

Evaluation of an Undergraduate Summer Research Program

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I. Summary of project

Every year, twelve to seventeen undergraduates are selected to receive Undergraduate Summer Research Fellowships through the Office of Undergraduate Research to support their research or creative endeavors. Although it is the goal of the program to allow students to engage in research/scholarly/creative activities during an extended period of time and conduct a project that contributes to new disciplinary knowledge or new works of art and learn first-hand what the 'research' process is all about, to date it is unclear whether the program is having the desired outcome.

Prior research has supported the importance of undergraduate research in gains in understanding the research process, intent to attend graduate school, and in other areas (Ash Merkel, 2003; Lopatto, 2004; Seymour, Hunter, Laursen, & Deantoni, 2003). However, despite the apparent importance of undergraduate research, there are limitations to the existing body of work. First, much of the research has been done with different student populations than those found at Buffalo State. Many of the schools do not draw our mix of first generation and underrepresented groups who may not have been exposed to research before college. Thus, it is entirely possible that the undergraduate research endeavor is more important at schools like Buffalo State than at pricey, first tier liberal arts colleges. Second, few researchers have utilized control or comparison groups as they have examined the efficacy of undergraduate research. The types of students who

choose to pursue research are motivated, bright, and often graduate-school bound. It is not surprising that this group of students enjoys research and sees benefits from it. A comparison group would clarify whether the attitudes and skills of students are the result of the USRF program or whether these are just the characteristics of the type of students who chooses to pursue this opportunity.

Thus, the goal of this project was to examine the efficacy of the USRF program through a multimodal assessment and two comparison groups. A secondary question was to identify factors are most associated with successful research experiences among the students in the USRF.

There were 15 student fellows, 9 advisees, and 10 students with some research experience who participated with a faculty mentor. Following an in-depth interview with the faculty mentor, each student completed several measures, including Attitudes toward Individualized Study, Career Decision Making Self-Efficacy (Betz, Klein, & Taylor, 1996), Academic Adjustment (Baker & Siryk, 1984, 1989), and an Assessment of Student Skills (Singer & Weiler, 2009). In addition, mentors completed the Assessment of Student Skills (Singer & Weiler, 2009). This process was repeated at the end of the summer fellowship or the end of the semester in the case of the comparison groups. At the post-test, fellows and their mentors also completed an evaluation of the summer program itself and the mentorship process.

Overall, it appears that the summer fellowship program is one among many possible avenues to improve student skills in a variety of disciplines through individualized experiences. Comparisons of the groups on measures of career decision making, attitudes toward individualized experiences, academic adjustment, and student

skills indicated some positive changes between time one and time two, but no unique benefit from the fellowship program. It should be noted that all three groups were quite small, and power is an issue. Despite the absence of significant differences between groups, mentors and fellows were both very positive about the program, identifying a number of positive outcomes for students. Fellows and mentors were also both happy with the mentoring process and the number of hours spent mentoring.

Although the sample sizes were small, a few conclusions may be drawn. First, it appears that in depth conversation with a mentor or an advisor is beneficial to all students. There were positive changes from Time 1 to Time 2 for all groups. It should be noted that the comparison groups were required to have in depth interviews with the faculty members prior to completing the measures. These interviews, though intended to give mentors enough information to assess students, likely acted as interventions unto themselves. Anecdotally, at least three of the advisors indicated to the author that this was the best advisement session that they had ever had. Thus, it appears that even a brief intervention can assist students' development.

If varying levels of involvement in individualized experiences are all helpful, then the key is to match students with the experience that best meets their needs. It is likely that the summer fellowship program has advantages not assessed by the present study. For example, the extensive experience afforded by this program allows students to get to know faculty mentors –and mentors to know fellows—much more closely. This close working relationship allows mentors to write detailed letters of recommendation for graduate programs. Further, because of the extensive experience of the summer fellowship, this opportunity may be more likely than other avenues to lead to

publications, presentations, or exhibitions. Thus, students seeking graduate school or similar opportunities may choose to seek the summer fellowship over some other options that might not have as strong outcomes. On the other hand, students wishing to try individualized experiences for the first time to see if they are interested in further exposure may choose an experience requiring less of a time commitment.

Involvement in research experiences can be enhanced by strong mentoring techniques. Both mentors and fellows identified several that are most helpful. In particular, brainstorming was viewed to be both commonly used and the most helpful technique. On the other hand, allowing the student to schedule his or her own hours and allowing the student to learn techniques independently were rated as commonly used by the fellows, but not among the most helpful by mentors. Further research identifying helpful techniques and specific outcomes would be beneficial.

II. Contributions to the campus community

Results have already been provided to Office of Undergraduate Research to guide the further development of the Undergraduate Summer Fellowship Program. In addition, I will present a poster describing the study at the Fall Faculty Forum. Finally, I will present the study at a workshop this fall semester. The workshop will cover the results of this study and its implications for individualized experiences. Most notably, the workshop will address the finding that some exposure to individualized experiences—even a small exposure—can have benefits for students and how to maximize those benefits through mentoring. Possible dates for the workshop include Bengal Pause on September 17 or 24 or October 1. Other Thursday Bengal Pause times are also possible.

III. Professional benefits as a result of the fellowship

One of the greatest benefits to me was quite unexpected and unintended. I have had the pleasure of getting to know many new faculty members who graciously volunteered to participate in the project. Thus, my professional network on the campus has increased greatly.

A more traditional benefit is that this study has been accepted for presentation as part of a symposium at the American Psychological Association's Annual Conference to be held in Toronto this August.