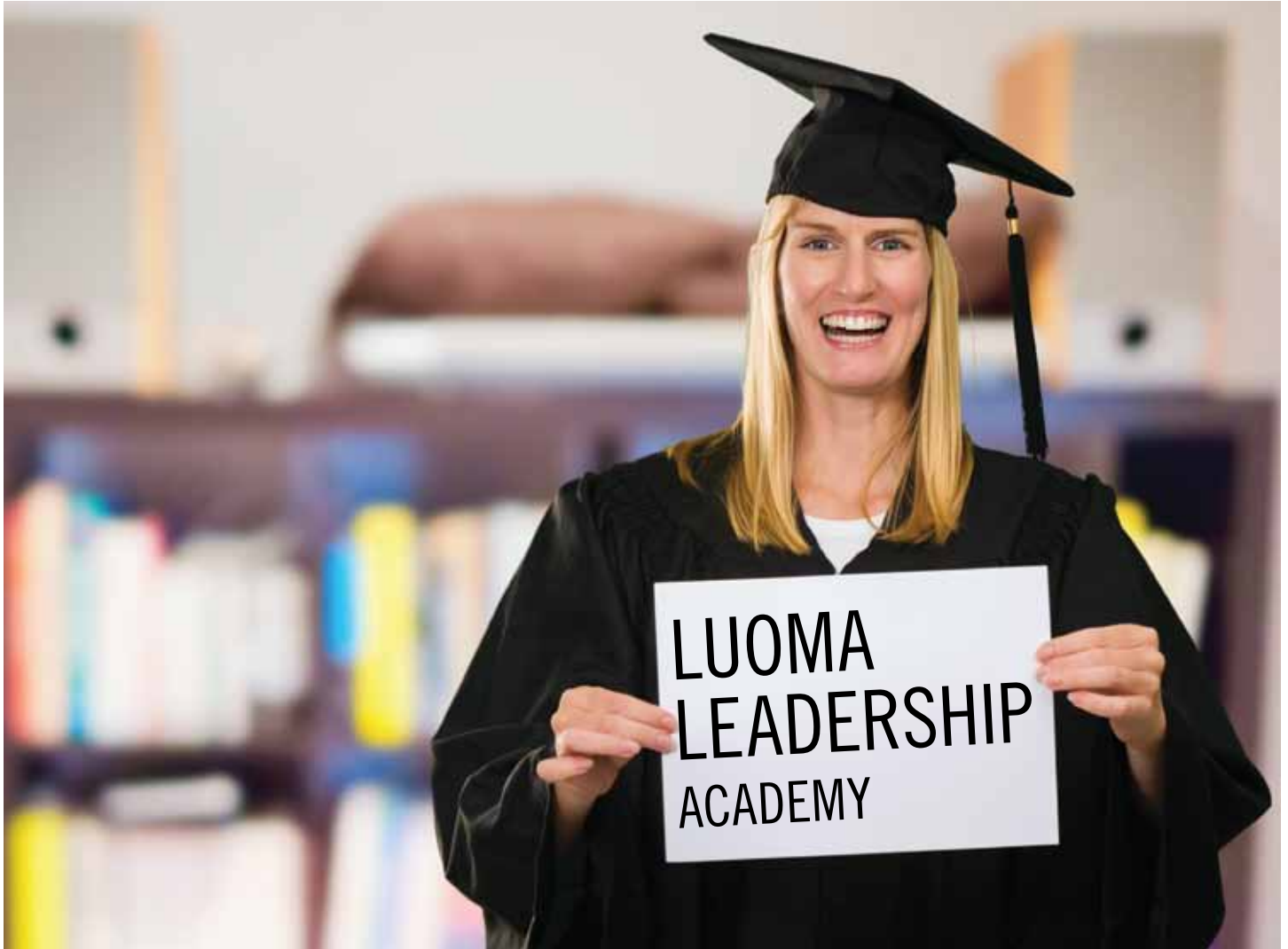


Promoting Undergraduate Research in Minnesota



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ABSTRACT

As participants in the 2011-2012 class of the Luoma Leadership Academy, the authors comprised an action team charged to investigate how undergraduate research is currently incorporated into collegiate studies in Minnesota. We developed a survey that was delivered to Deans at all Minnesota State Colleges and Universities (MnSCU) institutions using the MnSCU Deans listserv. Respondents to the survey represented all 7 universities and all 30 of the community colleges. This suggests that the findings of our action project have real generalization within the system and potentially similar public systems of higher education in other states. We offer data-driven recommendations and conclude with leadership lessons learned.

As participants in the 2011-2012 class of the Luoma Leadership Academy, the authors comprised an action team charged with an action project to investigate how undergraduate research is currently incorporated into collegiate studies in the Minnesota States Colleges and Universities (MnSCU), the system of public community colleges and universities of Minnesota. Each of these community colleges and universities have their own unique mission and vision, although they all have as their central purpose the education of students. Even approaches to teaching and learning differ among institutions. Thus, when exploring how to embed undergraduate research into campus cultures, we naturally expected to encounter a variety of perspectives.

Undergraduate research has been demonstrated to benefit both students and faculty (Froyd, 2008; Kuh, 2008). Students become more engaged in their learning as they develop the skills to participate in the processes and procedures of their disciplinary areas in a relevant manner. Additionally, faculty are able to further their professional development and, along with their students, contribute to their fields of study. The charge of our action project was thus highly appropriate to the current state of affairs in higher education.

BACKGROUND TO THE PROJECT

As a system, MnSCU is institutionally and demographically diverse, providing educational opportunities at community colleges and universities in the liberal arts and sciences, professional education, and technical education to a range of students hailing from all geographic and socioeconomic sectors of the state. With such a range of options for undergraduate students within MnSCU, determining a focus for the action team presented an initial challenge. How does one meaningfully gauge the activities of such a diverse range of workgroups? In addition, although each of the action team members was aware of undergraduate research initiatives at their own institutions, early discussion and reflection indicated that little communication regularly occurred across campuses. This realization prompted a number of questions: How often was undergraduate research being conducted on the various MnSCU campuses? What disciplines/programs were involved? At those campuses featuring little if any undergraduate research, what was the

level of interest or desire of institutions to engage in research? How was undergraduate conducted research communicated beyond the classroom? What were the institutional infrastructures supporting research? What institutional support for faculty development and involvement was available? The generation of these guiding questions provided our action team with a roadmap of sorts to take the next empirical step in the action project.

THE ACTION TEAM PROCESS

Subsequent to the generation of a set of guiding questions, our action team endeavored to develop a definition of undergraduate research through a process of reflective inquiry. Creating a definition facilitated the conceptualization of MnSCU as a broad entity offering a wide variety of programs and courses of study, and provided a unifying perspective of research for the diverse programs and courses of study across the system. The result was an actionable definition of undergraduate research inclusive to all academic, professional, and technical perspectives:

A culture of inquiry on campus begins with the knowledge and passion of the faculty and their desire to incorporate the best practices of research or inquiry within the fine arts, humanities, social sciences, natural sciences, and in the applied programs. It is modeled from the first day of class and is predicated upon engaging students to more deeply comprehend the principles of study and the applications of practice in their respective areas of learning. Faculty guide students, often as a collaborative venture, to investigate relevant problems, test those problems with the methods representative of their area of learning, and share their findings with an appropriate audience.

It was the intention of our action team to offer this definition as a broad context to help define the various forms of research and inquiry-driven learning to which students within MnSCU are exposed.

In order to best understand the scope of existing undergraduate research activities among MnSCU institutions and aid the action team to address the questions we established, our action team developed a survey (see Appendix A) that was delivered to Deans at all MnSCU institutions using the MnSCU deans listserv. The survey requested that the Deans

respond to a series of items designed to elucidate the current state of undergraduate research in the system. Items were nested in such a manner that Deans were presented only with those items relevant to their initial responses and thus would minimize the requisite time required to complete the survey. Finally, our action team concurrently engaged in a review of the literature related to best practices in undergraduate research. It was readily recognized that there exist excellent resources available through national organizations (see Appendix B) such as the Council on Undergraduate Research (CUR) and the Association of American Colleges and Universities (AAC&U). Indeed, one of the action team members had previously participated in a CUR workshop focused on undergraduate research at 2-year institutions.

DATA COLLECTION AND ANALYSIS

A total of 55 individuals responded to the survey. The representation across MnSCU was excellent; responses came from all 7 universities and all 30 of the community colleges. This suggests that findings of our action project have real generalization within the system and potentially similar public systems of higher education in other states. A majority of the respondents indicated that their campuses offered opportunities for undergraduate students to engage in supervised research. More than half of the responses suggested such opportunities were limited to the science, technology, engineering, and medicine (STEM) disciplines. It also appeared that opportunities for undergraduate research in the arts and humanities was quite common, with such opportunities among the trades and professionals being somewhat less common.

Further analysis of the survey responses suggested several relevant themes. First, it appeared that a number of MnSCU institutions were attempting to integrate research into undergraduate coursework, sometimes with the goal of producing public scholarship. Such attempts were often characterized by faculty doing this “on their own time,” which our action team interpreted to suggest that the research aspect of the course was not required per course objectives. Similarly, it was reported that some faculty use their research to enrich the courses they teach and that there was ostensible popularity to form campus committees to explore the possibility of undergraduate research. The greatest boon to creating opportunities for

undergraduate research across the disciplines therefore appears to reside among the faculty.

Second, there appeared to be a number of undergraduate research conferences and fairs extant within MnSCU. However, these events appeared to be limited primarily to the universities. A similarly observed trend in the data was that capstone projects requiring research appeared to be required across the disciplines. However, as with the conferences and fairs, capstone projects might be limited primarily to the universities. Finally, there were ostensible efforts to offer faculty with professional development opportunities to promote the incorporation of undergraduate research into courses.

Third, the data indicated that collaboration among community colleges and universities appeared to be scant. This was a most discouraging discovery. As an action team, we represented various colleges and universities from within MnSCU. Our initial meetings suggested that we were personally unaware of what was occurring on other campuses within the Minnesota system; this was most especially true when exploring matters of community college-university interactions. The responses to our survey from members of every community college and university in MnSCU revealed that our action team-based quandary was likely representative of a systemic state of affairs.

RECOMMENDATION FOR ACTION

Consideration of these three major trends in the data prompted our action team to proffer a single, major recommendation. In his installation speech as MnSCU chancellor, Rosenstone (2011) espoused that all state community colleges and universities are committed to “ensuring access to an extraordinary education for all Minnesotans” (p. 2), but that “... no person... no organization...no single college or university can accomplish alone what needs to be done” (p. 5). The results of our survey indicated there to be major interest within the MnSCU community colleges and universities to create and maintain opportunities for undergraduate research across the disciplines, especially among the STEM disciplines. Yet, there did not appear to be significant interest within MnSCU institutions for community college-university collaborations to promote opportunities for undergraduate research across the disciplines.

Furthermore, finances and facilities were commonly perceived to be obstacles to creating opportunities for undergraduate research across the disciplines. With a majority of survey respondents holding positions in administration, there was clearly understanding of the campus resources needed to promote undergraduate research. Chancellor Rosenstone stated that MnSCU must “embrace new ideas to advance educational quality; redesign the way we do things and empower presidents, the faculty and staff to be entrepreneurial—keeping many important decisions at the local level” (p. 5). Our action team concurs.

Therefore, it is recommended that the Office of the Chancellor actively coordinate communication among MnSCU campuses to strengthen individual campus initiatives while fostering communication between campuses regarding their successes and practices in support of undergraduate research. Additionally, thoughtful and open collaboration between administration and faculty could best determine how to utilize the limited resources on campuses to promote opportunities for undergraduate research.

LEADERSHIP LESSONS LEARNED

The result of our action team project was the generation of data-based recommendations intended to promote change in a state-wide system of higher education. Along the way, we also learned a few things relevant to leadership and action team-building. First, our action team was comprised of faculty and administrators from a diverse range of departments and institutions across the state of Minnesota. Although technology allowed for a number of action team meetings, we soon discovered there was simply no substitute for the synergy that resulted from meeting face-to-face. Second, it was unanimously agreed that the success of the project would result not merely in recognizing one’s own ability to carry the torch, but in appreciating and fostering the abilities of one another to do the same. Each action team member brought important skills, abilities and perspectives needed to make the action project a success.

Third, and perhaps most emphatically, our action team came to understand that it was simply insufficient to do good work and step back in the face of an ostensible



need for change. The public community colleges and universities of Minnesota offer a first-rate education to their students. However, the results of our survey made it clear that there were numerous missed opportunities within the system to leverage internal funds and cross-campus collaborations to promote the development of undergraduate research across all disciplines. Leading in a culture of change can be difficult (Fullan, 2001), and initiating such change even more so (Fullan, 2011). Yet, such an effort appeared incumbent upon our action team. We are currently in the process of submitting the results of our action project to present at the annual MnSCU Joint Meeting of the Chief Academic and Student Affairs Officers and University/College Deans. This will allow us an opportunity to share our findings and recommendations with those individuals most capable to initiate a change in policy and culture to support the growth of opportunities for undergraduate research among the many fine community colleges and universities of Minnesota.

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APPENDIX A UNDERGRADUATE RESEARCH SURVEY.

Item 1: Please identify your college or university. Item 2: What is your position with the college or university? Item 3: Do undergraduates on your campus have the option of engaging in supervised research?

If Yes to Item 3...

Item 4: Is undergraduate research on your campus primarily limited to the STEM disciplines? Item 5:

Can undergraduates on your campus become involved with research in the arts and/or humanities?

Item 6: Can undergraduates on your campus become involved in research in the trades and/or professions?

Item 7: What is done on your campus to integrate undergraduate research into the curriculum?

Item 8: What are the perceived resources which support undergraduate research on your campus?

If No to Item 3...

Item 9: Is there interest on your campus to initiate programs of undergraduate research?

If Yes to Item 9...

Item 10: Is the interest primarily limited to the STEM disciplines?

Item 11: Does the interest include arts and/or humanities disciplines?

Item 12: Does the interest include the trades and/or professions?

Item 13: What are the perceived obstacles to starting undergraduate research on your campus? Item 14: Would there be an interest on your campus to engage in state university- community college collaborations to support undergraduate research?

APPENDIX B

Annotated reference list.

Association of American Colleges and Universities (AAC&U; www.aacu.org)

The Association of American Colleges and Universities provides a wealth of online and print resources for the interested professor or administrator. Especially relevant to the current paper are the resources listed under Project Kaleidoscope. Although primarily oriented toward the STEM disciplines, these resources are widely applicable across disciplines.

Council on Undergraduate Research (CUR; www.cur.org)

The Council on Undergraduate Research is widely recognized as one of the major sources of guidance on how to implement research into undergraduate education.

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges & Universities.

Kuh's seminal research on high-impact practices in undergraduate education is highly relevant to all disciplines. Contrary to the tendency of "best practices" to be based upon anecdote, the high-impact practices delineated in the report are supported by research.

