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Communities of Practice in Academic Administration: An Example from Managing Undergraduate Research at a Research-Intensive University

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Cover Page Footnote

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Introduction

Students who participate in undergraduate research experiences (UREs) benefit from a wide range of personal and professional gains, including career development and exposure, an increased sense of belonging and self-confidence, enhanced communication skills, stronger academic performance, faster degree completion, and a greater likelihood of pursuing graduate programs (NASEM, 2017). Recognizing the value of UREs as educational practices, research-intensive universities typically offer multiple avenues for students to engage in research, including organized undergraduate research programs, honors thesis/capstone experiences, course-based undergraduate research experiences (CUREs), and

independent faculty apprenticeships that function outside organized programs.

Organized undergraduate research programs are especially valuable for facilitating UREs because the structure inherent in these programs allows for wraparound student and mentor support. For example, program administrators can offer faculty training on promising practices for inclusive mentoring and can enhance students' oral communication skills by requiring each student to present at a campus-wide undergraduate research showcase. Organized programs vary widely in their structures and can have different eligibility requirements, timelines, student and mentor expectations, levels of compensation, applica-

tion and evaluation processes, etc. Some programs are funded internally while others rely at least partially on external grant support; some are campus-wide, while others are facilitated within specific academic and research units. Research-intensive universities typically have multiple organized programs running throughout the year (e.g., our institution has ~25 organized undergraduate research programs, each with its own structure and funding sources).

This wide array of entry points into research (e.g., undergraduate thesis/capstone projects, CUREs, organized programs) often means that UREs occur in disparate corners of campus. However, those who facilitate UREs across an institution can encounter programmatic and administrative challenges in ensuring these experiences run effectively, including issues related to liability coverage, hiring and payment methods, and faculty mentoring practices. Due to the siloed nature of academic and research units within many higher education institutions, those who facilitate UREs across a single campus often tackle challenges by themselves, rather than bringing them up to a campus-wide collective and learning from each other's experiences. In the spring of 2020, undergraduate research program administrators faced the added challenges of quickly adapting to facilitating programs remotely using Zoom. We set out to improve our communication about what is working and not working in implementing UREs across a large research-intensive university in the Pacific Northwest with a long history of academic disciplinary silos. Our team used the advent of COVID-19 in March of 2020 as a catalyst to circumvent disciplinary silos and to seek out

opportunities to use the new communication technology (Zoom meetings) to establish a network of student-centered faculty. Those who joined this emerging network faced COVID-19-related challenges as a collective and were better positioned to serve the undergraduate students wanting to continue to engage in faculty-led research remotely.

This article aims to showcase one effective solution for establishing clearer, longer-lasting lines of communication and community-building between those who facilitate UREs on a research-intensive university campus. First, we describe the Research for Undergraduates Network (RUN), a community of practice (CoP) of undergraduate research mentors and those who facilitate undergraduate research programs who meet regularly to collaborate and support each other by sharing promising practices. Second, we highlight various outcomes resulting from this collaborative network. Finally, we offer insights for ways this model could be implemented and sustained at other research-intensive institutions.

The Community of Practice Model (CoP)

The term “community of practice” was first introduced by Etienne Wenger, an education scholar and practitioner, who described CoPs as “groups of people who share a passion for something that they know how to do and who regularly interact to learn how to do it better.” Virtual CoPs serve as a meeting place that can be joined at any time by like-minded individuals. They provide an opportunity for motivated faculty to connect around similar topics, passions, and areas of expertise, sharing what works well and what doesn't. Vir-

tual CoPs can bring opportunities for growth and innovation in the classroom, the laboratory, or out in the field.

The Research for Undergraduates Network (RUN) Model

In early 2020, several undergraduate research program administrators at a large research-intensive university from different corners of campus indicated that they would benefit from a space where they could learn from others doing similar work. While there were plans to initiate regular in-person meetings, the emergent need to address how our research programs were affected by the COVID-19 global pandemic required us to re-organize almost immediately. In response to the siloed nature of undergraduate research administration on our campus, in addition to challenges related to the pandemic, the central office for undergraduate research and scholarship launched Research for Undergraduates Network (RUN) in spring 2020 at our research-intensive university. RUN is a CoP of undergraduate research mentors and those who facilitate undergraduate research programs. While RUN is coordinated from within our university's centralized office of undergraduate research, it is a campus-wide network that has continued to grow throughout the pandemic. RUN consists of two types of programming 1) weekly meetings with campus-wide partners and 2) campus-wide RUN-sponsored events.

As a first step to creating RUN, staff within the office of undergraduate research curated a list of faculty members and administrators on our campus who have a relationship to UREs (e.g., coordinate a URE program, mentor many undergraduate researchers, advise

students within a thesis-based academic program, conduct research on UREs, etc.). We then sent out a mass email to these potential participants inviting them to join regular Monday morning meetings to engage in campus-wide conversations about URE-related issues.

As a result of this message, a core group of about fifteen RUN participants have met every Monday morning since April 2020. This group consists of faculty members and administrators who come from various parts of campus, including several academic colleges and departments, a state agency that is connected to our institution, a marine science center with state and federal agency partners, various student support programs, the Honors College, the Provost's Office, and Faculty Senate (see Appendix A). RUN is built upon a CoP framework, which has been defined as a "persistent, sustaining, social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experiences focused on a common practice and/or mutual enterprise" (Barab, Barnett, & Squire, 2002, p. 495). Our virtual CoPs served as a meeting place for a group of motivated faculty to connect around similar topics, passions, and areas of expertise, sharing what works well pedagogically in the COVID-19 environment. Our virtual CoP has facilitated the growth and innovation in the classroom, the laboratory, and in the field because we each brought different problems and solutions to the group on a regular basis. Wenger's (1998) model allowed us to grow from each other's experiences.

We chose this framework because it is effective for building faculty con-

nectedness and belonging and inspiring innovation and improvement within an institution (Eib & Miller, 2006). Each of the RUN participants is deeply committed to providing opportunities for UREs and self-selected into the group. As is typical within CoPs, the group is always open to newcomers, and members participate at various levels (Nistor & Fisher, 2012). Discussion topics primarily include issues related to UREs (see examples in Appendix B), but the meetings have also become a space for participants to support each other personally and professionally.

In addition to these weekly meetings, RUN sponsors campus-wide events. For example, we have offered several campus-wide workshops on promising practices for effective undergraduate research mentoring and one large summit of URE liaisons across campus to discuss the implications of COVID-19. Of the twenty-six attendees at this summit, 75% of post-assessment respondents (n=6) felt that this event would influence how they would continue their research program during the pandemic. In the winter of 2021, we organized a 'lunch & learn' series, which included informal lunch-time sessions allowing participants to dig deeper into issues such as how busy mentors can streamline UREs by using online tools and tips for practicing culturally responsive mentorship. The associate director of the office of undergraduate research initially took responsibility for facilitating weekly meetings and for developing and facilitating RUN-sponsored events. More recently, this responsibility has been decentralized to the members of the RUN group, who each select a month to host the meeting, which involves in-

cluding speakers and planning discussion items. This revised model reduces the pressure on the associate director who, when not planning or facilitating, can move into the role of a RUN participant.

Network Outcomes

Coming together as a group to share strategies for resolving programmatic and administrative challenges has proven fruitful on many levels. Below are several examples of synergistic outcomes emerging from RUN. Appendix B highlights a list of discussion topics the group engaged with during weekly meetings.

Gathering insight from multiple stakeholders. We have spent significant time discussing challenges related to the COVID-19 global pandemic and how to adapt UREs to remote contexts. We invited the chair of our campus's research continuity and resilience plan to learn more about how research will continue during COVID-19 and provide the chair with valuable insight into how UREs should be taken into consideration when finalizing the plan. We invited the director of student health services to help us understand how the university is approaching COVID-19 testing and contact tracing. We invited guest speakers from our online degree-granting program to talk with us about strategies for building community among remote researchers. We also invited colleagues from other institutions to share information about how they organized their UREs.

Centering equity in undergraduate research. Several of our conversations have centered around the importance of promoting and sustaining anti-racism in research, curriculum development, and in the day-to-day activities

in laboratories. As a group, we decided to use our sphere of influence and collective voice to put forth a proposal to our office of faculty affairs for support in developing and implementing anti-racism and inclusion training for STEM undergraduate research faculty mentors. This proposal was funded, providing financial support to hire a student to help develop educational materials and for catering the faculty training in 2021 (COVID-19 permitting).

Navigating complex higher education policies. We have recognized several important aspects of undergraduate research liability coverage that required clarification on our campus. We have clearly articulated our liability questions and have been working with our insurance and risk management office to clarify how we can better inform students and their mentors about coverage. Through this process, we explored inequities in how students are paid and the resulting implications of whether or not the university views them as employees (e.g., whether they qualify for Worker's Compensation, etc.).

Strengthening our recruitment and application processes. One participant asked the group for feedback on their URE application process, so we spent time reviewing each other's processes and sharing collective wisdom. In doing so, we all paid close attention to the ways our applications attempted to promote equity, social justice, and inclusion. For example, several participants reworded problematic questions in their program applications to be more inclusive (e.g., one participant changed a question on their program application from "What is an obstacle you have faced in getting to where you are now and how

have you overcome it?" to "What is an obstacle you have faced in getting to where you are now and how have you addressed it?" in order to ensure that students who are facing ongoing challenges were able to respond accordingly.

Engaging online learners in undergraduate research. An idea emerged from the group regarding promising practices for facilitating UREs remotely, which we are now developing into a National Science Foundation (NSF) Improving Undergraduate STEM Education grant proposal with the potential to expand access to UREs for online learners.

Efficiently informing and growing awareness of campus and local community groups. We have invited many guest speakers to our standing meetings. In doing so, RUN members have been able to get information simultaneously, instead of independently. For example, the director of global scholarships joined us to speak about scholarship opportunities for undergraduates in research, the director of graduate school recruitment joined us to speak about helping undergraduate researchers prepare for graduate programs, and an outreach programs and events manager joined us to talk about delivering effective remote showcases of student research.

Sharing best practices for federally-funded programs. One of our CoP members is part of the NSF Geosciences Research Experience for Undergraduates (REU) Principal Investigator network. They regularly exchange recommendations with other REU teams across the country and bring best practices back to the RUN network.

Insights for Implementation and Sustainability at other Institutions

We have significantly benefited from participating in a CoP for undergraduate research administrators and feel this network model (or a version of it) could be adapted on other campuses. Below we discuss various considerations for developing and sustaining a network for undergraduate research administrators at other institutions.

How can undergraduate research CoPs be initiated?

A first important step is creating a list of faculty and staff members on campus that have a stake in how UREs are facilitated (e.g., those who coordinate URE programs, mentor many undergraduate researchers, advise students within a thesis-based academic program, or conduct research on UREs). Emails can be sent to those on the list announcing the launch of the network with a plan for regular meetings and any related programming, asking for referrals of others who might be interested in joining. A wide net can be cast by also sending the launch email via campus-wide channels (e.g., all faculty/admin emails, newsletters, etc.). Inclusivity and diversity of members is key when trying to grow the network; we recommend including inviting graduate students, post-doctoral researchers, and off-campus partners.

Continuing to keep the network open to new membership allows the group to invite new perspectives and energy. One way to attract new members is to continue to pitch the network at campus-wide events and during meetings with faculty and administrators. We have found that highlighting out-

comes from the network and mentioning specific members can help to promote curiosity and, ultimately, buy-in.

How do you sustain an undergraduate research CoP on your campus?

Ensuring that participants continue to attend weekly meetings can be a challenge for informal and voluntary groups (Clawson & Bostrom, 1996). Here, we suggest several strategies for sustaining group participation. First, meetings, even underpopulated, should never be cancelled. If the primary facilitator cannot attend, another participant can be assigned as the facilitator that week. If meetings are occasionally cancelled, the reliability of the group is compromised, and participants may begin to schedule other appointments during the regular meeting time. Maintaining the meeting day and time each week will ensure that participants know the group will be there, regardless of scheduling conflicts for the facilitator. Consistency is key. This strategy is also more sustainable for the primary facilitator because it allows them to avoid having to schedule multiple meetings with many participants.

Ensuring that meetings are virtually accessible will make it easier for interested participants to join. In our case, we feel that participation has remained high because network members were not required to travel across our large campus to attend. In addition, it has allowed for members who are not located on our primary campus to continue to attend (e.g., a participant from our marine station and an agency partner). In a post-pandemic environment, it is likely we will sustain the group by providing a mix of in-person and virtual (or both

simultaneously) gatherings to enable more faculty and administrators to regularly attend these meetings (i.e., we will likely draw on Beatty's (2019) hybrid flexible design to model RUN meetings).

How do you maintain relevance and keep conversations going?

A critical aspect of sustaining a voluntary group like RUN is to maintain relevance for participants. There are a seemingly endless number of topics that can be explored as a group to strengthen UREs. For example, the group could explore staffing demands of various research programs, how to train undergraduates in responsible conduct of research, or how to help students translate research skills and experiences into materials for job and graduate school applications (see Appendix B for more topic ideas).

It is important to include some unstructured time during the group meeting to check in with each participant. We have found that, in many cases, participants want to address issues that arose during the week (ones we could not have anticipated) and get feedback from the group. Conversations begin during these check-ins that will interest the group, grow the visibility of shared experiences, and allow the group to support one another. Each member should feel empowered and comfortable bringing issues for conversation to the meetings. The facilitator can do this by encouraging members to share challenges and reminding members that they can leverage the group's wisdom and be collaborative thought-partners as challenges arise in their work.

Conclusions

Communities of practice can offer a new layer of support in the coordination of undergraduate research programs at research-intensive universities. In addition to sharing successful practices, identifying and overcoming chronic obstacles to supporting UREs, members of a CoP can address common challenges, such as coordinating undergraduate research programs during a global pandemic. As such, the network may easily expand by making connections with internal and external partners and bringing resources back to the group.

Lastly, we have found that while our CoP launched quickly due to the health crisis, the consistency in coming together weekly has generated a more trusting, caring, inclusive space for participants. We have questioned one another's practices, made challenging suggestions, and intentionally addressed power dynamics within the group, our institution, and the broader research community. We have found that being together in community (albeit virtually for the time being) has been valuable in creating immediate and longer-term positive change within and across our undergraduate research programs. We hope undergraduate research administrators from other institutions will be able to draw from our experiences and work collaboratively to increase access to, and sustain, UREs on their respective campuses. ■

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Appendix A

Titles and affiliations of the core group of RUN participants

Title	Unit
Associate Director of Undergraduate Research	Provost's Office
Associate Director of Student Engagement	College of Science
STEM Leaders Program Coordinator	Provost's Office
Undergraduate Programs Coordinator	Oregon Sea Grant
Academic Advisor	Honors College
Academic Advisor	College of Agricultural Sciences
Assistant Vice Provost of Undergraduate Education, Associate Professor of Ethnic Studies	Provost's Office, College of Liberal Arts
NSF REU Program Director, Academic Programs Manager & Senior Instructor	Hatfield Marine Science Center
Experiential Learning Coordinator	College of Earth, Ocean, & Atmospheric Sciences
Faculty Senate President, Professor of Sociology	Faculty Senate, College of Liberal Arts
Student Engagement Coordinator	College of Agricultural Sciences
Associate Professor	College of Engineering
Associate Professor	College of Veterinary Medicine

Appendix B

A list of discussion topics the community of practice engaged with during weekly meetings

	Topics Covered
1	Anti-racism in research
2	Virtual student showcase/symposia logistics (with campus guest speaker)
3	Global student opportunities (with campus guest speaker)
4	COVID-19 concerns and adjustments in research and teaching environments, including summer research programs (with campus guest speaker)
5	Recruiting and supporting students of color and students from other under-served backgrounds
6	Application process review for research programs
7	Liability considerations for students that have stipend (instead of paid hourly)
8	Building community among remote researchers
9	Faculty involvement in undergraduate research (e.g., expectations and mentoring)
10	Preparing undergraduate researchers for graduate programs
11	Responsible conduct of research
12	Processes for connecting students and faculty
13	Incentivizing quality mentoring of undergraduates in research (e.g., P&T policies)