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Equitable faculty hiring: development and implementation of teaching faculty hiring rubrics

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Despite the increasing diversity of undergraduate students in the United States, university faculty demographics, particularly in science, technology, engineering, and mathematics (STEM) fields, remain largely homogeneous, which is problematic for fostering an inclusive academic environment. We examined the hiring process for tenure-track teaching-focused faculty (TFF) positions, specifically within the University of California system, to develop and implement inclusive hiring practices that may promote greater faculty diversity. Through a series of faculty learning communities (FLCs), we developed and implemented inclusive hiring rubrics designed to better evaluate teaching excellence and ensure the recruitment of diverse faculty members. Our findings highlight the critical need for faculty diversity, particularly TFF who instruct in gateway introductory STEM courses, to enhance student outcomes by fostering more inclusive teaching practices and reducing racial disparities in academic achievement. We recommend that institutions adopt inclusive hiring practices, including the use of tailored hiring rubrics, to create a more equitable and supportive learning environment for all students.

KEYWORDS

hiring, faculty, STEM, equity, rubric

Introduction

While U.S. undergraduate students have grown increasingly diverse over the last two decades, significant racial disparities in educational outcomes including graduation and grade point achievement persist, underscoring the ongoing challenges faced by underrepresented minority students in higher education (Kim et al., 2024). These academic inequities are particularly glaring in science, technology, engineering, and mathematics (STEM) educational programs (Feder and Malcom, 2016; Riegle-Crumb et al., 2019; Seymour and Hunter, 2019; Graves et al., 2022). A significant amount of research has documented the impacts of interventions in STEM fields intended to bring these students “up to speed,” including supplemental and co-curricular instruction programs or summer bridge programs (Peterfreund et al., 2008; Dawson et al., 2014; Bradford et al., 2021). While well-intentioned, these programs often emphasize assimilation to majority norms. More recently though, educational research has shifted focus and has begun to characterize instructional and pedagogical approaches that instructors can implement to establish an inclusive learning environment that, in turn, promotes equity across diverse student populations. Faculty are responsible for the instructional practices they implement, the course structure, and the course assessments: with decisions regarding these course components having been shown to impact

student outcomes (Gasiewski et al., 2012; Eddy and Hogan, 2014; Theobald et al., 2020). Increasing amounts of educational research demonstrate that faculty beliefs about teaching and learning are also central to addressing undergraduate academic equity, as they shape the pedagogical decisions of instructors (Canning et al., 2019; Rozhenkova et al., 2023; Park et al., 2024). Thus, it is important to consider the individuals being hired into faculty positions, as their instructional values, decisions, and approaches will shape the academic experiences of future generations of STEM professionals.

Despite continuing racial diversification of undergraduate students at universities in the United States, faculty racial composition remains largely white (National Center for Education Statistics, 2024). But does faculty racial diversity influence student academic outcomes? Increased faculty diversity is strongly linked to improved academic outcomes for racially minoritized students, including higher graduation and transfer rates, as well as lower dropout rates across various racial and ethnic groups (Cross and Carman, 2022). Specifically, disaggregation of racially minoritized student outcomes reveals students perform better when faculty share their racial or ethnic background, fostering a more supportive environment (Bowman and Denson, 2022). Minority-serving institutions, like Hispanic-Serving Institutions or Historically Black Colleges and Universities, which tend to have more diverse faculty, exhibit fewer racial achievement gaps, with Black and Latine students experiencing graduation rates comparable to their white peers when faculty diversity mirrors student demographics (Bowman and Denson, 2022). This highlights the positive impact of same-race faculty representation on student outcomes, as seen particularly with Latine professors who, due to their shared social and cultural experiences, provide invaluable mentorship and guidance to students facing systemic barriers (Bañuelos and Flores, 2021). Additionally, institutions with more diverse student bodies, including various racially minoritized groups, tend to have smaller graduation gaps between white and students of color, further supporting the idea that a diverse campus environment fosters greater racial equity in academic achievement (Bowman and Denson, 2022). The match between student and faculty race/ethnicity is positively associated with higher grades and graduation rates for students of color, with the campus racial/ethnic climate serving as a key mediator for these academic outcomes (Llamas et al., 2019).

Colleges and universities have historically relied on two faculty lines - the traditional research-focused faculty member, primarily evaluated on the success of their research program, and the adjunct lecturer, typically responsible for classroom instruction exclusively. In recent years, a third category of faculty has gained prominence: teaching-focused faculty (TFF; Bush et al., 2017; Harlow et al., 2020; Molinaro et al., 2020). These faculty positions are primarily responsible for classroom instruction, but also have professional duties in both scholarly and/or service-related tasks (Bush et al., 2013; Molinaro et al., 2020; Harlow et al., 2022). The rationale for TFF positions can vary, but often include providing instruction to meet increasing enrollment in STEM fields, acting as disciplinary experts in teaching-related matters, as well as conducting discipline-based education research and translating these findings into instructional practice (Bush et al., 2019; Harlow et al., 2022). Most often, TFF are placed in high-enrollment, introductory STEM courses which have historically had gatekeeper functions on undergraduate STEM student retention and graduation with STEM degrees (Harris et al., 2020; Hatfield et al., 2022). Therefore, strategic placement of instructors in these courses

may lead to improved academic equity across a diversity of undergraduate STEM students.

Similar to the demographics of research faculty at universities in the United States, TFF also lack racial/ethnic diversity compared to the STEM students they are instructing. Over the past decade, STEM faculty across the top forty public universities were 80% white, 15% Asian or Pacific Islander, 3% Hispanic and 1% Black (Baker and Koedel, 2024). A sample of TFF from the University of California system, where the described intervention was implemented, were 76% white, 9% Asian, 4% Hispanic and 3% Black (Harlow et al., 2020). This is despite the fact that the majority of the universities within this system are Hispanic-Serving Institutions (Paredes et al., 2021). Combined, the lack of TFF faculty diversity and their placement in gatekeeper introductory STEM courses challenges progression toward undergraduate academic equity (Bitar et al., 2022; Llamas et al., 2019). Further, this challenge is particularly troubling as TFF have higher teaching loads and thus more student contact hours than their research faculty colleagues (Harlow et al., 2022; Meaders et al., 2020; Seymour and Hunter, 2019). As such, the lack of diversity amongst TFF populations is a missed opportunity for colleges and universities striving to create more inclusive undergraduate learning environments.

The causes driving the homogeneity in faculty demographics are many and can intersect. These barriers include the cost of post-graduate training (Poloma, 2014), gender-based family responsibilities (Beddoes and Pawley, 2013), pressure on minoritized to conform or assimilate (Diggs et al., 2009), gender and ethnicity-race based biases related to the evaluation of teaching excellence (Chávez and Mitchell, 2020; Wang and Gonzalez, 2020), and biases in the faculty promotion process (Perna, 2001). Although some hurdles are systemic, one significant barrier to faculty diversity that institutions have direct ability to positively change is the hiring process. These faculty searches include the construction and dissemination of the job advertisement, the evaluation of applicants, the interview process and evaluation of interviewed candidates, and the negotiation of the job offer. While hiring of all faculty positions broadly includes these stages, moving toward increased TFF diversity may be particularly susceptible to bias because of the subjective nature by which teaching quality is evaluated (Thomas et al., 2014; Mengel et al., 2019) and a lack of a requirement for or an understanding of how to consider contributions to diversity, equity, and inclusion in the classroom (Tiede, 2022; Noone and Murray, 2024).

To address the lack of faculty diversity, there has been significant work identifying more inclusive hiring practices (Smith et al., 2004; Cavanaugh and Green, 2020). Job advertisement construction and dissemination has been examined by reviewing different core aspects. These aspects can include the language used throughout the advertisement (Gaucher et al., 2011; Boyle et al., 2020), the message conveyed by the importance of the diversity, equity, and inclusion (DEI) statement (Bradford et al., 2022), or the dissemination of the job advertisement (Kazmi et al., 2022). Additionally, the manner and approach in which candidate materials are evaluated (Wright and Vanderford, 2017), the strategies applied during the interview process (White-Lewis, 2020), and the selection of the successful candidate (Smith et al., 2015). While the adoption of these practices has been shown to create a more inclusive hiring process, it is important to note that they are generally created in the context of research faculty hiring (Blair-Loy et al., 2022). As applicants for these positions are primarily evaluated on the merit of their

research agenda and its impacts (Wright and Vanderford, 2017), recently adopted inclusive hiring practices may fall short in the context of TFF searches. This presents a need to better understand how inclusive practices can be adopted in the context of TFF hiring, particularly in regards to the evaluation of teaching excellence. While particularly beneficial for inclusive TFF hiring, such practices ultimately will be of value in the hiring of all faculty positions that contribute toward academic equity in a college or university's educational mission.

Faculty learning community and rubric development

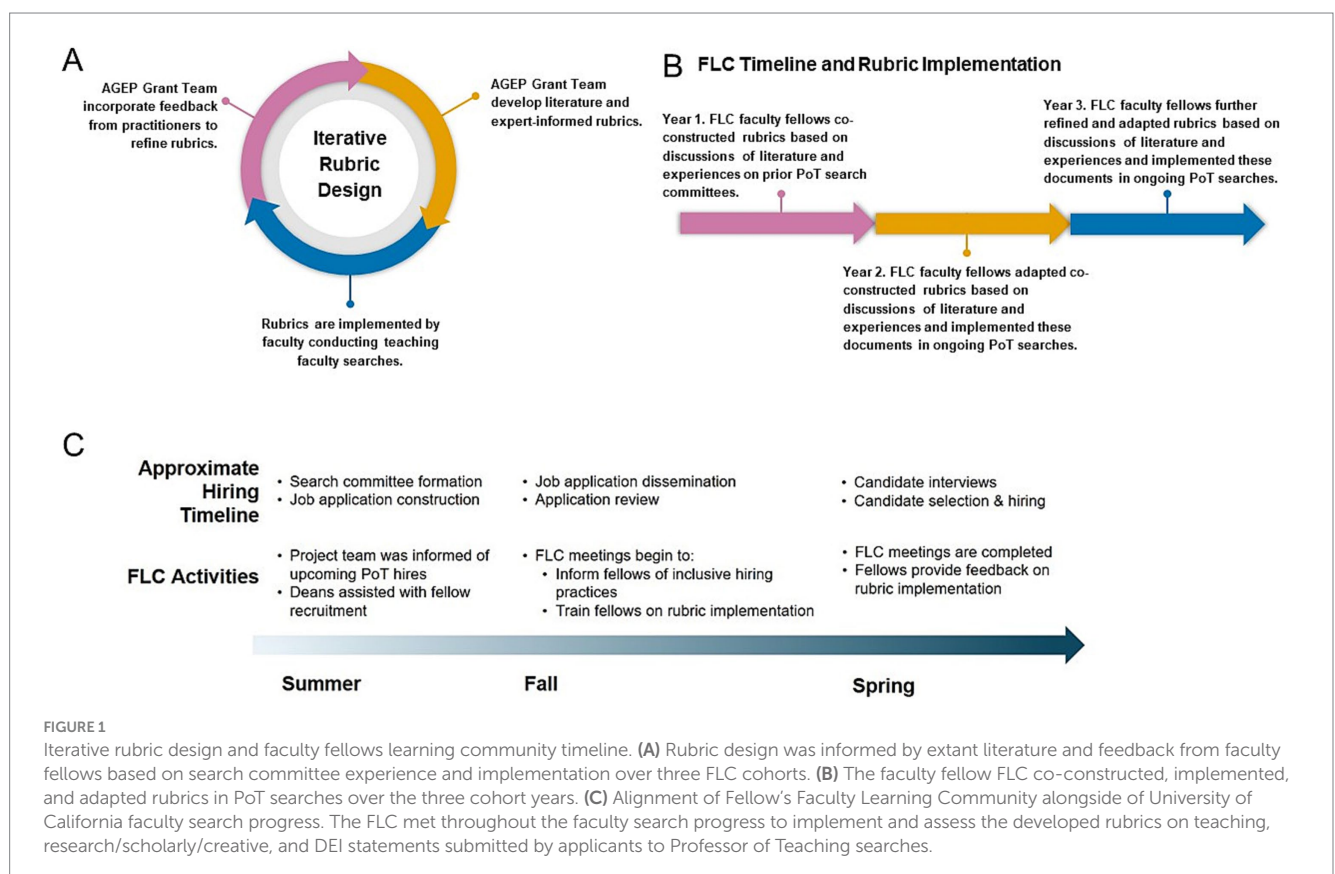
Funded by a National Science Foundation Alliances for Graduate Education and the Professoriate (AGEP) grant (NSF EES #2113355), our AGEP research team's work focuses on a specific TFF position, the University of California (UC)'s Professor of Teaching (PoT). The PoT is a tenure-track position where these faculty, on average, spend roughly two-thirds of their time on classroom instruction, and split the remaining time on scholarly activities and service responsibilities (Harlow et al., 2020; Harlow et al., 2022). Research has shown that PoTs are more likely to implement active learning pedagogies (Denaro et al., 2022), have more advanced conceptions of teaching and learning (Rozhenkova et al., 2023), and serve as departmental resources for pedagogy-related matters (Wilton et al., 2024); however, the demographics of PoT faculty do not reflect demographics of the student populations they instruct. While the work conducted by our

AGEP research team focuses on TFF hiring in the context of PoTs in the UC system, the resulting insights and products can be leveraged by any institution that hires TFF or other faculty positions that are expected to possess teaching expertise.

Applicants to UC faculty positions submit multiple written documents including statements on teaching, research/creative/scholarly activities, as well as diversity, equity, and inclusion for evaluation by the search committees. Evaluation of these documents is most often the first review conducted by search committees; thus, minimizing bias at this key stage may promise to improve the diversity of the qualified candidate pool applying to faculty positions at the UC.

To create and implement a PoT hiring process that promotes equity in evaluation of diverse applicant pools, the research team convened three cohorts of cross-institutional UC faculty learning communities (FLCs) to collaboratively co-construct and adapt the use of a series of faculty statement rubrics for initial candidate evaluation. Utilizing a modified design-based research approach (Easterday et al., 2017), the research team convened FLCs over three sequential years enabling multiple cohorts of participants, the AGEP Faculty Fellows, to iteratively refine the development and implementation of the rubrics (Figure 1A).

Hiring rubrics have been previously demonstrated to promote diversification of faculty hires (Smith et al., 2015; Blair-Loy et al., 2022). Therefore, a major focus of the convened FLCs was to construct, disseminate, and implement TFF search process rubrics as they pertain to UC PoT faculty searches (Figure 1B). With insights from the FLC curriculum, participants shaped rubric elements based on the published recommendations but also their



prior experiences taking into account their department's specific expectations for the PoT position and broader norms and culture. The FLC also provided space for participants to share challenges to implementation across department and campus contexts as well as suggestions for improvement to rubrics. As such, fellows had shared ownership of the FLC-produced materials, which is known to increase the odds of their adoption (Christie, 2016; Sipple and Lightner, 2023).

To recruit AGEF Faculty Fellows into the FLC, the research team met with the deans from each campus to identify STEM faculty participating in upcoming PoT searches. FLCs ranged in size from six to 10 fellows and maintained participation across disciplines and UC campuses to provide a variety of perspectives and search committee experiences. The fellows engaged in the FLC both prior to and during the faculty search committee hiring process (Figure 1C). The main goals of the were to empower fellows with knowledge of equitable search practices and to develop search process rubrics that would guide these practices. The FLC meetings followed a 2 week cycle. The first meeting centered on fellows sharing current PoT recruitment practices and discussing published research on faculty recruitment approaches while the second meeting leveraged fellows insights from current practices as well as the discussed reading to co-construct PoT search rubric items. Developed iteratively over 3 years, the final FLC curriculum (Table 1) centered on familiarizing faculty fellows with search committee biases, best search committee practices, and novel research documenting the experiences of TFF from minoritized populations (Kayes, 2006; Li and Koedel, 2017).

Faculty fellows integrated and tailored their insights to create novel rubric items for the equitable evaluation of PoT faculty applicant statements of instruction, research/creative/scholarly activities, as well as diversity, equity and inclusion statements.

Combined, these approaches empower the faculty fellows to act as potential departmental change agents to learn about equitable search committee practices and disseminate their constructed search rubrics within their departments and UC campuses. During the fall term of the academic year, FLCs met twice a month. The meetings offered a structured space for fellows to discuss their department's current recruitment strategies. They also had the opportunity to reflect on how the scholarship introduced by the FLC influenced their views on equity in faculty recruitment. Additionally, the fellows compared and contrasted their department's perspectives and actions with the evidence-based equitable hiring recommendations. Each meeting period was structured with a pre-FLC reading/rubric to review, a discussion of personal search committee experiences, insights from the reading, and potential rubric item ideas. Importantly, fellows implemented their rubrics as the PoT search progressed, enabling real-time feedback on the implementation of this strategy. The readings, discussions, and co-construction of the three rubrics can be found in Table 1.

Through reflective discussion of readings coupled to personal experiences on faculty search committees, FLC members came away empowered as change agents as seen in several reflections:

Information provided demonstrates current practices in hiring Professors of Teaching but successful practices can be amplified

TABLE 1 AGEF Faculty Fellows faculty learning community discussion schedule and curriculum.

Meeting	Faculty learning community curriculum	Associated documents
1	Faculty learning community orientation and goals. Goal: establish the need for rubrics that align with PoT faculty positions.	White-Lewis (2020)
2	Discussion of current search committee practices. Goals: leverage strategies from faculty fellows. Work toward alignment between faculty position, job advertisement and candidate statement rubrics. Implementation rubrics.	Rubric: candidate teaching, scholarly, and DEI statement rubrics
3	Generation of candidate long-lists and how to avoid common pitfalls.	Wright and Vanderford (2017)
4	Discussion: evidence of excellence in STEM instruction Goals: familiarize Faculty Fellows with positive impacts of active learning and evidence-based instructional approaches	Borda et al. (2020)
5	Discussion: search Committee Practices. Goal: implementation of teaching excellence rubric	Rubric: Teaching excellence rubric
6	Discussion of inclusive interview practices feedback on rubrics Goal: solicit feedback on alterations to rubrics, improve adaptability of rubrics	Rubric: candidate teaching, scholarly, DEI statement, and teaching excellence rubrics
7	Discussion: how to support and retain minoritized faculty Goals: Promote faculty fellow awareness in alignment of recruitment goals with retention of minoritized individuals.	Zambrana et al. (2015)
8	Discussion on acting as a change agent to disseminate rubrics for future faculty searches Goals: Faculty fellows to identify levers of change within department to disseminate the use of search rubrics	Reinholz and Apkarian (2018).
9	Follow-up discussion on acting as a change agent to disseminate rubrics for future faculty searches Goals: Faculty fellows to develop a strategy for rubric dissemination within the department	Reinholz and Apkarian (2018).
10	Asynchronous long-term feedback Goal: solicit feedback after searches conclude on alterations to rubrics, improve adaptability of rubrics	Rubric: candidate teaching, scholarly, DEI statement, and teaching excellence rubrics

across the system and likewise unsuccessful practices are weeded out. The discussion is leading to the achievement of the recruitment of a diversified candidate base.

Our discussion brought to light the diverse hiring practices and some situations and subtleties which I had not previously considered.

Fellows also developed a greater appreciation of the importance of alignment of search committee members and the minimization of bias as the faculty search process progresses:

In the future, I think I will be more upfront about asking what my responsibilities/expectations would be so that there [is] no room for unplanned discussions.

After the PoT hiring process was complete, the FLCs reconvened so that fellows could reflect on the hiring process in the context of what they learned from the literature on inclusive hiring practices, to provide feedback on the content of the hiring rubrics and their implementation, and to reflect on ways to promote more equitable PoT hiring outcomes in future hiring cycles:

I'm even more convinced that the rubric needs to be decided for a given search before the ad is written, to ensure that the appropriate evidence is gathered. Decisions need to be made in advance about whether a criterion is critical or only desirable.

Integration of novel research into the hiring rubrics

As part of our NSF AGEP project, the research team also conducted a series of interviews with TFF from minoritized backgrounds to better understand their experiences with the faculty hiring process and as early career faculty in academia in general (Henry, 2022; Henry, 2024; Henry et al., 2024). Integration of these minoritized teaching faculty perspectives into the search rubrics to ensure alignment of racially minoritized STEM faculty lived experiences with the items present in various PoT rubrics. Specifically, this work highlighted the servingness of these faculty who sought to invest deeply in personal mentorship and professional development of minoritized students while also creating supportive and affirming educational spaces (Henry, 2022; Henry, 2024; Henry et al., 2024). These elements were added to each of the three constructed rubrics.

Discussion of recommendations for inclusive TFF hiring practices

Prior to commencement of faculty search, it is important that key institutional and departmental stakeholders specify the roles and responsibilities for the new faculty position, the skills and attributes a qualified candidate would possess to fulfill these roles, and the means by which the institution will support their success. Next, the search committee must collectively work to construct or adapt search rubrics that are aligned with these position roles and responsibilities, to equitably evaluate both the application materials as well as the components of the interview process (e.g., teaching demonstration) (our project team's rubrics can be found

in the supplementary materials). Finally, and in-light of the established expectations for the position, the job advertisement must be co-constructed, utilizing inclusive language that explicitly communicates position details that aligns with the criteria that comprise teaching faculty search rubrics. This advertisement must then be disseminated through formal channels, like university websites and broad readership journals and websites, but importantly also through personal networks soliciting specific individuals to apply (Kayes, 2006; Smith et al., 2004).

Once the job advertisement is released, it is important for search committee members to ensure they have an understanding of the rubrics and their implementation, and take time to calibrate their review of applicant materials throughout the application review process.

Finally, while not a point of emphasis for the current project, it is important that TFF are supported once hired, through inclusive mentorship practices (Diggs et al., 2009; Jayakumar et al., 2009), adequate financial and material resources, and access to professional development opportunities.

Through the process described above, our team was able to consider the hiring of TFF leveraging the literature on inclusive faculty hiring practices, the perspectives of individuals with direct experience in running the faculty hiring process (faculty fellows), and the perspectives of TFF from minoritized backgrounds (Henry, 2022; Henry, 2024; Henry et al., 2024). As TFF rise in popularity (Bush et al., 2019; Harlow et al., 2022), institutions interested in adopting more inclusive hiring practices may leverage the FLC process and hiring rubrics that were produced through these efforts. While potentially more labor intensive than traditional hiring mechanisms, only through more inclusive hiring practices can TFF be expected to contribute to more inclusive and equitable higher education programs.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

This research was approved by Institutional Review Board at University of California Irvine under exempt protocol IRB#1976 and University of California San Diego under exempt protocol #800038. Written informed consent from the participants or participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

EA: Writing – original draft. BS: Conceptualization, Writing – original draft, Writing – review & editing. SL: Conceptualization,

Funding acquisition, Writing – original draft. MW: Conceptualization, Supervision, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

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