

**Effective Uses of NSSE Data:  
Evaluating First-Year Student Success Initiatives**

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**Abstract:**

This research showcases a creative use of NSSE data in an evaluation of the university's First-Year Seminars and Introduction to an Honors University Seminars.<sup>1</sup> NSSE data were triangulated with course evaluations and institutional data to assess aspects of student engagement associated with these programs.

**Objectives of the research:**

UMBC is a mid-sized, four-year public research doctoral extensive university. UMBC's administration aims to deliver an honors university experience in which a liberal arts education is well-integrated into the fabric of a rigorous research university. One way in which the administration has achieved this goal is by implementing first-year student success initiatives. In 2002, First-Year Seminars (FYS) were introduced on campus along with a new version of the Introduction to Honors University Seminar (IHUS)—a one-credit "student success" course attached to freshmen courses across the disciplines.

This research was part of a larger effort to examine the effectiveness of first-year programming and its impact on student success. Here, we focus on how NSSE data were used as an indirect method of value-added assessment to examine the effectiveness of FYS and IHUS by understanding the dimensions of student engagement associated with each.<sup>2</sup> Each first-year program has distinct programmatic goals that comport with the NSSE Benchmarks for Effective Educational Practice. FYS were designed to provide first-year students with a small group experience that allows for active and collaborative learning with faculty and peers that incorporates traditional reading, writing, and lecture formats with field work, original research, group projects or performance. IHUS were designed not only to enhance the academic skills of first-year students, but also to teach them about and encourage their use of support services.

We were interested in two questions:

1. Do first-year students who enrolled in an FYS or IHUS significantly differ from other first-year students on the five benchmarks of effective educational practice?<sup>3</sup> Specifically, which items constituting these benchmarks are driving significant between-group differences?
2. The NSSE gauges the extent to which 4-year institutions are providing educational experiences contributing to students' educational and personal development (i.e., being able to write and speak clearly and effectively). How do FYS and IHUS participants compare to non-participants on these items given the specific programmatic objectives of each?

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<sup>1</sup> National Survey of Students Engagement (<http://nsse.iub.edu/index.cfm>, accessed June 30, 2006).

<sup>2</sup> See American Association of State Colleges and Universities (Spring 2006). Value-added Assessment: Accountability's New Frontier. *Perspectives*. [http://aascu.org/pdf/06\\_perspectives.pdf](http://aascu.org/pdf/06_perspectives.pdf), accessed June 30, 2006.

<sup>3</sup> The five benchmarks of effective educational practice include: (1) Level of Academic Challenge, (2) Active and Collaborative Learning, (3) Student-Faculty Interaction, (4) Enriching Educational Experiences, and (5) Supportive Campus Environment. See Appendix A for a listing of all items constituting each benchmark with to a brief synopsis about how the benchmarks were constructed.

## Literature Review

First-Year Seminars and other first-year experience interventions have become prevalent among America's colleges and universities as a means of improving the transition of students into higher education (Henscheid, 2004; Hunter & Linder, 2005; Pascarella & Terenzini, 2005). These courses are designed to facilitate learning and development, be it about one's self, the university, or a particular topic or set of topics (Hunter & Linder, 2005). Research on the efficacy of these courses has centered mainly on the positive relationship between FYS participation and persistence to the second year of college, with these benefits found among all categories of students. A limited number of studies have examined additional benefits of first year experiences, all positively related to persistence, such as increased interaction with faculty and other students, engagement outside of the classroom, and satisfaction with the college experience (Pascarella & Terenzini, 2005).

Since there has been less emphasis on the additional benefits of first-year experiences that focus on aspects of students learning and development, we used NSSE to fill this gap in our own institutional knowledge. 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 organizational cultures and structures that allow for student involvement in educationally purposeful experiences (Kuh, 2001). NSSE developed five benchmarks of “Effective Educational Practice” using groups of items from the survey. The benchmarks are: Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences, and Supportive Campus Environment. These benchmarks, in addition to the other survey items, are used to help institutions gauge the extent to which it provides educational experiences associated with important learning and personal development outcomes, and the extent to which students are participating in these experiences (Kuh, 2001).<sup>4</sup>

## Methodology

### *Study Design and Sample*

Data for these analyses were from the 2005 NSSE, a web-based survey conducted by NSSE for the university during spring 2005.<sup>5</sup> The sample consists of 453 first-year students who were enrolled in AY2005.<sup>6</sup> Women were over-represented in the sample (51%) compared to the population (40%); thus, the sample was weighted based upon gender and enrollment status for all analyses.

### *Measures*

Participation in an FYS or an IHUS was the primary independent variables in this study. Course information was appended to the NSSE data file to capture whether or not a student had enrolled in an FYS and/or an IHUS during AY2005. The primary outcomes of interest were the five benchmarks of effective educational practice.

The NSSE project team developed five clusters, or benchmarks, of “Effective Education Practice,” from 41 of the survey items using factor analysis.<sup>7</sup> For each benchmark, a composite score was created by converting all relevant items to a 0 – 100 point scale. For the eight items with a response category of have “done,” “plan to do,” “do not plan

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<sup>4</sup> Information regarding the *National Survey of Student Engagement* was borrowed from *National Survey of Student Engagement: An Inter and Intra-Institutional Analysis* (2001, 2004, 2005).

([http://www.umbc.edu/oir/Reports/NSSE%202005\\_full%20report\\_03232006.pdf](http://www.umbc.edu/oir/Reports/NSSE%202005_full%20report_03232006.pdf), accessed June 30, 2006. UMBC Office of Institutional Research, Tinney, 2006)

<sup>5</sup> The overall response rate for the sample of first-year students was 36%, and this is higher than all NSSE-participating Doctoral/Research-Extensive institutions (31%), selected peer (33%), and all NSSE participants (35%) (NSSE, UMBC Institutional Report, 2005).

<sup>6</sup> First-year students are categorized as freshmen based on cumulative credits excluding advanced placement credits. (<http://nsse.iub.edu/html/2006%20population%20file%20instructions%20Paper.htm>, accessed June 30, 2005).

<sup>7</sup> Kuh (2001) notes that principal components factor analysis using an oblique rotation has been established as an empirical approach to evaluating construct validity, in other words that certain items are related to each other to explain an underlying phenomenon—a construct (Kerlinger, 1973).

to do,” and “have not decided,” students who responded that they had “done” these activities received a value of 100 and all other responses received a value of 0. After all items were converted to a 0 – 100 scale, a student-level scale score was generated by taking the mean of each student’s scores on items constituting each benchmark. A scale score was calculated for each student who had responded to at least 60% of all items for a particular benchmark ([www.iub.edu/~nsse/2004\\_annual\\_report/html/benchmarks\\_const.html](http://www.iub.edu/~nsse/2004_annual_report/html/benchmarks_const.html), accessed 11/1/2005). The NSSE team also provides benchmark means for multi-institution groups so that an institution’s administration can compare itself to a Carnegie Classification group or to a selected comparison group. UMBC data are not included in the comparison groups so that independent group comparisons can be made between UMBC and its peer groups.<sup>3</sup>

Another set of dependent variables were used in the study to understand reported gains in students’ educational and personal development. These items are measured at the ordinal level, inquiring the extent to which students perceived UMBC has contributed “very much,” “quite a bit,” “some,” or “very little” to their development.

### *Analyses*

For intra-institutional analyses, t-tests were used to compare participants and non-participants’ means on the benchmarks of effective educational practice and the educational and personal development items. Multivariate analyses were conducted to validate the significant benchmark bivariate results.

### **Results**

For First-Year Seminars, we were able to confirm the benefits of this program through comparison of course evaluations and NSSE data among participants and non-participants; those who took part in an FYS reported higher scores on the Level of Academic Challenge and Active and Collaborative Learning benchmarks in the bivariate case. Those who took an FYS also reported higher gains regarding the institution’s contribution to certain aspects of their educational and personal development: writing and speaking clearly and effectively, understanding people of different racial and ethnic backgrounds, and contributing to the welfare of their community. For the Introduction to an Honors University Seminar, participants scored higher than non-participants on the Supportive Campus Environment benchmark even after controlling for numerous student characteristics.<sup>8</sup>

### **Conclusions and Implications for Research & Practice**

Results from this study have been shared with university administration and are being used by the Dean of Undergraduate Education in the continued development and modification of first-year experience programming. In sharing the ways in which the university has used the NSSE to improve programming and inform current practices, NSSE featured UMBC in the May 2006 its on-line newsletter as an example of the effective use of NSSE data at institutions ([http://nsse.iub.edu/e-news/vol5\\_issue3.cfm#d](http://nsse.iub.edu/e-news/vol5_issue3.cfm#d), accessed June 30, 2006). This research effort serves as a case study for other OIR offices in institutions that are building a culture of assessment. Administration with limited resources can use conventional survey assessment tools, like NSSE, to begin evaluating aspects of student engagement that are associated with important students learning and development outcomes.

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<sup>8</sup> Student characteristics controlled for include: sex, race, first generation college, dorm status, STEM major, GPA at end of fall 2004 semester, SAT (combined), affiliation status, worked on-campus, and worked off-campus.

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