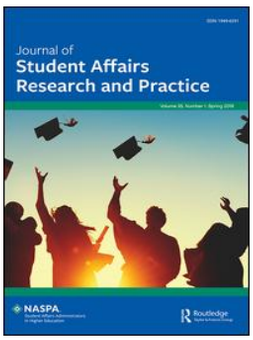

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Innovation in Practice Feature

Improvisation-Based Workshop to Build Empathy in Mentor-Mentee Relationships and Support Academic Equity

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Strong mentoring relationships improve the success of students in academia and must be the foundation for increasing diversity in STEM. We developed an innovative skills-based training workshop to teach effective communication in mentoring and build awareness of diversity issues in STEM. The workshop was interactive and included open discussions, improvisational theater exercises, and activities in understanding privilege and building empathy. This workshop can improve mentoring relationships and increase equity and inclusion in academia.

Background

Mentoring is an important aspect of education at all levels, and having strong mentoring relationships contributes to success, enjoyment, and degree completion in graduate and undergraduate STEM programs (Christe, 2013; Holley & Caldwell, 2012; Lechuga, 2011; Rhodes et al., 2002). Connecting with a mentor is especially important for students from groups experiencing discrimination in STEM, such as women, people of Color, people from various cultural backgrounds, people with disabilities, or people with non-cis gender identities (National Academies of Sciences, Engineering and Medicine, 2019; Griffin et al., 2010; Lechuga, 2011; Patton, 2009; Stumbo et al., 2011). These groups tend to be systematically excluded from STEM careers, as evidenced by the demographics of undergraduate institutions compared to the academic workforce (i.e., people with doctoral degrees employed at academic institutions. According to data collected in 2016 by the National Science Foundation, National Center for Science and Engineering Statistics (2019), 50% of bachelors degrees in the science, engineering, and health fields went to women, 22% went to Black, African American, Hispanic, Latinx, American Indian or Alaska Native peoples (defined as "underrepresented minorities" in the report), and 19% of undergraduate students overall reported disabilities (National Science Foundation,

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National Center for Science and Engineering Statistics, 2019). In contrast, data from 2017 shows that the academic doctoral workforce comprises only 38% women, 8.9% "underrepresented minorities," and 9.4% people with disabilities (National Science Foundation, National Center for Science and Engineering Statistics, 2019). This data comparison reveals the tendency for some groups to be excluded from higher levels in STEM, with the demographic disparity worsening with each educational level. The students in these groups particularly benefit from the support of good mentors as they rise through the academic ranks. Mentoring relationships are most effective when the mentor and mentee are members of the same group (e.g., female, queer, Black, Hispanic, among other marginalized groups) and can build trust, empathy, and support through shared experiences (Griffin et al., 2010; Patton, 2009). Unfortunately, the fact that some groups are not fully included in the academic workforce makes it difficult for students in these groups to find and connect with effective mentors (Athey et al., 2000; Lechuga, 2011; Patton, 2009). One strategy for supporting equity and inclusion in academia is training existing faculty to be effective mentors to all students. As mentoring relationships are two-sided, students must be simultaneously empowered to seek out and maintain mentor relationships that will be both healthy and helpful in advancing their career.

Challenges of Teaching Good Mentoring

Fostering a strong mentoring relationship between a faculty member and a student who do not share similar backgrounds or identities requires specific skills to be practiced on both sides of the relationship. For example, the mentor must practice empathy and deep listening to grasp the student's unique experience, and the student must practice clear communication and self-advocacy to impart their experience to the mentor (Lechuga, 2011; Patton, 2009). These skills and others necessary in effective mentoring relationships are difficult to "teach" using traditional, knowledge-based courses or workshops. Many studies have found that trainings adopted by institutions and companies aimed at solving problems of racial discrimination, unconscious bias, and sexual harassment are ultimately ineffective and may in some cases make the problem worse (Dobbin & Kalev, 2018; National Academies of Sciences, Engineering and Medicine, 2018; Noon, 2018; Shepherd, 2019; Williamson & Foley, 2018). These trainings generally adhere to the knowledge deficit model, a concept first established in the science communication field based on the premise that provision of more information regarding a topic (e.g., science, diversity, or sexual harassment) will lead to positive behavioral and attitude changes in those receiving the information (Bak, 2001; Phillips & Beddoes, 2013; Simis et al., 2016). This model has been widely demonstrated as ineffective because people (even scientists) often do not process information rationally, especially surrounding politically or culturally charged topics such as race or gender (Bak, 2001). If the goal is to elicit a change in behavior, skills-based trainings (e.g., bystander intervention or behavior modeling training) are generally accepted to be more effective than knowledge-based trainings (National Academies of Sciences, Engineering and Medicine, 2018). Effective trainings focus on equipping participants with specific skills relevant to certain scenarios and provide opportunities to practice these skills in a controlled environment.

Benefits of Applied Improvisational Theater

One way of developing skills for effective mentoring such as communication, listening, empathy, and negotiation is to practice improvisational theater techniques. Practicing improvisational theater (or "improv") builds the ability to connect with audiences, to listen deeply, and to turn focus toward others rather than oneself, which facilitates creative collaboration and in-the-moment engagement to respond to complex problems (Bernstein, 2014; O'Connell et al., 2020; Rossing & Hoffmann-

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Longtin, 2016; Spolin, 1963). Interest in the use of improvisational theater techniques in non-theater environments, called applied improv, has been growing in recent years. Programs and trainings utilizing applied improv have been shown to encourage risk-taking and spontaneity, build creativity and adaptability, and hone communication skills including listening and observation (Boesen et al., 2009; Hoffmann, 2011; Huffaker & West, 2005; Rossing & Hoffmann-Longtin, 2016; Stager Jacques, 2013; Vera et al., 2005). When applied improv techniques are introduced in group or team settings, they can build community and trust, heighten self-awareness, and make collaboration more effective by improving group communication, empathy, and sharing of leadership among team members (Gagnon et al., 2012; Hoffmann, 2011; Stager Jacques, 2013; Vera et al., 2005). Further, applied improv and related theater-based techniques facilitate openness to multiple perspectives, and therefore have been successfully employed in addressing diversity issues in academia through faculty development trainings (Gagnon et al., 2012; Kaplan et al., 2006). Learning improv technique is also inherently interactive and skills-based, and training that incorporates improv elements may be more effective than lecture-based training or learning (Huffaker & West, 2005). Due to these benefits, applied improv and interactive theater have been utilized in classroom teaching at all levels and in the professional world through initiatives focused on collaborative research, business management, and teamwork and leadership development within organizations (Berk & Trieber, 2009; Gagnon et al., 2012; Huffaker & West, 2005; Rossing & Hoffmann-Longtin, 2016: Sawyer, 2004; Stager Jacques, 2013; Vera et al., 2005). Workshops and courses in improv techniques have been developed to teach communication skills in a variety of specific career fields, including science communication, medicine, pharmacy, software engineering, and sales (Boesen et al., 2009; Fu, 2018; Hoffmann, 2011; Kaplan-Liss et al., 2018; Rocco & Whalen, 2014; Watson, 2011).

Objectives

To train faculty and students in critical mentoring skills, we designed an improvisation-based short-form interactive workshop to teach effective communication in mentoring relationships, build awareness of diversity problems and facilitate empathy for people with backgrounds and identities different from one's own. Effective communication is based on listening and empathy—seeing things through another's point of view. The major themes of the workshop were communication, listening, and empathy. The workshop also included exercises and discussions focused on identifying privilege and bias in academia. We believe that simultaneous training in empathetic communication and diversity issues in STEM will serve the dual purpose of (a) improving mentoring relationships between students and faculty, and (b) increasing participation and success of students in groups systematically excluded from academia. This workshop also empowers students to become effective mentors themselves, thereby amplifying the impact of the training into future generations and helping to improve equity in academia.

Our workshop incorporated applied improv techniques that have been pioneered in academia by the Alan Alda Center for Communicating Science (Alda Center) at Stony Brook University. In addition to improv exercises pioneered by the Alda Center, we included other interactive components such as group discussions, small group activities, and role playing. We avoided PowerPoint slides and lecturing with the belief that active participation by the students is the most effective way to transfer information while simultaneously allowing practice of communication skills (King, 1993; Weasel & Finkel, 2016). The length of the workshop was three hours, making it a reasonable time commitment for busy students and faculty. Finally, we did not separate the workshop participants into faculty and student groups but rather encouraged equal participation in all activities regardless of academic rank. This is because all academics—students and faculty—will be on both sides of mentoring relationships throughout their career,

and it is just as critical for students to learn to be good mentors and faculty to be good mentees as the reversed scenario.

Methods

We offered this workshop, titled "Mentoring in STRIDE," at SUNY Stony Brook University near the beginning of the semester in Fall 2017 and Spring 2019 as part of a larger mentoring initiative undertaken by the STRIDE program. STRIDE (Science Training and Research to Inform Decisions) is the result of a 3 USD million National Science Foundation (NSF)-funded graduate STEM training program which is housed within the university's Institute for Advanced Computational Science (IACS). The lead author of this article is a co-principal investor on the grant, the second author is the STRIDE program director, and the last author was a STRIDE Fellow. The goal of the program is to train scientists in better communicating their research to decision makers and the public, and playing an active role in science-based decision making. The STRIDE program has a focus on creating interdisciplinary connections and recruiting students of all backgrounds, identities, abilities, etc, with a strong mentoring program as part of the program's core principles. As part of the curriculum, the STRIDE program matches incoming students with STRIDE faculty mentors and offers the Mentoring in STRIDE workshop to facilitate good mentor-mentee relationships between its faculty and students. The Alda Center is an integral part of the STRIDE program as students have to take 3-credits worth of Alda Center courses. As such, we thought it was important to develop a mentorship program in line with the communication principles taught at the Alda Center, which the lead author helped create and develop, and grounded in best practices in diversity training (National Academies of Sciences, Engineering and Medicine, 2018).

Student participants were not purposefully assigned to the same workshop sessions as their STRIDE mentor or dissertation advisor, but many student-advisor/mentor pairs did end up in the same session because workshop attendance was required as part of the STRIDE program. During the workshop activities, students and their advisors interacted equally with other members of the group rather than only discussing and role playing with each other. With the 2017 and 2019 workshops combined, the participants included 48% who identified as women and 52% as men. The workshop was a mix of various races and ethnicities, 59% of participants self-identified as Caucasion, and 41% were African American, Middle Eastern, Asian, Hispanic, or multi-racial. Participants included graduate students (56%), ranging from second-year students to advanced to candidacy, and faculty (44%) ranging in academic rank from assistant to full professor. The disciplines represented in the workshop spanned the sciences and engineering to public health.

The workshop was partially adapted from *Excellence in Mentoring*, a three-day workshop on mentoring and diversity developed by Stony Brook University's Center for Inclusive Education. *Excellence in Mentoring* was designed using the Howard Hughes Medical Institute's 8-session workshop, *Entering Mentoring*. We believe that a three-hour workshop could be similarly effective as the longer format, with the additional benefit of reducing the necessary commitment for time-pressed academics. In order to increase the efficiency and potency of the workshop, we removed all lecture components and replaced them with interactive discussions and exercises (Table 1). Continual interaction kept the group engaged in the content of the workshop and also gave them the opportunity to actively practice the communication techniques discussed.

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Table 1

Agenda for the 2019 Workshop

Activity	Time (mins)	Description	Activity Type
Describe the best mentor	10	All participants described the best mentor they had in their life and/or career	Introduction
Qualities of a good mentor	15	Groups of 3–4 participants listed qualities of a good mentor. The lists were then shared and compared with the whole group.	List making/discussion
What worries you?	10	First the students then the faculty volunteered to answer the question, "What worries you?"	Discussion
Rant	5	Faculty-student pairs took turns "ranting" to their partner about a topic that bothered them. (e.g., reckless drivers). Then the listener reframed the rant to reflect positively on the ranter (e.g., she cares about public safety)	Improv exercise
Yes, and …	10	Participants divided into pairs and debated a topic using only sentences starting with "No," "Yes, but … " and "Yes, and … "	Improv exercise
Negotiation and saying no	10	The group discussed situations in which it is necessary to say no, and effective and respectful ways of doing so.	Discussion
Break	10	–	–
Defining moments	15	Participants discussed in small groups moments that impacted the trajectory of their career.	Discussion
Many whos I am	15	Pairs of participants described themselves using only sentences starting with "I am … "	Improv
Activity	Time (mins)	Description	Activity Type
Privilege survey	15	In the survey, points were added for characteristics or experiences that create or reduced privilege. After taking the survey individually, the group discussed the outcomes.	Survey
Diverse perspective taking	20	All participants worked together to list diverse groups on campus, then split into small groups. Each group chose one underrepresented group and listed challenges they thought this group might face. Finally all the lists were discussed as a group.	List making/discussion
Diversity problems/ solutions	10	The whole group listed obstacles to achieving diversity participants had observed in their departments, and discussed potential solutions.	List making/discussion
Faculty-student role plays	25	Several participants volunteered to play the roles of a faculty member and a student. The faculty member asks the student to do something inappropriate (e.g., house-sit, work over the weekend, etc.) and the student refuses.	Role play

Workshop Format

The workshop began with introductions of all the participants to foster familiarity and ease discussion amongst the group members. During this time, each participant described the best mentor they ever had, and immediately following this the group at large shared any particular experiences of bad mentoring. After this introductory discussion, participants were divided up randomly into small groups of 3–4 and asked to list qualities they associated with good mentoring. The whole group then discussed each of the lists, noting repeated themes and unique ideas. To facilitate empathy, and seeing things from a mentor or mentees point of view, the faculty and students took turns answering the question, "What worries you?" First the students volunteered their worries, such as finishing their degree successfully, getting a job, work-life balance, paying bills, and having funding for their project. Next the faculty shared some of their concerns, which included supporting students financially, work-life balance, being a good scientist, and giving the right advice to students. The purpose of this exercise was to practice active listening and to build empathy between faculty and students, who realized they shared many of the same worries and had more in common than not.

Applied Improv Exercises

Activities to Build Communication and Problem Solving Skills

After the small and large group discussions, the participants engaged in several applied improv exercises, including one called "Yes, and . . . ." In this exercise, participants are separated into pairs and given a simple opinion to discuss a topic. In the first round, Partner A makes the opinion statement (e.g., "Dogs are better than cats.") and Partner B responds with "No," followed by support of their contrasting opinion. Then Partner A responds in the same manner, and they go back and forth this way for about 2 minutes. In the second round, Partners A and B discuss a topic starting each statement with "Yes, but . . . " and in the third round they start with "Yes, and . . . ." This exercise introduces a critical concept in improvisational theater; in order for a scene to flow effectively, each actor must accept what the other does or says (the "yes") and add something to it that advances the scene productively (the "and") (Spolin, 1963). This concept is equally useful outside of theater because it transforms conversations between opposing viewpoints from battles into collaborative, constructive activities. In this exercise, workshop participants were able to practice active listening by turning their focus to their partner's words rather than their own thoughts, and engaging in productive and respectful disagreement. These communication skills are critical in mentoring relationships, particularly those between academic advisors and their students.

Due to the power dynamic inherent in their relationship, disagreements between advisors and students can devolve into clean-cut affairs, with orders given on one side and silent acquiescence on the other. This dynamic can be unproductive and even damaging, causing frustration, disillusionment, and self-doubt in students while suppressing innovation in the advisor's research and hampering their ability to be a good mentor. For example, consider a situation in which a graduate student wants to conduct an expensive experiment that his advisor doubts will produce results justifying the cost. An undesirable (but likely) outcome of this situation is that the advisor rejects the student's idea without further consideration, causing the student to either lose self-confidence or to become resentful toward the advisor. Because the advisor did not allow the student to defend his ideas, the advisor may also become more entrenched in her own ideas and more likely to discredit the student's opinions in the future, while simultaneously removing the possibility that the experiment could have been fruitful. With

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the skills practiced in the "Yes, and … " exercise, such a disagreement could have a more positive outcome. The student knows how to truly listen to and address the advisor's realistic concerns as he crafts an argument to defend his idea. On the other side, the advisor remains open to what the student says and acknowledges the accurate or useful parts of the student's idea in planning a course of action. In this situation, since he was not shut down and feels that his ideas are respected, the student is more willing to take the advisor's greater experience into consideration. The advisor is able to redirect the student's energy while maintaining a healthy relationship with him, and opens the possibility that the student will prove her wrong and discover something amazing. Ideally, they can work together to design an experiment that the advisor deems more realistic while still satisfying the student's curiosity about the topic (a benefit whether the experiment is "successful" or not). Following this exercise, the group discussed times when a "No" may be more appropriate than a "Yes, and … " in conversation. In particular, it is important to practice saying no when asked to do things one has no time for or feels uncomfortable doing. We brainstormed ways of giving a firm no while remaining polite and avoiding negative feelings in our relationship to the person we are refusing. For example, some useful strategies included offering alternatives, expressing gratitude that the person considered the refuser for the task, clearly setting boundaries, and negotiating to reach a win-win scenario for both parties.

Activities to Build Empathy and Connection

The second half of the workshop focused on discussing diversity and building empathy for all people in the academic environment. First, workshop participants completed another applied improv exercise called "The Many Whos I am." In this exercise, participants paired up and took turns describing themselves starting every statement with the words "I am … " (e.g., "I am a mother," "I am a dog-lover," "I am a musician"), while their partner listened. The purpose of this exercise is to encourage mentors and mentees to recognize the many "whos" they are in addition to the identities relevant to academia (e.g., "I am a scientist" or "I am a faculty member"), and to share these sides of their character with their mentor or mentee. Often partners in this improv exercise discover something surprising or unexpected about their partner or themselves, finding both similarities and differences. It is a way of building empathy and looking past bias or assumptions about someone else or yourself. This skill may be especially important for mentor-mentee relationships in which there are differences in life experiences, culture, or identity. For example, even if a mentor and mentee come from different backgrounds, they can bring their whole selves to the relationship and discover shared experiences or characteristics, such as parenthood, or a love of the outdoors. This facilitates empathy and enables establishment of common ground upon which the mentor and mentee can establish the relationship.

Privilege Survey

Next, workshop participants took a survey designed by the Stony Brook Center for Inclusive Education as part of their Excellence in Mentoring Program. This survey assigned them a "privilege score." The survey included statements such as "I can see a full spectrum of colors" and "I struggled to schedule study time because I had to work while being a student." Participants broadened their understanding of privilege to include financial security, as well as medical, racial, and social types of privilege. Instances of agreement either added or subtracted a point to the participant's cumulative score. The goal of this was to help faculty and students recognize their privilege and the parts of their academic experience that would be different for

others with less privilege. The privilege survey led into small-group and whole-group discussions of different types of diversity represented on campus (religious, cultural, race, learning style, ability) and the unique challenges each of these groups of people may face in academia. This discussion encouraged participants to imagine the perspectives of different people, a critical component of empathy. Finally, the group as a whole brainstormed a list of answers to the question, "What are some problems regarding diversity and inclusion you have seen in your own department?" Discussing the obstacles led naturally to discussion of potential solutions to the problems.

Role Playing

The final component of the workshop consisted of several role-playing exercises. During the 2019 workshop, the instructors first demonstrated a role play between a faculty advisor and a student in which the advisor pressures the student to dog-sit for her while she is traveling, and the student struggles to say no. For the second role play scenario, two workshop participants played a student who has to attend an important wedding over the weekend and an advisor who wants his student to work in the lab over the weekend instead. A student played the advisor, and and advisor played the student, further promoting the idea of empathy and putting yourself in another's shoes. After each role play, the group discussed the outcomes and the strategies used by the role players. This exercise served to synthesize many of the topics covered earlier in the workshop. The participants practiced using "yes, and … " to maintain respectful and open communication along with negotiation tactics such as providing alternate suggestions and setting boundaries to achieve mutual benefit for the student and advisor. Finally, discussion of the role play scenarios led into an exploration of power dynamics in academia, such as those between advisor and student, undergrad and grad, or untenured and tenured faculty, and how these hierarchies underpin mentor-mentee relationships and influence interactions such as those in the role plays.

Good Mentoring Discussion

The group discussions on the qualities of good mentoring served several purposes in the context of this workshop and its goals. First, we aimed to convey information about good mentoring practices skills in a collaborative, experiential way rather than lecturing and/or citing previous literature (i.e., employing the knowledge deficit model). We believe it was much more impactful for the participants to "discover" this information themselves by mining the group's collective knowledge and experience. Second, the small group discussions helped the participants get to know and relax around each other, making the later transition into the applied improv exercises easier. Finally, many of the traits identified in this exercise (e.g., listening, communication, and empathy) were specifically addressed and practiced in the applied improv and other exercises in the remainder of the workshop.

Several themes emerged in these discussions during both the 2017 and the 2019 workshops. One of the authors inductively coded the data from the workshops using an iterative and open-coding process, and the other authors checked the results to ensure inter-rater reliability. The most frequently mentioned themes were (in order of decreasing frequency): Honesty, Availability, Support, Listening/Communication, Empathy, and Role Model (Figure 1). The "Availability" category included references to "accessibility," "approachability," being "reachable," and "making time for meetings." The "Support" category included both emotional support ("empowering," "advocate") and support of the mentee's career path and choices. The workshop participants also pointed out that mentors should "set an example," exhibit "leadership" skills,

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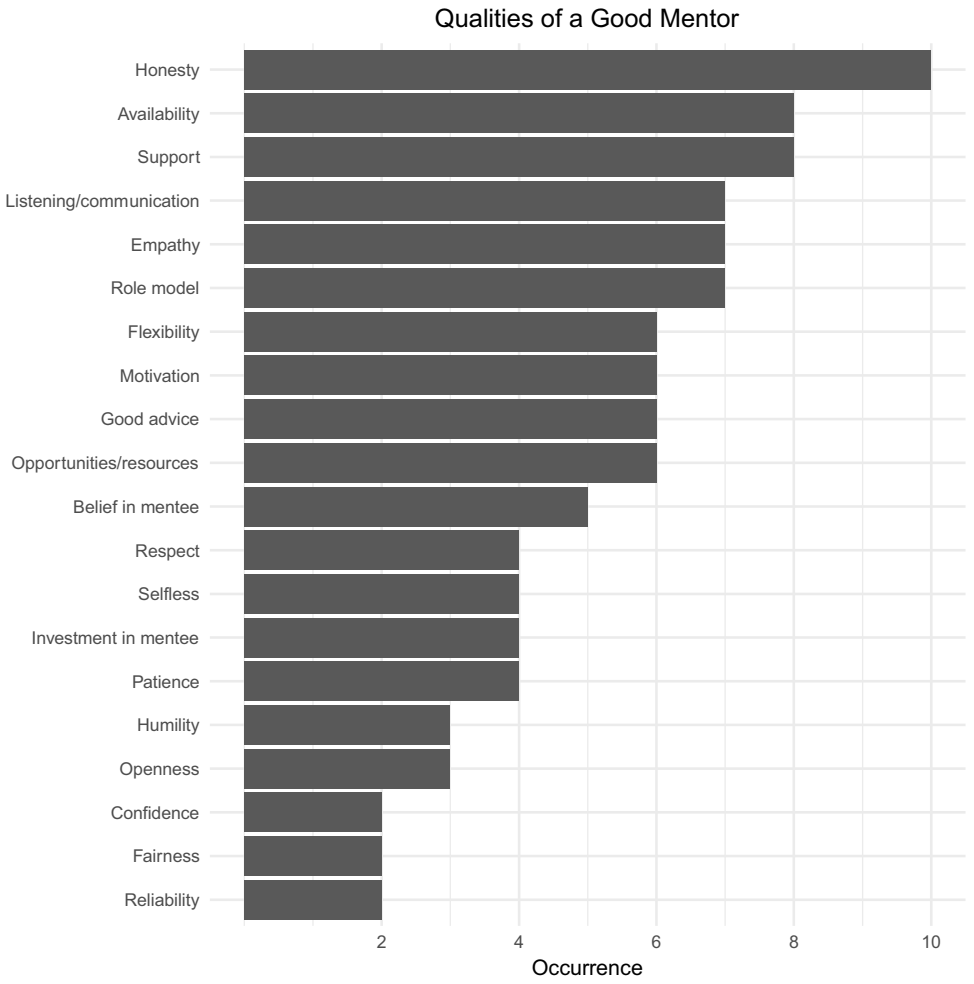
Figure 1. Qualities of a good mentor listed during a group activity in the workshop, presented in decreasing frequency of occurrence (the number of times mentioned).



and be "professional," "inspiring/successful," and a "good scientist"—these fall under our category "Role model." The qualities of being available, supportive, and serving as a role model have been thoroughly described in the literature (Christe, 2013; Griffin et al., 2010; Micari & Pazos, 2012; Vogt, 2008), and are not further discussed here.

In our workshop, the category of "Honesty" was the most frequently cited and included such statements as "tells you like it is," "constructive," and "genuine." The frequent mentions of honesty are an outcome that has not been previously observed in other studies. We believe there are several reasons participants considered honesty important in a mentor. One reason may be that graduate students are aware that it is unlikely they will get a tenure-track faculty position after obtaining their doctorate—according to one estimate, only 17% of PhD recipients get tenure-track positions (Larson et al., 2014). Students wish their advisors to be open about this

harsh reality so they can participate in making alternate plans. Another reason may be related to the prevalence of imposter syndrome (the belief that one is not qualified for the position they hold and may be "found out" at any time), particularly among women, African Americans, and others (Clance & Imes, 1978; Cusack et al., 2013; Trotman, 2009). Several participants added that they preferred "brutal" honesty "even when [they] screw up." It may be that the students' desire for honest discussion of their failures is linked to a desire to have an accurate understanding of their abilities and weaknesses, which can be distorted by imposter syndrome.

The Listening/Communication and Empathy categories had the same number of occurrences and included statements such as "willing to listen," clear communication," "emotional intelligence," "able to read the situation," "sensitivity," and "shared experiences." Interestingly, within Listening/Communication there was only one reference to clarity of communication, while the majority of responses in this category referred to willingness and ability to listen. The frequency with which participants listed listening, communication, and empathy as important qualities supports the foundational hypothesis behind this workshop: that a strong mentoring relationship requires good communication based on listening skills and empathy. It is notable that participants mentioned Honesty, Listening/Communication, and Empathy more frequently than other characteristics that are more traditionally considered important in a mentor, such as providing opportunities and resources, motivating the mentee, and providing good advice. This finding further highlights the need for training in communication and emotional awareness, which this workshop was designed to provide.

Diversity and Empathy Discussion

The discussion about diversity in academia was a valuable exercise in practicing empathy and building awareness of challenges facing students and faculty with backgrounds and identities systematically excluded from STEM fields. The participants worked in small groups to create lists of problems regarding diversity in their departments, which yielded noteworthy results. The authors coded the responses in an iterative and open-coding process and organized into three

Table 2

Problems/obstacles to Increasing Diversity in Academic Settings

Obstacle to diversity	Occurrences	Nature of obstacle
Difficult to solve	6	Solution
Lack of communication	5	Solution
Lack of representation	5	Culture
Discrimination	4	Everyday bias
No work-life balance	4	Everyday bias
Clique mentality	3	Culture
Ableism	2	Everyday bias
Ageism	2	Everyday bias
Financial difficulty	2	Culture
Language barrier	2	Culture
Marginalization	2	Everyday bias

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categories of obstacles to diversity (Table 2): (a) "Solutions" includes statements related to the difficulty of solving the diversity problems, (b) "Culture" refers to entrenched, systematic problems in academia, and (d) "Everyday bias" includes issues perpetuated by day-to-day actions, such as denying a mother flexible work hours or deciding not to hire a person of Color. Cultural problems included a current lack of representation, clique mentalities, and financial and language barriers. Everyday bias included discrimination based on factors such as age and ability, marginalization of certain people, and lack of allowances for people dealing with external factors, such as students with families or who have second jobs to pay for their education. The difficulties in solving diversity problems revolved around the planning, time, and financial investments necessary to implement diversity programs, along with a lack of communication between different groups on campus.

Results

Upon completion of the 2019 workshop, we reached out to participants and asked them to fill out a survey on what they learned and might use in their current and future mentoring relationships and what they thought could be improved about the workshop. While the sample size is small, results will help inform further workshops and discussion. The nine respondents (out of twelve workshop participants) gave the workshop an average rating of 4.56 out of 5, with no ratings below a 4. Eight of the nine respondents liked the interactive elements of the workshop, specifically mentioning the role plays and group discussions. The interaction between faculty and students during the workshop was particularly valuable to the participants because it allowed for honest dialogue and empathy between the two groups. Several student participants learned that "faculty have so much on their plate too," "mentoring is a two-way street," and "both mentor and mentee have concerns that may overlap." Many survey respondents also appreciated the diversity and empathy discussions. One respondent gained "eye opening insights regarding the perspectives of others and being open minded," while another learned about "thinking about our privileges, stepping into someone else's shoes and understanding their perspective." When asked what aspects of the workshop they are likely to use in the future, respondents referred to the "Yes, and … " strategy, general listening skills, setting boundaries, and considering the other's perspective in various scenarios.

Limitations

Based on the responses to the survey, we identified several potential issues with our workshop design. One student was uncomfortable describing her best mentor and the qualities of a bad mentor because her faculty advisor was in the room. This further reflects the power dynamics between advisors and students discussed in the workshop, and we will be more mindful of this when posing group discussion questions in the future. Another respondent stated that the "diversity discussion was relevant, but felt very basic." As we tried to keep the workshop format to under three hours, we realized this topic was not given the full attention it deserved. We will continue to refine our discussion of diversity and inclusion in the mentoring workshop, but ultimately this topic may be better served in an additional workshop more focused on diversity rather than mentoring. Another respondent suggested that more role plays would be helpful; this technique has also been shown to be effective in many types of teaching training (Kullman, 1998; McSharry & Jones, 2000). Given their proven benefits and the popularity of the role plays in our workshop, we will certainly take this into account in organizing the next workshop.

Conclusion

Overall, the responses to the survey were encouraging and demonstrated that the majority of participants benefited from the interactive structure, improv exercises, and focus on listening and empathy we built into the workshop. This outcome supports our suggestion that the topics of mentoring and diversity are effectively addressed using an interactive, skills-based training format, rather than a lecture-based format grounded in the knowledge deficit model (National Academies of Sciences, Engineering and Medicine, 2018). The inclusion of both faculty and students was particularly beneficial because it revealed that advisors and students often share similar worries and concerns, thus building empathy between the two groups. Participants also appreciated the three-hour length of the workshop, with several reporting that they remained engaged throughout and one stating explicitly, "I wouldn't make it longer than 3 hours."

Implications for Practice

Based on the follow-up survey, most workshop participants planned to incorporate improv-specific skills developed during the workshop into their existing and future mentoring relationships, including listening, the "Yes, and … " strategy, and striving to have empathy for others and understand different perspectives. The workshop achieved our goal of imparting specific skills that can greatly improve mentoring and supported two of the major goals of the STRIDE program: building effective mentoring structures and increasing inclusion and representation within the program. This workshop has advanced several of the overarching goals of the Stony Brook Diversity Plan: to "support the development of a campus climate that values diversity, equity, and inclusion … " and to "expand educational … efforts to ensure that Stony Brook students have the ability to thrive as members of the campus community" (Stony Brook University Plan for Equity, Inclusion, and Diversity). Additionally, the outcomes of this workshop support the Diversity Initiative from the Office of Diversity and Inclusion at NSF (the funding agency of the STRIDE program), which aims to "cultivate a culture that encourages collaboration, flexibility, and fairness to enable individuals to contribute to their full potential and further retention" (https://www.nsf.gov/od/odi/diversity.jsp).

Future Directions and Applications

We plan to continue to offer this workshop and refine it based on feedback from participants by incorporating more role play and being more sensitive to potential power dynamics that arise with advisors and students doing the same activities. This interactive workshop can be easily replicated or adapted to meet a variety of needs related to improving professor-student interactions, strengthening mentoring relationships, and creating spaces to address issues related to equity, diversity, and inclusion at other academic institutions. The United States is currently undergoing a dramatic awakening and reckoning process with systemic inequalities. Tools such as the workshop presented here are more critical than ever for institutions and leaders who desire to take action and create more inclusive and equitable environments. For example, our framework could be implemented throughout academic institutions as a requirement for graduate students and faculty, given sufficient departmental interest and a trained facilitator in applied improvisation techniques to run the workshops. More broadly, this applied improv workshop model can be expanded to non-academic environments (e.g., medical professions, financial institutions, or tech companies) where strong mentoring is important for career advancement and increasing equity, inclusion, and diversity.

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