**Notes on the predictive/explanatory value of BCSSE 2015 scales:** Philip Batty  
 Institutional Analysis

Following are findings regarding associations between BCSSE scale scores for GVSU participants and subsequent indicators of engagement or success.

**Association with First Year Outcomes:**

There were 2,420 students who took the 2015 BCSSE and also earned grades at GVSU in 2015-16. In spite of that bountiful sample, few of the BCSSE scale scores are significantly related to GVSU grades, and those correlations that do achieve significance are extremely weak. Most notably, there is no significant correlation between the “Perceived Academic Preparation” scale and first semester grades (r=0.03; pr=0.157), and only a very weak association with first year grades (r=0.05; pr=0.018).

None of the BCSSE scales is significantly associated with first-year retention, including “Expected Academic Perseverance” (tpooled=0.03; pt=0.972).

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| BCSSE Scale | Correlation  with fall GPA | Correlation  with year GPA | Avg. score among retained | Avg. score among unretained |
| High School Quantitative Reasoning | -0.02 | -0.03 | 32.1 | 32.2 |
| High School Learning Strategies | 0.06\* | 0.06\* | 39.8 | 39.1 |
| Expected Collaborative Learning | 0.01 | 0.02 | 39.1 | 38.7 |
| Expected Student-Faculty Engagement | 0.02 | 0.02 | 34.1 | 33.2 |
| Expected Discussion with Diverse Others | 0.02 | 0.02 | 44.6 | 45.6 |
| Expected Academic Perseverance | 0.06\* | 0.05\* | 44.8 | 44.8 |
| Expected Academic Difficulty | -0.03 | -0.03 | 27.9 | 28.1 |
| Perceived Academic Preparation | 0.03 | 0.05\* | 45.7 | 45.3 |
| Importance of Campus Environment | 0.04 | 0.05\* | 46.9 | 46.4 |
| \* Correlation significantly different from 0 (p<0.05) No scales are significantly different between retained and unretained students | | | | |

**Correlation with NSSE Scales:**

776 GVSU students participated in both BCSSE and NSSE in 2015-16.

There are five BCSSE scales that are specifically designed as precursors to NSSE scales, with directly parallel phrasing and weighting of questions contributing to the scales:

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| BCSSE scale | NSSE Engagement Indicator | Correlation  (RPearson) |
| High School Quantitative Reasoning – High School engagement with analysis and numeric information | Quantitative Reasoning – First college year engagement with analysis and numeric information | 0.30 |
| High School Learning Strategies – Use of effective learning strategies in high school | Learning Strategies -- Use of effective learning strategies in first college year | 0.36 |
| Expected Collaborative Learning – Expectation to interact and collaborate with peers | Collaborative Learning – First-year interaction with other students regarding course material or projects | 0.33 |
| Expected Student-Faculty Interaction – Expectation to interact and engage with faculty | Student-Faculty-Interaction – First-year interaction and engagement with faculty | 0.27 |
| Expected Discussions with Diverse Others – Expectation to engage in discussions with people from different backgrounds | Discussions with Diverse Others – Frequency of first-year discussions with people from different backgrounds | 0.28 |

Given the explicit theoretic and methodological linkages between these scales, these correlations are underwhelming. I believe that engagement (as measured by any single NSSE Engagement Indicator) reflects:

1. the opportunities for engagement that respondents have experienced (environment factors);
2. the inclination of the particular respondents to follow through on those opportunities (student factors);
3. effects of the choice and phrasing of survey items (measurement factors);
4. error

The BCSSE-NSSE linkage should effectively control for b) and much of c), so the absence of strong correlations implies (to me) that either (1) GVSU first-year environments are highly variable in the opportunities they present for each of these different types of engagement or (2) BCSSE responses simply aren’t good predictors of NSSE responses.

I investigated the seven instances where a GV college’s responses were significantly different from the GVSU average on first-year students’ responses to one of these five NSSE 2016 Engagement Indicators. In each case, I tested whether being in the college was significantly associated with the NSSE scale score after controlling for the students’ corresponding BCSSE scale score. In other words, did the observed NSSE finding describe a characteristic of the college, or of the students who enter that college? Of the seven relationships considered, college was a significant factor independent of BCSSE scores in five of the cases. In the other two cases, neither the simple bivariate association (college 🡪 NSSE score) nor the multivariate relationship (College 🡪NSSE score controlling for BCSSE score) was significant. In both of those cases, it appears that the reduced sample size (from 1169 first-year NSSE participants to 776 matched BCSSSE-NSSE participants) was a factor in the lack of significance. The upshot is that the inclusion of BCSSE data did not affect the substantive conclusion (“Enrollment in college A is associated with higher/lower scores on NSSE scale B”) in most cases.

BCSSE scale scores are also significantly associated with first-year participation in high-impact practices (as reported in NSSE). In particular, students who engaged in HIPs tended to have higher scores on the “Expected Collaborative Learning” scale, and students who participated in learning communities had particularly high scores on “Expected Student-Faculty Interaction”. Since students completed BCSSE on the same day they selected their first year’s courses and after they had contracted for on-campus housing (including living-learning communities), the chronology between the BCSSE scores and the HIP participation is unclear (making causal presumptions even more precarious than usual).

**Association with Satisfaction:**

**MAP-Works**: Please recall that MAP-Works results were constrained and possibly biased by administrative difficulties in 2015. Still, the data do have some validity (and predict grades and attrition much more effectively than BCSSE, as it turns out).

There were 1,616 students who completed BCSSE during summer of 2015 and MAP-Works early in the fall. Among these students, all of the BCSSE scale scores were weakly but significantly related to MAP-Works’ “Satisfaction with the Institution” scale. The strongest correlations to satisfaction were those for “Perceived Academic Preparation” (rpearson=0.20), “Expected Academic Perseverance” (r=0.17), and “Importance of Campus Environment” (r=0.16).

**NSSE**: Among the 600 BCSSE-NSSE participants who answered the NSSE question “How would you evaluate your entire educational experience at this institution?”. Several of the BCSSE scales were weakly but significantly correlated to their rating. The strongest associations were with “High School Learning Strategies” (rpearson=0.15), “Expected Academic Perseverance” (r=0.14), and “Perceived academic Preparation (r=0.14).