.

I first learned about the EMERG program when I was in my second year as a tenure-track assistant professor at the University of Oklahoma. I found out about it through the social media platform formerly known as Twitter, where a colleague from another institution shared the call for proposals. After reviewing the eligibility criteria, I realized I fit the profile and already had a project idea in mind. Before learning about EMERG, I had been in discussions with a teacher in Guam who expressed interest in engaging more Pacific Islanders—specifically students in Micronesia—in data science. Reviewers found my proposal promising, and, after navigating the application and interview process, I was selected as an EMERG scholar and awarded the grant. Now one year into the project, I deeply value the mentorship provided through the program. The advisory triad has offered invaluable guidance, while the peer mentorship among my fellow EMERG scholars has been equally enriching. We provide mutual support and celebrate one another throughout the program. From my perspective, the program's key benefits

include expanding professional networks and gaining experience managing large, grant-funded projects. This experience has significantly increased my confidence in applying for larger grants in the future.

Faculty Early Career Development Program (CAREER)–José Martínez Hinestroza

The Faculty Early Career Development Program (CAREER) is an award granted by the National Science Foundation (NSF) (National Science Foundation, 2022). The purpose of this award is to support early-career faculty in developing a foundation to become leaders in their fields and institutions. Two of the main characteristics of this award are that no co-principal investigators are allowed and that the proposed project must integrate research and education. The CAREER award provides funds for five years during which the principal investigator integrates research and education activities. Institutions of higher education, as well as certain non-profit, non-academic institutions located in the United States can submit proposals on behalf of a faculty member. The NSF has established criteria for tenure-track equivalency. To be eligible, the principal investigator must hold a doctoral degree, be an untenured assistant professor, and not have received the CAREER award before. Applicants can submit a proposal up to three times. In short, early-career scholars in the US interested in advancing and integrating research and education may find it particularly relevant.

I learned about this opportunity as a graduate research assistant in a CAREER project and in a doctoral course where we read funded proposals and met with former awardees. Later on, I attended the NSF CAREER webinar where program officers described this opportunity and answered questions. Serving in a review panel for other NSF grants, as recommended by program officers during the webinars, contributed substantially to securing funding. NSF proposals, including CAREER proposals, are evaluated in terms of intellectual merits and broader impact. Being part of review panels enhanced my understanding of how reviewers evaluate these criteria in practice. It was also useful to read the proposal and advice that several colleagues who had received the CAREER grant generously shared. Locally, my home institution also offered workshops for potential applicants led by former program officers or CAREER awardees. Importantly, working closely with the communities that were central to my proposed research and educational activities was essential. This ongoing collaboration informed my proposal

and allowed me to demonstrate the community support that was necessary to implement the project. Once I was ready to share an initial idea, a program officer met with me virtually and answered my questions.

My experiences as a Spanish-speaking immigrant from Colombia have strengthened my interest in collaborating with Latinx, bilingual children, pre-service teachers, and in-service teachers. My research project entitled “CAREER: Affirming bilingual children’s participation in mathematics (ABC-Par)” has provided the resources and time necessary to develop this work. This includes disseminating findings with teachers and undergraduate research assistants locally, nationally, and internationally. The grant has also allowed me to consult with leading scholars in my area of research who serve as advisory board members. Ultimately, this has been a transformational experience through which I continue to refine my thinking, reaffirm my commitment to critical mathematics (teacher) education, and learn with mathematically creative bilingual Latinx children, teachers, and undergraduate students.

Service Opportunities

AERA Special Interest Group for Research in Mathematics Education (SIG-RME) Graduate Student Representative–Brittany L. Marshall

I served as one of two graduate student representatives on the American Educational Research Association’s (AERA) Research in Mathematics Education’s Special Interest Group (SIG-RME) executive board during the final two years of my PhD program. As an African American woman who started my doctoral studies a bit later in life, I sought to expand my professional network and engage in leadership roles. I had been to several SIG-RME events and found the community extremely engaging and supportive, so when my doctoral advisor suggested I apply for the position, I agreed. Every year, the SIG posts their upcoming vacant positions, the call for a short letter outlining your qualifications, and what you can contribute to the organization (American Educational Research Association, 2025). Any graduate student in mathematics or STEM education is qualified to apply, with preference given to students who have completed at least one year of graduate study. Instead of having the entire SIG membership vote, the current junior student representative chose the new representative as they would have to work closely with each other.

Depending on the initiatives they decide to enact, this position is often more demanding than expected for a

graduate representative. During my term, I led a weekly writing group while my colleague implemented a book club. We also hosted a week of mentoring workshops every spring open to all mathematics education scholars, intended for graduate students and early career professionals who could not attend AERA's annual meeting. It involved identifying the topics we believed mattered to current doctoral students (e.g., publishing, funding, the job market, etc.) and then recruiting scholars in the field willing to participate in publicly accessible virtual discussions on these topics. Over the two years I served as a graduate student representative, we had various successful outcomes with our program initiatives, highlighted by the mentoring workshops.

Being a graduate student representative for SIG-RME was highly beneficial for my early career development. Being in this role allowed me to connect with many scholars nationally and internationally. It also allowed me to strengthen and demonstrate my planning and organizational skills in front of many scholars in the mathematics education community. This role greatly supported my academic job search, as I was able to obtain a highly sought after tenure-track position just prior to graduation.

Workshops

Workshop on Rehumanizing Mathematics– Nicole Fletcher

The Workshop on Rehumanizing Mathematics is a two-week workshop led by Dr. Rochelle Gutiérrez through the Park City Mathematics Institute (PCMI), an initiative of the Institute for Advanced Studies (IAS). The workshop is designed for mathematics teachers, mathematicians, and mathematics education professors to expand their understandings of issues connected to equity, identity, and power in mathematics and to further their work towards rehumanizing mathematics (Gutiérrez, 2024). Participants learn about various theories and frameworks related to equity and social justice in mathematics, including the Rehumanizing Mathematics framework (Gutiérrez, 2018), and examine their own work in their respective professions in relation to equity and rehumanizing mathematics goals. Throughout the workshop, participants work on a relevant project (e.g., revising a course, designing teaching materials or assessments, developing an initiative), receive feedback from fellow participants and the facilitator, and prepare to further develop and carry their work forward after the workshop in their professional contexts.

PCMI takes place annually in July in Park City, Utah and includes programs for undergraduate and graduate

mathematics students and mathematics researchers (IAS, 2025), as well as an equity-focused workshop with rotating facilitators who are established scholars committed to equity. Prior iterations of PCMI included a Teacher Leadership Program for teachers of 7th-12th grade mathematics. Participants are selected through an application process, and PCMI supports participation by providing a travel allowance, housing, some meals, and a stipend.

Though the Workshop on Rehumanizing Mathematics is not strictly an early career opportunity, it was instrumental for my early career development. I am an assistant professor of elementary education at a teaching-focused university, and I am the only faculty member with a full-time appointment in the Educational Studies and Teacher Preparation department who focuses on mathematics education. The workshop brought together people across K-12 mathematics teaching, mathematicians, and mathematics teacher educators—a diversity of perspectives I have not experienced in other workshops or conferences. Academia is so often siloed; interacting with people who work across mathematics teaching, learning, and research introduced me to experiences and points of view I would not have been aware of otherwise, allowing me to learn about the challenges and possibilities of equity and social justice work across corners of the mathematics community. Reflecting on our practices within a group with such diverse perspectives helped us to see our work in a new light, allowing us to identify areas of strength and recognize where we can focus our efforts to develop further and fill in gaps in our work to rehumanize mathematics. Engaging in brainstorming conversations and discussing project feedback within our diverse group gave us new insights that helped each of us to make significant progress on our project action plans. For my own project, I developed a Social Justice Mathematics Lesson project for my elementary mathematics methods course. Our learning, work, brainstorming, and feedback opportunities throughout the workshop helped me to move from an early idea to a clearly-defined action plan, enabling me to develop the project further that summer and implement the project in my course the following fall.

Dr. Gutiérrez was intentional about building community throughout the workshop, helping us to develop the relationships necessary to be vulnerable, take risks, and engage deeply and thoughtfully in our work. Because of Dr. Gutiérrez's intentional community building, our group developed strong, close bonds over the course of the workshop that continue today. We have an active group chat and gather for periodic zoom calls,

and we support one another through personal and professional challenges and celebrate each other's accomplishments. Further professional collaborations have also come out of our group. Being in community and solidarity with this incredible group of people has provided me with support, connection, and love that have allowed me to grow during this important time of my early career development.

Conclusion

In this paper, we offered resources and insights into opportunities for early career mathematics education scholars. The authors describing each of these opportunities come from diverse backgrounds and institutions, which highlights the options available for scholars with different interests and with varying expectations for research, teaching, and service. Our intention is to demonstrate that all of these options are possible to achieve and that the benefits are far-reaching. Specifically, participating in these opportunities can help further knowledge of research methods and boost research programs, enhance teaching practices and resources, expand professional networks, and, importantly, provide community support. Moreover, these programs allow early career scholars to contribute to the field and their communities, which is needed to continue moving mathematics education forward. We encourage graduate advisors, mentors of early career faculty, and scholars themselves to use this resource as a reference and as an inspiration to pursue these and similar opportunities¹ As others have advised us before: The only application that is never accepted is the one you do not submit.

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Appendix

Table 1

Early Career Scholar Opportunities Discussed in Article

Name	Type	Eligibility	Funder/Organizer	Website
Service, Teaching, & Research (STaR) in Mathematics Education Fellows Program	Fellowship	Tenure-track or continuing track math education faculty members in the U.S. who are in their first or second year at the time of application	Association of Mathematics Teacher Educators	https://amte.net/star
Community for Advancing Discovery Research in Education (CADRE) Fellows Program	Fellowship	Early career scholars (e.g., doctoral students, postdoctoral researchers) from institutions in EPSCoR jurisdictions (NSF, n.d) and rural areas	National Science Foundation	https://cadrek12.org/about-cadre-fellows-program
Quantitative Research Methods for STEM Education (NSF-QRM) Scholars Program	Fellowship	Focused on research surrounding access and equity for marginalized populations in PK-20 STEM settings: open to full-time faculty and postdoctoral fellows within 10 years of terminal degree completion	Funded by National Science Foundation; organized by Measurement, Statistics and Evaluation Program Faculty at University of Maryland, College Park	https://education.umd.edu/academics/departments/hdqm/research/nsf-qrm-scholars-program
Institute of Mixture Modeling for Equity- Oriented Researchers, Scholars, and Educators (IMMERSE) Fellowship	Fellowship	Early career scholars and postdoctoral fellows; advanced graduate students also considered	Funded by Institute of Education Studies; Organized by University of California, Santa Barbara faculty and collaborators	https://www.aera.net/SIG087/Research-in-Mathematics-Education
Equity in Math Education Research Grants (EMERG) Program	Grant	Early career scholars (within seven years of obtaining a doctoral degree)	National Academy of Education	https://naeducation.org/emerg-program-home-page/
Faculty Early Career Development Program (CAREER)	Grant	Tenure-track assistant professors (or equivalent title)	National Science Foundation	https://new.nsf.gov/funding/opportunities/career-faculty-early-career-development-program
AERA Special Interest Group for Research in Mathematics Education (SIG-RME) Graduate Student Representative	Service	Graduate students	American Education Research Association Special Interest Group for Research in Mathematics Education	https://www.aera.net/SIG087/Research-in-Mathematics-Education
PCMI Workshop on Rehumanizing Mathematics	Workshop	Mathematics education professors, mathematics teachers, mathematicians	Institute for Advanced Study/Park City Mathematics Institute Mathematics	https://www.ias.edu/pcmi/programs

Table 2

Other Early Career Scholar Opportunities

Name	Type	Eligibility	Funder/Organizer	Website
AERA Outstanding Dissertation Award	Award	Awarded doctoral degree within the past 2 years but no later than November prior to the award date	American Education Research Association	https://www.aera.net/SIG168/Awards/Outstanding-Dissertation-Award
NAEd/ Spencer Dissertation Fellowship	Fellowship	Doctoral candidate with all pre-dissertation requirements completed, plan for completing dissertation within 1-2 years, and education research project	National Academy of Education, Spencer Foundation	https://naeducation.org/naed-spencer-dissertation-fellowship/
NaEd/ Spencer Postdoctoral Fellowship	Fellowship	Pre-tenure, doctoral degree within past 1 to 6 years, education research experience and project	National Academy of Education, Spencer Foundation	https://naeducation.org/naed-spencer-postdoctoral-fellowship/
MET-AMTE NCTM Early Career Research Grant	Grant	Early career math educator (doctorate within past 5 years) or advanced doctoral student in math education and current member of NCTM and AMTE	National Council of Teachers of Mathematics, Association of Mathematics Teacher Educators, Mathematics Education Trust	https://www.nctm.org/uploadedFiles/Grants_and_Awards/Grants/2024_Winter/Info/Early_Career_Research_Eugene_Clara_Smith_Fund_Application.docx.pdf
TODOS-NCTM Mathematics Teacher Education Grant	Grant	A PK-12 school seeking to promote multilingualism in mathematics; math coaches, teachers, or administrators can apply	TODOS: Mathematics for All, National Council of Teachers of Mathematics	https://www.nctm.org/uploadedFiles/Grants_and_Awards/Grants/2024/fostering-support-of-mathematics-learning-for-multilingual-learners-description.pdf
NCTM Mathematics Education Trust	Grants scholarships, and awards	Varies by opportunity	National Council of Teachers of Mathematics	https://www.nctm.org/Grants/
CPM Exploratory Research in Mathematics Education Award	Grant	Education researcher, awarded doctoral degree in mathematics education (or related field), and employed by a university or research organization	CPM Educational Program	https://cpm.org/exploratory-award/
AMTE Early Career BIPOC Faculty Mentoring Program	Mentorship	Early career BIPOC faculty (tenure-track & professional/ teaching tracks), completed doctorate within the past ten years	Association of Mathematics Teacher Educators	https://amte.net/content/amte-early-career-bipoc-faculty-mentoring-program
AMTE Community Circles	Professional Learning Community	AMTE member	Association of Mathematics Teacher Educators	https://amte.net/content/amte-community-circles
AMTE Manuscript Review Group	Professional Learning Community	AMTE member, submit manuscript in advance, attend AMTE Conference	Association of Mathematics Teacher Educators	n/a
PME-NA Working Groups	Professional Learning Community	Attend PME-NA conference	North American Chapter of the International Group for the Psychology of Mathematics Education	https://ed.psu.edu/pme-na-2025
Black Womxn in Mathematics Education	Professional Learning Community	Mathematics educators who identify as Black womxn	Black Womxn in Mathematics Education (BWXM)	https://bwyme.com/
MAA Project NEXt	Professional Learning Community	Recent doctorate in a math-related field, minimal post-secondary teaching experience, full-time math teaching position in US or Canadian university	Mathematical Association of America	https://maa.org/maa-project-next/