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Remote Research Bootcamps for Preproposal and Post Data Early Career Researchers

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Abstract: 2020 made all universities aware of the necessity to provide research support at a distance. For some, most, if not all of their international students were unable to attend on campus. Remote synchronous and asynchronous work demand resources that remain unsustainable for many, making a collaborative setup potentially desirable. This research examines outcomes from one such collaboration, serving early career researchers working on their thesis into two remote research bootcamps, from 17 universities (n= almost 700). Results disaggregate engagement across three sub-groups per population, including students who self-assigned into those just starting, stalled, or on target with their work. The final analysis investigates to what extent final advancement in research outcomes can be seen to correlate with engagement. It concludes that the partnership and communication from both the central hub of the work and the university to the student have some power in encouraging both.

Paper: Supporting early-career researchers is a central component of graduate education. Universities administer such work in either a centralized or decentralized manner and that variance sets up a plethora of options for how students are offered support. At the same time, students and early career researchers struggle with consistent challenges (i.e. the review of literature or analysis of their data). Staff who administer programs have many other duties, resources are tight, and the need for support is more critical as student populations become more diverse.

Even prior to COVID, these discontinuities existed, only to be exacerbated by the fact that 2020 made all universities aware of the necessity to provide research support at a distance. For some, most, if not all, of their international students were unable to attend on campus. Remote synchronous and asynchronous work demanded resources that remain unsustainable for many, making a collaborative process for graduate research support potentially desirable.

This study examines outcomes from one such collaboration, serving early career researchers working on their thesis during two remote research and writing bootcamps. Seventeen universities had students attend (n= almost 700 participants). Results disaggregate engagement into three sub-groups per population, including students who self-assigned as "just starting," "stalled," or "on

target". The purpose of the study was to investigate whether and to what extent final advancement in research outcomes correlated with engagement in each subgroup.

Fortunately, an online environment can be data-rich, and in this case participants were required to fill out a survey defining their subgroup and the types of content they enjoy prior to starting. Then they were encouraged to immerse themselves in content aimed at helping their graduate work progress. This included synchronous and asynchronous lectures, reflective practice, and they had the option of working in community. They were encouraged to evaluate the bootcamp in a survey at the end. Throughout, comments and data about progress were captured from qualitative sources.

The literature this study draws from focuses on PhD completion, remote or online learning, and professional development. Key elements in the design of the bootcamps evolved from the literature on three key challenges noted during previous research. First and foremost what is known about the factors that lead to PhD attrition (Alford, 2017; Bonk & Khoo, 2014; Kozar & Lum, 2013, Lovitts, 2001; and Lovitts & Nelson, 2001), second, the challenges in student readiness to online learning environments (Barak, et al. 2016; Gardner, 2009; Curry et al., 2008, Gardner, 2008a; Gardner, 2008b) and third, challenges experienced by underrepresented populations (Felder, et al., 2014; Felder, 2010, Ellis, 2001).

Engagement became the key variable of the study. Defined as the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, engagement extends to the level of motivation they have to learn and progress in their studies (Deschaine & Whale, 2017). "We don't know much about the engagement of learners in adult graduate nonresidential environments. We do suspect that engagement is a mediating factor in decreasing attrition" (Deschaine & Whale, 2017. p. 1; Vekkaila 2014; Vekkaila, et al., 2013). Engagement, like motivation, must be studied from multiple angles including what it means to the learner, their goals and the environment (Bonk & Khoo, 2014). This paper discusses engagement and its relationship to several defined research outcomes such as an increase in knowledge about what is required in scientific research output, increase in confidence in writing, and outputs in terms of sections written, and milestones passed (such as IRB, supervision reviews, proposals or chapters drafted).

Previous studies highlighted the need for self-regulation in all graduate school environments (Barak, et al., 2016; Kirwan, et al, 2014; Gomez, 2008). Personal connections and readiness play out as significant factors in diminishing the likelihood of disengagement due to negative risk factors (Glazer, 2008; van Duyne, 2008). Therefore, data collected throughout the two bootcamps attempted to monitor the numbers and ways in which engagement developed or decreased over the weeks and whether those data suggest opportunities for future study to increase remote graduate participation at scale.

This study concludes that while there is evidence that communities of practice (Cowen & Menchaca, 2016; Wisker, et al., 2007), developed by the students provided a sense of community, it remains unclear whether those activities correlated significantly with engagement in other arenas or to outcomes. Communication remains a wicked challenge (James, 2020), yet, there is some evidence that the partnership of dual communication from both the central hub of the bootcamp, in sync with nudges from the home university to the student, encouraged an increase in engagement.

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