Developing an interprofessional research infrastructure at a mid-sized liberal arts university

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**ABSTRACT**
This Interprofessional Education and Practice (IPEP) Guide describes the various mechanisms used to grow and support interprofessional research and scholarship at a mid-sized liberal arts university. The guide illustrates a creative, multi-stakeholder approach to integrating interprofessional education into university departments and programs and offers suggestions for establishing a research infrastructure that centers interprofessional scholarly engagement and is aligned with the institution’s missions and values. Faculty and higher education practitioners are provided with key takeaways for crafting an internal grants program to achieve these goals.

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**Introduction**
Throughout the last few decades, there have been extensive changes within academia (Neem, 2019) and health professions education to ensure we are providing an interprofessional education while developing practice-ready graduates (Buring et al., 2009). To meet the needs of the population upon graduation, students need to be, among other subjects, educated on the social determinants of health (Rich & Paschal, 2020), and in our estimation, cultural fluency in an interprofessional environment.

Additionally, a core function of a university is the generation of new knowledge and advancements in the field via research by its faculty. Importantly, institutions with a robust research infrastructure find “interprofessional collaborations provide opportunities for capacity building and sharing of instructional or institutional innovations” (Vogel et al., 2019, p. 406) essential to ensure their success and longevity of research efforts. However, small to mid-sized private liberal arts institutions often place a stronger focus on teaching and service activities, and typically have smaller research budgets with limited opportunities for faculty to dedicate time and resources to their scholarly endeavors.

This guide focuses on strategies and opportunities to deploy an effective interprofessional scholarly infrastructure and how to re-envision existing systems to support interprofessional scholarly activity. We will share these learnings by analyzing a mid-sized private liberal arts institution which within the last decade has made the transition from a college to a university with limited research infrastructure for faculty and students to start. Further, we will address how they built an interprofessional research and scholarship infrastructure mission-aligned to the university’s liberal arts core and foundational commitments to partnering with the community to advance social justice.

**Background**
St. Catherine University is a private Catholic liberal arts institution located in Saint Paul, Minnesota, that enrolls nearly 5,000 students. Established in 1905 as the first women’s college in Minnesota, the College of St. Catherine became a university in 2009 and today offers baccalaureate programs for women as well as graduate and adult colleges for women and men. Accompanying this transition from college to university status were heightened expectations for faculty scholarship, and new opportunities to engage graduate students in mentored research – expectations and opportunities that came with little infrastructure and few resources.

Faculty at smaller institutions tend to have greater teaching responsibilities and fewer resources available to them to pursue ambitious research agendas than their counterparts at large research institutions (Blackburn & Lawrence, 1995; Gillespie & Robertson, 2010). Challenges to fostering research at smaller universities include an insufficient infrastructure for managing grant awards, the exclusion of research productivity in criteria for tenure and promotion, and the absence of graduate assistants and postdoctoral researchers to enhance output (Huennenke et al., 2017). Faculty have identified the lack of a formal research training and infrastructure support as a significant barrier to initiating research projects (Eder & Pierce, 2011). At St. Catherine University, a 2018 university-wide employee engagement survey found that roughly 40% of faculty perceived their workload as unmanageable, about the same percentage indicated the need for professional development around pedagogy, curriculum development, research, and advising (Institutional Research, Planning & Accreditation, 2018). Anecdotally, faculty identified the need for additional funding to support course release time for research initiatives, research materials, and supplies, graduate
assistants to help carry out research projects and teach undergraduate courses, professional development, and research dissemination. These resources are not only important to individual faculty members; many colleges and universities are under intense pressure to reduce their reliance on tuition fees and increase external funding to support their operations, including research and scholarly productivity. Some federal agencies and private funders offer support to expand academic institutions’ research capacity, but these resources are often targeted to large research institutions or specifically to student research programs.

St. Catherine University is home to the oldest and longest-running nursing program in the state with nearly 45% of its students enrolled in the Henrietta Schmoll School of Health (HSSH). At roughly the same time it transitioned from a college, St. Catherine University obtained a five-year grant from the GHR Foundation to develop and sustain an interprofessional education department – a key lever to bridge the silos that existed between the health disciplines and the liberal arts core curriculum through new course and curricular offerings. Recognizing that smaller universities benefit from having strong faculty development programs in place that emphasizes, among other aims, a culture in which teaching and research are mutually supported across the trajectory of faculty members’ careers (Drummond-Young et al., 2010; Gillepsie & Robertson, 2010), the Dean of the HSSH and the sponsored programs office developed internal grant programs to support interprofessional collaboration while building the university’s research infrastructure.

**Approach**

Over the last decade, St. Catherine University took several steps to bolster both the delivery of interprofessional education and the infrastructure to support interprofessional research. Using funds from two grants, the university received from the GHR Foundation in 2009 and 2016, the institution built out an interprofessional research infrastructure as well as curricula and clinical practice experiences. Both grants were managed by the sponsored programs office under the guidance of the Dean of the HSSH, a structure that remained in place until grant programs and initiatives were operational and could reside solely in the HSSH. Additionally, a Coordinator of Interprofessional Education, Practice, and Research was hired in 2013 to lead the interprofessional work, which was implemented through a university committee structure overseeing each component of the grants.

The first step was the design of foundational interprofessional education courses that develop core competencies governing interprofessional team roles and responsibilities, values, communication, and teamwork. The Healthcare Teams courses included: Roles and Responsibilities; Quality Outcomes; Opportunities and Challenges in Aging; and Research Methods. In addition to these foundational courses, an Interprofessional Clinical Scholar Program was launched to allow health professions students the opportunity to practice these skills while solving real-world practice problems. Under the program, participants join teams of faculty and students from different disciplines and practicing clinicians in hospitals and long-term care settings to address a care issue. Students learn about evidence-based practice and experience team problem-solving that adds value to the lives of individual patients and residents, as well as adding value to the care facility. The team implements a practice change and studies the results. Students have opportunities to present with the team nationally and to publish results in professional journals.

In addition to educational offerings, the university began to build more robust avenues of support for interprofessional research and scholarship in the areas of global health, senior living, and primary care. With additional support from the GHR Foundation in 2016, the Deans of the HSSH worked with the committees and the sponsored programs office, to establish a set of internal competitive grant programs. Through the “re-granting” of GHR dollars, distinct internal funding award streams were developed to support interprofessional faculty and student research and dissemination, and included faculty innovative scholarship grants, graduate traineeships, and conference travel awards for faculty, staff, and students.

Award criteria for internal grant mechanisms reflected HSSH priorities around interprofessional education and practice. Additionally, project needed to advance *cultural fluency* – the ability to navigate the many dimensions of culture needed to build shared meaning and understanding with people from other cultures, and requiring skills such as working with ambiguity, flexibility, respect, empathy, and adaptability, and *ecological approaches to health*, meaning approaches are grounded in the understanding that the conditions that result in individual health or illness arising out of the interaction between an individual’s traits and their physical and socio-cultural environment and are influenced on multiple levels (Sallis et al., 2015).

Notably, these internal grant programs were made available to the entire university community so faculty, staff, and students in not only the HSSH, but in the School of Humanities, Arts, and Sciences and the School of Business also had opportunities to engage in interprofessional scholarship and research. In fact, proposals that included interprofessional work across schools and departments were prioritized for funding. As a result, departments across the university benefited from these internal grant programs, with recipients representing fields ranging from public health, nursing, social work, economics, psychology, and theology. These programs were successful in fostering cross-disciplinary collaboration, providing, for example, support for a joint investigation by public health and economics faculty on How Leadership Opportunities can Change Perceptions of Gender Roles among Peruvian Women; for nutrition and psychology faculty to explore Dietary Diversity, Ultra Processed Food Intake, and Risk for Chronic Disease; and for scholars in occupational therapy, physical therapy, and interprofessional education to develop an Environmental Intervention Toolkit to Improve the Sleep of Residents at the Minnesota Veterans Home.

Further, participation in grant-funded projects was open to staff as well as faculty and students, enriching the interprofessional approach to research. For example, a 2020 project on the effectiveness of virtual communication interventions in reducing
loneliness and isolation among older adults in assisted living programs was led by a professor of public health and engaged a psychology Ph.D. as well as a program coordinator for the university’s service-learning program as part of the research team. The project leveraged the staff member’s established and trusted connections to eldercare facilities, where students are placed in service-learning opportunities every year, to identify research participants and coordinate project activities.

Internal grant programs were also an avenue for pursuing interprofessional research projects and scholarship with community partners, both locally and internationally, and advanced St. Catherine University’s foundational commitments to global social justice while doing so. For example, internal grants supported “Understanding the Experiences of Stigma and Discrimination of Caregivers of Children with Disabilities: A Photovoice Study,” a joint study by occupational therapy and social work colleagues, that engaged students from each program, in collaboration with Catholic Medical Mission Board in Zambia and the University of Zambia in Lusaka to better understand and help mitigate stigma against children with disabilities and their caregivers in Lusaka (Rabaey et al., 2021). Another funded project involved faculty from occupational therapy, physical therapy, nursing, public health, physician assistant, social work, and nutrition. The research team was invited to work collaboratively with a rehabilitative care facility for children and infants following surgery to create a framework to evaluate its services and effectiveness from the point of intake/pre-surgical care to the point of post-surgical care and discharge, and the envisaged impact upon a child’s life once returned home in both the short and long term (De Sam Lazaro & Riley, 2021).

A variety of other initiatives were launched to support interprofessional education and practice. Interprofessional Education Days were additional learning opportunities that brought students from different disciplines together to engage in a case study of a community-dwelling person with chronic health needs. Students work together in interprofessional teams to develop a comprehensive care plan, share their disciplinary knowledge and expertise, and experience working on an interprofessional, simulated care team. Interprofessional Peer Review Circles group university faculty representing a variety of disciplines together to read manuscripts and grant proposals and offer feedback before submission. The annual Summit for Health, hosted by the university, brought together health administrators, practicing clinicians, educators, and students from a wide variety of disciplines to address current topics on interprofessional practice and education. The conference included a call for papers and posters that advance understanding of teamwork, collaborative practice, and interprofessional care delivery and education models.

Key lessons learned

Recognizing the key lessons learned as part of St. Catherine University’s transition from a college to a university it was clear that strong institutional support, external funding and partnership, and a focus on collaborative, interprofessional engagement of faculty and staff are required to foster cross-disciplinary scholarly engagement. The following are key learnings to consider when developing an interprofessional research infrastructure.

Secure commitment of institutional leaders

Developing a research infrastructure to support faculty research and scholarly activity requires explicit support from institutional leaders. A top-down administrative endorsement that commits resources from the institution including personnel, facilities, and information technology is critical (Brazeau, 2013), and signals trust in a return on investment in the form of faculty scholarly contributions, student learning, and skill development, and leverage for external funding. At St. Catherine University, the two GHR Foundation grants are led by the Dean of Health Sciences, in collaboration with the Dean of Nursing, demonstrating to the community that its programs align with the academic and strategic goals of the university. At the same time, Dean leadership allowed for quick decision-making in response to faculty feedback and evolving needs, which kept projects and initiatives moving along. In addition, engagement with the GHR Foundation program officer on the part of university leadership illustrated the importance of the funder’s investment in faculty development to the institution.

Utilize existing university systems

Developing and implementing internal grant programs requires time and effort on the part of various university stakeholders. At St. Catherine University, this included academic leadership to establish the scholarly aims of the programs; faculty to serve as peer reviewers; the business office to set up grant accounts and process payments; the sponsored programs office to manage the application process and assist with proposal development; the grant project manager to administer internal awards; and other core university functions (e.g., the global studies office, purchasing) depending on the nature of the awarded project. Because internal grant programs require the engagement of a variety of personnel to administer “re-granted” funds rather than “new dollars” to the university with accompanying indirect costs, it is important to utilize existing university systems to ensure efficiency and cost-effectiveness.

The sponsored programs office provided significant support for proposal narrative and budget development to interested faculty via workshops and one-one meetings. Through their active role in supporting internal grants programs, sponsored programs staff became knowledgeable about faculties’ research interests, which aided in their ability to identify appropriate external funding opportunities and help prepare next-level applications for submission. See the Appendix for additional external resources utilized by the grant steering committees and sponsored programs office in developing these systems and processes.
Ensure cross-disciplinary stakeholder engagement

The steering committees utilized an interprofessional leadership approach, with faculty representation drawn from the HSSH, School of Business, and School of Humanities, Arts, and Sciences. This approach enabled a diversity of disciplinary perspectives when building the internal grant programs and contributed to the goal of equitably distributing grant funding across the institution. It also allowed for rich dialogue and faculty buy-in. Engaging a cross-disciplinary team of faculty as part of a structured review and award process for internal grants supports a model of interprofessional collaboration, solidifies faculty commitment and engagement, and importantly, prevents unilateral funding decisions.

Align goals to a clearly articulated conceptual framework

Developing an interprofessional research infrastructure with programs and curricula that aligns with the university’s mission, overarching initiatives, and/or university goals can be a daunting task. Utilizing a strategic process that engages stakeholders to build an agreed-upon conceptual framework is critical. This framework then serves as a guide for structuring research support mechanisms such as internal grant programs, travel awards, graduate assistantship funding, and expected outcomes. At St. Catherine University, an interprofessional-focused conceptual framework was developed by stakeholders. Following the framework, programs were then designed to incentivize faculty to engage in work that prepared providers capable of practicing in emerging health-related environments focused on interprofessional collaborative practice, cultural fluency, and ecological approaches to health. Grounding internal grant programs to core tenets helps ensure projects are cohesive and contribute to a broader set of strategic priorities and goals.

Build-in faculty release time

During a time when the academy is constrained by financial resources, there has been limited opportunity or funding to support faculty release time for their research and scholarly work. To further enable research dissemination, publication, and grant writing, it is critical to include releases to allow dedication to research and scholarly projects. While providing release time can be a strain on institutional support, it has been a proven tool to incentivize faculty taking on these projects with a requirement to seek out external funding upon completion of an internal grant project.

Ensure processes for reporting and feedback

While there may be some pushback because it can be perceived as too time-consuming, it is important to require project-end reporting for internal grants. At St. Catherine University, all internal grant recipients, including recipients of graduate assistantships, must submit a short final report within 30 days after the close of their award. This reporting provides critical insights into the benefits these resources play in advancing faculty scholarship and enhancing students’ experiences in and outside of the classroom. From grant reporting, the university learned, for example, that recipient faculty were able to conduct pilot studies or travel to conferences critical to their fields to share research results nationally and abroad – professional advances that would not have occurred in the absence of these dedicated resources. This information is invaluable when communicating resource needs and investment outcomes to administrators and funders.

Understand it is an evolving process

It is important to recognize that designing and implementing new avenues for faculty research will be an ongoing process that must be responsive to evolving faculty and student needs, administrator feedback, and possibly funder requirements to be effective. At St. Catherine University, the GHR-supported internal grant programs grew from a sole focus on faculty research to include specific mechanisms to support graduate students, research and conference travel, and equipment and programmatic needs – all critical to the broader goal of supporting faculty development. Further, while interprofessional education was always a central tenet of the grant work, cultural fluency and ecological approaches to health emerged as critical guiding principles a bit later, and criteria for internal grant programs were adapted to meet these growing emphases.

Encourage and provide the opportunity for student engagement

One measure of success in building a research infrastructure has been the growth in student engagement in faculty-led research projects. The Annual Current Student Survey conducted in 2011 found that just 16% of 1,575 students responding to the survey participated in collaborative research; by 2020 the share of survey respondents (among 970 total respondents) indicating such participation had grown to 34% (Institutional Research, Planning & Accreditation, 2011, 2020). The ability to provide these opportunities can contribute to student success. Research opportunities with faculty mentors are proven to increase graduate school matriculation rates while building intellectual curiosity and practical academic skills (Lopatto, 2009). Undergraduate research can improve retention and degree completion among underrepresented students (Jones et al., 2010). By prioritizing internal funding for projects that engaged students in the research process, the university was able to cultivate these critical opportunities for undergraduates and graduates alike.

Build-in time for reflection and revision

A core learning after year one of support from the GHR Foundation was the need to pause and bring stakeholders together to assess progress and make needed adjustments. To that end, grant leadership hosted a retreat before embarking on year 2 activities for steering committee members as well as other key stakeholders from the university and the foundation’s program officer, which offered a space for unfiltered conversation to strengthen approaches to grant initiatives.
Conclusion

Our experience has shown that through an adaptive research infrastructure, interprofessional faculty and student engagement in research can flourish. Over three years of internal grant support, 23 interprofessional research projects were undertaken, resulting in six manuscript submissions and 36 conference presentations, 14 of them led by students. At the time of this writing, St. Catherine University is experiencing the effects of the COVID-19 pandemic. In-person research projects have been halted or moved to a virtual platform and conference and other professional development travel has been suspended. With the lingering financial strain of student refunds and lost revenue and enrollment uncertainties due to COVID-19, institutional funding for faculty research and development has been put on pause. Privately sponsored dedicated sources of funding of internal grants programs will, at least temporarily, serve as one of just a few avenues of support for faculty research and scholarly development.

Dedicated funding to support faculty development protects these resources from revenue cuts when university operational budgets are pinched. Investments in faculty research and scholarship should, ideally, seed projects that attract greater external funding, bringing additional resources and prestige to the university. In addition, restricted endowments can be an important tool to guarantee funding for faculty research and scholarship into the future and one way that St. Catherine University can prepare for the eventual sunset of large external grants. In March 2020, the university launched the public phase of its capital campaign, which prioritizes faculty and academic excellence. This will be a critical revenue source for supporting faculty development in the years to come utilizing these key learnings.

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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Appendix. Key resources

Interprofessional Education Collaborative offers the IPEC Institute for faculty development and IPE resources.: https://www.ipecollaborative.org/
National Center for Faculty Development and Diversity has resources to support faculty development activities. https://www.facultydiversity.org/
National Center for Interprofessional Practice and Education has IPE resources and hosts the annual NEXUS Summit. https://nexusipe.org/
National Council of University Research Administrators provides educational programs supporting sponsored programs office professionals. https://www.ncura.edu/
Society of Research Administrators International supports resource sharing and idea creation in developing grant management tools. https://www.srainternational.org/