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Exploring Mentorship Dynamics: Insights from a Mentor Initial Perceptions

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ABSTRACT

BACKGROUND & CONTEXT

There is a pressing need to amplify the experiences and agency of contingent faculty who often grapple with juggling their work responsibilities and the immense amount of invisible labor (e.g., mentoring) for their students and faculty peers. However, there is little information about how to mentor the mentor, especially for contingent faculty in engineering.

PURPOSE OR GOAL

This work builds upon a funded mentoring hub called the Raíces Institute for Transformative Advocacy (RITA), which aims to train and professionally develop a group of engineering contingent faculty to navigate institutional barriers they face in their working roles, advocate for their employment rights, and effect systemic reforms that recognize and value their contributions. By elucidating the complexities of mentorship relationships, this research contributes to a deeper understanding of effective mentoring practices and underscores the importance of nurturing supportive mentorship ecosystems within academic institutions.

APPROACH OR METHODOLOGY

Purposively selected faculty were provided with a survey instrument asking them about their conceptions and perceptions of mentoring. The survey focused on understanding mentors' perspectives regarding the characteristics, challenges, and aspirations associated with their roles, as well as their perceptions of ideal mentee qualities and the overall benefits of mentorship.

OUTCOMES

Significant challenges encountered in mentoring relationships were identified; strategies employed to overcome these challenges were discussed, highlighting the importance of open communication, empathy, and flexibility in resolving mentor-mentee conflicts.

CONCLUSIONS

The results of this study provide a comprehensive understanding of the dynamics involved in mentor-mentee relationships. Implications are provided on how to develop effective mentoring training programs for academics.

KEYWORDS

Mentoring relationships, mentor-mentee dynamics, mentor's perceptions, contingent engineering faculty.

Introduction

Mentorship is a developmental relationship where an experienced individual guides a less experienced one, which is important for personal and professional growth for both mentees and mentors (Rinfret et al., 2023; Hudson, 2013). Mentorship promotes institutional belonging (Langdon, 2014), thus enhancing faculty career satisfaction (Hernandez et al., 2017). Mentors are pivotal in providing support and coauthoring experiences that help mentees integration into the profession (Klinge, 2015) as it provides support for career development and successful tenure processes (Mendez et al., 2017; Rinfret et al., 2023).

Mentorship has been linked to enhanced career development and satisfaction, including increased job satisfaction, academic productivity, and faculty retention, benefiting faculty at various career stages (Rehman et al., 2022; Zehra et al., 2023; Sarabipour et al., 2023; Rinfret et al., 2023; Langdon, 2014). Thus, emphasizing the importance of effective mentoring relationships and mentor preparation programs to enhance peer faculty support that could potentially result in faculty empowerment and institutional progress. Additionally, mentorship contributes to mentor learning and development, with mentors gaining increased self-worth, satisfaction, and improved learning experiences (Zehra et al., 2023). Mentees gain access to professional networks, guidance in navigating academic careers, and opportunities for collaboration and visibility (Zehra et al., 2023).

Even though the importance of mentorship, academics, especially at research institutions, face challenges in receiving adequate mentorship, with common complaints including variable accessibility and quality of mentorship for faculty, lack of mentor availability, unsatisfactory commitment, maintaining confidentiality, and non-specific advice (Zehra et al., 2023). Challenges could arise from generational differences impacting mentorship perspectives, low valuation of mentorship by senior faculty, and the need for training for faculty mentors to enhance the quality of mentorship programs (Sarabipour et al., 2023). There is a lack of formal mentorship programs and capacity building for academic mentors, leading to challenges in providing effective support (Zehra et al., 2023).

Based on the positive impact mentorship could have the lack of formal mentorship training in academia, we aim to delve into the perceptions of mentorship within a group of mentors, i.e., mentor-the-mentor. This work focused on contingent faculty (e.g., part-time or full-time teaching appointment in a non-tenure track role with renewable contracts) who often grapple with juggling their work responsibilities and the immense amount of invisible labor (e.g., mentoring) for their students and faculty peers. In the U.S. higher education system, professors are typically divided into two broad categories: tenure-track and non-tenure-track (also known as contingent) faculty. Tenure-track faculty members are hired with the potential to earn tenure, a form of long-term academic job security that typically comes with expectations for research, teaching, and service. In contrast, contingent faculty members are those hired on short-term or renewable contracts without the possibility of tenure. These positions usually prioritize teaching over research, with limited job security, institutional support, or opportunities for advancement.

This study focuses specifically on contingent faculty members in engineering because they play an increasingly critical role in undergraduate education, especially in teaching foundational and large-enrollment courses. Despite their growing presence, contingent faculty are often under-recognized. Their employment conditions, access to resources, and professional development opportunities differ significantly from their tenure-track counterparts, which can shape both their teaching practices and their experiences in academic institutions, this is important as they are in charge of forming the majority of engineering students, specially at the foundational level. By examining the perspectives and contributions of this group, the study seeks to highlight structural inequities and identify strategies to better support all faculty involved in engineering education. Due to scant attention paid to the lives and careers of contingent faculty in fields like engineering (Fetcher et al., 2019), this population is severely

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under-studied and under-supported (Coso-Strong et al., 2019; Villanueva Alarcón & Muñoz, 2023).

This work builds upon a National Science Foundation (NSF) funded mentoring hub called the Raíces Institute for Transformative Advocacy (RITA), which aims to train and professionally develop a group of engineering contingent faculty to navigate institutional barriers they face in their working roles, advocate for their employment rights, and effect systemic reforms that recognize and value their contributions. As a small part of the complete project, in this paper, we aim to answer the following research question: How do mentors' previous experiences shape their views on the qualities of effective mentors and mentees, as well as the importance of shared characteristics in mentor-mentee relationships?

Literature Review

Previous research supports the numerous benefits of mentorship programs, including skill enhancement, knowledge acquisition, career advancement, and improved job performance (Klinge, 2015; Voytko et al., 2018; Fountain & K. Newcomer, 2016). Mentoring programs specifically tailored for women faculty have shown high satisfaction levels, unanticipated collaborative outcomes, and significant value for both mentees and mentors (Langdon, 2014). Additionally, mentorship contributes to mentor learning and development, with mentors gaining increased self-worth, satisfaction, and improved learning experiences (Zehra et al., 2023). Overall, mentor-mentee relationships play a crucial role in personal and professional growth, career development, and fostering a supportive environment within academic and professional settings. However, before implementing a mentorship program, it is important to understand the mentorship dynamics and explore the insights from the mentors' initial mentorship perceptions.

Perceived Qualities of Good Mentors and Mentees

Perceived qualities of good mentors have been identified (Sarabipour et al., 2023; Paul R. Hernandez et al., 2017; Schatz-Oppenheimer, 2017; Rehman et al., 2022; Scutelnicu Todoran, 2023; Langdon, 2014). For example, Sarabipour et al. (2023) surveyed faculty members on mentorship challenges and recommendations for improvements. They identified qualities desired in faculty mentors like honesty, trustworthiness, and confidentiality. Hernandez et al. (2017) found that integrity, assertiveness, leadership, flexibility, tolerance, teamwork capabilities, interpersonal skills, motivation abilities, and professional knowledge like identifying difficulties and stages of development are valuable qualities a mentor should have. Mentors should also possess qualities like self-awareness, responsibility, emotional receptivity, self-confidence, and the ability to listen empathetically (Schatz-Oppenheimer, 2017). Effective mentors exhibit professionalism, analytical skills, and the ability to see situations from a broader perspective (Rehman et al., 2022). Additionally, mentors should be able to maintain boundaries, develop reflective skills, and balance theoretical concepts with practical applications (Scutelnicu, 2023). These qualities contribute to successful mentorship by fostering professional growth, career advancement, and personal development in mentees (Langdon, 2014).

Furthermore, as part of the mentor-mentee dynamic, perceived qualities of good mentees have also been identified including personal, interpersonal, and professional attributes. For example, good mentees should exhibit flexibility, self-awareness, emotional receptivity, and assertiveness (Moreau-Johnson et al., 2023). Additionally, they should be empathetic, able to listen, and create a positive atmosphere (Schatz-Oppenheimer, 2017). Good mentees should possess analytical skills and a clear sense of mission (Hernandez et al., 2017).

Characteristics Mentors Believe Mentees Should Have in Common with Them

Perceived similarity between mentors and mentees can be important for a successful mentoring relationship. Mentors believe that mentees should share certain characteristics with them for effective mentoring. Research indicates that mentors value similarities in gender and

race with their mentees, especially in the initial stages of the relationship, as it can enhance role modeling and empathy (Voytko et al., 2018). Additionally, mentors expect mentees to possess qualities like self-confidence, self-efficacy, and the capacity to benefit from mentoring, along with matching along various dimensions such as internal incentives and temperaments (Hernandez et al., 2017). However, it is crucial to note that while mentors value some similarities, they also recognize the importance of diversity in mentorship to cater to the diverse needs of mentees (Schatz-Oppenheimer, 2017).

Formal Mentorship Programs

Faculty mentors emphasized the need for support, for example, some challenges of mentorship included the lack of formal mentoring frameworks (Zehra et al., 2023). They also reported limited evidence on formal faculty mentoring programs in academic institutions. Schatz-Oppenheimer (2017) mentioned that mentor training programs lack systematic structure and formal support. The need for structured and improved mentor training and supportive programs has been also highlighted (Schatz-Oppenheimer, 2017) (Sarabipour et al., 2023). Mentoring relationships are more effective when mentors have been trained for this role (Beutel & Spooner-Lane, 2009).

Fountain and Newcomer (2016) summarized some recommendations for developing and sustaining effective faculty mentoring programs in higher education institutions. They specifically illustrated the need for visible and authentic support from the highest levels of the institution; clearly stated purposes and goals to guide both mentors and mentees in understanding what they should achieve through the mentoring relationship; provide effective and accessible training for mentors to equip them with the necessary skills and knowledge; implement a system of rewards and recognition for mentors; administrative support; design the mentoring program to be inclusive and to instill mentoring as a core institutional responsibility and cultural value; continuous evaluation and improvement; ensure that there are adequate resources; carefully match mentors and mentees based on their needs, interests, and personalities; and recognize the importance of socioemotional, personal, and interpersonal support in mentoring relationships (Fountain & Newcomer, 2016).

Methodology

This work is based on the larger project the Raíces Institute for Transformative Advocacy (RITA), which aims to train and professionally develop a group of engineering contingent faculty to navigate institutional barriers they face in their working roles, advocate for their employment rights, and effect systemic reforms that recognize and value their contributions. In RITA, individual and collective advocacy plans are part of the main streams of the program. Based on this commitment, RITA was designed to include a mentoring structure, intentional professional development activities, and meetings (Villanueva Alarcón et al., 2022) (Villanueva Alarcón et al., 2023).

A supportive ecosystem was created to launch a “mentor-the-mentor” training series for engineering instructional faculty across three US higher education institutions. Accordingly, purposive sampling was used to enrol engineering academics interested in becoming part of the RITA project. The eight faculty members who joined the project received formal training in mentorship. After completing the training sessions, these faculty members will mentor contingent engineering faculty.

The first professional development session was held in spring 2024. Before this session, faculty members were provided with a pre-survey instrument to gather their conceptions and perceptions of mentoring. The survey focused on understanding mentors' perspectives regarding the characteristics, challenges, and aspirations associated with their roles, as well as their perceptions of ideal mentee qualities and the overall benefits of mentorship. The survey was administered online using Microsoft Forms. All eight academics filled out the survey questions were directly related to various aspects considered important for effective mentorship. Data were analysed using Microsoft Excel to compile descriptive statistics.

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Similarly, the survey had open-ended questions. These responses were used to extract textual quotes to reinforce some of the points presented in this study.

The survey illuminated various aspects considered crucial for effective mentorship. Even though important aspects of effective mentorship have been described in the literature, the purpose of RITA regarding the creation of a mentorship community makes it essential to know and involve the participants in the project. Thus, understanding their perceptions is crucial for planning future training sessions, ensuring they are tailored to address the specific needs and expectations of the mentors, and fostering a more supportive and effective mentorship environment.

Limitations

The data presented in this work come from the specific personal and professional experiences of faculty members who are willing to become part of the RITA project. Thus, we acknowledge that the generalizability of our results is not our primary goal. Instead, we aim to create a supportive ecosystem to help contingent faculty navigate institutional barriers in their roles, advocate for their employment rights, and effect systemic reforms that recognize and value their contributions.

Results

In this section, results are presented starting with previous experiences and challenges in previous mentor roles, some descriptions of important benefits coming out from a mentor-mentee relationship are also presented, then the perceived qualities of good mentors and mentees are listed, and finally, important characteristics mentors believe mentees should have in common with them.

Experiences and Challenges in Previous Mentor Roles

From the survey responses, four of the academics (i.e., 50%) had previously participated in mentorship programs. These mentors shared numerous positive experiences and joys from their prior roles. For example, witnessing the growth and development of their mentees brought a deep sense of fulfillment and satisfaction. Positive feedback from mentees further reinforced the value of their efforts, creating a mutually rewarding dynamic. Mentors also highlighted the joy of celebrating each other's successes, which strengthened their bonds and fostered a supportive and encouraging environment. Additionally, the positive impact they were able to make on their mentees' personal and professional lives was a source of great pride and motivation for the mentors, underscoring the profound and lasting benefits of effective mentorship.

Despite the rewarding aspects of mentorship, mentors also faced significant challenges in their previous mentor-mentee relationships. One reported difficulty was supporting mentees going through rough patches in their personal lives, including relationship issues and family struggles, which often required additional emotional support and understanding. Finding mutually convenient times to meet posed another challenge, as both mentors and mentees juggled busy schedules, making regular interactions difficult. Generational gaps sometimes led to differences in perspectives and communication styles, creating potential misunderstandings or disconnects. For example, a mentor said, “I had to adjust some of my perspectives and life vision, aiming to think like the mentee”. Additionally, conflicts of interest occasionally arose, complicating the mentoring process and requiring careful navigation to maintain a productive and positive relationship. These challenges highlighted the complex and multifaceted nature of effective mentorship.

Important Benefits Coming Out From a Mentor-Mentee Relationship

Regarding the benefits derived from the mentorship relationship, we asked participants to indicate the importance of personal, professional, and institutional benefits of being a mentor.

Mentors highly valued personal benefits, with seven participants rating them as very important. In contrast, only three participants rated professional and institutional benefits as very important (see Figure 1). Accordingly, from these results, we can infer that personal benefits are likely the primary motivation for mentors to engage in mentorship programs.

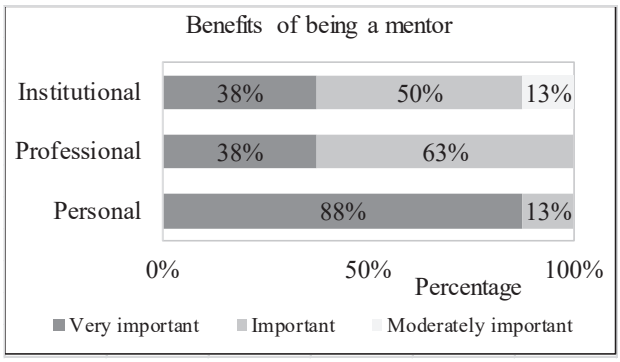


Figure 1: Personal, professional, and institutional benefits of being a mentor (n=8).

In this section, is important to highlight what participants mentioned about the expected personal benefits from the RITA program. This information could also potentially help in planning effective training sessions that meet participants' expectations. Aspects like providing better mentoring support, effective mentorship, managing cultural differences, and building trust were mentioned by the participants as important personal areas of future improvement. For example, one participant said, “I hope I can build skills to help provide better mentoring support for new faculty”, thus giving better guidance to colleagues and “to become a more effective mentor”. Managing cultural differences was also an area of expected improvement from the program, participants said, “a better approach to cultural differences”. This area is associated with building trust to improve communication, to illustrate, “Often, I find that people are reluctant to share things that are bothering them or not going well (especially if they come from a different cultural background than me, and I'd like to learn how to help bring those to the surface in a supportive way for a diverse range of mentees' backgrounds”. It seems that understanding and being mindful of mentor-mentee cultural differences could result in more effective mentorship relationships.

Perceived Qualities of Good Mentors and Mentees

Several essential qualities of a good mentor were identified by the participants' mentors in the RITA program. Recall that these are the perceptions they have before the beginning of the formal mentor training. Effective mentors should be empathetic and supportive, creating a nurturing environment for mentees. They are receptive and available, ensuring they can provide timely guidance and assistance. Patience and good communication skills are crucial, allowing mentors to listen actively and convey their advice clearly. A willingness to share experience and expertise, coupled with being non-judgmental, realistic, and honest, fosters an atmosphere of trust and openness. Additionally, mentors must be trustworthy and demonstrate a sincere commitment to their mentees' prosperity, prioritizing their growth and success with genuine dedication. These qualities collectively contribute to a mentor's ability to guide and support mentees effectively.

On the other hand, participants’ mentors also highlighted several key qualities that they perceive as important for a good mentee. Effective mentees are comfortable reaching out and open to exchanging ideas, goals, and struggles, facilitating open communication with their mentors. They exhibit a willingness to break out of their comfort zones, showing readiness to tackle new challenges. Reflective and open to change, mentees should be humble and motivated, eager to learn and grow from their experiences. They must be receptive to feedback, valuing constructive criticism as a tool for personal and professional development. These qualities enable mentees to maximize the benefits of their mentoring relationships and achieve their full potential.

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Building on these expectations, it is important to prepare mentors to handle situations where mentees may not meet the anticipated qualities. Conversely, the training should provide tools to help future mentors guide their mentees toward a fruitful relationship. This involves shifting the focus from expected qualities and potential deficiencies to recognizing the mentee's background and experiences as the starting point.

Characteristics Mentors Believe Mentees Should Have in Common With Them

Understanding the characteristics mentors believe mentees should share with them is crucial for fostering effective mentorship relationships. To explore this, we asked mentors to rate the importance of various characteristics, including interests, priorities, values, attitudes, personal traits, skills and talents, race, ethnicity, age, and gender. These ratings provide insight into the aspects mentors consider essential for establishing rapport, trust, and mutual understanding with their mentees. The results reveal the mentors' perspectives on the commonalities that contribute to successful and impactful mentoring experiences (Figure 2).

From figure 2, we can observe that characteristics such as interests, priorities, and values were highly rated as very important, important, or moderately important by most mentor participants. Specifically, over 70% of participants believe it is important to share these three characteristics, such as an interest in teaching. Additionally, it is estimated that attitudes, personal traits, skills, and talents were rated as very important or important by 50% of the participants, with examples including open-minded attitudes and personal traits that favor flexibility. Finally, more than 50% of the participants rated race, ethnicity, age, and gender as not important.

To better match mentors and mentees within the RITA program, knowing this preferences will guide such matching process. But most interesting is associating the rate given to race and ethnicity, i.e., 57% of the participant rated them as not important. However, as explained in the previous section, aspects like managing cultural differences and building trust were mentioned by the participants as important personal areas for future improvement. Thus, even though the participants' mentor did not see the importance of race and ethnicity, learning how to manage and better approach cultural differences is an area of interest for growth that could result in more effective mentorship, as one participant said that they would like to learn how to help the mentee to open and discuss different issues or concerns to support the diverse range of mentees' backgrounds. Also, other participant mentioned their interest in becoming "more culturally-responsive".

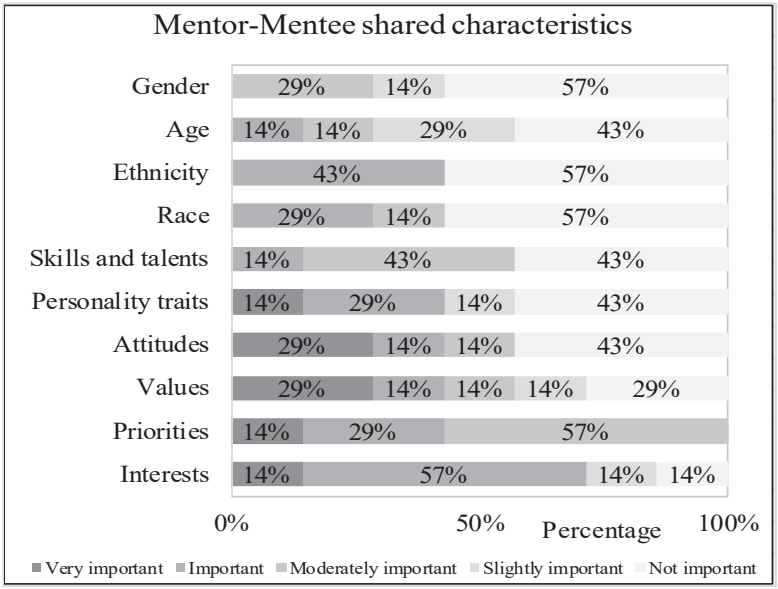


Figure 2: Characteristics mentors believe mentees should have in common with them (n=8)

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To better match mentors and mentees within the RITA program, knowing these preferences will guide the matching process. Most interesting is the association with the ratings given to race and ethnicity, with 57% of participants rating them as not important. However, as explained previously, aspects like managing cultural differences and building trust were mentioned by participants as important personal areas for future improvement. Thus, even though mentors did not see race and ethnicity as important, learning how to manage and better approach cultural differences is an area of interest for growth that could result in more effective mentorship. As one participant said, they would like to learn how to help the mentee “open up and discuss different issues or concerns to support the diverse range of mentees' backgrounds.” Another participant expressed their interest in becoming “more culturally responsive.”

Another important aspect taken from Figure 2 is that 72% of participants rated age as not important or slightly important. However, age or generational gaps were mentioned as a challenge experienced by one of the participants. Generational differences could potentially lead to differences in perspectives and communication styles, generating misunderstandings or disconnections between the mentor and the mentee. Thus, special attention must be given when there are generational differences in the relationship.

Discussion: Initial Perceptions of a Mentor-Mentee Relationship

The results of this study provide a comprehensive understanding of the dynamics involved in mentor-mentee relationships, highlighting different aspects of this relationship and guiding the future training program within the RITA mentorship program.

Experiences and Challenges in Previous Mentor Roles

Participants in the RITA program reported significant fulfillment from witnessing mentee growth, receiving positive feedback, and celebrating mutual successes. These positive experiences underscore the value of mentorship in fostering a supportive and encouraging environment. It is important to highlight the importance of positive feedback from mentees to mentors for higher satisfaction within a mentorship program (Voytko et al., 2018).

However, mentors also faced challenges, including supporting mentees through personal struggles, managing time constraints, and navigating generational gaps and conflicts of interest. These challenges highlight the need for mentors to develop strong communication skills, empathy, and flexibility to maintain effective and productive relationships. Issues such as variable accessibility and lack of mentor availability have also been reported (Zehra et al., 2023). Additionally, generational differences were also reported as a factor impacting the quality of the mentorship relation (Sarabipour et al., 2023).

Recognizing and understanding previous experiences and challenges is crucial, as they can shape mentors’ perceptions of the qualities of good mentors and mentees. Additionally, these experiences can influence mentors’ views on the important characteristics mentees should share with them. By starting with these valuable insights and incorporating mentors’ perceptions, specific training sessions can be developed to enhance future mentor-mentee relationships.

Important Benefits Coming Out From a Mentor-Mentee Relationship

Notably, personal benefits emerged as the primary motivation for mentors' participation in mentorship activities. Participants highlighted several key areas for personal growth, including providing better mentoring support, enhancing the effectiveness of their mentorship, managing cultural differences, and building trust. Mentors agreed with the benefit of establishing personal relationships which results in a positive impact on someone's life. Research also found that many mentors reported a heightened sense of self-worth from their mentoring roles, as they feel they are making a significant contribution to the development of new professionals; mentoring can positively influence mentors' personal and professional qualities (Langdon, 2014).

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In contrast, professional and institutional benefits were considered less important. This emphasis on personal growth underscores the intrinsic value mentors place on their role in fostering meaningful and supportive relationships with their mentees. However, research has reported that professional benefits are also recognized by mentors. Mentors often experience significant professional growth (Langdon, 2014). Mentoring is useful for mentors' career development and scholarly productivity (Fountain & K. Newcomer, 2016). For example, mentors in this study mentioned that professional benefits include co-working on work-related activities such as research, proposals, papers, etc. and they emphasized that mentorship training can help mentors develop professional skills.

Perceived Qualities of Good Mentors and Mentees

Regarding the perceived qualities of good mentors and mentees, mentors emphasized the importance of being empathetic, supportive, and available, coupled with strong communication skills and a commitment to their mentees' prosperity. These qualities are essential for creating a nurturing and trustworthy environment. Initial perceptions are important because they can significantly impact mentor-mentee relationships. Even though these qualities align with previous research, mentors should be aware of other important qualities that could potentially contribute to a more efficient mentor-mentee relationship. For example, qualities like honesty, trustworthiness, and confidentiality (Sarabipour et al., 2023); integrity, assertiveness, leadership, flexibility, tolerance, teamwork capabilities, interpersonal skills, motivation abilities, and professional knowledge (Hernandez et al., 2017); self-awareness, responsibility, emotional receptivity, self-confidence, and the ability to listen empathetically (Schatz-Oppenheimer, 2017); should exhibit professionalism, analytical skills, and the ability to see situations from a broader perspective (Rehman et al., 2022). Additionally, mentors should be able to maintain boundaries, develop reflective skills, and balance theoretical concepts with practical applications (Scutelnicu, 2023).

On the other hand, effective mentees were seen as open to communication, willing to step out of their comfort zones, and receptive to feedback. These attributes enable mentees to fully benefit from the mentorship experience. To bridge any gaps between expectations and reality, it is crucial to prepare mentors to handle situations where mentees may not exhibit these anticipated qualities. Again, these qualities align with identified qualities like flexibility, self-awareness, emotional receptivity, and assertiveness (Moreau-Johnson et al., 2023); mentees should be empathetic, able to listen, and create a positive atmosphere (Schatz-Oppenheimer, 2017). It is important to mention that less research has been done on mentors' expected or perceived qualities regarding their mentees. However, in a mentor-mentee relationship, we expect the mentor to lead and guide the relationship to ensure a satisfactory outcome.

Mentees seek sponsorship for career growth, while mentors often focus on sharing career advice rather than empowering mentees through reflection and decision-making (Mendez et al., 2017). Establishing clear expectations, providing actionable guidance, and fostering open communication from the outset is essential for building strong and beneficial mentor-mentee relationships in engineering education (Hernandez et al., 2017). Due to the complex role mentors are expected to perform, it is crucial to establish formal training programs for mentors to better prepare them for the role. To illustrate, it has been shown that Mentor training programs lack systematic structure and formal support (Schatz-Oppenheimer, 2017). Additionally, some identified challenges in mentorship arise from the need for training for faculty mentors to enhance the quality of mentorship programs (Sarabipour et al., 2023). Junior faculty value mentoring, and prefer formal processes (Karen B. Etzkorn & A. Braddock, 2020). Mentoring relationships are effective when mentors are trained for roles, mentors should assist beginning teachers through dialogue and reflection (Beutel & Spooner-Lane, 2009). Thus, we identified the present need for structured mentor training programs.

Furthermore, it is crucial to recognize and value the diverse backgrounds and experiences of mentees as the foundation for a fruitful mentoring relationship. We want to highlight the need to shift the focus from expected qualities and potential deficiencies to recognizing the mentee's

background and experiences as the starting point. Thus, transitioning the deficit discourse to one of acknowledging and valuing the diverse perspectives and strengths that each mentee brings. By doing so, mentors can foster a more efficient and supportive mentoring environment that encourages growth and development for both parties.

Characteristics Mentors Believe Mentees Should Have in Common With Them

The study also delves into the characteristics mentors believe mentees should share with them. Interests, priorities, and values were rated as highly important, suggesting that commonalities in these areas are key to establishing rapport and mutual understanding. Interestingly, characteristics such as race, ethnicity, age, and gender were rated as less important. Despite this, managing cultural differences and building trust were identified as areas for personal improvement, indicating a recognition of the complexities involved in cross-cultural mentorship. Understanding and addressing these cultural dynamics are crucial for enhancing the effectiveness of mentorship relationships highlighting the ongoing need for training in cultural competency.

Previous research also found that the gender of the mentor does not seem to significantly affect the mentees' experiences, emphasizing the importance of having supportive colleagues regardless of gender, who can serve as role models and advocates for underrepresented minorities (Moreau-Johnson et al., 2023). Besides, no cultural or generational gaps were identified as critical, but shared academic interests facilitate relationships (Mendez et al., 2017).

In conclusion, the insights gained from this study underscore the multifaceted nature of mentorship and the importance of tailored training programs to address the specific needs of mentors and mentees. By focusing on empathy, communication, and cultural responsiveness, the RITA program can enhance the overall effectiveness of mentorship, ultimately contributing to the professional and personal growth of both mentors and mentees in the engineering academia. Specifically, creating a mentorship program that supports engineering contingent faculty to navigate institutional barriers in their roles, advocate for their employment rights, and effect systemic reforms that recognize and value their contributions.

References

Beutel, D. & Spooner-Lane, R. (2009). Building mentoring capacities in experienced teachers. https://doi.org/10.18848/1447-9494/CGP/V16I04/46209

Creswell, J. W. (2012). Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed). Pearson.

Coso-Strong, A., Kendall, M. R., Henderson, G., & Basalo, I. (2019). Impact of Faculty Development Workshops on Instructional Faculty at Hispanic-serving Institutions. ASEE Annual Conference & Exposition.

Etzkorn, K. B. & Braddock, A. (2020). Are you my mentor? A study of faculty mentoring relationships in US higher education and the implications for tenure. International Journal of Mentoring and Coaching in Education, 9, 221–237. https://doi.org/10.1108/ijmce-08-2019-0083

Fetcher, N., Lam, M. E., Cid, C. R., & Mourad, T. (2019). Contingent faculty in ecology and STEM: an uneven landscape of challenges for higher education. Ecosphere, 10(12), e02964. https://doi.org/10.1002/ecs2.2964

Fountain, J. & Newcomer, K. (2016). Developing and Sustaining Effective Faculty Mentoring Programs. Journal of Public Affairs Education, 22, 483–506. https://doi.org/10.1080/15236803.2016.12002262

Hernandez, P. R., Estrada, M., Woodcock, A. & Schultz, P. (2017). Mentor qualities that matter: The importance of perceived (not demographic) similarity. Journal of Experimental Education, 85 3, 450–468. https://doi.org/10.1080/00220973.2016.1246405

Hudson, P. (2013). Mentoring as professional development: ‘Growth for both’ mentor and mentee. Professional Development in Education, 39, 771–783. https://doi.org/10.1080/19415257.2012.749415

Klinge, C. (2015). A Conceptual Framework for Mentoring in a Learning Organization. Adult Learning, 26, 160–166. https://doi.org/10.1177/1045159515594154

https://doi.org/10.52202/086293-0069

Langdon, F. (2014). Evidence of mentor learning and development: An analysis of New Zealand mentor/mentee professional conversations. Professional Development in Education, 40, 36–55. https://doi.org/10.1080/19415257.2013.833131
Mendez, S., Conley, V., Keith, R., Haynes, C. & Gerhardt R. (2017). Mentorship in the engineering professoriate: Exploring the role of social cognitive career theory. International Journal of Mentoring and Coaching in Education, 6, 302–316. https://doi.org/10.1108/IJMCE-12-2016-0077
Moreau-Johnson, F. Quirion, J. & Giles, A. (2023). Mentoring faculty: Impact, dyads vs. Groups, and gender. Mentoring & Tutoring: Partnership in Learning, 31, 532–551. https://doi.org/10.1080/13611267.2023.2225394
Murzi, H. (2020). Culturally Relevant Pedagogy. Virtual Summer Workshops.
Rehman, R., Khan, F., Kayani, N. & Ali, T. (2022). Reflection of mentors and mentees at initiation of Faculty Mentorship Program at Aga Khan University: A perspective. Pakistan Journal of Medical Sciences, 38, 1691–1695. https://doi.org/10.12669/pjms.38.6.5454
Rinfret, S., Young, S. & McDonald, B. D. (2023). The importance of mentorship in higher education: An introduction to the symposium. Journal of Public Affairs Education, 29, 398–403. https://doi.org/10.1080/15236803.2023.2260947
Sarabipour, S., Niemi, N. M., Burgess, S., Smith, C. T., Bisson Filho, A. W., Ibrahim, A., & Clark, K. (2023). The faculty-to-faculty mentorship experience: A survey on challenges and recommendations for improvements. Proceedings of the Royal Society B: Biological Sciences, 290. https://doi.org/10.1098/rspb.2023.0983
Schatz-Oppenheimer, O. (2017). Being a mentor: Novice teachers' mentors' conceptions of mentoring prior to training. Professional Development in Education, 43, 274–292. https://doi.org/10.1080/19415257.2016.1152591
Scutelnicu, G. T. (2023). The contribution of formal and informal mentorship to faculty productivity: Views of faculty in public affairs programs. Journal of Public Affairs Education, 29, 404–420. https://doi.org/10.1080/15236803.2023.2220096
Villanueva Alarcón, I., Di Stefano, M., Gelles, L., & Youmans, K. (2018). Hidden Curriculum Awareness: A Comparison of Engineering Faculty, Graduate Students, and Undergraduates. World Education Engineering Forum, Albuquerque, NM.
Villanueva Alarcón, I., & Muñoz, J. (2023). Exploring the Hidden Realities of Latinx Contingent Faculty in STEM. Journal of Education and Latinos, 1–9. https://doi.org/10.1080/15348431.2023.2175683
Villanueva Alarcón, I., Murzi, H., & Martinez-Cola, M. (2022). Inclusive Mentoring Hub: Raices Institute for Transformative Advocacy (RITA). BPE Track 3. Search: Award # 2217477 - BPE Track 3 Inclusive Mentoring Hub: Raices Institute for Transformative Advocacy (RITA)
Villanueva Alarcón, I., Murzi, H., & Martinez-Cola, M. (2023). Work-in-Progress: Towards Advancing Grassroots Transformative Advocacy Strategies for Work Justice of BIPOC Contingent Faculty. 2023 ASEE Annual Conference & Exposition Proceedings, 44429. https://doi.org/10.18260/1-2--44429
Voytko, M., Barrett, N., Courtney-Smith, D., Golden, S., Hsu, F., Knovich, M. A. & Crandall, S. (2018). Positive Value of a Women's Junior Faculty Mentoring Program: A Mentor-Mentee Analysis. Journal of Women's Health, 27 8, 1045–1053. https://doi.org/10.1089/jwh.2017.6661
Zehra, T., Tariq, M., Rehman, R., & Zuberi, R. (2023). Basics of faculty-to-faculty mentoring: A process to identify support and challenges. PLOS ONE, 18. https://doi.org/10.1371/journal.pone.0287127

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