Mentor perspectives on the place of undergraduate research mentoring in academic identity and career development: An analysis of award winning mentors

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Mentor perspectives on the place of undergraduate research mentoring in academic identity and career development: An analysis of award winning mentors

The aim of this study was to determine how Undergraduate Research (UR) mentoring fits into the career profile of award-winning UR mentors and to determine the factors that motivate engagement as UR mentor. Twenty-four award-winning UR mentors based in four countries were interviewed about their mentoring practices. Six themes emerged: 1) Academic Identity and Motivations; 2) Challenges to Academic Identity and Career Development; 3) Enhanced Research Productivity; 4) Recognition and Reward; 5) Institution Values Commitment and 6) Developing Other Mentors. In addition to explaining these themes, the authors discuss how the findings can be utilized for academic development and identity formation for faculty.

Introduction

Mentoring is a defining feature of undergraduate research (UR) (Council on Undergraduate Research, 2011; Hensel, 2012; Osborn & Karukstis, 2009). One of the reasons UR is considered a high-impact practice in higher education is that it fosters relationships between faculty and students that promote deep approaches to learning (Kuh, 2008; Lopatto, 2010). That mentoring relationship has been considered essential to student success in UR for over two decades (Shanahan, Ackley-Holbrook, Hall, Stewart, & Walkington, 2015; Shellito et al., 2001). Shanahan and colleagues (2015) recently identified ten salient practices of effective mentors, demonstrating the intentionality needed in UR mentoring relationships.

Multiple research studies have indicated that students benefit from participating in undergraduate research (UR), through increased self-confidence; collegial relationships with mentors; improved communication, critical thinking and problem-solving skills; clarification of career and educational goals; and preparation for careers or graduate school (Laursen et al., 2010, 2012). While the benefits to students participating in UR are clear, and while the need for effective mentorship is essential to realizing those benefits, few studies have considered how mentors may benefit from their role in UR. Laursen and colleagues (2010) asked 80 UR advisors and administrators about the costs and benefits of conducting research with undergraduates. Only 26% of the observations were about the benefits of mentoring undergraduate research, while 53% of responses were related to the difficulties, and 21% referred to additional strains. The three main benefits for mentors were found to be career gains that arise from research productivity, intrinsic benefits, and the personal satisfaction that came from contributing to positive outcomes for students. Buddie and Collins (2011) reported that those faculty who supervised undergraduate research projects were more

likely to report that it would be beneficial for receiving credit towards tenure as well as being viewed more positively for annual reviews. Additionally, Vandermaas-Peeler, Miller, and Peeples (2015) recently found that about 40% of the perceived benefits for UR mentors were psychosocial--the interaction of emotional and social factors of being in relationships. The psychosocial benefits were realized despite the inherent challenges of UR mentoring perceived by faculty.

A study by Baker, Pifer, Lunsford, Greer & Ihas (2015) found that there are a number of institutional factors that support whether a faculty member mentors undergraduate research or scholarly work. These include a supportive culture, having a variety of opportunities, financial incentives, and individual motivators that included the mission of the institution, professional agendas, and previous experience as an undergraduate researcher. The type of institution also seems to play a role; faculty at small, private colleges and at historically black colleges in the United States (institutions founded primarily to serve African American students at a time when many institutions of higher education excluded them) are more likely to involve student-driven research projects; whereas faculty who receive grant funding and those in the sciences are more likely to include undergraduate researchers in their own research projects (Eagan, Sharkness, Hurtado, Mosqueda, & Chang, 2011).

In the limited amount of research examining mentor benefits from UR mentoring, even less is known about the way in which this form of mentoring impacts career development and work-life balance. The aim of this study was to determine how UR mentoring fits into the career profile of award-winning mentors and to determine the factors that motivate engagement as a UR mentor. This paper focuses on the experiences of faculty in four countries, the U.S., U.K., Canada, and Australia, across a diversity of disciplines and institutional classifications, who have been recognized for

their work as undergraduate research mentors. The paper concludes with recommendations regarding how the results can be used for academic development for current and future UR mentors to support more effective practices of guiding student-researchers.

Methods

Participants

Twenty-four award winning UR mentors participated in this study. Participants were recruited based on their winning of an award for undergraduate-research mentoring within five years of the interview. Award winners were identified through internet searches; awards could be institutional or national (e.g., Council for Undergraduate Research Fellows Awards in the U.S., and National Teaching Fellowships in the U.K. which recognized their work mentoring undergraduates). The authors attempted to recruit a diverse sample based on gender, the nature of the mentoring model (from embedded approaches to enquiry within the curriculum, to final-year project mentoring, to one to one mentoring over the summer vacation), discipline, and country. The characteristics of the sample can be seen in Table 1. It is worth noting that the awards for mentoring activity covered a variety of mentoring styles, from embedded curriculum approaches to one-to-one summer research experiences. For several of the mentors, their work as an academic included mentoring approaches with different groups, such that they had funded summer students, a final year research-focused class, and even students working with them voluntarily and in their free time. All participants granted informed consent prior to data collection; the study was approved by all institutional review boards of the authors.

Procedures

After award-winning UR mentors were identified and selected, they were invited via e-mail to participate in the study. If they were interested in being interviewed, the interviewer sent the informed consent form to the participant prior to the interview and a time was scheduled. On the day of the interview, informed consent was received and the interviewer explained the purpose of the study to the participant. Interviews were conducted in-person, through Skype, or over the phone. All interviews were audio-recorded with the consent of each participant.

All interviews were approximately one hour in length and centered around ten questions to learn more about the practices used in UR mentoring. As part of the interview, participants were asked the following two-part question: ***How does undergraduate research mentoring fit into your career? What continues to motivate you as an undergraduate research mentor?*** All interviews were transcribed and entered into Dedoose, a web-based software package allowing multiple coders access to the transcripts for qualitative data analysis. The responses to that two-part question, as well as any other comments related to how undergraduate research fits into participants' careers, were extracted and double-blind coded by two of the authors to identify grounded themes and emergent concepts. Following consultation and reviewing the transcripts, the final themes were confirmed by a third author.

Results

Based on the responses from the participants, six primary themes were identified by the authors: 1) Academic Identity and Motivations; 2) Challenges to Academic Identity and Career Development; 3) Enhanced Research Productivity; 4) Recognition and Reward; 5) Institution Values Commitment; and 6) Developing Other Mentors. The responses of the participants related to these themes are outlined below.

Academic Identity and Motivations

Several mentors talked about their practice of UR mentoring aligning with their career goal of developing a rich undergraduate experience for their students. Often the participants had been mentored in research in their own undergraduate years. A Physical Education professor in Canada expressed a strong sense of internal motivation to provide his students an experience similar to his own in UR--to pay it forward to the next generation. An American faculty member in Pharmacy said about mentoring, "This is what fills me up!" And even though she was pre-tenure, a faculty member in Economics at a large public research university in the U.S. explained, "It is part of the job that I really enjoy, so even if there were no rewards to it from a professional standpoint, I would still do it because it's part of why I like being a professor." This view was echoed by a Principal Lecturer in Medicine in Australia, who put it this way, *"For me, mentoring is just another lovely aspect of being an academic."*

Faculty mentors gained further motivation to engage in UR mentoring when they could see the ways the experience changed the lives of their mentees. An American neuroscientist said, "I feel alive and engaged when bringing students over a threshold." According to an Associate Professor of Elementary Education in the U.S., "If you're doing [UR mentoring] well and truly integrating it within all of the pieces of who you are and what you are doing, it should contribute positively to your research and scholarship as well as your teaching."

Several participants indicated that they developed longstanding friendships with students through UR, and they often used the term *friends* to describe their mentees. They described working with undergraduate researchers along the boundary between themselves as faculty and their mentees as students, trying to make the relationship one of equals. As both the faculty mentors and the undergraduate students were integral to the work, participants articulated the concept, if not the exact language, of "students as

partners" (Cook-Sather, Bovill, & Felten, 2014; Healey, Flint & Harrington, 2016).

They referred to and modelled collaborations with students as the interactions of

scholarly partners rather than as hierarchical exchanges between teacher and learner.

Mentors also saw their students as future colleagues in their fields of study. They

indicated career goals that included not just producing the next generation of college

graduates but, for example, to encourage more women to work in science, or to provide

opportunities for students from underrepresented groups to access the high-impact

practice of UR and potentially go on to become role models themselves. As the

pharmacist quoted previously stated, "I don't think that I could consider myself being

successful in my research if along the line I had not been helping form the next

generation of scientists."

    As a result of engaging in UR mentoring, several participants reported

developing an enhanced interest in teaching and learning practices. A computer science

engineer in the U.S. said he recognized that his mentoring work was "at a different

level" of teaching that "allowed students to grow." He described the practice of

mentoring as "doing the things I care about," in combining teaching and research. That

point was highlighted by another American computer science engineer who said, "The

enlightened people are the ones who say that research mentoring is part of teaching. The

unenlightened ones will say no - [teaching is] what you do in the classroom five days a

week for 50 minutes' worth of lecture." An Architecture professor stated, "I think it's

probably true in all institutions that there's an increasingly blurry line between faculty

members' teaching, research, and service… They are not clearly separated lines." Such

"synergy" between teaching and research—as academic developers have termed the

enhancement of teaching through research and vice versa—can reshape academic

practice and faculty identity (Macfarlane & Hughes, 2009; Reid & Petocz, 2003).

Challenges to Academic Identity and Career Development

Despite the intrinsic motivation to mentor students in research and the sense of joy in the work that many participants expressed , they also talked about the career challenges of UR mentoring. Several believed that their colleagues devalued their UR mentoring because they did not see how it integrated with the primary responsibilities of a faculty member: teaching, scholarship and service. Some participants were treated as lesser scholars because they mentored undergraduates. That point was highlighted by a biologist in the U.K. who said he was "branded" as a teacher, as opposed to being respected as a researcher, as a result of receiving a national teaching fellowship. Although his work was research-focused, and he felt strongly that his professional identity was that of a researcher, his colleagues' views of him seemed to narrow: "I think the perception of me has changed from active researcher to excellent teacher." Many of the award-winning mentors, including a female computer scientist in the U.S., expressed feeling tension about their research capacity when colleagues told them they were not reaching their potential as scholars because of their mentorship of undergraduates.

The amount of time it takes to work with undergraduates was seen as a particular challenge by participants. Sometimes mentoring responsibilities were described as unfairly allocated because other faculty were not engaged in working with undergraduate researchers. The perception that mentoring eats into time for research meant that some of the participants' colleagues either avoided UR mentoring or dropped that aspect of their work when they secured a promotion or large grant. An American computer scientist noted that if only a few members of the faculty take on undergraduate researchers it could lead to burnout for those mentors. She said it was possible to overdo the mentoring, which is an intense experience, by taking on too many

students each year. In order to ensure that she did not get exhausted by the workload and to maintain a high-quality experience for herself and her students, she said she limited the number of mentees in some years.

In addition to faculty colleagues often not recognizing the value of UR mentors' work, participants spoke of workload structures and criteria for tenure and promotion that do not always align with UR mentoring. An English professor described the difficulty this way:

> I gave time that was not scripted into my usual workload. It was counted as service although much of my mentoring work is really highly pedagogical in nature. The university doesn't know what to do or how to recognize that mentoring doesn't always take place in a structured way. I don't view my career as something that is purely mechanistic. I take more of a holistic view. One of the reasons I do what I do is because I love students and I love working with them. For several years, I struggled to remember that and felt abused by the institution.

The lack of institutional rewards, such as workload credit and time allocated for faculty engaged in UR mentoring, was raised as a difficulty by many participants. A faculty member in Neuroscience took a job at a different institution partly because UR mentoring had not been rewarded at the previous one: "Part of the reason I moved [to a new institution] was because I only had so much time and energy, and I couldn't spend it all arguing for the right to sacrifice my time and energy for student well-being."

Lack of funds to support research with undergraduates was also an issue for some participants. The neuroscientist quoted above felt she had to change jobs to get to an institution where undergraduate research was adequately resourced. She described her ideal job being in a university offering honours degrees, but said many such

institutions lacked the resources to support UR in her lab-based discipline. Therefore, she had deliberately moved to a private college in order to access funding for the research work she wanted to carry out with students. The lack of funding was commented on by the English professor too, who said, *"Our institution is typical in giving tons of rhetoric about endless service to supporting undergraduates. When it comes right down to it, the money is often not forthcoming, and the time is not forthcoming. So it's a struggle."*

Other challenges mentioned by the participants relate to how UR fit into their institution's mission and the degree to which faculty colleagues and administrators valued mentoring work. "In terms of career advancement, [UR mentorship] is not necessarily something that's going to make a difference in terms of my evaluations*,"* according to the Canadian faculty member in Physical Education. The Principal Lecturer in Medicine in the U.K. concurred: *"They say the culture at the university is changing, but if it is, it's changing very, very slowly. Research, publications, and funding is something we promote too readily."* The same participant spoke of the difficulty for UR mentors to get promotion in the institution: "The highest you can probably get on a promotion and tenure portfolio is probably associate professor; beyond that is really hard to get." Barriers to promotion for UR mentors, whether implied or formalized, have major implications for academic developers, deans, and other administrators, who need to help change perceptions of UR as a distraction from or in competition with the work that "counts" for tenure and promotion.

Enhanced Research Productivity

Despite the many challenges and the perception on some campuses that UR mentoring negatively affects research capacity, many of the award-winning mentors said that their mentorship of undergraduate students actually enhanced their research

productivity. Two common themes mentioned by the participants were that they felt their mentoring of UR both enhanced their productivity through co-authoring with students and expanded their research opportunities based on ideas from students. The laboratory model in particular was seen as a way of maximizing publications. Although in most cases participants said their institutions did not have especially high expectations for scholarly output, publication was seen by them personally as a highly desirable outcome. Through the work with undergraduates and thinking about how to help them overcome challenges, UR mentors were able come up with new solutions for their own work habits as well. A psychologist in the U.S. said, *"The skills and practices I put into place with [my undergraduates] have also really helped me to identify stumbling blocks and get over writer's block faster, and they also tend to spur on a lot of new research ideas. I've seen an increase in publication rates."*

Besides just increasing outputs, working with undergraduate students helped mentors think about research in different ways, allowing them to expand their own research interests. The participant in Elementary Education reported, *"By looking at the work [the students are] doing and reading up on the things they're studying, it actually helps me as a scholar to just keep up with the literature."* A biologist at a U.S. university said, *"There is a lot of intersection between student ideas and the trajectory of my other work, and I consider my students' work my own work, too."*

In one case, the mentoring of architecture students in the U.K. in group-based research through authentic, live projects led the mentor on to a research career, changing her identity significantly. Other faculty needed to develop their research skills in a new direction in order to mentor their students effectively, as they were following student-driven inquiry. A Pharmacy professor in Australia had to come to grips with new

software programs in order to supervise students in the use of statistics packages and qualitative data-analysis software with which the mentor was not familiar.

Recognition and Reward

A number of mentors talked about how their mentoring of undergraduate researchers helped them gain some recognition. The recognition typically started at the individual level but then extended beyond the university. At the *level of the individual* many faculty described feeling valued due to their successful mentoring practice. A computer science engineer in the U.S. said he "gained a reputation" through his mentoring activity, and the faculty member in Physical Education in Canada reported that UR mentoring had given him positive exposure. For some the role of UR mentor was more significant than their other roles at the institution. An American mathematician said that although his research was adequate and his teaching was good, UR was his "place to be successful," especially because mentoring was valued by his institution. He described UR mentoring as "the driving experience" of his career. A Principal Lecturer of Law in the U.K. had a similar experience: "My career path is now, in many ways, inextricably linked to what I've been doing in terms of undergraduate research mentoring, specifically in the context of experiential learning.*"*

At the departmental and institutional levels, many participants found their mentoring was a means of gaining recognition and success. A participant from Canada said his mentorship helped the productivity of his lab and helped him "gain exposure" in a large university. The recognition led to a new job title (Director of Research) that helped distinguish him at the university--a doctoral-granting institution with a focus on high-quality student experiences in addition to research productivity. The female computer scientist in the U.S. said that when the university is committed to UR, the positive alignment of mentoring with the university's mission is a good thing for

mentors. An American psychologist acknowledged, *"I maybe err on the side of doing too much, but it fits beautifully into my career."*

Beyond their university, mentors provided a clear sense of the contribution that their mentoring made to employability and to securing jobs for graduates as well as to the general research endeavour. Particular emphasis on this contribution was providing access to UR for students from underrepresented groups. The nature of the science-related awards that were provided particularly in the U.S. and Canada may have biased this finding. Exposure gained from their mentorship was also identified by some participants, including the architect in the U.K., as leading to increased networking.

Institution Values Commitment

The fifth theme that emerged from the interviews was that some participants found it important that their institution valued their commitment to UR mentorship. However, as pointed out in the second theme, the challenges of UR mentoring, institutions do not always value mentoring. A participant from a doctoral-granting institution in Canada commented, *"I think there is a big push at a university such as ours to distinguish ourselves from competitors. [UR mentoring] fits well within the main goal, the visions, the ideology behind our faculty and our approach."* A faculty member of Urban Planning in the U.S. stated, *"For the most part, focusing on mentoring is not a good career move for most people. But I got lucky and found a way to make it work."* He went on to say, *"There is a conversation that is emerging on campus about trying to think more broadly about the work that faculty do and how to assess that work for tenure or promotion purposes, and I think mentorship will probably be a part of that conversation."*

Developing Other Mentors

Relationships with other colleagues were mentioned frequently in terms of participants enhancing and sharing their mentoring practices. The thrust of all the comments relating to "mentoring other mentors"—providing guidance to faculty colleagues who were newer to UR mentoring—was that working with colleagues helped participants to think about their own mentoring and become more reflective practitioners. This point was articulated well by the Reader in Bioscience in the U.K., who said, *"Being recognized as an exceptional mentor has had an impact on the authority that I felt I was able to have in guiding people on the process of supervising and mentoring undergraduate research."*

Mentoring colleagues in practices of UR mentoring was mentioned by all the U.K. participants. The bioscientist quoted above said, *"I think I developed an expertise in mentoring, not just the students, but the other staff."* Sometimes there was team-based mentoring occurring anyway and colleagues were sharing their methods. There was widespread recognition among the British participants of the importance of sharing good practices and learning from others across the institution and in their own department.

In North American universities, participants spoke more often about mentoring the graduate students who were also involved in the UR mentoring process. A participant from Canada believed that it enhanced the graduate student experience to learn about UR mentoring from professors. Other faculty mentioned networking with other mentors beyond their own institution. The architect in the U.K., for example, had created her own networks to find out if others in her field were working in similar ways. The networks opened up other sharing opportunities, such as collaborative writing for special issues of journals and other publications and organizing conferences.

Discussion and Recommendations

Many of the findings in this study around the themes of academic identity, enhanced productivity, and recognition and reward are consistent with previous research (Laursen et al., 2010; Lieff et al., 2012; Quigley, 2011). Quigley (2011) suggested that academic identity is "complex and composed of many competing influences" and is "a constantly shifting target, which differs for each individual academic" (p. 21). Understanding the aspects that influence academic identity are important in the development of the faculty member.

The institutional value of commitment to UR mentorship was brought up by some of the mentors in this study. Academic developers dedicated to building a supportive culture for UR may note the need for creating a highly visible, well articulated, unified vision of faculty roles. Brew and Cahir's (2014) guidance for academic developers on integrated teaching and research offers examples and means of sustainable support for cohesive, institutional valuing of faculty work. Similarly, in a meta-analysis, Spronken-Smith, Walker, Batchelor, O'Steen, and Angelo (2011) found that the values of the institutional administration and resources available were potential challenges to implementing inquiry-based learning, suggesting the need for institutional support. Their findings suggested that academic developers are needed both to communicate a philosophy of student-centred research and inquiry and to guide faculty who are in research-intensive institutions in effective teaching and mentoring practices. The importance of mentorship, UR mentorship being one form, appears to be more commonplace at teaching-intensive institutions, though it is expanding to a broader diversity of institution types because of the many benefits that result from UR for both students and faculty (Laursen et al., 2010; Spronken-Smith et al., 2011).

There were still many questions by participants about where UR mentorship fits into the evaluation process for promotion and tenure, so it is imperative for academic

developers to help address the concern about how UR mentoring fits within and even enhances teaching and scholarship. It is interesting to note that the award-winning UR mentors felt that there was a commitment to UR in their own institutions, even as several expressed worry about how UR mentoring is under-appreciated elsewhere or had been negatively evaluated by some of their own colleagues in the past. This experience of gaining ground in the valuation of UR mentoring is consistent with Buddie and Collins' (2011) findings that UR mentors said their involvement in UR would help them earn tenure and future merit. In the UK, there has been an increase in the importance of teaching activities due to the government's Teaching Excellence Framework which aims to link teaching quality to funding (Department for Business Innovation & Skills, 2016). This framework has led to institutions recognizing the importance of promoting faculty based on teaching excellence, under which UR mentoring would fit.

Similarly, while not as common, a number of the participants said that through their UR mentorship they were able to become more reflective about their mentorship practices in general. They were able to expand mentorship from just undergraduates to graduate students, staff, and other faculty. Such experiences, as well as research on the Wisconsin Mentoring Seminar based at the University of Wisconsin-Madison (Pfund, Pribbenow, Branchaw, Lauffer, & Handelsman, 2006), suggest that the training of new mentors can be both valuable for the new mentors and rewarding for the experienced UR mentors leading the work. The efforts to train new mentors therefore may be fruitfully shared by academic developers and mentors recognized as particularly effective. However, this idea runs counter to the work by Behar-Horenstein and colleagues (2010), who found students reported meeting less frequently with faculty than what faculty reported. This idea has not been previously discussed in the literature

as a benefit of UR mentoring, but holds potential for academic developers to discuss successive skill development of UR mentoring.

This study provides a unique contribution to the literature on how undergraduate research mentorship fits into the careers of faculty. However, there are some limitations to the study that should be taken into consideration. The main limitation is related to the sample used in this study. The common attribute among these participants was having been recognized with an award related to their undergraduate research mentoring. While the hope is that this sample can provide insightful information that can benefit others, there may be local factors at play and the results may not translate to all higher education contexts. As mentioned previously, while the sample represents four countries, the data come primarily from institutions in the U.S. In addition to this, the context of the mentorship (e.g., within a course, one-to-one) varied and may influence the potential outcomes for the student and mentor. Future research should examine the influence of these contexts and the research environment to determine how they influence the motivations of the mentor.

What we have learned from analysing the responses of award-winning UR mentors called to mind Brew and Jewell's (2012) proposal for academic developers to expand the benefits of UR. Their context in Australia reflected course-based inquiry especially, while the UR mentoring in this study covered a broad range of mentoring situations in four countries; nonetheless their key suggestions regarding the blending of roles of the teacher-scholar and the significance and rewards of UR mentoring support our findings as well. We propose the following recommendations to academic developers working with faculty who are new to, or seeking to improve, UR mentoring.

Recommendation 1 - Emphasize the importance of UR mentorship and its powerful blending of roles for faculty members

A recent article examined the commitment to teaching of award-winning faculty at a research-intensive university and came up with a recommendation to "Differentiate faculty roles in ways that honours both teaching and research excellence" (Mitten & Ross, 2016, p. 10). That separation of roles is counter to what many of the award-winning faculty in our study discussed. They expressed appreciation for how UR mentorship allowed them to blend their roles as teachers and scholars, describing a synergy similar to that advocated over the years in this journal (Macfarlane & Hughes, 2009; Reid & Petocz, 2003). The trend toward a blended teacher-scholar identity has been seen at many institutions that have adopted tenure and promotion documents that reference mentorship of students as an integral part of being a faculty member. Teacher-scholar synergy is also reinforced by the plethora of models of embedding UR in the curriculum (Zimbardi & Myatt, 2014).

Recommendation 2 - Ensure that faculty see mentoring benefits regarding enhanced research productivity

Many of the award-winning faculty members in our study reported increased scholarly productivity when working with undergraduates and gave examples of how working with students expanded their research opportunities. This finding has also been reported by Laursen and colleagues (2012). A common concern or misconception of colleagues of the award-winning mentors is that UR mentorship takes away from productivity and therefore should be avoided. This does not have to be the case, nor should it be the norm.

Recommendation 3 - Develop reward systems to acknowledge the importance of UR mentorship

Many of the award-winning UR mentors interviewed for this study received institutional rewards that recognized their UR mentorship. The development of similar

awards could be one avenue for departments and universities to highlight exceptional UR mentorship. Additionally, universities could consider providing compensation either monetary or through course releases for those who mentor UR, in an effort to highlight the importance of the work and its relationship to the other responsibilities of faculty, namely, teaching, scholarship and service. This would be consistent with the findings by Baker et al. (2015) who found financial incentives to be a supporting factor for faculty mentoring undergraduate research. We recommend that universities consider how UR mentorship is positively encouraged and explicitly mentioned in criteria for promotion and tenure.

Recommendation 4 - Create opportunities to share excellent practice in UR mentorship

Many institutions have academic developers focused on academic's teaching development, or in some cases, their holistic academic development as teachers and researchers. These centers are often run by full-time staff whose main goal is academic development. Currently many UR programs are administered by faculty with reassigned time. Universities should consider making UR program administrator positions full-time, with the goal of linking UR and academic development, creating UR mentorship programs that focus on excellence in practice. Pfund et al. (2006) have demonstrated that the implementation of seminars focusing on mentoring can be effective for student outcomes. These faculty development programs may also be helpful in focusing on how UR mentorship fits into the formation of academic identity through the personal, relational, and contextual domains (Lieff et al., 2012).

The outcomes hoped for with these recommendations are the broader participation of students in UR and more faculty taking on mentorship because of the

significant benefits that can be gained for both parties. Additionally, these

recommendations may help promote faculty careers and academic-identity formation.

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Table 1. Participant Characteristics

Characteristic	Distribution
Sex	Male = 9 (37.5%) Female = 15 (62.5%)
Country	United States = 18 (75.0%) United Kingdom = 4 (16.7%) Australia = 1 (4.2%) Canada = 1 (4.2%)
Discipline	Arts and Humanities = 5 (20.8%) Social Sciences = 8 (33.3%) STEM = 8 (33.3%) Allied Health = 3 (12.5%)
Rank	Assistant Professor = 2 (8.3%) Associate Professor = 16 (66.7%) Professor = 6 (25.0%)
Institution Classification	Undergraduate = 5 (20.8%) Master's Comprehensive = 4 (16.7%) Doctoral Granting = 15 (62.5%)
Award Type	National = 10 (41.7%) Institutional = 14 (58.3%)
Years of Mentoring	15.5 ± 9.1 years