

QEP: Integrate Research, Education, and Engagement to Enhance Student Retention, Achievement, Graduation, and Diversity

We propose that a campus-wide initiative be undertaken to integrate student engagement into our education and research missions as a means to positively impact student retention, achievement, graduation and diversity. The initiative would emphasize faculty development and the sharing of effective practices to prepare and motivate the following:

1. Departments or colleges to adopt a coordinated approach to implement, disseminate and assess student engagement activities –including programs for academic success (e.g., mentoring, tutoring), experiential learning (e.g., internships, research experiences), civic engagement (e.g., community-based service-learning), and professional development (e.g., professional seminars, participation in student chapters of professional societies).
2. Researchers to create broader engagement opportunities within their labs – e.g., research experiences, capstone projects, workshops and symposia for undergraduates.
3. Faculty to leverage curricular requirements, program requirements, and advising to increase student participation in engagement opportunities.

We suggest this topic as **important to UNC Charlotte** because engagement is a key mediator of student success and diversity. Our suggested approach could help **remedy the existing problem** that while all students could benefit from engagement, those most in need are less likely to participate in opportunities offered. By enabling faculty to integrate engagement opportunities and requirements into research and curricula, we aim to increase student participation in such activities. Our desired outcome is that academic units will conclude that programs for academic success, experiential learning, civic engagement, and professional development are not solely optional and/or first-year student experiences, but, rather, are an integral part of the student experience and therefore should be interweaved throughout the undergraduate experience. Based on prior work (described below), increased student engagement will **positively enhance student learning**, particularly through increased grade point average (GPA), retention, graduation, and advancement of undergraduates to graduate school; and will **benefit students in all disciplines**, particularly underrepresented students. The proposed **QEP is a significant extension** of ongoing efforts in the College of Computing and Informatics (CCI).

The **theoretical foundation** for many of today's student success and retention programs is Astin's Involvement theory¹, which posits that student engagement is the key mediator of retention and academic success. There are many forms of student engagement - e.g., engagement with the subject matter or curriculum of a discipline, engagement with faculty and staff in an academic unit, engagement in student life and co-curricular activities, and engagement with other students, especially students who share certain characteristics or interests^{2,3}. Research has consistently linked all types of student engagement to their success. E.g., the frequency with which students interact with faculty outside of class and work with them collaboratively on research or civic projects, correlates with student GPA, graduation, and enrollment in graduate school². Even more important is student-student interaction. Working together on group projects, tutoring or mentoring other students, and working together on extra-curricular activities is positively related to many academic and social outcomes, such as GPA, general knowledge, and leadership skills.² Curricular practices found to successfully promote involvement include learning communities, service learning, and cooperative learning.

UNC Charlotte offers **first year engagement through learning communities**. Established in 2001, the LC program now has 17 learning communities to facilitate academic and social adjustment to college for freshmen or transfer students. A Learning Community Program Comprehensive Review (July, 2009) found that UNC Charlotte learning communities have had a significant positive impact on *GPA, first year retention and time-to-degree; increased awareness of departmental, college, and*

¹ Astin, A. W. (1985). *Achieving educational excellence*. San Francisco: Jossey-Bass.

² Astin, A. W. (1993). *What matters in college: four critical years revisited*. San Francisco: Jossey-Bass.

³ Chickering, A. W., & Gamson, Z. F. (1987). Seven principles of good practice in undergraduate education. *AAHE Bulletin*.

University resources; and higher level of satisfaction with the University experience. A second study revealed that Psychology Learning Community students had significantly higher student success and learning outcomes than did a group of comparison students.⁴

The CCI offers **multi-year engagement through the STARS Leadership Corps (SLC)**. Motivated by involvement theory, we created the SLC in 2005 as a multi-year learning community to broaden participation in computing through 1) experiential learning to enhance disciplinary skills, understanding of career choices, and interest in graduate school, and 2) civic engagement and service learning to enhance leadership, communication and soft skills^{5,6}. With \$5 million from the National Science Foundation (NSF), we led implementation and assessment of the SLC in 20 colleges and universities in the southeast. Results of our three-year study (687 students) show a significant increase in leading indicators of retention - *efficacy in major, commitment to major, understanding the social relevance of computing, feeling like a part of a computing community, and GPA*. Graduate institutions that implemented the SLC for at least three years, saw enrollment in computing doctoral programs increase by 32% from 2006-2008 – a time when enrollment in computing doctoral programs nationwide declined by 2%. We have recently been recommended for another \$3.75 million grant from NSF to scale the SLC to 50 colleges and universities nationwide.

During 2009-2010 strategic planning, CCI identified integrating engagement, research, and education as a key strategy for student retention, achievement, graduation and diversity. We suggest that other academic units could benefit from and contribute to a campus-wide discourse on engagement.

Example strategies to integrate research, education and engagement include the following:

1. Integrate “engagement advising” with academic advising. Students and advisors would plan and track student participation in programs for academic success, experiential learning, civic engagement, and professional development, including extra-curricular and summer experiences.
2. Create a department or college calendar of categorized engagement opportunities.
3. Offer course credit for participation in extra-curricular engagement activities in all categories.
4. Integrate receiving mentoring and tutoring into requirements of lower-level gateway courses.
5. Integrate being a mentor, tutor, and peer-leader as a component for upper-level courses.
6. Integrate community-based service-learning projects and K-12 outreach into course requirements.
7. Integrate engagement as a program requirement – e.g., for degree programs, certificate programs, honors programs, and scholarship programs.
8. Develop faculty ability to leverage student participation in engagement to develop students’ written and oral communication skills; teamwork skills; leadership skills; and students’ understanding of the global and societal impact of their discipline.
9. Develop faculty ability to assess the impact of student engagement on developing the targeted skills
10. Create a required First Year Engagement course (or enhance freshman experience or another course) comprised of three components: a seminar series; peer-led small group engagement, and extra-curricular individual participation in engagement opportunities.
11. Extend the First Year Engagement to sophomore, junior and senior years.
12. Create theme-based communities comprised of multi-level peer-led small groups (from 10 and 11) to focus student engagement on themes such as freshman, transfers, research areas, honors, leadership, and community service.
13. Develop faculty ability to offer theme-based communities related to their research lab focus.

Many of these strategies are employed within various departments at UNC Charlotte. We suggest that an intentional effort to integrate engagement into our education and research missions would magnify and scale the success of current efforts to positively impact a greater number of students.

⁴ RE: Kim Buch, Coordinator of Psychology Learning Community and Founding Member of LC Program Steering Committee.

⁵ Barnes, T., Dahlberg, T., Buch, K., Bean, K. (2009). The STARS leadership corps: An innovative computer science learning community. *Learning Communities Journal*, 1, 2, pp. 5-17.

⁶ Dahlberg, T., Barnes, T., Buch, K., Bean, K. (2010). Applying Service Learning to Computer Science: Attracting and Engaging Under-represented Students. *Computer Science Education*, 20:3.