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Shared Learning Spaces: Peer and Faculty Mentors Develop Skills While Supporting Minoritized Health Sciences Students

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ORIGINAL RESEARCH REPORTS

Shared Learning Spaces: Peer and Faculty Mentors Develop Skills While Supporting Minoritized Health Sciences Students

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Abstract

Purpose: To explore the effect of virtual mentoring on (1) the development of cross-cultural psychological capital among a group of mostly White health sciences faculty mentors and (2) the effect of perceived competence in mentoring for second-year peer mentors from minoritized backgrounds enrolled in health sciences programs.

Method: This mixed-methods study leveraged an explanatory sequential design with quantitative (survey) data collected before qualitative data (focus group interviews). Four first-year physical therapy students and four first-year nursing students were each matched with a faculty mentor and a peer mentor from a minoritized background. Seven peer mentors and eight faculty mentors completed professional development and formed professional learning communities before guided e-mentoring interactions with mentees over six months. Eighteen faculty formed a comparison group.

Results: Perceived competence in mentoring increased among peer mentors who tended to emotion as first-year mentees were isolated and frustrated during the pandemic and racial uprising in the country. Peer mentors also took responsibility for discussing race in the classroom if not addressed by faculty. Faculty mentors developed increased cross-cultural psychological capital compared to the comparison group and gained the confidence to engage in racial dialog in the classroom.

Discussion: A six-month e-mentoring program resulted in an increase in peer mentor self-efficacy as well as increased cross-cultural psychological capital among health sciences faculty mentors. Faculty described that the skills learned through cross-cultural mentoring could translate to other aspects of their professional role, including engaging in dialog about race in the classroom. Peer mentors described that when faculty shied away from talking about racial incidents, the burden fell on them, which was taxing. While faculty mentors felt that e-mentoring was effective, peer mentors still valued in-person contact with faculty outside the classroom, promoting belonging in higher education.

Keywords: Health sciences, Minoritized students, e-mentoring, Perceived competence, Cross-cultural psychological capital, Improvement science

1. Introduction

The COVID-19 pandemic and associated social distancing measures greatly altered the traditional classroom model of health sciences education [1], resulting in social isolation among students [2] particularly among students from minoritized

backgrounds [3]. Virtual, or e-mentoring, can increase students' sense of belonging, community, and connectedness [3–6], and mentor factors greatly influence mentoring outcomes. Same-gender and same-race mentoring is effective at retaining racially minoritized students in science, technology, engineering, and mathematics disciplines [7]. However,

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there is a shortage of faculty mentors from minoritized backgrounds in the health sciences. Eighty-five percent of faculty in DPT programs self-identify as White [8] and 80.8% of faculty in nursing programs are White [9]. The shortage of minoritized health sciences faculty can lead to a lack of available mentorship for students seeking a same-race mentor. Minoritized students must then navigate the norms and expectations of higher education with little support [7,10,11]. Developing the cross-cultural psychological capital of all faculty to build the skills to succeed in cross-cultural interactions and support minoritized students is therefore vital. Therefore, the purpose of this study was to explore the effect of virtual mentoring on 1) the development of cross-cultural psychological capital among a group of mostly White faculty mentors.

Emerging findings reveal that e-mentoring from faculty and peer mentors can strongly influence social isolation and increase belongingness among health sciences students [3]. An in-person mentoring program succeeded in developing the cross-cultural skills among a group White faculty in one Doctor of Physical Therapy (DPT) program [12]. However, it is unclear whether these results could be replicated through e-mentoring delivered by an interprofessional group of faculty. Additionally, faculty-student mentoring models also introduce a power differential that undermines the goals of the mentor-mentee relationship, highlighting the value of peer mentoring models [7]. Quality peer relationships can contribute to academic persistence and success, as well as improved social integration [13–15]. While there are concerns about adding to existing burdens on students of color, there are gains for peer mentors, including professional socialization [12,16], and an improved sense of wellbeing [16]. An additional purpose of this study was to explore the effect of perceived competence in mentoring for peer mentors from minoritized backgrounds.

1.1. Theoretical framework

Two theoretical models situate this study. The first, the theory of university departure, highlights that increasing student, peer, and faculty contact is vital to increasing the social and academic integration of minority students in higher education [13]. The second, the racial/cultural identity development model, conceptualizes students from minoritized backgrounds as on a developmental continuum as they seek to understand themselves and their culture in relation to the dominant culture and describes the development of the minority person

towards a state of acceptance of their racial/cultural identity [17]. This study is also grounded in improvement science, which entails developing, testing, and implementing an intervention and then using data to take the innovation to scale [18]. When utilizing an improvement science lens, researchers ask three fundamental questions: (a) what are we trying to accomplish? (b) how will we know that a change is an improvement? and, (c) what change can we make that will result in improvement? The core framework of improvement science is the plan-do-study-act (PDSA) cycle, where researchers conduct rapid cycles of learning from practice (see Fig. 1) [19]. Learning from variation and the specific processes under which innovation succeeds or fails is a hallmark of improvement science [18] and this study.

2. Methods

2.1. Study design and setting

This mixed-methods study leveraged an explanatory sequential design with quantitative (survey) data collected before qualitative data (focus group interviews) [20]. The context was a health sciences graduate school with eight other programs in addition to nursing and physical therapy. At the time of the study, the school included 1756 students and 118 full-time faculty members. This study was approved by the institution's Institutional Review Board (protocol # 2020P003022).

Four first-year DPT students and four first-year nursing students self-selected to participate in an e-mentoring program. Mentees were matched with a faculty mentor and a peer mentor from a minoritized background, both from their program of study. As the students who consented into the study were from nursing and the DPT Programs, nursing and DPT faculty were recruited via purposeful sampling to serve as faculty mentors. Eight agreed to participate as faculty mentors and two faculty did not respond to requests to participate. Faculty from across the institution were also recruited to participate in a comparison group and complete the Cross-cultural Psychological Capital survey [21] at the beginning and end of the study period. Participants in the faculty comparison group did not participate in the intervention. Second-year DPT and nursing students from minoritized backgrounds were recruited using snowball sampling to serve as peer mentors.

Researchers matched the mentoring teams, including a faculty mentor, a peer mentor, and a first-year mentee all from the same discipline.

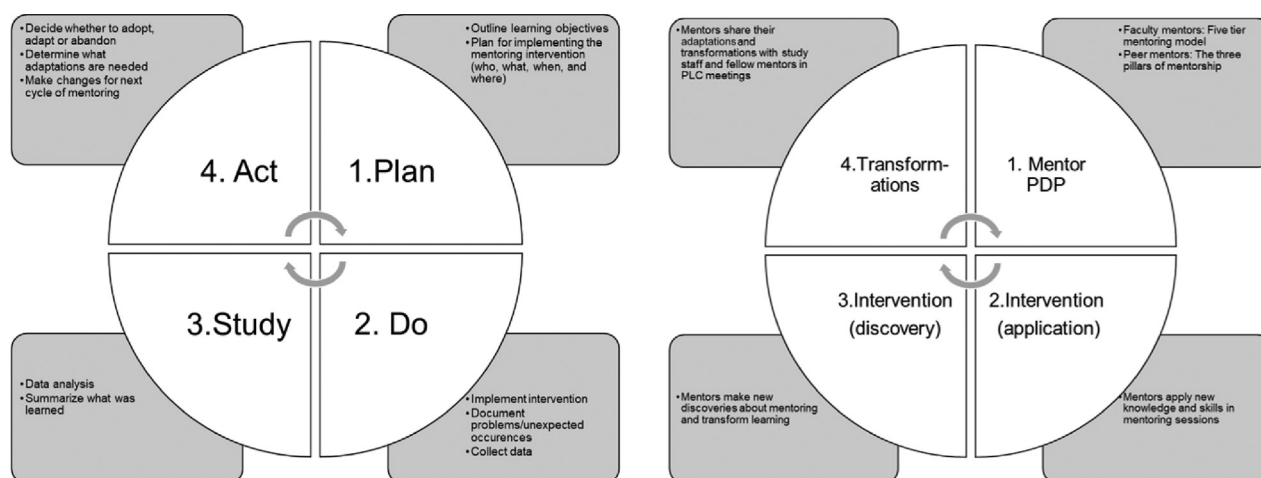


Fig. 1. The overlap between the researchers' use of improvement science to frame the study with the mentors' process of learning from the application of the mentoring tools and variation in practice.

Given that most of the faculty mentors were White, race was not considered in the mentee-faculty mentor matching process. However, researchers anticipated that mentees and peer mentors would leverage a shared experience as health sciences students from a minoritized background enrolled at a predominantly White institution.

2.2. Mentor professional development program (PDP) and professional learning communities (PLCs)

PLCs involve a group of people sharing and critically interrogating their practice in an ongoing, reflective, and collaborative way [22]. Faculty and peer mentors completed an asynchronous online PDP around strategies for mentoring graduate students from minoritized backgrounds. Faculty were introduced to the five-tier mentoring model [23] that included (a) commitment to the mentoring process, (b) establishing mentoring venues, (c) serving as a role model, (d) employing successful tools, and (e) monitoring mentee's progress. Strategies for mentoring graduate students from minoritized backgrounds included helping mentees expand their contacts, sharing personal stories, using humor, responsiveness (which conveys accessibility), and validation balanced with constructive feedback [24]. Peer mentor professional development topics included: (a) the power of peer mentoring, (b) the relationship between social belonging and academic outcomes, (c) facilitating difficult conversations, and (d) the three pillars of mentorship [25]. Mentors then formed PLCs through online discussion boards and virtual meetings led by study staff. Study staff

helped mentors refine mentoring strategies designed to move mentors through the four quadrants of the Vygotsky space [26,27] (see Fig. 1).

In quadrant one (the PDP), researchers introduced mentors to multicultural mentoring or peer mentoring strategies. After that, faculty and peer mentors moved into quadrants two and three, practicing what they had learned (in the study intervention), making discoveries, and transforming mentoring knowledge and skills. Finally, in quadrant four of the Vygotsky space, participants shared their adaptations and transformations during PLC meetings with study staff and other mentors. Information gleaned from the fourth quadrant of the Vygotsky space served as a rich source of information to inform future mentoring sessions and PDSA cycles (leveraging the improvement science lens). Fig. 1 highlights the overlap between the researchers' use of improvement science to frame the study with the mentors' process of learning from the application of the mentoring tools and variation in practice.

2.3. Intervention

Faculty and mentees, and peer mentors and mentees were asked to meet six times over the six-month study period with recommendations to guide each interaction. Mentoring teams met virtually either as faculty-mentee or peer mentor-mentee dyads or as a group of three approximately once a month. No recommendations were provided regarding the length of each mentoring session. Peer mentors, who received a \$200 stipend, also met with the faculty mentor three times to advocate for mentees and guide faculty towards meeting

minoritized students' needs. Mentoring teams attended three virtual networking events throughout the study period.

2.4. Peer mentor outcome measures

The personality evaluation inventory [28] is used to assess perceived competence in one's abilities, particularly the skills required by students in higher education [29]. The personality evaluation inventory includes 54 items grouped into eight subscales, including a social domain, measured on a four-point Likert scale ranging from 1 (*strongly agree*) to 4 (*strongly disagree*). The Cronbach alpha coefficient for the scale ranges from 0.71–0.90 [29]. Researchers modified a single item from the personality evaluation inventory to explore changes in perceived competence in mentoring. The item was: "I feel confident in my ability to serve as a peer mentor." Peer mentors completed the single-item Likert-style question before and after completing online PDP modules and at the mid and end-of-study points.

Peer mentors also participated in focus group interviews at the end of the study period. The peer mentor interview protocol (see [Appendix A](#)) was adapted from Spivey-Mooring and Apprey [30]. Sample questions included, "How has the mentoring program facilitated first-year students' successful transition to graduate school?" Additionally, interviews explored peer mentors' professionalization into their future fields of practice. Socialization was operationalized as the process by which individuals gain the knowledge, skills, and values necessary for successful entry into a professional career [31]. Sample questions exploring this construct included, "How has your involvement in this program influenced your socialization into your future healthcare profession?"

2.5. Faculty mentor outcome measure

The Cross-Cultural Psychological Capital Survey (Cross-cultural PsyCap) [21] was administered to faculty in the intervention and comparison groups electronically at the beginning and the end of the six-month study period to measure changes in cross-cultural skills. The survey is a 20-item, five-point Likert scale measuring positive psychological capital, including four cross-cultural subscales: cross-cultural hope, self-efficacy, optimism, and resilience, and has a reported calculated Cronbach's alpha of 0.95 for all 20 items [21]. Cross-cultural hope facilitates the setting of realistic goals and being able to

devise alternatives when faced with barriers to achieving set goals. Cross-cultural self-efficacy refers to one's belief in their ability to succeed in cross-cultural interactions. Cross-cultural optimism comprises expecting a positive outcome, allowing one to manage the ambiguity and uncertainty of challenging cross-cultural interactions. Finally, cross-cultural resilience captures the ability to recover from setbacks and overcome stressful events as cross-cultural interactions are often unpredictable and may have negative or positive outcomes [21].

Faculty mentors also participated in focus group interviews at the end of the study period (see [Appendix B](#)). The faculty focus group interview protocol, adapted from Chan et al. [32], explored cross-cultural mentoring strategies and faculty awareness of the sociocultural forces which impact minoritized students in higher education.

2.6. Analysis

Descriptive statistical analysis followed quantitative data collection. All quantitative data analysis was performed using IBM SPSS version 25.0 (IBM Corp, Armonk, New York, NY, USA). Open coding was used to analyze focus group interview data, researcher field notes, and open-ended survey responses using NVivo qualitative software (QSR International Pty Ltd., Doncaster, Australia, 2020). Descriptive codes were assigned to summarize the data in words/short phrases. After the second cycle coding, codes were collapsed into themes [33].

2.7. Trustworthiness

To increase credibility, researchers leveraged data triangulation and an audit trail including the use of multiple data sources: quantitative data from surveys, focus group interview transcripts, and researcher field notes [34]. As the researchers adopted a constructivist paradigm, during thematic data analysis, thick, rich descriptions were used to work towards credibility in this analysis [35]. All research materials were kept in a central location to produce an audit trail and allow for the study process to be replicated.

3. Results

3.1. Peer mentor results

Seven peer mentors self-identified as African American/Black (n = 2), Hispanic (n = 2), or Asian

($n = 3$). One of the peer mentors served as a mentor to two nursing students. At the beginning of the study period, peer mentors scored an average of 3.42 on the four-point scale which explored confidence with mentoring (see Table 1). At the mid-study point, confidence in mentoring decreased to 3.29, however, by the end of the study, peer mentors scored an average of 3.57 mainly agreeing or strongly agreeing with, “I feel confident in my ability to serve as a peer mentor.”

Six peer mentors participated in focus group interviews. Two themes emerged: tending to emotion and representation matters.

3.2. Peer mentor theme 1: Tending to emotion

The peer mentors in this study had unique perspectives to share with their mentees. Not only were they students from minoritized backgrounds in a predominantly White institution, but they also had their educational experiences disrupted by the COVID-19 pandemic. Additionally, all four DPT peer mentors had been mentees in the pilot study [12]. The peer mentors described not realizing how valuable in-person contact was with faculty and peers until they lost it due to social distancing measures:

I realized how connected I felt once we lost that. Seeing everyone every day was just the norm, like showing up for class. But once we didn't have that anymore ... Wow, I missed everyone so much (Focus group (FG) 2)

Completing graduate school during a pandemic influenced how the peer mentors approached mentoring. They appreciated the mentee's frustrations and felt that the mentoring program was especially valuable to mentees who spent very little time on campus. The peer mentors felt that the mentoring sessions and networking events allowed mentees to build connection and foster belonging. While the peer mentors offered academic support and suggestions for navigating particularly challenging coursework, they also made space for and tended to mentee emotion. They noted that mentee frustrations were not always due to the pandemic:

I acted as emotional support to my mentee at times. She dealt with something that was pretty hard on her this past semester in terms of her clinical instructor, who just wasn't showing her the level of respect that she deserved.... I feel like we [the mentoring team] provided a lot of emotional support to the mentee and I think that was helpful for her. (FG1)

Peer mentors saw e-mentoring as both a facilitator and a barrier to mentoring. In many ways, e-mentoring served as a convenient way to connect during busy times. However, the peer mentors noted that some of the spontaneity of the mentoring was lost with virtual mentoring. Zoom meetings seemed formal and in need of a specific agenda. Those involved in the program in the past who had attended in-person networking events valued the opportunity to spend out-of-class time with faculty. They used their knowledge about how accessible faculty were to encourage their mentees to reach out to and meet with faculty. They saw themselves as “tour guides” for first-year students. The peer mentors remembered not knowing what questions to ask during their first year in the program and so would frequently reach out to mentees and offer advice. However, the peer mentor would also let the mentee's needs guide each mentoring interaction. Peer mentors valued the importance of in-person connection, especially when talking about sensitive issues such as race, “If someone is going through something and being able to put my hand on her shoulder and be like “Hey, its ok” That kind of thing was missing” (FG 3).

Shared identity with their mentees was valuable, but some of the mentees described having difficulty broaching difficult conversations about race or the ongoing racial tensions in the country:

I feel like I could have or should have been doing more to speak to that. Especially in light of this past year and a half of everything that happened. I'm not saying it was my place to speak to my mentee about it, but to show more openness for it. But I think even for myself and speaking with friends or family, it's still a difficult topic (FG2)

Despite not being 100% comfortable talking about race, peer mentors appreciated that they had a shared identity with their mentees and valuable insight to share in the mentoring team:

I know the subject of violence against Asian America, it will affect me differently than it will affect my peer mentee and based on that, I just gave the option for my mentee to speak to whatever she had to speak to. I mean, it wasn't something that I've felt 100% comfortable with, talking about [race] ...I certainly

Table 1. Peer mentor confidence in peer mentoring.

Confidence in peer mentoring ($n = 7$)	Average Score
November 2020	
Before online peer mentor training	3.42
After online peer mentor training	3.57
February 2021	3.29
May 2021	3.57

Note: Responses to confidence in peer mentoring ranged from (4) Strongly agree to (1) Strongly disagree.

tried to do my part but even then, it's going to be a difficult conversation (FG2)

These kinds of conversations highlighted another role the peer mentors frequently played in the classroom and clinical environment: representing their racial group in predominantly White spaces.

3.3. Peer mentor theme 2: Representation matters

The peer mentors described an increased awareness of serving in other professional mentorship roles as clinical instructors and laboratory instructors. They described being motivated by strong role models and wanting to serve in these roles to give back to the profession. While for some, the faculty role still felt out of reach, for others, faculty interactions and the topics of the networking events fueled their motivation to pursue a career in academia:

It also solidified my desire to be a part of academia in the future. Teaching and mentoring - I love it. I don't know if I do it well, but it really makes me feel fulfilled and really happy ... Having the ability to be in a position of being a minority professor, I think is just so important (FG3)

Peer mentors saw the need for representation in the classroom and expressed frustration with the lack of faculty diversity. They acknowledged the superior technical knowledge of their professors. Still, they noted that faculty comfort level changed when classroom topics turned to issues concerning minoritized or marginalized populations (such as talking about the social determinants of health). They also noted a lack of attention paid to race. When issues of racial violence in the country were not addressed by faculty in the classroom, peer mentors described feeling further isolated.

Some peer mentors described being willing to share their perspectives with White classmates and clinicians because this was a valuable opportunity to offer new perspectives, “We have to do something because if not, nothing's going to be done. Our classroom is going to be silent” (FG 1). Peer mentors had seen stepping up to represent a race for the greater good modeled by faculty from minoritized backgrounds and their parents

[My dad] decided to go vote in person during COVID because he wanted to show the community that Korean people do vote or Asian people want to be involved in things like that. And for me to hear that was very sad. I am proud of him, but at the same time, it's very sad to think that some people have to do that, or feel that they have to do that. But sometimes it is a

necessary role. I am happy to take it. When I do see the results of that, it makes me happy and I'm happy to do again and again. Even if it's exhausting at the time. (FG 3)

Peer mentors accepted their role of representing if others were not prepared to do so:

I know I'm the only Black guy but not the only Black person. But it's something that I ultimately accepted. As far as if there's no one else that's willing, not capable, but that's willing, for whatever reason, given whatever responsibilities that they may have, there's no one else willing to step up and occupy that platform to assure that our experience is known. Then, I just have to. (FG3)

However, representing a race was still burdensome. “It can be very mentally exhausting sometimes. And there are times I'm just like, Why can't I be normal ... just a person, not like an Asian person, you know?” (FG 3). Others shared that they were less willing to contribute to classroom topics when there was not a minority faculty member present because they were concerned about the viewpoints of others who did not share their identity as minoritized individuals.

3.4. Faculty mentor results

Eight faculty mentors included one Associate Professor, four Assistant Professors, and three Instructors. Two faculty mentors belonged to minoritized groups (African American/Black and Asian). Eight faculty in the intervention group and 18 faculty in the comparison group consented to complete the Cross-Cultural PsyCap scale in November 2020 (Time 1; T1) and May 2021 (Time 2; T2). Faculty in the intervention group completed the Cross-Cultural PsyCap before completing the online PDP. One faculty mentor withdrew from the study due to illness, and one of the study staff completed the mentoring process with their team. Three participants in the comparison group submitted a completed survey at T1 but not T2. These surveys were eliminated from analysis. Five missing item responses were substituted with a score of “3” which indicated neither agree nor disagree with the question. Table 2 outlines the descriptive analysis of the intervention and comparison group performance on the survey.

At T1, the mean item score for the comparison group was 3.54, and the mean item score for the intervention group was 3.86. At T2, the comparison group mean item score was 3.68 while the intervention group mean item score was 4.04. The intervention group scored higher on the Cross-

Table 2. Faculty performance on cross-cultural psychological capital subscales.

CC PsyCap Composite Score and Subscales	T1 Mean (SD)	T2 Mean (SD)
Intervention group (n = 7)		
CC PsyCap composite score	77.14 (6.15)	80.86 (10.37)
Cross-cultural hope	15.00 (1.73)	16.28 (2.21)
Cross-cultural self-efficacy	35.43 (2.99)	35.71 (5.31)
Cross-cultural optimism	15.00 (1.41)	16.71 (2.56)
Cross-cultural resilience	11.71 (1.25)	12.14 (0.69)
Comparison group (n = 15)		
CC PsyCap composite score	70.93 (9.46)	73.73 (6.67)
Cross-cultural hope	14.07 (1.98)	14.60 (1.84)
Cross-cultural self-efficacy	31.20 (5.68)	32.93 (4.15)
Cross-cultural optimism	14.80 (2.15)	14.73 (1.44)
Cross-cultural resilience	10.87 (1.46)	11.47 (1.41)

Note: T1 denotes “Time 1” pre-intervention, and T2 denotes “Time 2” post-intervention.

Cultural PsyCap than the comparison group at baseline (T1) and the end of the study period (T2). At the end of the study period (T2), the intervention and comparison groups scored higher than baseline on the Cross-Cultural PsyCap and demonstrated higher scores on all subscales at T2 except for cross-cultural optimism in the comparison group. However, the intervention group showed a 3.72 increase in scores, and the comparison group showed a 2.8 increase in the composite score on the PsyCap. Participants in the intervention group demonstrated a greater improvement in scores at the end of the study compared to the beginning on all four dimensions except self-efficacy.

Seven faculty participated in focus group interviews with the principal investigator. Two themes emerged from qualitative data analysis: engaging with discomfort and shared learning spaces.

3.5. Faculty mentor theme 1: Engaging with discomfort

Faculty mentors began the mentoring process most familiar with and comfortable with their roles as academic advisors, with advisees assigned to them by the program. In some ways, academic advising was perceived as faculty-driven. There was a specific structure and agenda which often centered around course selection and academic performance. In this study, although structure was provided, with guidelines for each mentoring interaction, faculty quickly veered from the recommended activities to address the mentee's specific needs. Mentoring was perceived as more student-centered, bigger than advising, and more personal. A mentee and mentor chose to enter into the mentoring relationship with different motivations than in the advising relationship. Mentoring could stem

from an advising relationship, but faculty mentors felt that mentoring required that both people get to know each other on a personal level. Additionally, there was an investment in the development of the student as a person rather than solely as a health-care professional:

A mentor is so much more than an advisor. A mentor deals with all of the doubts and anxieties that students have and there's a bigger emotional investment on behalf of the mentor and mentee... I don't feel like that is present in academic advising. And academic advising is more focused on career goals or academic goals or just getting through a program sometimes. But I feel being a mentor really is an investment in trying help this person succeed. It's not something that you can assign (FG2)

To help students succeed, faculty had to adopt a learning mindset and be curious about the student experience. They also had to be vulnerable and share more about themselves than they typically would in an advising relationship. Establishing trust was vital for relationship development and necessary to decrease the power differential between faculty and students. One faculty mentor realized she had mitigated the power differential when her mentee felt comfortable enough to attend an e-mentoring session in pajamas. Faculty mentors quickly learned that it was necessary to set aside assumptions about what the mentee and peer mentor were experiencing, especially when there was racial and cultural background incongruence. Faculty mentors needed to be explicit about acknowledging racial differences:

Acknowledging differing identities and just saying I recognize that maybe I'm coming from a different perspective, a different identity, but I really value yours and putting that statement out there, so [my mentee] knew that I was really invested in her experience and her perspective (FG1)

Over the course of the study, there was a racial reckoning in the country, increased discrimination against those of Asian descent during the pandemic, and the attack on the Capitol in 2021. There were times when faculty expected mentees to bring forth issues related to the racial tensions and were surprised about student response, “I was assuming that she would be thinking every moment about all these violent acts against people of Asian ethnicity, and she hadn't really. I mean because she's in school!” (FG1). Other times, mentors expected students and peer mentors would be focused on school or the stress-inducing transition to practice and that was not the case:

It's always a challenge to go from a student into a professional. Those were not the experiences that was really troubling her. It was the experience of dealing with racism in terms of applying for jobs, getting interviews compared to her peers that were White. Then once on the job, those experiences of racism from patients. I was very thankful she felt that we were in a safe space to be able to share some of that with me. It made me think that there's a lot of more work to be done in terms of mentorship even through that first year of practice. (FG1)

Conversations like this highlighted the need to remain curious about the student experience, set aside assumptions and preconceived notions, and tailor mentoring to meet student needs. Faculty mentors were surprised about how much anger and frustration there was among the student body around the racial tension in the country and in higher education. Through their discussions with their mentees, faculty mentors gained insight into what minoritized students and clinicians were facing in the clinical environment.

I thought I was aware of all the issues. And we were having these town halls briefly during COVID to keep everybody abreast what was going on in the clinic. And a couple clinicians from various sites within the network commented on what they were feeling of being a person of color or underrepresented minority. And I was shocked because they were colleagues of mine that I work very closely with. And I'm like "This is going on? Oh my gosh!" (FG1)

Mentors struggled to give advice to students who were overwhelmed with the racial injustice in the country and wondered if their mentees were able to hear them over the noise of the surrounding chaos, but they persevered.

3.6. Faculty mentor theme 2: Shared learning spaces

Engaging in the mentoring relationship with a student from a minoritized background required that mentors have difficult conversations about race. As faculty traversed the discomfort of engaging in difficult conversations, they gained an acute understanding of the challenges students faced:

I think this is one of the more limited experiences of my life where I've had very frank conversations and honest conversations about race in a very personal way with someone, unfortunately. And I think to start having these conversations more, for me, I think it

makes it easier to have more conversations and it gives me more confidence to have more conversations and to grow (FG1)

Faculty mentors talked about how much they had gained from the mentoring process and learned from the mentee and peer mentor. They also gained new awareness from participating in the networking events and listening to the experiences of faculty from minoritized backgrounds. Overall, the experience was described as enriching and rewarding:

I didn't realize how much of myself I could offer. Even though I thought that in my advisor role I was always "Oh yeah, you should come, you should come [see me]" ... with the peer-mentor, realizing that there was so much that we could talk about. And it was for me, personally enriching and I found that I could bring some of that into my advisor role. (FG1)

Faculty mentors described that through the mentoring experience, they could be better academic advisors to a broader set of students. They gained an understanding of bringing less of their faculty-driven agenda to advising meetings. In addition, the mentoring trio also offered a safe space where faculty could tackle challenging topics and rehearse before engaging in difficult conversations in the classroom and in the clinical environment. Participants got to the stage where they were comfortable with their own discomfort.

In some of my conversations with colleagues who are also White nurse educators there is this real fear of saying the wrong thing. And sometimes what I think is that leads us to just avoid the conversation because of this discomfort. And so, I think the real takeaway was just really having these straightforward conversations. I think I learned just as much, if not more, from our conversations as what I was able to provide for my mentee (FG1,)

Mentors of color also described finding their voice through processing with their mentees:

Having lived in the U.S. for as long as I have and also being a woman of color there are just many things that racially, I bottle up and just don't deal with. And I think a lot of that came up last summer. And some way, somehow, I got my voice ... to be able to speak up about these things. (FG1)

4. Discussion

This investigation is one in a series of studies [3,12] leveraging improvement science [18,19] to

investigate the effects of mentoring on multiple stakeholders: health sciences faculty and first and second year (peer mentor) students from minoritized backgrounds. The pandemic necessitated that an in-person mentoring program [12] transition to a virtual format. The use of the improvement science lens allowed for the evaluation of this variation in practice. We found a six-month e-mentoring program to be as effective, resulting in gains for both the peer mentors and the faculty mentors.

While the mentoring literature has grown, mentoring investigations frequently rely on the participants self-reporting the benefits of mentoring [36]. This study used both quantitative and qualitative methodology to investigate the effects of an e-mentoring program on mentees and faculty and peer mentors. Both the intervention and comparison faculty groups demonstrated an increase in their cross-cultural psychological capital over the study period. However, the intervention group showed a greater increase. Reichard et al [37]. found a significant increase in psychological capital and cultural intelligence after cross-cultural training for participants in the U.S. and South Africa. Participants scored 3.63 pre-intervention, 3.93 immediately post-intervention, and 3.85 one month after the intervention [37]. Our intervention group scored 3.86 at baseline and 4.04 at the end of the study period revealing that virtual cross-cultural mentoring is another means of building cross-cultural psychological capital which is a vital resource for those who engage with many students in the classroom setting.

Study findings also revealed that dialoguing about race in the safe space of a mentoring team helped increase faculty self-efficacy around engaging in difficult conversations. Talking about race can decrease discrimination and stereotyping and increase compassion and mutual understanding [38]. Classrooms provide rich opportunities to engage in dialog, yet faculty often shy away from discussing race due to fear of saying the wrong thing, revealing hidden prejudices, or causing harm to students [39]. As a result, incidences of racial violence often go unacknowledged, and the business-as-usual approach in classrooms after such incidences can cause even more student harm. Peer mentors in this study shared that when acts of racial violence were on the national news but not discussed in the classroom, students from minoritized backgrounds feel isolated and marginalized.

If faculty shy away from engaging in difficult conversations around race in the classroom, the burden often falls on students of color, as noted by the peer mentors in this study. Some of the peer

mentors described being willing to talk about race and increase awareness among White colleagues, if no one else was willing to do it. However, this responsibility was described as exhausting. Peer mentors described not just having this responsibility in the classroom but in the clinical environments as well, highlighting the continual burden on students who must fill multiple roles while completing rigorous academic programs. Additionally, not all peer mentors were comfortable talking about race. This could potentially explain the slight decrease in mentoring competence at the mid-point in the study.

Peer mentors traditionally serve as role models who have shown perseverance and achieved success [3,12]. In this study, peer mentors had the unique perspective of persevering through a pandemic and shared their knowledge and strategies with mentees. While the mentors described themselves as tour guides, they were much more, highlighting what was possible for the first-year students from minoritized backgrounds. While faculty felt that e-mentoring was an effective means of connecting with mentees, peer mentors valued in-person meetings as well. They saw the benefits of interacting with faculty outside the classroom and encouraged their mentees to approach faculty. Cooper et al. highlight that minoritized students have complex socialization processes in institutions of higher education. Intentional engagement with faculty outside the classroom is an essential navigational strategy that can contribute to positive educational outcomes and engagement [40].

4.1. Limitations

This study is limited by the small sample size of students and faculty at one institution, in the Northeast region of the United States, which limits the generalizability of findings. Therefore, the results of this study should be interpreted as exploratory. Another limitation is that the faculty intervention and comparison groups differed at baseline. The faculty intervention group revealed higher cross-cultural psychological capital scores at baseline and after the intervention. Given that faculty were purposefully recruited to serve as mentors, it is possible that faculty self-selected into the study based on increased cross-cultural self-efficacy at baseline. Additionally, both groups showed gains in cross-cultural psychological capital over the course of the study. The increase in cross-cultural psychological capital in both groups can also be attributed to initiatives in the study context where there is a focus on justice, equity, diversity, and

inclusion. Finally, we do not know whether the faculty mentor gains in cross-cultural psychological capital are sustained over time, which warrants further investigation.

5. Conclusion

While there are disagreements about what constitutes mentoring, researchers agree that there is a degree of reciprocity associated with mentoring [36]. This paper highlights the value to faculty and peer mentors who participated in an e-mentoring program. While the peer mentors did gain confidence in mentoring and professional socialization, faculty mentors made substantial progress towards increased self-efficacy in engaging in difficult conversations around race. Faculty described that the skills learned through cross-cultural mentoring could translate to other aspects of their professional role, including engaging in dialog about race in the classroom. Faculty comfort with being able to engage in difficult conversations about race is vital, as peer mentors described that when faculty shied away from talking about racial incidents, the taxing burden fell on them. This study highlights that a relatively short intervention with the opportunity to rehearse talking about race in small groups can increase faculty confidence with engaging in racial dialog.

Ethical approval

Ethical approval granted from the MGB Human Research Committee Institutional Review Board (November 3rd 2020: Protocol number 2020P003022).

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Other disclosure

None.

Conflict of interest

The authors have no conflict to declare.

Appendix

Appendix A

Peer Mentor Semi-Structured Focus Group Interview Protocol

1. What has your experience at this institution been like?
2. How do you feel connected within the institute community? Alienated?
3. How would you describe your role as a peer mentor?
4. How did the mentoring program enhance the educational experience of first-year students?
5. How did the mentoring program enhance the social experience of first-year students?
6. How has the mentoring program facilitated first-year students' successful transition to graduate school?
7. How did you increase faculty awareness of the unique mentoring needs of racial/ethnic minority students?
8. Can you tell me about a time when there was a barrier to advocating for your mentee's needs and how you overcame this barrier?
9. What was your perception of an academic career before serving as a peer mentor? Has your perception changed after serving as a peer mentor? If so, how?
10. Socialization involves the process by which individuals gain the knowledge, skills, and values necessary for successful entry into a professional career. How has your involvement in this program influenced your socialization into your future healthcare profession?
11. What was your favorite program activity provided by the mentorship program?
12. What is the greatest strength of this program?
13. What has been your most positive experience in the mentorship program?
14. What are some costs of mentoring to you? (e.g., use of time and resources)
15. What suggestions do you have to make the mentorship program more effective and beneficial for faculty, peer mentors and mentees?
16. Is there anything else that you would like to mention about being a peer mentor that I haven't already covered?

Appendix B

Faculty Mentor Semi-Structured Focus Group Interview Protocol

1. How would you describe your roles of faculty advisor and faculty mentor?
2. What types of issues are harder to deal with than others in mentoring? How would you describe a time when it was particularly difficult to mentor somebody?

3. What is the role of race and ethnicity in your mentoring?
4. When your race/ethnicity is different from your mentee—what types of things do you have to address when fostering relationships? How do you address challenges that may arise due to race/ethnicity differences?
5. What are the most effective or important mentoring techniques or activities you use and why? Tell me about a time these techniques worked well. A time when they did not?
6. As you reflect on your experience in this program, what would you say has most facilitated your participation as a faculty mentor?
7. What types of changes in your cross-cultural self-efficacy resulted because of this program?
8. What did you learn from the peer mentor?
9. What are some costs of mentoring to you? (e.g., use of time and resources)
10. Do you believe that the mentoring program enhanced the educational and social experience of first-year health sciences students? Why? Why not?
11. How did the mentoring program facilitate first-year students' successful transition to graduate school?
12. What has been your most positive experience in the mentorship program?
13. What suggestions do you have to make the mentorship program more effective and beneficial for faculty, mentors and mentees?
14. Is there anything else that you would like to mention about the mentorship program that I haven't already covered?

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