

## **Lessons Learned from Helping Faculty "Make the Pivot" to New Research Areas through a Community of Practice**

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## 1 Introduction

A variety of personal or institutional factors may lead university faculty to explore, or transition to, new research areas in their scholarly activities, including the availability of local collaborators [1], the needs of undergraduate research students [2], research funding allocated to different fields [3], or institutional environment [4]. At Franklin W. Olin College of Engineering (hereafter Olin College) a small primarily-undergraduate institution (PUI) where we (all of this paper’s authors) are faculty members, the institutional culture and recent strategic directions (Sec. 2.1) have led all of us to explore and/or transition to new research areas over the past several years. Similar to other PUIs, Olin College has few, if any, faculty members conducting research in any given area [5], and faculty must contend with high teaching and service expectations [6]. As a result when exploring or transitioning to a new research area, the process may be lonely and difficult to balance against many other competing commitments.

In order to address this difficulty, we as the author team undertook an effort designed to help faculty in the process of exploring or transitioning to new research areas. Specifically, since many of us were newly exploring the same research area, we supported our faculty to all attend the same formal training workshop in the area (Sec. 2.2). We also established a series of small, weekly peer mentoring groups that we refer to as *brain trusts*, intended to help faculty support each other’s exploration of new research areas (Sec. 2.3). Both of these activities were intended to build a community of practice [7] among us during this time of joint exploration and/or transition, helping us establish common goals, concepts, practices, and paradigms within our group, despite differences in factors such as discipline, rank, and length of service at Olin College.

Though relatively early in our efforts to support exploration and transition in new research areas, our group sought to reflect on our experiences and the lessons that we have learned. Thus in this paper, we analyze discussions within our group (Sec. 3) to more deeply understand how we make sense of our intellectual transitions, the effects that these have had on our research, and what the faculty development community might be able to learn from our reflection (Sec. 4).

## 2 Practices Supporting Faculty Research Transitions

### 2.1 Institutional Context and Positionality

The efforts described here took place starting in Fall 2023 at Olin College, a small PUI in the northeastern US. According to its Carnegie Classification,<sup>1</sup> Olin is exclusively undergraduate, very small ( $\leq 1000$  students), and more selective ( $\geq 80$ th percentile based on first-year students’ test score data), and nearly all students are residential and full-time. Olin recently began implement-

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<sup>1</sup><https://carnegieclassifications.acenet.edu/>

ing new strategic institutional initiatives, which places greater emphases on real-world practice, interdisciplinary learning, sustainability, and emerging technology in our curriculum.

The seven authors of this paper are all faculty members at Olin College. Our primary disciplines span a broad range of fields, including anthropology, biology, computing, data science, design, mechanical engineering, robotics, and statistics. Nearly all of the students we teach on a day-to-day basis are engineering majors, though the courses that they take from us are not necessarily all in engineering. Collectively, we have taught a wide range of courses spanning nearly every course required of all Olin students. Our team members also span a broad range in our careers, from first-year assistant professors to associate and full professors with more than a decade of service, and our collective institutional service has spanned many areas including accessibility, assessment, curricular innovation, faculty development, faculty hiring, student life, and undergraduate research.

## 2.2 *Formal Training in New Research Areas*

The lead author of this paper requested and received funding from the Provost's office at Olin College of approximately \$10,000. The majority of this amount was to support four authors to take part in the ProQual Institute, a workshop spanning around ten weeks that covers core topics in interpretive research and research quality [8]. Two of the authors had already participated in ProQual in the previous year. Some authors had also taken part in other formal training in educational research, including through professional societies such as ASEE or through grants focused on faculty development from organizations such as the NSF.

The funding was not intended to be an ongoing expense, and some of the authors have discussed creating a condensed version of ProQual to be offered internally. Similar shorter workshops based on ProQual have also been offered at education conferences in the past, such as at FIE 2023 [9].

## 2.3 *Peer Mentoring Groups*

Our peer mentoring groups, which we nicknamed *brain trusts*, initially started as a grant proposal accountability group among several faculty members learning to newly write proposals in engineering education. Eventually, participants began sharing their works in progress and workshopping them with other group members, and we made this the core practice of brain trusts. Each brain trust meets once a week, where a single participant is slated to share and workshop one piece of research-related work in their new research area, with the others providing feedback. Examples of research work workshopped in brain trusts include drafts of grant proposals, conference abstracts, interview protocols, or even new classroom exercises.

## 3 **Reflective Analysis of Faculty Research Transitions**

To better understand the experiences of faculty in exploring or transitioning to a new research area, we held two hour-long conversations within the team, one among those who attended ProQual and

one among those who had taken part in brain trusts. These conversations were structured similarly to focus groups, with one author posing a question to all other conversation attendees about their experiences and letting the others in the conversation share their responses or thoughts in turn. The conversations were recorded and transcribed, and we applied basic thematic analysis to understand the ways in which our activities in Sec. 2 have helped or hindered faculty exploration in new research areas. Below, we present key findings.

**Faculty motivations for making transitions** in their research area spanned a variety of reasons. Some were dispassionate or dissatisfied with their previous research areas. As summed up by one author, “what I actually want to do doesn’t belong in the [*previous field*] community”. Many of us were motivated to transition research areas to better adapt to elements of our institutional context, including making more meaningful impact on students, aligning with institutional priorities (Sec. 2.1), existing efforts in the new area, and a desire to share impactful practices with the broader community.

The authors encountered a variety of **challenges in transitioning to a new research area**. These included limited resources (both time and funding) to pursue a new research area, which was in part mitigated by the funding (Sec. 2.2) and time spent in ProQual and/or Brain Trusts (Sec. 2.3). Several authors noted the difficulties of finding collaborators in the field, especially with little experience: “it was hard for me to justify why I was bringing value into a new project. I didn’t have experience doing this. And I couldn’t build up that experience without collaborating with people as well.” Given the difficulty of developing and executing on meaningful ideas in a new field, some authors noted a lack of confidence in their new area.

**Outcomes of formal training** such as ProQual brought a variety of benefits, including building a community of new researchers in education. Most notably, participants mentioned that the workshop helped them better understand how to think about designing studies in education: “because I can draw this set of functional relationships between the research elements, I think it’s a lot more sound in terms of a study design. I feel equipped to actually navigate that space now in a way that I wasn’t before”. Ultimately, this helped participants build confidence in the field.

**Benefits of our Brain Trust meetings** spanned a broader range of aspects than we expected, some of which were not by design. The fact that all members were exploring new areas provided a sense of psychological safety to share early ideas: “knowing that you guys were bringing a lot of humility into the conversation because you were both also trying to learn something new as well made me feel more comfortable and vulnerable with my own limitations”. Additionally, the disciplinary diversity among the group ended up producing insights that have strengthened numerous papers, grant proposals, and studies over our year of hosting these meetings.

## 4 Lessons Learned

We learned a number of valuable lessons through this work, which we share with others who may hope to adapt these practices in the future. Perhaps most importantly, it is important to *find and bring together faculty hoping to transition to a new research area*. While our motivations for mak-

ing these transitions were largely related to our faculty roles, many recent societal, technological, and political shifts may motivate further similar transitions. Our work would not have succeeded if we had not already had the community and culture to form groups around our shared transitions.

We found that *both formal training and peer mentoring serve important roles in navigating these transitions together*. Sending a group to ProQual allowed faculty to learn a shared set of concepts in a new area together, building confidence and community among our group. Our Brain Trust meetings allowed faculty transitioning to different research areas to refine ideas together through an interdisciplinary space where we felt safe enough to share early-stage work. Overall, this project has helped strengthen many of our new research efforts: our team has submitted multiple grant proposals in our new areas, with some being successfully funded.

Finally, while this project required a nontrivial investment of time, effort, and money, we hope that the common experience we have built through this work will continue to carry forward. In future work, we hope to build a more formal development program around the ideas here that can continue to help faculty transition to new research areas together, both here and beyond.

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