Using a Cognitive Apprenticeship Approach to Prepare Successful Grant Writers

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Introduction

Based on anecdotal evidence from colleagues across the discipline and more than 10 years of experience as research-focused faculty, we know that graduate students in agricultural communications, education, and leadership rarely graduate with grant writing experience. This training gap is problematic considering the importance hiring institutions place on grant funding. The potential benefits of this training include master's students being more equipped to apply for dissertation funding should they choose to pursue a doctoral degree and doctoral students being more prepared for research-intensive faculty positions that require success acquiring extramural funding. Many academic position announcements released in the last few years have a 50% (or greater) research appointment, even those hiring at the rank of assistant professor, with the expectation that the candidate has demonstrated the ability or potential to secure extramural funding. To achieve this and be competitive for these positions, graduating doctoral students today need to show evidence that they have applied for graduate-level grants or contributed significantly to developing a federal grant proposal. Graduate students who are interested in pursuing industry careers can also benefit from active grant writing experience because it is a unique skillset that increases their employability.

How It Works

During the summer and fall semester, we (Science Communications Lab faculty) mentored junior scholars (e.g., doctoral, postdoctoral) through the grant writing process. Although we have previously involved junior scholars in grant writing by allocating certain tasks to them (e.g., developing a logic model, drafting support letters), the described experience was different because we developed a grant proposal specifically for the purpose of providing them with the full experience—from project ideation to proposal submission. To mentor them through the grant writing process, we used a cognitive apprenticeship approach. Through this approach, we enculturated them "into authentic practices through activity and social interaction, which help them pick up relevant jargon, imitate expert behaviors, and gradually start to act in accordance with disciplinary norms" (Brown et al., 1989; Ding, 2008, p. 5). Cognitive apprenticeship is largely associated with the work of Vygotsky (1978), who categorizes skills into three areas. The first category includes skills that the scholars can perform independently; the second category includes skills that scholars cannot perform, even with help; and the third category includes skills that scholars can perform but with help. The third category is referred to as the zone of proximal development, or "the domain in which learners are ready to grow through active and sustained support from experts or more advanced learners" (Ding, 2008, p. 5; Vygotsky, 1978). In the zone of proximal development, collaboration and interaction are necessary for learning to occur (Vygotsky, 1978).

We successfully implemented a cognitive apprenticeship approach to grant writing mentorship through a structured process of modeling, scaffolding, and coaching (Collins et al., 1991). We, as the mentoring faculty, modeled through demonstration of the principles, processes, and strategies involved in grant writing and supported student learning by providing detailed explanations of the reasons behind key decisions (Collins et al., 1991; Ding, 2008). We scaffolded by providing structure through examples from previously submitted proposals (e.g., budget, budget justification, project summary, management plan, data management plan) and links to other

grant-writing resources (Collins et al., 1991; Ding, 2008). Finally, we coached during weekly meetings and through extensive feedback and discussion of said feedback (Collins et al., 1991; Ding, 2008). Another key feature associated with the cognitive apprenticeship approach is social interaction (Ding, 2008). By mentoring the junior scholars together, they leaned on one another, divided the workload, and solved problems more efficiently before seeking input or advice. Expert-novice collaboration is also ideal when implementing a cognitive apprenticeship approach (Ding, 2008). As faculty members who have established themselves as successful grant writers, we were able to provide the junior scholars opportunities to observe and practice grant writing, immersing them in the disciplinary culture at an R1: Doctoral University.

Results to Date

Junior scholars submitted a high-quality grant proposal to the funding program they identified. Because the junior scholars were not able to serve as PI or Co-PI on federal grants projects, per University policy, we included them as funded postdoctoral researchers in the proposal. That way, if funded, they have the opportunity to become postdoctoral researchers on a project they developed and are passionate about. If they take faculty positions elsewhere, we will negotiate a subaward to the universities through which they are hired so they could be project Co-PIs. By becoming Co-PIs on a federally funded grant project during their first year as faculty members, they will likely be ahead of their peers who are competing for the same faculty positions. The goal of the cognitive apprenticeship approach is to empower individuals to accomplish tasks independently (Ding, 2008). Although grant writing is an ever-evolving skill, having now seen the proposal development and submission process through from beginning to end, we are confident that the junior scholars have the skills they need to move forward independently.

Future Plans & Advice to Others

Although we have completed grant writing activities like this in the past, junior scholars' experience this time was more intense and the project directly aligned with their research goals. We will continue this practice with future junior scholars to provide them with grant-writing experience prior to becoming faculty members. This training prepares them to compete for a research-intensive faculty position and to mentor their own students in the grant writing process. For the process to be successful, however, three things must occur: 1) Mentors and mentees must allow time for the cognitive apprenticeship approach because intensive mentoring in grant writing takes time; 2) Mentors should continue to be the point of contact for institutional grants offices and collaborating personnel; and 3) Mentors should meet with the junior scholars post submission to reflect on the process and provide feedback on ways to improve in the process.

Costs & Resources Needed

The primary cost associated with the cognitive apprenticeship approach to grant writing mentorship is time. It takes significant time to model, scaffold, and coach in a deliberate and consistent manner over the course of several months, on top of traditional advising and mentoring responsibilities. It is also important to note that junior scholars should also be willing and able to commit extra hours to writing the proposal.

References

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