Mentoring as a Learner-Centered Teaching Approach to Enhance the Leadership Behaviors of Graduate Students in Ag+STEM Disciplines

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Introduction

Recently, the National Research Council (2018) suggests that leadership development is one of the core elements that should be mandatory across all graduate programs. Gamse, Espinosa, & Radha (2013) also found that leadership skills and abilities were considered among the most important by students who participated in the Integrative Graduate Education and Research Traineeship (IGERT) program. In particular, Trainees indicated that leadership skills were critical to conducting interdisciplinary research. Despite the importance of leadership skills training, Denecke, Feaster, and Stone (2017) noted doctoral and masters' programs are narrowly focused on student's academic preparation at the expense of developing authentic leadership and professional skills. In many cases, graduate students receive little or no authentic training in leadership skills and competencies that are required to help them thrive as leaders in their field. As such, graduate students are not adequately prepared to enter the workforce as vital contributors in industry, government, non- profits, entrepreneurial ventures, and as faculty (Denecke, Feaster, & Stone, 2017). The purpose of this paper was to outline aspects of an innovative mentoring program that utilizes learner-centered teaching approaches to enhance the leadership behaviors of graduate students.

Connection to Literature

One of the most effective methods to increase underrepresented minority (URM) graduate student participation in Ag+STEM fields is mentoring. Mentoring can offer graduate students a chance to grow and develop as professionals, thereby providing incentive to complete their degree. For example, mentors can have a profound influence on URMs who are at critical crossroads in their lives and struggling with self-identification (DePass & Chubin, 2009). A recently new approach in the field of mentoring is that of learner-centered mentoring (Kolman, Roegman, & Goodwin, 2017). The authors contend that in many ways mentoring practices are connected to the core tenets of learner-centered pedagogy. In particular, these tenets include a focus on the learner's needs, readiness, and purposes for learning; understanding the learner within a developmental trajectory; providing conditions for learner development and autonomy; and positioning the teacher as learner, observer, and supporter (Kolman, Roegman, & Goodwin, 2017).

Conceptual Framework

The Social Change Model of Leadership Development (SCMLD; Higher Education Research Institute, 1996; Wagner, 2006) was used as the conceptual framework to guide the integration of leadership roles into the graduate student experience. The SCMLD is a unique leadership model in that the SCMLD is specifically designed for the college undergraduate learning environment. The SCMLD emphasizes the need to understand self and others to create community change and places emphasis on a leadership community rather than one leader (Higher Education Research Institute, 1996; Wagner, 2006). The SCMLD views leadership as a process rather than as a position where the values of equity, social justice, self-knowledge, personal empowerment, collaboration, citizenship, and service are explicitly promoted (Higher Education Research Institute, 1996; Wagner, 2006).

Implementation of Learner-Centered Mentoring Strategies

Graduate students are members of the Mentoring@Purdue (M@P) program, which is a pioneering STEM intervention program at a Midwestern predominately-white institution. The M@P program is carried out, in large measure, by a team of graduate students who are mentored by the program directors. The organization of the program is a flat hierarchy, where each graduate student plays a leadership role for a particular aspect of the project. The M@P program utilizes an empowered mentored-leader program model for developing leadership and professional skills of graduate students while being social agents of change. Graduate students hold various leadership (i.e., coordinator roles) that provides them with authentic leadership training to help cultivate professional and personal development skills. Through these leadership roles, students gain experiences that enhance their leadership skills such as program management, budgeting, strategic planning, grant writing, critical thinking, and program evaluation & assessment. A guiding principle of the M@P program is to empower students through mentorship to develop leadership and professional skills through authentic leadership and professional experiences.

Mentoring Program Impacts

The impacts of the M@P program include presentation of more than 50 workshops and professional development on issues of diversity and mentoring, presentation of scholarly works at over 20 national conference; development and presentation of over 40 scholarly products; and engagement of over 1,000 students, faculty, and staff at Purdue University. Over the past five years, graduate student leaders of the M@P program have engaged nearly 1,800 faculty, staff, and students on 11 historically Black land grant university (HBLGU) campuses and over 400 undergraduate students at professional conferences about graduate school opportunities in Purdue University's College of Agriculture. Additionally, the M@P program graduate student leaders helped organized, host, and mentor a total of 118 potential graduate students from 11 HBLGUs to participate in the M@P's annual summer pre-graduate program.

Implications

Unquestionably, leadership is key to integrating professional development into the graduate experience, especially for students who will pursue STEM careers (ACS, 2012). Furthermore, mentorship plays a critical role in attracting and retaining URM students in STEM disciplines and quality mentorship not only provides students with access to needed instrumental support (i.e., career-related support) and psychosocial support (i.e., personal development), but it also enhances retention and facilitates persistence in higher education graduate students (Girves, Zepeda, & Gwathmey, 2005). To that end, this paper highlights an innovative learner-centered mentoring program that provides graduate students with active, inquiry, and contextual leadership experiences that contributes to their enhanced human capacity and career readiness.

Future Plans/Advice to Others

Learner-centered mentoring is an effective approach to enhancing the leadership behaviors of graduate students, especially those from URM populations. With the appropriate administrative support, other institutions can, and should, replicate aspects of the M@P program. Lastly, in addition to preparing graduate students with the skills they need to be leaders in the Ag+STEM disciplines, we have also found that the M@P program has had a significant impact on the number of students pursuing graduate degrees in our College of Agriculture.

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