



## Faculty as Mentors in Undergraduate Research, Scholarship, and Creative Work: Motivating and Inhibiting Factors

Vicki L. Baker, Meghan J. Pifer, Laura G. Lunsford, Jane Greer & Dijana Ihas

To cite this article: Vicki L. Baker, Meghan J. Pifer, Laura G. Lunsford, Jane Greer & Dijana Ihas (2015) Faculty as Mentors in Undergraduate Research, Scholarship, and Creative Work: Motivating and Inhibiting Factors, *Mentoring & Tutoring: Partnership in Learning*, 23:5, 394-410, DOI: [10.1080/13611267.2015.1126164](https://doi.org/10.1080/13611267.2015.1126164)

To link to this article: <https://doi.org/10.1080/13611267.2015.1126164>



Published online: 28 Dec 2015.



Submit your article to this journal [↗](#)



Article views: 347



View related articles [↗](#)



View Crossmark data [↗](#)



Citing articles: 12 View citing articles [↗](#)

## **Faculty as Mentors in Undergraduate Research, Scholarship, and Creative Work: Motivating and Inhibiting Factors**

Vicki L. Baker  
Albion College

Meghan J. Pifer  
Widener University

Laura G. Lunsford  
University of Arizona

Jane Greer  
University of Missouri-Kansas City

Dijana Ihas  
Pacific University

In this study, we sought to contribute to research about the high-impact practice of undergraduate research from the understudied faculty perspective. We relied on focus group data from faculty members ( $N = 41$ ) across five institutions to better understand the supporting and inhibiting factors that contribute to faculty members' engagement in mentoring undergraduate research. We offer implications for research and practice.

*Keywords:* faculty, undergraduate research, qualitative methods

The student–faculty mentoring relationship illustrates the classic apprentice model (Allen, 2007) and serves as a mechanism whereby students' learning, personal and professional development, and socialization are supported in the academy (Salsman, Dulaney, Chinta, Zascavage, & Joshi, 2013). In the case of undergraduate student mentoring, a faculty member imparts knowledge, provides academic and career support, and may also provide personal support. Most research on undergraduate student–faculty mentorships focuses on the student perspective; there is a knowledge gap in the literature regarding the faculty experience in such relationships. In their review, Crisp and Cruz (2009) noted that only 2 of 42 studies of college student mentoring were “novel in attempting to understand mentoring through the lens of the mentor” (p. 530). Few researchers (e.g. Potter, Abrams, Townson, & Williams, 2011) have focused on the faculty perspective, particularly the factors that influence faculty members' willingness to mentor undergraduate research, scholarship, and creative work (URSCW); faculty

---

Vicki L. Baker, Economics & Management, Albion College; Meghan J. Pifer, Higher Education, Widener University; Laura G. Lunsford, Psychology, University of Arizona; Jane Greer, English; Women & Gender Studies, University of Missouri–Kansas City; Dijana Ihas, Music Education, Pacific University.

Correspondence concerning this article should be addressed to Vicki L. Baker, Economics & Management, Albion College, 611 E. Porter Street, Albion, MI 49224, USA. E-mail: [vbaker@albion.edu](mailto:vbaker@albion.edu)

perceptions of and experiences with mentoring URSCW; or how the faculty experience with URSCW varies across career stages, disciplines, institution types, or personal characteristics.

We relied on the Council for Undergraduate Research (CUR) for guidance to define undergraduate research supervision as the practice of helping students manage the crucial daily tasks that support engagement in scholarly endeavors. We differentiate supervision from mentorship. We drew on the CUR conceptualization of mentorship in an undergraduate context as those who provide a role model by living and narrating their roles (as a scholar, researcher, and teacher) in ways that students can try for themselves.

The aim of this study was to develop a more nuanced understanding of faculty mentors' participation in, and perspectives about, URSCW. This work is part of a larger pilot study; the findings presented here were guided by two research questions:

- (1) What factors enable or support faculty engagement in mentoring URSCW?
- (2) What factors inhibit or challenge faculty engagement in mentoring URSCW?

Our intention was to step away from consideration of how URSCW benefits students and institutions and instead focuses on faculty mentors' experiences, perceptions, and understanding of URSCW. Our findings may inform efforts to promote and support faculty engagement in URSCW. We seek to contribute to an emerging body of scholarship that is concerned with the factors that promote and inhibit faculty engagement in URSCW, and the mitigation of barriers to faculty engagement in URSCW mentoring practices. The overarching interest is to provide more opportunities for undergraduate students to experience the educational benefits of participation in URSCW. Such benefits to students may include improved research skills, persistence in a given field, and increased awareness and interest in graduate school (Hippel, Lerner, Gregerman, Nagda, & Jonides, 1998). For faculty, benefits include support toward scholarly interests and improved teaching effectiveness (Elgren & Hensel, 2006).

In this paper, we provide an overview of the mentoring literature, specifically focusing on the mentor's perspective. We highlight research about topics such as benefits and outcomes to the mentor, factors that contribute to willingness to mentor, mentoring disincentives, and mentoring in undergraduate research experiences. We then provide an overview of the research methods used in this study, followed by study findings. We conclude with a discussion of implications for mentoring and URSCW research and practice.

### **Evolution of Mentoring Research: Accounting for the Mentor's Perspective**

In 1985, Kathy Kram introduced her groundbreaking research, *Mentoring at Work*. Situating her research in an open systems perspective, she examined the role of relationships in people's development by accounting for their career histories and present situations as well as the organizational contexts within which they were embedded. Thirty years later, her work still serves as the foundation for this line of inquiry and provides a useful starting point to explore the mentor's experience by highlighting how mentors contribute to the personal and professional development of those they support through mentorship.

### Perceived Benefits & Positive Outcomes

Researchers and practitioners have long touted the academic and professional benefits of mentoring for students (protégés) in higher education. Benefits include academic retention and persistence (Pascarella & Terenzini, 2005), higher grade point averages (Campbell & Campbell, 1997), and professional skill development (Schlosser, Knox, Moskovitz, & Hill, 2003). Other development supported through mentorship includes professional networking (Johnson, 2007), identity development (Baker & Pifer, 2014), an introduction to the norms of collegiality (Elder & Trapp, 2010), and increased satisfaction with the undergraduate educational experience (Bauer & Bennett, 2003). Behar-Horenstein, Roberts, and Dix (2010) and Dolan and Johnson (2010) found that students who participate in undergraduate research experiences and report positive mentoring experiences as a result, see increases in motivation, interests in associated career fields and job search and graduate school pursuits, and gain social capital and networking skills.

The benefits for protégés also extend to doctoral study. Lunsford (2012) found that participation in undergraduate research predicted scholarly productivity and satisfaction with one's advisor for those students who went on to pursue graduate education. Further, faculty members who encountered mentors in their honors year (equivalent to undergraduate research in the US system) were more likely to report positive experiences with their own protégés (Lunsford, 2014).

The National Research Council (Schowen, 1998) and the National Science Foundation (2000) urged the practice of undergraduate research as an integral component of the educational experience for college students. Since that time, the supervised research experience has grown in prominence as a component of undergraduate education. Although the benefits of engaging in mentorship have been well documented for undergraduate students (see, e.g. Fuentes, Alvarado, Berdan, & DeAngelo, 2014), less is known about the benefits and challenges to faculty members who mentor students, particularly in URSCW (Eagan, Sharkness, Hurtado, Mosqueda, & Chang, 2011). Johnson (2007) drew attention to the limited number of studies that specifically address outcomes associated with serving as a mentor.

There is limited research about the outcomes for faculty members who mentor undergraduate students. However, researchers have revealed several factors that seem to influence faculty engagement in URSCW. For example, Johnson (2007) summarized the benefits realized by the mentors who support students as protégés. Johnson found that faculty mentors experience positive outcomes including personal satisfaction, fulfillment, rejuvenation, networking, friendship and support, and reputational gains for talent development. Eagan et al. (2011) found that the institutional context has a significant influence on faculty members' probability of engaging in URSCW. First, associated incentives related to tenure and promotion policies influenced faculty engagement in URSCW. Second, institution type was associated with participation; faculty members at liberal arts colleges and Historically Black Colleges and Universities are more likely to support undergraduate students in research experiences. Einarson and Clarkberg (2004) found that teaching undergraduate courses, having outside funding, and being a pre-tenure faculty member all positively predicted faculty interest in URSCW. Behar-Horenstein et al. (2010) and Dolan and Johnson (2010) also identified faculty perceptions of the outcomes of URSCW, including increased scholarly productivity, professional rejuvenation, and remaining current in one's field of inquiry. Finally, Evans and Witkosky (2004) found

that being involved in mentoring URSCW encouraged faculty to maintain their own research efforts. Broadening the lens from the faculty experience to research about the mentor allows for further understanding of the factors that may contribute to faculty members' willingness to participate in URSCW.

### **Willingness to Mentor**

Several themes in the mentoring literature are germane to understanding the factors that contribute to a willingness to engage in URSCW. Two of those themes particularly relate to this study: Prior experience (either as a mentor or protégé) and individual differences.

**Prior Experience.** When discussing one's willingness to mentor, the first critical area to explore is prior experience as a mentor and as protégé (Bozionelos, 2004), as positive experiences may lead to one's willingness to serve as a mentor. For example, Allen, Russell, and Maetzke (1997) found that a protégé's satisfaction with mentorship in an MBA program was positively related to willingness to serve as a mentor in the future. Additionally, while Ragins and Cotton (1993) were primarily concerned with gender differences in mentoring, their study revealed that prior experience in a mentoring relationship, either as a protégé or mentor, led to a greater willingness to mentor compared to those who lacked mentorship experience.

**Individual Differences.** Researchers that focus on individual differences appear to illuminate variance in willingness to mentor as connected to personality traits. Bozionelos (2004) found that higher scores on the trait of openness was significantly associated with being a mentor for administrators at three universities located in England; although he noted the role of personality was limited. Allen (2003) sought to identify key individual difference variables related to one's propensity to mentor others. In addition, she examined personality characteristics and personal motives as factors that explain variation in and the extent to which a mentor provides career and or psychosocial mentoring. Her results revealed that prosocial personality characteristics such as empathy and helpfulness, as well as instrumental approaches to mentoring (e.g. goal- or target-driven), contributed to one's willingness to mentor. She suggested that these different factors were perhaps more influential than prior mentoring experiences in determining one's willingness to mentor. Wang, Noe, Wang, and Greenberger (2009) explored how attachment styles and mentoring experiences influence willingness to mentor. They found that regardless of role (mentor or protégé), highly avoidant or anxious individuals were less willing to mentor in the future.

### **Mentoring Disincentives**

Some researchers have examined disincentives that may reduce faculty interest in mentoring undergraduates (Johnson, 2002; Prince, Felder, & Brent, 2007). Johnson (2002) noted that many institutions adopted policies that reduced the likelihood of faculty members being rewarded for mentoring students. Additionally, Johnson (2007) noted that high undergraduate student-faculty ratios make the development of mentoring

relationship more challenging. Faculty workload (Link, Swan, & Bozeman, 2008) and time allocation (Townsend & Rosser, 2007) are other documented barriers for faculty to engage in mentoring URSCW. As noted by Johnson (2007), some mentorships are also prone to conflict and dysfunction, which may lead to negative outcomes. Lunsford, Baker, Griffin, and Johnson (2013) proposed a typology of costs to faculty who engage in mentoring at the graduate level, based on the primary psychosocial (burnout, anger, grief) and professional (diminished reputation, decrease in productivity, risk of ethical transgressions) functions of mentoring.

### **Mentoring Experiences in Undergraduate Research**

Jacobi (1991) highlighted the need to better understand both formal and informal mentorships in undergraduate and graduate education, including how and in what ways mentoring contributes to academic success, and which mentoring functions are most important to the academic success of college students. Crisp and Cruz (2009) sought to extend Jacobi's efforts and completed a comprehensive review of the literature focused on mentoring college students. They outlined the areas in which mentoring research was still challenged theoretically and methodologically but also discussed areas in which the literature achieves consensus. Three points of consensus about mentoring are: (a) mentoring relationships are focused on the growth and development of an individual, which can be realized in various forms; (b) mentoring experiences may include broad forms of support that include professional/career and personal supports; and (c) mentoring relationships are personal and reciprocal.

Anderson and Shore (2008) began to differentiate undergraduate and graduate student mentoring by noting that "undergraduate mentoring is by necessity less professionally generative than graduate mentoring ... and is more transformational" (p. 4), given that mentors help undergraduate students answer critical questions related to identity changes germane to the undergraduate academic experience, as influenced by factors such as disciplinary and institutional contexts. Mentoring undergraduates may therefore require particular institutional-level supports and training for faculty members.

To date, mentoring researchers have favored the perspective of the protégé. There is some evidence that faculty mentors of URSCW experience both benefits of and barriers to URSCW, which is likely to shape their willingness to devote time to the practice. More research is needed to understand the perceptions faculty members hold about how URSCW affects their work and professional experiences, from both those who have engaged in it and those who have not. Such research may inform institutional strategies to motivate and reward faculty participation in mentoring URSCW.

### **Methods**

To better understand faculty experiences with and perceptions of URSCW, we held focus groups with participating and non-participating faculty members at five institutions, representing a range of institution types and geographical contexts. Prior to data collection, we obtained IRB approval to conduct research from all participating institutions; the informed consent process covered participation in the focus group, including the audio-recording of all sessions. All focus groups were audio recorded and transcribed verbatim.

### Research Sites

We collected data at Albion College; Elon University; Pacific University; the University of Missouri, Kansas City; and Widener University. A brief description of each site helps to situate faculty experiences with URSCW within the institutional contexts.

**Albion College.** Albion College is a mid-western residential liberal arts college located in Albion, Michigan, with a heritage rooted in the Methodist tradition. During the past 15 years, Albion has added several pre-professional programs and institutes, and an award-winning first-year experience and undergraduate research program—the Foundation for Undergraduate Research, Scholarship, and Creative Activity (FURSCA). Albion College has been a leader in supporting UR across the disciplines since 1999, with an endowed program and student participation in all disciplines and across all four years. Albion has an enrollment of approximately 1,400 students.

**Elon University.** The Christian Church founded Elon University in 1889. It is a private comprehensive university located in a rural area in North Carolina. There are approximately 5,700 undergraduates who study liberal arts and sciences, with an additional 700 graduate students. The institution has accredited schools of law, business, communications, and education. Doctorates are available in law and physical therapy. Diversity and global engagement are among Elon University's core values.

**Pacific University.** Pacific University was founded in 1849 in Forest Grove, Oregon on land granted to Congregationalist pioneers by Oregon Territorial Legislators. Pacific University serves 3,600 students offering undergraduate, graduate, and professional degrees in the liberal arts and sciences, education, business, optometry, and the health professions. It emphasizes student engagement through public service, experiential learning, international study, internships, and student research. Pacific University is adding scaffolding to courses during the first three years to prepare students for capstone projects. An improved support system for undergraduate research in the arts and humanities is also under development.

**The University of Missouri, Kansas City.** The University of Missouri, Kansas City (UMKC) was originally chartered as the University of Kansas City in 1929. Classified as a Research University (high research activity), UMKC currently serves nearly 16,000 students, most of whom are non-residential. Fifty-five percent of UMKC's student population includes undergraduates, enrolled in over 50 majors or programs in 125 academic areas. UMKC is currently working to promote a more robust culture of undergraduate research and has increased the number of students' participating in undergraduate research five fold in recent years.

**Widener University.** Founded in 1821, Widener University is a private comprehensive university. The main campus is located in Chester, Pennsylvania, about 20 min

southwest of Philadelphia. It offers liberal arts and sciences and professional degrees at the associate's, baccalaureate, master's, and doctoral levels. About 3,500 undergraduate students are enrolled at Widener, in addition to 2,500 graduate students. Widener is committed to civic engagement, experiential learning, and leadership; its strategic plan emphasizes a focus on high-impact practices, including undergraduate research. Through that guiding plan, the University is engaged in efforts to strengthen faculty and student engagement in URSCW.

### **Data Collection**

We sought the perspectives of faculty members who have participated in URSCW, as well as those who have not. In using focus groups, our aim was not to generate consensus, but instead to foster a rich discussion of diverse views and experiences among people with similar backgrounds and experiences (Brinkman & Kvale, 2015; Patton, 2015). The use of focus groups was appropriate, given the lack of research that accounts for the faculty member's perspective and the need for mentoring research to have a "more holistic and an in-depth understanding of mentoring relations" (Scandura & Pellegrini, 2007, p. 83). A focus group design can be particularly effective for exploratory studies (Brinkman & Kvale, 2015) and those about narrowly focused topics (Patton, 2015).

Because there is little research about faculty perceptions of and engagement in URSCW, we conducted this pilot study in part to develop and test data collection instruments. Thus, the focus group protocol was constructed primarily from the researchers' collective knowledge of academic work, institutional contexts of and support for faculty work, and URSCW. The protocol was then reviewed and vetted by a group of faculty members and administrators with experience in URSCW. Prior to beginning the focus groups, we distributed a handout that included the following definition as a means of establishing a common language about undergraduate research:

For the purposes of this study, we rely on the Council on Undergraduate Research (CUR) definition of undergraduate research: *An inquiry or investigation conducted by an undergraduate student that makes an original intellectual or creative contribution to the discipline.*

We conducted the study as a team of researchers collecting data from multiple institutional research sites; a structured script was used to standardize data collection (Patton, 2015). We used two scripts, one for faculty members who had participated in mentoring undergraduate research and a second for those who had not. We collected data from institutional administrators (in most cases, the provosts) at the research sites when it was available. We also contacted campus directors of undergraduate research, which included instances of both administrators and faculty members serving in that role. We obtained existing institutional data, as well as insights from the directors, to discern which faculty members had participated in URSCW. We then reached out to faculty members who had not participated in URSCW through the directors and other campus contacts. The informed consent process included a screening question to confirm that faculty members were in the appropriate focus group based on whether or not they had participated in URSCW.

We collected demographic information including participants' sex, race/ethnicity, rank, appointment type, discipline, and if they held an academic leadership role in their

departments or institutions. Participants also described their current and previous engagement in URSCW in detail, as well as the faculty professional development activities in which they had participated in the past five years.

There were six guiding questions in both scripts, worded to reflect the presence or absence of participants' prior involvement in undergraduate research. These questions addressed participating faculty members' (a) perceptions of URSCW at their institutions, (b) their experiences (and mentorship) with undergraduate research, (c) the factors that influenced their decisions to participate in undergraduate research, (d) sources of support both present and lacking, (e) and challenges that limited or prevented participation in undergraduate research. We closed with two open-ended questions about participants' visions for and beliefs about URSCW at their institutions. On average, focus groups lasted an hour.

### **Sample**

The final sample included faculty members with prior experience mentoring URSCW ( $n = 31$ ) from all five institutions, as well as focus groups with faculty members ( $n = 10$ ) with no prior experience in mentoring URSCW from the University of Missouri-Kansas City, Pacific University, and Widener University. Men ( $n = 21$ ) and women ( $n = 20$ ) were equally represented. Most of the faculty members were in math and science ( $n = 17$ ) disciplines, with nine in social sciences, six from fine arts, five from humanities, and four from education/human services. Almost half of the faculty members were at the tenured, associate professor rank ( $n = 18$ ), with seven faculty members being at the assistant rank and eight faculty members holding the rank of full professor. Four faculty members were non-tenure track (NTT) and 11 participants held administrative positions (four of these reported administrative roles only). Most of the faculty members ( $n = 38$ ) reported mentoring an undergraduate researcher in the last five years and over half ( $n = 29$ ) mentored students who were also their advisees.

### **Data Analysis**

We returned to the guiding focus group script to begin the data analysis process. First, each researcher completed summary forms of the transcripts from the focus groups she conducted, based on the protocols, and submitted them to the first two authors, who then developed an initial list of themes from the summary forms. We then returned to the transcripts to further test and refine those themes, engaging in an iterative coding process (Patton, 2015).

### **Findings**

We begin this section by sharing data from the demographic questionnaire as a means of creating a more complete picture of focus groups participants. To that end, we provide insights into practices such as engagement in mentorships (both as mentor and protégé) and other complementary professional development activities that address our focus on the institutional factors that support or inhibit faculty engagement in URSCW.

### **Mentoring Experience & Professional Development**

We were interested in possible motivations for faculty members' willingness to mentor. Thus, we examined their mentoring experiences with other faculty. Faculty members who had previously engaged in mentoring other faculty members were significantly more likely to mentor a faculty member ( $\chi^2(1) = 5.6, p = .02$ ). The *c* test used the Yates correction for continuity. There was not such a relationship for faculty members engaged in mentoring as a protégé. About half of the faculty members reported having no mentor at their institution ( $n = 20$ ) at the time of the focus group. About 40% of the faculty members previously mentored and were currently mentoring another faculty member ( $n = 16$ ); another 40% never mentored another faculty member ( $n = 17$ ).

There was insufficient power to test differences in productivity between faculty members who had not mentored students ( $n = 10$ ) and those who had ( $n = 31$ ). However, 90% of faculty members who mentored undergraduates published a paper in the last five years while only 40% of the faculty members who did not mentor undergraduates had done so. There were no significant differences by rank. A similar pattern emerged for faculty members who conducted funded research or development projects. Eighty-six percent of faculty members who mentored undergraduates conducted such research in the last five years while only 40% of the faculty members who did not mentor undergraduates had done so. Additionally, we saw a trend for those faculty members who did serve as mentors of URSCW. They, on average, published research, attended summer institutes and professional conferences, and conducted funded research and presentations more than their peers who did not mentor students in URSCW.

### **Supporting and Inhibiting Factors**

In the following sections, we summarize the key themes that participants discussed related to the factors that support and inhibit their participation as mentors in URSCW at their respective institutions. We begin with a discussion of the supporting factors, which include (a) a culture of URSCW, (b) variety of opportunities, (c) individual motivators, and (d) financial incentives.

#### **Supporting Factors**

**Supportive Culture.** Focus group participants across the institutions expressed positive feelings about engaging in URSCW. Participants articulated the value added by such experiences for students and faculty, noting the learning and professional development that occurs as a result. One faculty member explained,

I believe [this institution] does a great job fostering URSCW. I think [program name] and the individual faculty members really do a great job instilling the importance of [URSCW] in students.

Similarly, another participant observed:

I see a big part of the research as modeling for students how research is done, particularly in the sciences, and just giving them an experience – particularly in chemistry – outside of lab courses, which are notoriously unreliable models for what real science research is all about.

Faculty participants were consistent in their opinions about the importance of URSCW and how such experiences serve as important hands-on learning opportunities outside of the classroom.

Institutional culture appeared to be one of the foundational elements necessary to creating an environment in which faculty sought out and engaged in URSCW. An institutional commitment to such practices, regardless of institution type, was cited as one of the top supporting factors for faculty participants.

**Variety of Opportunities.** We asked faculty members about the types of experiences in which they work with students in a research capacity. The most common opportunities were summer research experiences, which appeared to dominate the URSCW programming at the institutions in our sample. Other forms of experiences include thesis work, formal semester research programs, and individualized course work such as directed studies. While a variety of opportunities existed across the institutions, there was a lack of clarity among participants and across institutions about what constitutes URSCW, given the wide range of options that are present in which faculty members engage in and support undergraduate students in research experiences. Some faculty participants were unclear what URSCW was, and if it could be part of classroom learning or had to be formalized out-of-class work to qualify.

**Individual Motivators.** We were also interested in better understanding what influenced faculty members' decision to engage in URSCW. The most highly cited influences were institutional mission, professional agendas, and prior experiences as a student. For example, participants from Albion College referred back to their liberal arts mission and the goals of a residential liberal arts education as an influencing factor. Participants at Elon University noted the institution's strategic plan as a motivating factor for engaging with students in research experiences, while faculty members from Widener discussed such engagement as a way of "doing right by for the students" and "helping them feel a sense of purpose" in their work.

Consistent across institutions was the view that by engaging with undergraduate students in research, faculty members could continue to push ahead in their own research agendas. Several faculty participants discussed that URSCW involved a variety of tasks that undergraduates could complete, which saved faculty members time and helped advance their projects. One faculty participant commented, "While the initial learning curve can be lengthy in the beginning, I have found working with students supports my work because they often bring a new perspective and fresh ideas that contributes substantially to my research."

Lastly, individual interests and prior undergraduate experiences were an important influence to faculty members. As one noted, "I guess I just enjoy the practice of discovery, and enjoy involving students in that." Another participant recalled, "I went to an undergraduate institution that really prided itself on its undergraduate research program."

**Financial Incentives.** Finally, we identified three key areas of support, which enabled participants to engage in URSCW: internal funds or some form of

compensation, student support (e.g. summer subsidized housing), and other forms of professional support (e.g. clear IRB processes).

Each of the institutions have some form of internal funding that compensates faculty for serving as mentors of undergraduate research experiences. The range of those funds differed by institution. A few institutions had a set range in terms of dollar amount, whereas other institutions had a system whereby compensation varied based on the type of project and time commitment required of the faculty mentor. In addition to stipends to pay faculty members, one institution was offering funds to encourage the development of introductory courses that “embody the characteristics of URSCW.”

Most of the focus group participants discussed some form of student support such as wages and subsidized housing for summer research experiences. Faculty members acknowledged the importance of such incentives to engage and support students in scholarly activity. Those incentives included funds to support travel for data collection, the purchase of needed supplies related to research projects, and opportunities to present study findings at internal undergraduate research symposiums.

Lastly, faculty participants discussed the other important supports that enable them to engage in URSCW such as constructive IRB policies and procedures, faculty approval committees that also serve to mentor faculty on proposal preparation, and collegiality such as sharing equipment or lab space.

In summary, all faculty participants discussed the importance of engaging in and supporting undergraduate students in URSCW. These sentiments were also shared by those faculty members who did not currently serve as mentors (or who have not served in that capacity in the past 5 years). All of the institutions have formal programming to engage both faculty and students in URSCW, with some of our participating institutions offering a greater variety of opportunities during the summer and academic terms. Financial support by way of summer stipends and other professional supports (e.g. IRB policies) were paramount to supporting faculty and students in their URSCW endeavors.

### **Inhibiting Factors**

While faculty members were generally positive about URSCW experiences and found value for themselves and their students, institutional barriers existed that inhibited their participation in such experiences. Three primary barriers were communicated across the focus groups: (a) time, (b) inflexibility related to use of funds/lack thereof, and (c) lack of formal (e.g. promotion and tenure processes) and informal (e.g. public acknowledgment) recognition.

**Time.** All faculty participants discussed the issue of time as the primary factor that inhibited their ability to effectively mentor undergraduate students in research experiences. As they discussed, a faculty member must expend a great deal of time and energy helping students develop their research skills ranging from idea development, data collection and analysis, to writing up results and dissemination. One participant explained:

I would say the resources are more or less in place for the population we serve. It would be nice to be better compensated for our time – course releases for thesis advising, [more] monetary compensation for summer and other mentoring of students’ research.

In all cases across institutions, no release time was offered to faculty during the academic year for those who mentored undergraduates. In some cases, faculty members were supervising several senior thesis projects as well as other student research, which took considerable time above and beyond scholarship and teaching responsibilities. This created stress for faculty members, given their desire to support students while managing the realities of the time intensiveness with mentoring undergraduate research experiences: "I'm wrestling in my mind right now as we're talking about this with a student that wants to do a research project next semester, and I just can't do it, so I'm trying to think about alternatives for him."

**Inflexibility or lack of funding.** Although internal funds for students and faculty members accompanied summer research experiences, such work during the academic year either did not provide funding to faculty or students, or if they did, use of those funds was highly restricted. For instance, funds could not be used for faculty compensation, and in most cases, could not be used to support conference travel to present research results. In most cases, there were no available funds to compensate faculty for their time. As one faculty participant noted, "It is quite frustrating to devote as much time as the faculty do to senior theses and directed studies [during the academic year] without any compensation."

**Recognition.** Lastly, faculty members discussed the lack of recognition for themselves and for students. Participants across all the institutions shared that mentoring undergraduate students, while highly valued, encouraged, and vitally important to student learning, did not result in actual recognition for promotion and tenure at their respective institutions. As one faculty member commented,

Clearly it's one of the high-impact practices and if you look at the studies on what retains students, it hits on a lot of the factors on retention. They're getting to know their faculty members better and they're getting to do something interesting in terms of a research project. It's really valuable for the institution that we do this. It would be nice if it was recognized.

At institutions focused on the teaching of undergraduate students, one may expect that mentoring undergraduate student research experiences would count toward scholarly productivity, which is an important area for faculty promotion and tenure; however, faculty participants expressed that such engagement did not receive the credit it should in relevant institutional policies and practices. Faculty at one institution suggested that perhaps such experiences could be noted as part of their teaching: "[There is a] need to have URSCW count towards their [faculty] teaching lines if a significant number of students are mentored."

In summary, faculty members faced challenges that negatively influenced their experiences as mentors and supervisors of undergraduate research. Time was a challenge given the variety and amount of roles and responsibilities these faculty members managed regularly, with no course release available to alleviate this issue. Furthermore, restrictions tied to financial resources created barriers in terms of how those resources could support the mentorship and research project. Lastly, disconnects between

institutional aspirations (e.g. value and interest in undergraduate research) and the practice of rewarding faculty engagement in those practices (e.g. P&T policies) serve as an inhibitor.

### Discussion

The Boyer Commission on Educating Undergraduates (1998), in a landmark report, emphasized that research-based learning should be standardized pedagogical practice in all content areas and disciplines. Engagement in such practice, however, requires appropriate supports and recognition for students and faculty alike. We return to our goal of developing a more nuanced understanding of faculty mentors' participation in and perspectives about URSCW. Our aim was to contribute to knowledge about mentoring, with a particular focus on faculty engagement in mentoring practices related to the training of undergraduate student researchers, as well as perceived sources of support and barriers to such engagement. Findings shed light on faculty perceptions of and engagement in URSCW by demonstrating its importance not only for student experiences, but also faculty members' continued interest and growth through engagement in this high-impact practice.

We return to the three primary supports and challenges to frame our discussion. Our faculty participants noted internal funds/compensation, student support, and other professional support as instrumental in influencing their decisions to engage as mentors in URSCW. Conversely, time, inflexibility surrounding compensation, and lack of recognition were the primary challenges noted. Upon review, the one commonality that binds these sources of support and challenges are their connection to institutional policy.

Faculty members discussed the importance of internal funds or other forms of compensation to support their work with students. Such financial support was also instrumental for students. However, these funds are restricted in terms of use, and in some instances, are only available in the summer. Faculty participants often mentored research experiences throughout the academic year and reported that they were not compensated either financially or by way of course release. Despite the burden engagement in such practices often resulted in, faculty members still found ways to support students in undergraduate research because of the learning and development that resulted for the students, and for themselves. Colleges and universities might benefit from re-evaluating their compensation policies related to faculty engagement in undergraduate research experiences to increase the potential uses of such funds. Consideration should be made to allow funds to serve as salary enhancement, to support dissemination efforts, and to provide such funding throughout the academic year given the variety of research experiences offered. It is important to note that we did not interview administrators or review actual policy related to URSCW. Therefore, our policy recommendations are strictly informed by self-reports of policy and practice from faculty participants.

Time was also a major inhibitor to faculty engagement. Sentiments shared in focus groups support past research which states that faculty at all ranks regularly work over 50 h a week (Eagan et al., 2011). Participation in activities outside of the traditional scholarship, teaching, and service make engagement in mentoring undergraduate students in URSCW that much more challenging unless colleges and universities re-evaluate distribution of time by way of responsibilities or provide opportunities to "buy" time to allow for more opportunities to support students as researchers. Institutions want more

students engaging in URSCW given the associated learning and academic (and professional) gains; students need such opportunities to enhance classroom learning and skill development; faculty members, despite being overscheduled (and in most cases under-supported) still find ways to engage in this high-impact practice. Yet, there is a need to close the process loop so institutions are best supporting faculty members (e.g. time, money, opportunities) to effectively initiate and maintain this type of student mentorship.

Our findings were not consistent with past research, which found that prior experiences as a mentor (or protégé) influenced one's willingness to serve in such a capacity. In our study, participation in mentoring with other faculty did not translate into likelihood of mentoring students in URSCW given over half of our participants reported not having a faculty mentor at their current institution; although faculty who had mentored other faculty previously were more likely to currently mentor another faculty member. This led us to question what other factors might be contributing to these faculty members' willingness to engage as mentors and where, how, and from whom they were receiving their mentoring modeling or training. Unfortunately, there was insufficient power to test difference, but we sought to explore a possible connection between other professional development activities that might shed light on the willingness of these faculty members to engage as mentors. For our faculty participants, those who were more actively engaged professionally and in professional development activities (e.g. publications, attendance/participation at professional conferences) were also more likely to serve as mentors to undergraduate researchers. Future research could explore if, and to what extent, there is a relationship between engagement in professional development activities and willingness (and effectiveness) to serve as a mentor.

While not a supporting or inhibiting factor, as we defined them for the purposes of our paper, an interesting point was communicated during the focus groups surrounding the notion of clarity about what URSCW is and in what contexts such experiences can occur. We did not organize themes by discipline in order to protect participants' identities, but this prompted us to wonder if this lack of clarity about URSCW was disciplinarily driven (e.g. more prevalent in the arts and humanities). Future research could explore if, and to what degree, there is a relationship between the discipline and confusion related to what URSCW means. If such clarity could be achieved, perhaps we might see an increase in faculty mentoring and student engagement in URSCW outside of the natural and social sciences.

### **Conclusion**

Engaging faculty and students in undergraduate research is a high-impact practice that results in positive outcomes for individuals and institutions. Despite challenges and institutional barriers, faculty members engage given positive outcomes they experience for themselves and their students. An important implication of this research is the need to review institutional policies connected to supporting undergraduate research, for students and faculty members, as a means of addressing low-cost, highly effective changes that can result in greater participation rates for all involved.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

### Notes on contributors

Vicki L. Baker is an associate professor of economics and management at Albion College, where she teaches undergraduate courses in management, organizational behavior, and leadership. Her research explores doctoral education, the professoriate, faculty development, mentoring/developmental networks, and liberal arts colleges. Her recent work has appeared in *To Improve The Academy*, *Journal of Higher Education*, and *Journal of Faculty Development*.

Meghan J. Pifer is an assistant professor of higher education at Widener University. Her research explores colleges and universities as organizational contexts, as well as the salience of identity and individual characteristics, and interpersonal networks and relationships, within those contexts in shaping individual and organizational outcomes. Her recent work has appeared in *Diversity in Higher Education*, *To Improve the Academy*, and *International Journal for Academic Development*.

Laura G. Lunsford is an associate professor of psychology at the University of Arizona where she also directs the psychology program for the University of Arizona South. She teaches courses in social and cognitive psychology. Her research is on the psychology of mentoring and emerging leadership and has numerous undergraduate researchers in her lab who successfully complete their studies and continue on to graduate school. Her recent work has appeared in *Mentoring & Tutoring*, *Journal of Advanced Academics*, and *Journal of Faculty Development*.

Jane Greer is an associate professor of English and women's studies at the University of Missouri, Kansas City, where she also serves as director of undergraduate research. Her research agenda focuses on the rhetorical practices of women and girls in the U.S. in the 19th and 20th centuries. Undergraduate researchers who have worked with her have published their work in national and international venues such as *Young Scholars in Writing and Kairos*.

Dijana Ihas is an assistant professor of music education at Pacific University, where she teaches undergraduate and graduate courses, serves as an applied viola instructor, and supervises student-teachers. Her research interests revolve around instructional strategies, learning and development, and music teachers' preparation.

She is on a faculty team charged with making undergraduate research opportunities available to students and faculty in the arts and humanities at Pacific University.

### References

- Allen, T. D. (2003). Mentoring others: A dispositional and motivational approach. *Journal of Vocational Behavior*, *62*, 134–154.
- Allen, T. D. (2007). Mentoring relationships from the perspective of the mentor. In *The handbook of mentoring at work: Theory, research, and practice* (pp. 123–147). Thousand Oaks, CA: Sage.
- Allen, T. D., Poteet, M. L., & Burroughs, S. M. (1997). The mentor's perspective: A qualitative inquiry and future research agenda. *Journal of Vocational Behavior*, *51*, 70–89.
- Allen, T. D., Russell, J. E., & Maetzke, S. B. (1997). Formal peer mentoring factors related to protégés' satisfaction and willingness to mentor others. *Group & Organization Management*, *22*, 488–507.
- Anderson, D. D., & Shore, W. J. (2008). Ethical issues and concerns associated with mentoring undergraduate students. *Ethics & Behavior*, *18*(1), 1–25.
- Baker, V. L., & Pifer, M. J. (2014). Preparing for practice: Parallel identity processes in stage 3 of doctoral education. *International Journal of Doctoral Studies*, *9*, 137–154.
- Bauer, K. W., & Bennett, J. S. (2003). Alumni perceptions used to assess undergraduate research experience. *Journal of Higher Education*, *74*, 210–230.

- Behar-Horenstein, L. S., Roberts, K. W., & Dix, A. C. (2010). Mentoring undergraduate researchers: An exploratory study of students' and professors' perceptions. *Mentoring & Tutoring: Partnership in Learning, 18*, 269–291.
- Boyer Commission on Educating Undergraduates in the Research University. (1998). *Reinventing undergraduate education: A blueprint for America's research universities*. Stony Brook, NY: State University of New York at Stony Brook.
- Bozionelos, N. (2004). Mentoring provided: Relation to mentor's career success, personality, and mentoring received. *Journal of Vocational Behavior, 64*, 24–46.
- Brinkman, S., & Kvale, S. (2015). *Interviews: Learning the craft of qualitative research interviewing*. Washington, DC: Sage.
- Campbell, T. A., & Campbell, D. E. (1997). Faculty/student mentor program: Effects on academic performance and retention. *Research in Higher Education, 38*, 727–742.
- Crisp, G., & Cruz, I. (2009). Mentoring college students: A critical review of the literature between 1990 and 2007. *Research in Higher Education, 50*, 525–545.
- Dolan, E. L., & Johnson, D. (2010). The undergraduate-postgraduate-faculty triad: Unique functions and tensions associated with undergraduate research experiences at research universities. *CBE-Life Sciences Education, 9*, 543–553.
- Eagan, K. M., Sharkness, J., Hurtado, S., Mosqueda, C., & Chang, M. J. (2011). Engaging undergraduates in science research: Not just about faculty willingness. *Research in Higher Education, 52*, 151–177.
- Einarson, M., & Clarkberg, M. (2004). *Understanding faculty out-of-class interaction with undergraduate students at a research university*. Ithaca, NY: Cornell Higher Education Research Institute (CHERI), Cornell University.
- Elder, D., & Trapp, J. (2010). Mentor as method: Faculty mentor roles. In J. Kinkead & L. Grobman (Eds.), *Undergraduate research in English studies* (pp. 3–12). Urbana, IL: NCTE.
- Elgren, T., & Hensel, N. (2006). Undergraduate research experiences: Synergies between scholarship and teaching. *Peer Review, 8*, 4–7.
- Evans, R. C., & Witkosky, D. V. (2004). Who gives a damn what they think anyway? Involving students in mentored research. *National Social Science Journal, 23*, 21–30.
- Fuentes, M. V., Alvarado, A. R., Berdan, J., & DeAngelo, L. (2014). Mentorship matters: Does early faculty contact lead to quality faculty interaction? *Research in Higher Education, 55*, 288–307.
- Hippel, W. V., Lerner, J. S., Gregerman, S. R., Nagda, B. A., & Jonides, J. (1998). Undergraduate student-faculty research partnerships affect student retention. *The Review of Higher Education, 22*, 55–72.
- Jacobi, M. (1991). Mentoring and undergraduate academic success: A literature review. *Review of Educational Research, 61*, 505–532.
- Johnson, W. B. (2002). The intentional mentor: Strategies and guidelines for the practice of mentoring. *Professional Psychology, Research and Practice, 33*, 88–96.
- Johnson, W. B. (2007). *On being mentor: A guide for higher education faculty*. Mahwah, NJ: Erlbaum.
- Link, A., Swan, C., & Bozeman, B. (2008). A time allocation study of university faculty. *Economics of Educational Review, 27*, 363–374.
- Lunsford, L. G. (2012). Doctoral advising or mentoring? Effects on student outcomes. *Mentoring & Tutoring: Partnership in Learning, 20*, 251–270.
- Lunsford, L. G. (2014). Mentors, tormentors, and no mentors: Mentoring scientists. *International Journal of Mentoring and Coaching in Education, 3*, 4–17.
- Lunsford, L. G., Baker, V., Griffin, K. A., & Johnson, W. B. (2013). Mentoring: A typology of costs for higher education faculty. *Mentoring & Tutoring: Partnership in Learning, 21*, 126–149.
- National Science Foundation. (2000). NSF GPRA strategic plan, FY 2002–2006. Washington, DC: NSF Publications 0104.
- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students* (Vol. 2). San Francisco, CA: Jossey-Bass.
- Patton, M. Q. (2015). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.
- Potter, S. J., Abrams, E., Townson, L., & Williams, J. E. (2011). Mentoring undergraduate researchers: Faculty mentors' perceptions of the challenges and benefits of the research relationship. *Journal of College Teaching & Learning (TLC), 6*, 17–30.

- Prince, M., Felder, R., & Brent, R. (2007). Does faculty research improve undergraduate teaching? An analysis of existing and potential synergies. *Journal of Engineering Education, 96*, 283–294.
- Ragins, B. R., & Cotton, J. L. (1993). Gender and willingness to mentor in organizations. *Journal of Management, 19*, 97–111.
- Salsman, N., Dulaney, C. L., Chinta, R., Zascavage, V., & Joshi, H. (2013). Student effort in and perceived benefits from undergraduate research. *College Student Journal, 47*, 202–211.
- Scandura, T. A. & Pellegrini, E. K. (2007). Workplace mentoring: Theoretical approaches and methodological issues. In T. D. Allen & L. T. Eby (Eds.), *The Blackwell Handbook of mentoring: A multiple perspectives approach* (pp. 71–91). Oxford: Blackwell Publishing.
- Schlosser, L. Z., Knox, S., Moskovitz, A. R., & Hill, C. E. (2003). A qualitative examination of graduate advising relationships: The advisee perspective. *Journal of Counseling Psychology, 50*, 178–188.
- Schowen, K. B. (1998). *National Research Council (US) Chemical Sciences roundtable: Research as a critical component of the undergraduate educational experience*. Washington, DC: National Women in the Chemical Workforce: A Workshop Report to the Chemical Sciences Roundtable. National Academies Press: US.
- Townsend, B., & Rosser, V. (2007). Workload issues and measures of faculty productivity. *Thought & Action, 23*, 7–19.
- Wang, S., Noe, R. A., Wang, Z. M., & Greenberger, D. B. (2009). What affects willingness to mentor in the future? An investigation of attachment styles and mentoring experiences. *Journal of Vocational Behavior, 74*, 245–256.