

An Exploration and Evaluation of the Quad Mentorship Model for Faculty

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Abstract

This evidence-based practice paper details the prior work, design, implementation, and assessment of the quad mentorship model as a faculty development strategy aimed at promoting connection, inclusion, and mutual learning among new and continuing faculty within the College of Engineering at California Polytechnic State University in San Luis Obispo. Mentorship is an essential aspect of supporting professional development, fostering inclusion, and strengthening workplace culture in higher education. A common approach to faculty mentorship is known as the dyad model, in which one newer faculty member is paired with one more senior faculty member. To enhance faculty success and workplace culture, we implemented a less common approach to mentorship: a four-person “quad” mentorship model, in which a new faculty member was grouped with three other faculty members in the College.

We outline the program structure, the process of quad formation, relevant activities, institutional support, and recommendations for future implementations. Data collection included both qualitative and quantitative methods, including surveys and interviews from a subset of the 66 faculty participants. These assessments were used to understand how the mentorship model worked in practice and to identify key areas for improvement. Results show that participants rated their quads highly on approachability and professional integrity, while slightly lower ratings were reported for resource-sharing and encouraging risk-taking. Open-ended responses suggested that meeting frequency was a common challenge that impacted opportunities for deeper mentor engagement. Our analysis explores themes such as the value of relationships, the helpfulness of mentor-mentee interactions, and comparisons to more common mentorship structures (e.g., dyads or triads).

Based on our experience and findings, we share recommendations for institutions seeking to establish or refine faculty mentorship programs in engineering education in order to foster belonging, improve professional outcomes, and support diverse faculty advancement.

Background

Mentoring as an Equity-Minded Faculty Development Practice

Mentoring has long been recognized as a cornerstone of faculty development, supporting professional growth, productivity, career advancement, and retention. Extensive research demonstrates that mentoring contributes positively to faculty satisfaction, leadership development, and long-term success, particularly for early- and mid-career faculty [1]. However, scholars increasingly emphasize that mentoring is not experienced equitably across faculty populations. Women and faculty from historically underrepresented groups in engineering and STEM often encounter structural and cultural barriers that limit access to effective mentoring, slow career progression, and contribute to attrition [2], [3].

Traditional mentoring approaches, often informal, unstructured, or reliant on personal networks, frequently reproduce existing inequities. Research on faculty advancement highlights that “organic” mentoring is unevenly distributed and tends to favor those who already resemble dominant norms within academia, leaving others without access to critical guidance, advocacy, or institutional knowledge [4], [5]. For underrepresented minority (URM) faculty, these gaps are

compounded by experiences of isolation, disproportionate service loads, and limited inclusion in influential professional networks [6], [7].

Equity-minded mentoring frameworks respond to these challenges by calling for intentional, reflective, and culturally-aware mentoring practices. Griffin argues that mentoring should move beyond deficit-based perspectives and instead recognize the assets, strengths, and diverse career goals of mentees [8]. A related concern in the literature is *psychological cloning*, whereby mentors unconsciously favor mentees who mirror their own identities, values, or trajectories, reinforcing homogeneity within academic leadership and limiting the advancement of diverse faculty [8]. Equity-minded mentoring explicitly challenges this tendency by valuing difference, supporting multiple definitions of success, and attending to power and positionality within mentoring relationships.

Mentoring, Networks, and Faculty Advancement

A recurring theme in mentoring and faculty development literature is the central role of networks. Studies show that strong, diverse professional networks are associated with increased research productivity, collaboration, and career advancement, while limited or homogeneous networks can constrain access to resources and opportunities [9], [10]. Research synthesized in the NSF ADVANCE KIND project [14] similarly emphasizes that women and URM engineering faculty often have smaller and less diverse instrumental networks, which can negatively impact publication outcomes, grant success, and leadership trajectories.

Mentoring is a key mechanism through which networks are built and sustained. Barabino et al. [11] argue that mentoring, when embedded within supportive communities and networks, amplifies innovation, productivity, and impact in STEM fields. Cross-disciplinary and cross-unit mentoring relationships have been shown to help faculty navigate institutional complexity, identify collaborators, and develop a stronger sense of belonging [12], [13]. These findings reinforce the importance of mentoring models that move beyond isolated dyads and intentionally cultivate broader professional connections.

Insights from the NSF ADVANCE KIND project [14] further underscore mentoring's role as part of a larger ecosystem of faculty support. Within KIND, mentoring was implemented alongside research alliances, institutional change efforts, and data transparency initiatives, reflecting a recognition that mentoring is most effective when integrated with broader organizational strategies. While the quad mentorship model described in this paper operates at the college level, it is informed by this broader understanding of mentoring as both a relational and structural intervention.

Institutional Context and Need for a College-Level Mentoring Program

Within the College of Engineering at Cal Poly, mentoring practices prior to this initiative varied substantially across departments. Some units relied on informal mentoring cultures, others implemented formal dyadic assignments, and some offered no structured mentoring beyond institution-wide orientation or tenure workshops. Similar variability has been documented across institutions nationally, with research suggesting that inconsistent mentoring structures contribute to inequitable faculty experiences and outcomes [2].

Informal mentoring models often depend on individual initiative, social capital, and departmental culture, which can disadvantage faculty who are new to academia, unfamiliar with institutional norms, or navigating marginalization [6]. Dyadic mentoring programs, while common, may

concentrate authority and influence in a single relationship and can amplify power differentials—particularly when mentors are involved in reappointment, promotion, and tenure (RPT) processes [4].

These concerns motivated the development of a uniform, college-level mentoring program that could complement departmental efforts while promoting equity, consistency, and shared responsibility for faculty development. Lessons from the KIND project, particularly the value of structured mentoring interactions and intentional network-building, reinforced the importance of moving beyond ad hoc approaches toward a more deliberate mentoring design.

Mentoring Structures in the Literature

The mentoring literature describes several common structural models: dyadic, peer, and many-to-many mentoring, each with distinct strengths and limitations.

Dyadic mentoring, pairing a junior faculty member with a senior mentor, offers individualized guidance and role modeling [1]. However, dyads place heavy reliance on a single relationship and may be vulnerable to mismatch, power imbalances, or limited perspective.

Peer mentoring emphasizes reciprocal support and shared learning among faculty at similar career stages. However, peer-only models may lack access to institutional knowledge, sponsorship, or strategic insight into advancement processes.

Many-to-many or networked mentoring approaches reflect growing recognition that no single mentor can meet all developmental needs. Networked mentoring has been associated with broader access to resources, increased resilience, and improved career outcomes, especially for women and URM faculty [9], [2]. Despite these advantages, networked models require intentional design and coordination to avoid diffusion of responsibility or uneven engagement.

Rationale for the Quad Mentorship Model

The quad mentorship model was selected as a hybrid structure designed to integrate the strengths of dyadic, peer, and networked mentoring while addressing their limitations. Each quad consists of four faculty members engaged in shared mentoring relationships within a small, intentional group.

This structure aligns with evidence showing that access to multiple mentoring relationships reduces dependence on any single individual and mitigates risks associated with power differentials and psychological cloning [8], [1]. By situating mentoring within a small group, the model supports reciprocal and multi-directional learning, where all participants both offer and receive guidance based on their experiences, expertise, and career stage. Such an approach encourages peer support, collective sense-making, and exposure to diverse perspectives, regardless of formal role or rank. Research on collaborative, cross-disciplinary, and networked mentoring indicates that group-based models promote flexibility, inclusivity, and professional network expansion, while also increasing resilience when individual availability or needs change [11], [12].

By intentionally including members from outside a mentee's home department, the quad model also supports cross-unit connections and exposure to diverse institutional perspectives, outcomes

consistently associated with stronger faculty networks and advancement, particularly for URM faculty [9], [13].

Alignment with Best Practices and Mentoring Resources

The design of the quad mentorship model draws on best practices articulated by the Center for the Improvement of Mentored Experiences in Research (CIMER) [15] and related scholarship, including formalizing expectations, clarifying roles, guiding reflective conversations, and assessing mentoring relationships over time. These practices are widely recognized as essential for effective, sustainable mentoring programs [1].

Taken together, the quad mentorship model represents an intentional, equity-minded approach to faculty mentoring grounded in the literature on mentoring, networks, and institutional change. By combining structure with flexibility and emphasizing shared responsibility and mutual learning, the model seeks to foster belonging, support diverse faculty advancement, and strengthen organizational culture.

Outline of the Practice

Formation of Quad Mentorship Groups

We formed quad mentorship groups through an intentional and structured process designed to balance faculty experience, promote diverse perspectives, and support meaningful professional development. Each quad included at least one newly hired tenure-track faculty member, at least one more recently hired tenure-track faculty member, and at least one more experienced, tenured faculty member. We grounded this approach in mentoring literature that emphasizes the value of access to varied career-stage perspectives and the importance of distributing mentoring roles across a network rather than concentrating guidance within a single hierarchical relationship. By intentionally including faculty at different stages of their academic careers, we sought to facilitate reciprocal mentoring, shared learning, and exposure to both recent and long-term institutional knowledge.

In addition to career stage diversity, we prioritized cross-departmental representation during group formation, with the goal that each quad included at least one faculty member from outside the new tenure-track faculty member's home department. We made this design choice to expand professional networks, reduce reliance on department-specific norms, and create space for candid discussion beyond local evaluative structures. The scholarly interests of the new tenure-track faculty member were also considered when recruiting and matching participants, with the aim of supporting intellectual alignment and increasing the likelihood of productive conversations related to research, teaching, and professional identity. In total, we formed 15 quad groups (total of 60 participating tenure/tenure-track faculty), consisting exclusively of tenure-track and tenured faculty.

Teaching faculty at Cal Poly is composed of tenure-track faculty, tenured faculty, and lecturers; there are no postdoctoral researchers or PhD students. Recognizing the value of inclusive mentoring networks, we invited lecturers to participate in the program as well. Six lecturers opted in, and to support their participation while maintaining cohesion, we formed a single six-member group (sextet). Although this group differed in size from the quad structure, it operated under the same guiding principles of reciprocal mentoring, shared learning, and mutual support. Collectively, these formation strategies reflect our deliberate effort to balance structure with

flexibility, ensuring that mentoring relationships remain responsive to faculty needs while grounded in equity-minded and network-based mentoring practices.

Quad Mentorship Program Kickoff and Ongoing Engagement

We launched the quad mentorship program with a Fall quarter kickoff event designed to establish shared expectations, introduce guiding principles, and create early momentum for relationship-building. During this event, we presented the rationale for the quad mentorship model and discussed its anticipated benefits, including reciprocal learning, network expansion, and support across career stages. Participants received handouts with mentoring guidelines (Appendix A) and suggested quad activities (Appendix B), which outlined equity-minded mentoring principles, examples of discussion topics, and optional structures for quad meetings. These resources were intended to provide scaffolding without prescribing rigid interactions, allowing quads to adapt the model to their interests and needs.

As part of the kickoff, participants engaged in a faculty development workshop grounded in a critical mentoring framework [16], which framed mentoring as a collaborative process aimed at joint growth and transformation rather than one-directional advice-giving. The workshop included a facilitated discussion on “academic secret menus” – the often-unspoken knowledge related to navigating institutional systems, accessing funding opportunities, and identifying professional resources. Faculty were encouraged to surface and share this tacit knowledge within their quads, reinforcing transparency and collective access to opportunities that are frequently unevenly distributed.

Following the kickoff event, we encouraged quads to meet two to three times per quarter in relaxed, social settings, with flexibility to determine meeting formats and topics based on shared interests. To support participation and reduce barriers to engagement, the College offered up to \$500 per quad in reimbursable funds to offset the cost of meals during meetings. This institutional support signaled the value placed on mentoring and helped normalize relationship-building as a legitimate component of faculty work. The amount proved sufficient, as many quads did not use the funds, and most used only a portion.

In addition to individual quad meetings, we invited all participants to attend additional all-quad gatherings during the Winter and Spring quarters, each embedded within established faculty development workshops focused on instructional effectiveness. The Winter quarter gathering was incorporated into a session from the National Effective Teaching Institute (NETI), which emphasized evidence-based teaching practices, inclusive instructional strategies, and reflective teaching development. The Spring quarter gathering was embedded within a workshop offered by the College’s Center for Learning, Teaching, and Technology (CTLT) that focused on navigating challenging conversations in the classroom, including strategies for facilitating difficult discussions, responding to conflict, and supporting student learning in complex or sensitive situations. Together, these workshops provided participants with opportunities to develop as instructors while also reinforcing the value of shared learning within the mentoring community.

By embedding the all-quad gatherings within these faculty development events, we intentionally connected mentoring with teaching-focused professional growth. These settings created structured opportunities for quads to reflect on instructional challenges, share strategies across disciplines and career stages, and extend mentoring conversations into pedagogical contexts. The combination of mentoring interactions and targeted faculty development workshops supported

the dual goals of strengthening mentoring relationships and enhancing participants' capacity as effective, reflective instructors.

TABLE I
ALL-QUAD OPTIONAL FACULTY DEVELOPMENT WORKSHOPS

Term	Workshop Topic	Duration	Attendance
Fall 2024	Different Approaches to Mentoring and the Academic Secret Menu	2 hours (with lunch)	31*
Winter 2025	NETI – National Effective Teaching Institute	2 days (AM and PM sessions both days)	45**
Spring 2025	Best Practices for Navigating Challenging Conversations	2 hours (with lunch)	25*

*Out of 66 total quad mentoring participants

**The NETI Workshop was offered to the whole college. Of the 45 participants, 21 were from the quads.

Assessment Methods

Data about the use of the quad mentorship model were gathered through surveys and semi-structured interviews, both of which were reviewed and approved by the Institutional Review Board (IRB) at Cal Poly. The surveys were administered through an email invitation to an online survey in Microsoft Forms. This invitation was sent to all 66 people who participated in the quad model.

The survey asked participants to indicate their level of agreement with a variety of statements on a 4-point Likert scale (Disagree, Slightly disagree, Slightly agree, Agree). Example statements included, “My mentorship group was supportive and encouraging” and “I am likely to keep in touch with someone in my mentorship group.” This survey, which can be found in Appendix C, was kept intentionally brief to elicit a high response rate; it included only two open-ended questions.

To gain a more in-depth qualitative analysis, four interviews were conducted with participants of the quad mentorship model. Interview participants were recruited on a volunteer basis. Each interview lasted approximately 30 minutes and was conducted on Zoom to ease the transcription process. In these interviews, our interviewer asked questions about the interviewee's relationship with each member of their group and invited them to compare this experience with any previous experiences with other mentorship models, like the dyad approach. A complete set of interview questions can be found in Appendix D. Open-ended survey responses and interview transcripts were coded and sorted into broad thematic categories for analysis (Appendix E). As only four faculty members participated in the interviews, the following results are based on the survey findings.

Results

A total of 23 respondents completed the survey about their experience, the majority of these respondents being Assistant Professors (16). Fourteen respondents reported being of a gender

that is overrepresented in engineering, and nine reported an ethnicity that is overrepresented in engineering; four participants declined to state their demographic information.

Quantitative Survey Results

The survey items used a four-point Likert scale (1 = Disagree, 2= Slightly Disagree, 3 = Slightly Agree, 4 = Agree) with no neutral option. Descriptive statistics for the survey results are included in Table II.

TABLE II
SURVEY DATA

Survey Statement	Mean	SD	Median
My mentorship group was accessible.	3.5	0.91	4
My mentorship group demonstrated professional integrity.	3.95	0.22	4
My mentorship group demonstrated content expertise in my area of need.	3.55	0.83	4
My mentorship group was approachable.	3.9	0.44	4
My mentorship group was supportive and encouraging.	3.71	0.56	4
My mentorship group motivated me to improve my work product.	3.45	0.76	4
My mentorship group was helpful in providing direction and guidance on professional issues (e.g., networking).	3.35	0.81	4
My mentorship group answered my questions satisfactorily (e.g., timely response, clear, comprehensive).	3.62	0.5	4
My mentorship group suggested appropriate resources (e.g., experts, electronic contacts, source materials).	3.05	0.97	3
My mentorship group challenged me to extend my abilities (e.g., risk taking, try a new professional activity, draft a section of an article).	2.85	1.14	3

Overall, responses indicate positive perceptions of the quad mentorship experience, with median values of 4 for most survey statements, indicating agreement among participants. Participants reported a particularly strong agreement that their mentorship groups demonstrated professional integrity, approachability, and supportiveness. Mean scores were used to compare responses across items; lower mean scores were observed for statements related to suggesting appropriate

resources ($M = 3.05$) and challenging participants to extend their abilities ($M = 2.85$). On a four-point Likert scale, these results suggest that respondents tended to slightly agree with statements related to resource sharing, while perceptions of being challenged to extend one's abilities were more mixed.

Qualitative Survey Results

The survey included two open-ended response questions:

1. How would you characterize the strengths and weaknesses of your mentorship group?
2. Did you experience any challenges within your mentorship group (interpersonal, scheduling, etc.)? What were they and how did you respond to them?

Nearly all responses to the first qualitative question highlighted strengths of the quad model, particularly the diversity of backgrounds within the groups, participants' shared enthusiasm for mutual support, and overall excitement about participating in the program. Representative comments included: "The strengths of my mentorship group include diverse expertise, strong collaboration, and a supportive environment. The group effectively shares knowledge and provides constructive feedback"; "I really like the breadth of experience levels in our group"; and "Strength: Colleagues at different levels at their career and different level of experience."

Several comments also expressed appreciation for being placed in quads with others who shared similar research experiences, which sparked collaboration across departments – an outcome typically difficult to initiate. For example, one respondent noted, "I like that my mentorship group shares my background (research area), which helps me relate to their challenges and makes me aware of resources related to my work." Another respondent emphasized that "our group's primary strength is its clear and targeted focus on robotics. Having a shared research interest creates productive discussions, targeted advice, and meaningful mentorship, as all members can deeply understand and engage with each other's specific challenges." A final respondent spoke to the diversity of the group, saying, "It had a good mix of experienced and junior faculty which turned out to be a great strength. Having a lot of faculty from my home department helped in answering department specific questions. The out of department members were able to provide guidance on general faculty support. This also sparked collaborative opportunities between departments." Overall, comments regarding program strengths indicate that participants valued both the diversity of group composition and the opportunity to engage with colleagues who were eager to collaborate and had intentionally volunteered for the program.

As far as weaknesses of the groups, the most frequently cited challenge was scheduling meetings among all four faculty members. Of the 18 responses to the first qualitative question, 10 of them referenced scheduling difficulties, with comments such as, "it is challenging for us to find the time to meet more regularly"; "we have busy schedules, scheduling meetings is HARD"; and "Did not meet. The new faculty member simply wasn't available, grr."

Another difficulty mentioned was the limited presence of senior faculty within some quads, particularly concerns about senior faculty members feeling insufficiently equipped to mentor multiple junior colleagues. One respondent observed that "three out of the four members are relatively junior faculty. It could be beneficial to have greater representation from more senior faculty, who might offer a broader perspective, deeper institutional insights, and more seasoned career advice." Another wrote, "I feel bad that my mentorship group got stuck with me as the

mentor. I don't feel well-equipped to mentor 3 junior faculty. For some reason, I envisioned there being two senior faculty and two junior faculty per group.”

Implications and Conclusions

Both the quantitative and qualitative results showed mostly very positive responses to the quad mentoring model and program. Participants consistently described quad members as approachable, supportive, and excited to be involved. These findings suggest that the program successfully fostered a positive mentoring environment in which new faculty felt comfortable seeking guidance and support from more senior colleagues. Given that a central goal of the program was to support faculty in developing professional networks, the results indicate that this objective was largely achieved. Additionally, the positive engagement observed across quads suggests that the volunteer-based structure effectively attracted participants who were motivated to collaborate and invest in the program.

The survey responses also identified several areas for improvement, offering insights relevant both to future iterations of the program and to similar initiatives at other institutions. The most frequently reported challenge was scheduling, as coordinating meeting times among four faculty members across different departments proved difficult. One potential improvement is to incorporate participant availability into the formation of quads, allowing individuals with similar schedules to be grouped together and thereby reducing scheduling barriers. Another consideration is the provision of clearer guidance regarding program goals and suggested activities. While the program intentionally allowed flexibility to enable each quad to pursue activities that they found most beneficial, more explicit structure or optional guidelines may better support groups seeking more structure and additional direction.

A final consideration relates to the involvement of senior faculty. Increasing senior faculty participation could enhance mentorship quality for junior faculty and create additional opportunities for collaboration. However, the voluntary nature of the program, coupled with existing time constraints and the lack of formal incentives for senior faculty participation, presents a challenge. Future program development may therefore benefit from exploring strategies to support and encourage senior faculty engagement while remaining mindful of these constraints.

Acknowledgements

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APPENDIX A
HANDOUT OF MENTORING GUIDELINES
College of Engineering Mentoring Quads
Mentoring Guidelines

Mentoring Structure: As commented by faculty during our assessment phase: “There is some amazing stuff happening in some depts at some times. However, early career faculty experiences vary widely by college and departments.” This situation motivates our work to form structures across the college to support our faculty. Rooted in our work on researching various mentoring models, including one-on-one and peer group, and when reflecting on our own experiences, we are proposing a mentoring program using a *group mentoring* approach that includes at least one new hire, one recent hire, and one experienced faculty member—ideally, with at least one member from outside the new hire’s department^{1,2}. This approach offers the advantage of multiple perspectives, ameliorating power dynamics, and *sharing the load and benefits* of mentoring work. While peer mentoring and larger group mentoring have also been shown to have advantages, we hope a quad is big enough to provide the support faculty may need, while also being small enough to allow for easier scheduling and increased accountability over the many-to-many approach. It is our hope that these groups can create a space for sharing ideas, including fostering scholarly collaborations that benefit all members (including the more experienced members).

Working as a quad: Once quads have been formed, setting clear expectations at the onset of the mentoring relationship is vital¹. These expectations include, for example, goals of the mentoring relationships, time expectations, length of mentoring (how and when to terminate), and preferred communication methods. Examples of templates for these activities can be found through the Center for the Improvement of Mentored Experiences in Research (CIMER)³.

Best Practices/Activities: Our goal is for quads to provide the participating faculty with support to enhance their experience as faculty in the college of engineering. In general, effective mentoring relationships include support for both professional and personal aspects of our lives. Various faculty members may or may not want to touch on these aspects to varying degrees. We recommend addressing this via setting up a mentoring quad expectations document (see prior point). Once you have a sense of some shared expectations, consider events that support your shared work as a mentoring quad. Don’t be afraid to utilize additional resources such as conversation guidelines, training workshops or even identifying and attending events of shared interest. The college values the work the mentoring quads are doing. Do not be afraid to share common experiences or observations with this program’s organizers. Any information gathered through mentoring relationships that participants are willing to share could facilitate institutional change when this information is communicated to college leadership¹.

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^[2] Midwest Experience in Mentoring Excellence (MEME) resources document: <https://bit.ly/4amKJS7>

^[3] Center for the Improvement of Mentored Experiences in Research (CIMER) : <https://cimerproject.org/>

APPENDIX B

HANDOUT OF POSSIBLE QUAD ACTIVITIES

Activities for individual quads to engage in independently, fostering close team relationships.

Brainstorming Lunch or Coffee Meetup

Activity: Over a casual lunch or coffee, members share challenges or ideas related to their teaching and research. They brainstorm solutions or interdisciplinary projects and document potential action steps.

Goal: Facilitate deeper collaboration and creative problem-solving within the quad.

Course/Teaching Exchange

Activity: Each member presents one teaching challenge or innovative practice from their courses. The group discusses how interdisciplinary approaches or strategies from different fields might help address the issue.

Goal: Encourage knowledge sharing and spark teaching innovation through diverse perspectives.

Nature Walk with Discussion Prompts

Activity: The quad participates in a local nature walk with discussion prompts such as, “What’s one goal you have for this academic year?” or “How do you balance personal growth with professional responsibilities?”

Goal: Foster personal and professional connections in a relaxed setting.

Collaborative Micro-Project

Activity: The quad works together to create a small, tangible output such as a shared syllabus module, a research idea, or even a co-authored blog post.

Goal: Promote teamwork and the application of interdisciplinary insights to practical outcomes.

Department Tour

Activity: Quad members take turns guiding one another through their respective departments, introducing key colleagues, showcasing unique facilities, and highlighting distinctive practices or ongoing research activities.

Goal: Foster a sense of inclusion and shared identity while providing members with valuable insights into each other's departments, unique cultures, and research practices.

Cultural Potluck & Storytelling Night

Activity: Faculty bring dishes representing their culture or background. Alongside, they share personal stories related to their teaching or research journey.

Goal: Celebrate diversity and create personal connections.

Themed Faculty Showcase and Dinner

Activity: Faculty present brief highlights of their work (like a Pecha Kucha format: <https://en.wikipedia.org/wiki/PechaKucha>) followed by a group dinner.

Goal: Increase visibility of faculty research and projects, fostering future collaborations.

APPENDIX C

SURVEY QUESTIONS

1. Given the informed consent, do you agree to participate in this survey? (The rest of the questions will appear if you agree to participate)
2. Is your gender overrepresented in engineering? (Choices: Yes, No, Decline to state)
3. Is your ethnicity overrepresented in engineering? (Choices: Yes, No, Decline to state)
4. What is your rank? (Choices: Lecturer, Assistant Professor, Associate Professor, Professor)
5. Please indicate the extent to which you agree or disagree with each statement listed below. (Choices: Disagree, Slightly disagree, Slightly agree, Agree)
 - a. My mentorship group was accessible.
 - b. My mentorship group demonstrated professional integrity.
 - c. My mentorship group demonstrated content expertise in my area of need.
 - d. My mentorship group was approachable.
 - e. My mentorship group was supportive and encouraging.
 - f. My mentorship group motivated me to improve my work product.
 - g. My mentorship group was helpful in providing direction and guidance on professional issues (e.g., networking).
 - h. My mentorship group answered my questions satisfactorily (e.g., timely response, clear, comprehensive).
 - i. My mentorship group suggested appropriate resources (e.g., experts, electronic contacts, source materials).
 - j. My mentorship group challenged me to extend my abilities (e.g., risk taking, try a new professional activity, draft a section of an article).
6. Please indicate the extent to which you agree or disagree with each statement listed below. (Choices: Disagree, Slightly disagree, Slightly agree, Agree)
 - a. My mentorship group made me feel valued.
 - b. I felt that I had something to contribute to my mentorship group.
 - c. I am likely to keep in touch with someone in my mentorship group.
 - d. I had an enjoyable experience in my mentorship group.
7. How would you characterize the strengths and weaknesses of your mentorship group?
8. Did you experience any challenges within your mentorship group (interpersonal, scheduling, etc.)? What were they and how did you respond to them?
9. Please make additional comments here:

APPENDIX D

INTERVIEW QUESTIONS

Basic Questions

- What is your rank?
- How often did your group meet?
- What did your group do when you met?

Main Questions

- What was your relationship like with each member of your group?
 - Why do you think you developed that kind of relationship?
- Who made decisions in your group? How did they make them?
 - What are your thoughts on having a “chair mentor” in your group?
- Do you see yourself keeping up with anyone in your group?
 - Why or why not?
- Have you ever been in another mentorship group or pairing? How would you compare your experience with that group/pair to your experience with this group?
 - Based on your experience, which size of mentorship group do you prefer?
- Did you experience any problems within your group that you can share with me (interpersonal, scheduling, etc.)?

APPENDIX E
THEMATIC CODEBOOK

Theme	Code	Description
Group Composition & Dynamics	Group Size Variation	Mentions of having more or fewer than four members; impact of group size.
<i>"We had six, including myself... most are just the four, but the six to learn."</i> <i>"There were four people in our group initially, but I think one member dropped out."</i>		
Group Composition & Dynamics	Departmental Diversity	Experiences with interdisciplinary vs. same-department members.
<i>"Three from my department... one from mechanical, one from electrical... one supports biomedical engineering."</i> <i>"We had one non-Aero while the rest of us were Aero."</i>		
Meeting Logistics	Scheduling Challenges	Difficulty finding mutually available times, missed meetings.
<i>"There was no time that lined up for all six of us to be together..."</i> <i>"Really hard to schedule a time... never met as a four people group yet."</i> <i>"We never met even once... lack of engagement I suppose."</i>		
Meeting Logistics	Meeting Frequency	How often groups met and the format (Zoom, in-person).
<i>"We met twice the first quarter... and twice the next."</i> <i>"At least twice per quarter..."</i>		
Meeting Logistics	Meeting Format/Agenda	Structured agendas vs. informal chats; food, locations, or planning tools used.
<i>"We just chatted. I would get Starbucks and toss out topics."</i>		

Theme	Code	Description
<i>"We walked to the Arboretum... classroom visitations... walked to the architecture graveyard."</i> <i>"Initially... we used some of the ideas that Bridget shared..."</i>		
Leadership & Facilitation	Group Coordinator Role	Self-selection vs. assigned facilitators; level of leadership or involvement.
<i>"[Someone] asked me... I said if no one else wants to do it, I'm happy to."</i> <i>"We asked the tenured professor... if she would want to be the group coordinator."</i>		
Leadership & Facilitation	Initiative and Participation	Who took responsibility for driving the meetings and agenda.
<i>"I probably drove more of it than I would have liked to..."</i> <i>"Mostly me just kind of driving the time and location and the activity."</i>		
Relationship Building	Preexisting Relationships	Whether members already knew each other.
<i>"I already knew [one member of my group]... our offices are next door... [Another member] I knew from [a club]."</i> <i>"I was on the hiring committee that hired [one member of my group]."</i>		
Relationship Building	Relationship Outcomes	Perceived closeness, ongoing contact, or lack thereof after the program.
<i>"Probably not. If they reach out to me, I'd be happy to [keep in touch], but I don't see that happening."</i> <i>"Turns out that faculty member also lives in the same complex as me... so we now see each other more often."</i>		
Perceived Value	Professional Benefit	Tips and tools, Canvas help, discussions on grading, campus resources, etc.
<i>"Talked about grading, DRC accommodations, CLT training we've taken... Canvas tips and tricks."</i>		

Theme	Code	Description
<i>"Put on her radar things like Beacon, SURP, Teacher Scholar Mini Grant..."</i>		
Perceived Value	Personal Connection	Social bonding, feeling supported, "clicks" or group chemistry.
<i>"Opened up the opportunity... to build these interpersonal relationships."</i>		
Perceived Value	Value for New Faculty	Mentorship benefits specifically for early-career faculty.
<i>"As a new faculty myself, I was able to ask a lot of questions... a big learning curve."</i>		
Comparisons to Other Mentorship Models	Model Preference	Comparisons to individual mentoring in academia or industry.
<i>"Mentoring relationships in my past have always been one-on-one."</i> <i>"And ultimately... I think I got a lot of that advice by just trying to find my quad people one-on-one."</i> <i>"I think four is kind of the upper limit. I could see three working as well."</i> <i>"I would say an ideal group is somewhere between three to six members. And I think four is well within that."</i>		
Comparisons to Other Mentorship Models	Group Model Strengths/Weaknesses	Reflections on what the quad model offers that others don't.
<i>"You either click or you don't... this was a good chance at a structured click."</i> <i>"The mentoring there is no additional work really... it just falls in line with what I already do."</i> <i>"We would maybe run into each other at a teaching workshop and because like they're in my quad, it was a lot easier to initiate conversation with them."</i>		
Engagement Levels	Lack of Engagement	Absent members, unanswered emails, failed coordination attempts.
<i>"They never replied even once. I'm not even sure they exist."</i>		

Theme	Code	Description
Engagement Levels	Active Engagement	Group members who were responsive, met consistently, or shared resources.
<i>"Everyone was happy to have me do it... we go around the table and hear what everyone has to say."</i>		
Group Cohesion	Good Cohesion	Evidence of collaborative energy, shared interests, mutual respect.
<i>"The conversations end up being quite job related for the most part."</i>		
Group Cohesion	Poor Cohesion	Fragmented participation, disinterest, or interpersonal disconnect.
<i>"It was kind of different... not necessarily doing the same work... so it was different to get perspectives."</i>		
Structural & Institutional Context	Program Structure Feedback	Opinions on the kickoff, idea lists, hidden menus, micro-projects.
<i>"I appreciated the kickoff... idea list... hidden menus... the structure is a great way."</i>		
Structural & Institutional Context	Institutional Support	Role of CTLT, department-level culture, or mentorship history at Cal Poly.
<i>"One of the things we've put on her radar... Beacon, SURP, mini-grants."</i>		
Challenges Beyond Scheduling	Role Clarity Confusion	Questions about the purpose or expectations of the program.
<i>"I don't remember any guidelines... I really like the structure for people who want to do something different."</i>		
Challenges Beyond Scheduling	Power Dynamics	Influence of seniority, tenure status, or uneven group contributions.
<i>"I think the positionality matters a lot... full professor mentoring brand new tenure track."</i>		