

**Applied Learning as a Best Practice Model:
A Strategy for Higher Education Student Success**

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Abstract:

This research effort offers empirical evidence supporting the expansion of applied learning experiences to students at a public doctoral research extensive university. Senior-level students who interned or who completed more types of applied learning experiences took significantly less time to graduate than other seniors. The current study also offers compelling evidence for administrators at similar institutions to adopt or adapt these pedagogical techniques, and evaluate the impact they have on persistence and graduation rates.

Background:

The rates at which students are retained and graduate from college are two measures of student success, and concern is growing among administrators as these rates decline. Applied learning (i.e. research, performance, internship, cooperative education, service-learning, and study abroad) represents a powerful pedagogical strategy to provide *every* student opportunities through which they can acquire transferable work-related knowledge and skills necessary for success in a high-performance economy and other skills necessary for successful social and intellectual engagement (Hutcheson, 1999; Mundy & Eyler, 2002; UMBC, 2005).

Applied learning theory and retention theory share many of the same principles and their interconnectedness is extensive (Mundy & Eyler, 2002). Intuitively, there is a positive connection between students' engagement in applied experiences and an increased tendency toward persistence and degree completion. Some empirical studies have examined the relationship between service-learning and retention (Mundy & Eyler, 2002). Likewise, a number of institutional surveys have been completed to explore the connection between retention and work-integrated learning (i.e. cooperative education, internship) (Hutcheson, 1999). This prior research demonstrates higher retention rates for students who participated in either service-learning or work-integrated learning. However, there is no empirical evidence demonstrating linkages across different types of applied learning (i.e., service- and work-integrated learning, research, study abroad) and student success. Additionally, researchers have not explored the deeper interconnections among applied experiences, students' cognitive and affective development, and degree completion.

In an effort to evaluate applied learning experiences as a best practice, an exploratory study using a sample of senior-level students from the *2004 National Survey of Student Engagement* (NSSE) was used to assess the relationships among engagement in applied learning, students' cognitive and affective development, and degree completion. The primary research questions explored were:

- 1.) What is the impact of different types of applied learning on senior-level students' reports of their cognitive and affective development?
- 2.) How is student development related to degree completion?
- 3.) What are the relationships among applied learning, student development, and degree completion?

Methodology

The sample consisted of 328 senior-level students (within 12 – 24 credits of graduating) who participated in the Web-based administration of the 2004 NSSE at a doctoral research extensive university. Institutional data were appended to the data file to record students' characteristics that NSSE does not collect from respondents.¹ NSSE is a national survey of first-year and senior-level undergraduate students at both public and private four-year institutions. The NSSE is theoretically grounded in the higher education literature on student development that examines factors contributing to college student engagement. Student engagement has two components—students committing time to participate in educational activities that promote student learning and development and institutional cultures and organizational structures that allow for student involvement in educationally purposeful experiences (Kuh, 2001). The NSSE gauges the extent to which colleges are providing educational experiences associated with important learning and personal development outcomes and the extent to which students are engaging in these experiences (Kuh, 2001).

The university participated in the spring 2004 administration of the NSSE. The institution provided NSSE with contact information (name and e-mail address) of first-year and senior-level students prior to the spring semester in which the survey was administered. To ensure that the population included only first-year and senior-level students who had attended the institution for the entire academic year (i.e., fall 2003 and spring 2004), the university provided NSSE with a file of spring enrollments prior to sample generation so that only those who had enrolled in the fall and spring semesters were included in the population from which the sample was drawn. The NSSE project team then contacted students to complete the Web-based version of the survey via their university e-mail address. An overall response rate of 36% was realized for the sample of senior-level students in 2004, and this is comparable to that realized for all senior-level students at NSSE-participating Doctoral/Research-Extensive (Doc/Res-Ext) institutions (35%). Women and full-time students were over-represented in the sample; therefore, analyses were weighted by gender and enrollment status (Table 1).²

The dependent variables in this study are graduated (yes/no) and time to degree (years). A variety of dichotomous categorical independent variables captured if a student had completed any of the following applied learning experiences by the time s/he was a senior-level student: professional practice,³ community service, research with faculty outside of course requirements, study abroad program; and participation in a community-based project as part of a course. Two multi-item scales were created capturing cognitive and affective development as outlined by Astin (1984, 1993). For all multi-item scaled variables, factor analyses were used to extract components and reliability analyses were used to assess the internal consistency of the constructs. Finally, several variables were controlled for, as they are related to undergraduate persistence: gender, race, age, first-generation college, matriculation type, major program area (STEM vs. non-STEM), dorm status, enrollment status during fall semester of survey, cumulative GPA as of fall 2003, and in-state residency (Nunez & Cuccaro-Alamin, 1998; Reason, 2003).

A series of bivariate analyses was used to assess the relationships among applied learning, cognitive and affective development, student demographics, and degree completion. These analyses informed the multivariate models. A series of weighted logistic regression and least squares regression models was conducted to understand factors related to cognitive and affective development and degree completion. These

¹ Institutional data appended to the NSSE file include: matriculation term, matriculation type, tuition status, dorm residency over multiple semesters, subsequent enrollment and enrollment status, attempted credits over multiple semesters, and cumulative GPA over multiple semesters.

² Dorm residents were over-represented as well. Since dorm residents are significantly more likely to be enrolled full-time, compared to commuters who are more likely to be enrolled part-time, we did not weight the sample based on dorm status.

³ The NSSE item specifically asked if the student had done or planned to complete the following before graduating from the institution: practicum, internship, field experience, co-op experience, or clinical experience.

models were also used to assess any mediating effects of the cognitive and affective development variables on the relationship between applied learning and degree completion.

Findings

The use of the NSSE sample of senior-level students allowed us to expand on the findings from an institutional report suggesting that students engaging at some point in their academic career in an applied learning experience were more often retained and graduated at a significantly higher rate than students who did not engage in such an experience (OIR, 2005). The current study allows the deeper exploration of relationships across applied learning, students' cognitive and affective development, and degree completion. Bivariate analyses suggested that certain applied learning experiences (i.e. professional practice, community service, and multiple applied experiences) are independently related to cognitive and affective development items, and to degree completion (Table 2). In the multivariate case, when controlling for all demographics, senior-level students who had completed a professional practice experience or who engaged in more applied learning experiences throughout their undergraduate career were significantly more likely to graduate in a shorter period of time than those who did not (Table 3).

Implications for Implementation and Next Steps:

The current study offers an opportunity to continue to explore the varied connections between different applied learning strategies, student development, and degree completion. Forthcoming analyses will use cohorts of first-time, full-time freshmen to assess the relationships among engagement in service-learning and professional practice and its relationship to degree completion and time to degree using analyses that account for time varying variables such as enrollment status. In the meantime, using the information gleaned from these data, administration will develop and promote a proposal to institutionalize and centralize the integration of applied learning approaches into every student's university experience. This effort comports with the University's strategic framework and with specific recommendations put forth to enhance undergraduate education at the institution. The information generated from this study can, in turn, serve as a best practice for adaptation and further implementation at other higher education institutions.

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