

From the President

Assessing Outcomes

Assessing the outcomes of undergraduate research is a complex endeavor. Because this high-impact pedagogical and scholarly experience directly engages students, faculty members, and institutions, undergraduate research has a broad range of goals that require multifaceted evaluation and assessment approaches and instruments. This issue of the *CUR Quarterly* specifically focuses on assessment of the student learning outcomes component associated with undergraduate research.

This is a timely theme given the increased calls for greater accountability, affordability, and transparency in higher education in recent months, especially in light of the current economic crisis facing the United States and many other countries. As legislators, parents, business leaders, and donors ask more-and-more questions of our institutions, many campuses are looking for opportunities to both highlight the powerful student learning outcomes that result from undergraduate research and also link these with broader institutional assessment efforts. Two recent examples include the following: 1) Institutions are now including undergraduate research outcomes as part of their reporting on the *Voluntary System of Accountability* (VSA). The VSA is a voluntary initiative for public colleges and universities, which communicates information on the undergraduate student experience through a common web-based template, the College Portrait. 2) Institutions in the southern U.S. that are accredited by the *Commission on Colleges of the Southern Association of Colleges and Schools* are including undergraduate research as the key element of their “Quality Enhancement Plan.”

As the articles in this issue illustrate, student engagement in undergraduate research, and in other forms of engaged learning, yields an array of greater educational outcomes in comparison with those of students who do not participate in these experiences. These gains are broadly related to cognitive and intellectual growth, professional growth and advancement, and personal growth. Several examples of specific gains attributed to participation in undergraduate research are highlighted here. (modified from Osborn and Karukstis, 2009).

Advancing Cognitive and Intellectual Growth

The benefits regarding cognitive and intellectual growth are particularly rich and in many cases are demonstrated by metrics that institutions and departments track. They fall into two main categories.

Gains in knowledge and skills. Measured by performance on traditional evaluations (exams, quizzes, papers, reports, etc.) and demonstrated by self-reported improvements in intellectual and practical skills; some of the key benefits include:

- greater gains in mastering both content and contextual knowledge;
- enhanced ability to put classroom knowledge into practice;
- increased creativity and critical thinking;
- enhanced problem-solving skills;
- enhanced communication skills, both oral and written;
- enhanced technical skills within the discipline;
- greater understanding of the intersections of disciplines.

Academic achievement and educational attainment. Measured by grade point averages, persistence, and pursuit of advanced degrees; some of the key benefits include:

- higher retention rates;
- greater increases in course grades;
- greater persistence in the major;
- higher graduation rates;
- higher rates of acceptance into and enrollment in post-baccalaureate education (graduate/professional schools).

Students participating in undergraduate research also experience cognitive and intellectual growth in ways that are not as readily demonstrated but are likely correlated to those benefits listed above. Two include:

- increased connection to the major department and the institution;
- greater participation in intellectual activities within the discipline and the intellectual life of the campus.

Fostering Professional Growth and Advancement

The benefits regarding professional growth and advancement are commonly acknowledged by students engaged in undergraduate research. Relating primarily to career development, they include formulating career plans and acquiring the special skills and competencies needed in various fields. Some of the key benefits include:

- enhanced ability to work collaboratively with others in teams;
- stronger relationships with mentors and other professionals;
- deeper integration into the culture and profession of the discipline;
- enhanced ability to identify and make informed decisions about appropriate career interests;
- enhanced professional credentials;
- higher rates of acceptance into and enrollment in post-baccalaureate education (graduate/professional schools) and/or directly securing employment in the workforce.

Promoting Personal Growth

The benefits regarding personal growth are commonly acknowledged by students; these reflect non-cognitive (affective) behavior leading to the examination and development of attitudes, values, aspirations, and beliefs. Some of the key benefits include:

- stimulation of curiosity;
- enhanced ability to learn independently;
- enhanced development of personal initiative;
- increased confidence;
- enhanced ability to understand the philosophy of lifelong learning;
- greater recognition by peers;
- enhanced opportunity to serve as an academic role model.

It is clear that student interactions with faculty mentors through undergraduate research significantly affects students' cognitive and behavioral development and directly impacts student satisfaction and learning in positive ways. Results of the studies in this issue of the *CUR Quarterly*, as well as recent results of the *National Survey of Student Engagement (NSSE)* provide further evidence that participation in collaborative student-faculty research is a high-impact learning experience. These results reinforce the importance of institutional dialogue on the need to both increase student engagement and the use of transformational pedagogies within the institutional culture, as well as to effectively assess and communicate the powerful outcomes of undergraduate research.

References

Osborn JM, Karukstis KK. 2009. The benefits of undergraduate research, scholarship, and creative activity. In: Boyd M & Wesemann J, eds. *Broadening Participation in Undergraduate Research: Fostering Excellence and Enhancing the Impact*. Washington, D.C.: Council on Undergraduate Research; 2009: Chapter 4.



 Jeffrey M. Osborn
CUR President