
Theses, Dissertations, and Other Capstone Projects

2012

The National Survey of Student Engagement as a Predictor of Academic Success

Paul Michael Fursman
Minnesota State University - Mankato

Follow this and additional works at: <http://cornerstone.lib.mnsu.edu/etds>

 Part of the [Educational Psychology Commons](#), and the [Industrial and Organizational Psychology Commons](#)

Recommended Citation

Fursman, Paul Michael, "The National Survey of Student Engagement as a Predictor of Academic Success" (2012). *Theses, Dissertations, and Other Capstone Projects*. Paper 155.

This Thesis is brought to you for free and open access by Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato. It has been accepted for inclusion in Theses, Dissertations, and Other Capstone Projects by an authorized administrator of Cornerstone: A Collection of Scholarly and Creative Works for Minnesota State University, Mankato.

Running Head: THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A
PREDICTOR OF ACADEMIC SUCCESS

The National Survey of Student Engagement as a Predictor of Academic Success

Paul M. Fursman

Thesis Submitted in Partial Fulfillment
Of the Requirements for
Masters of Arts
in
Industrial/Organizational Psychology

Minnesota State University

Mankato, Minnesota

May 2012

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A PREDICTOR OF ii
ACADEMIC SUCCESS

Date: _____

This thesis paper has been examined and approved.

Examining Committee:

Daniel Sachau, Ph.D., Advisor

Kristie Campana, Ph.D., Committee Member

Kathleen Dale, Ph.D., Committee Member

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A PREDICTOR OF iii
ACADEMIC SUCCESS

ABSTRACT

The National Survey of Student Engagement as a Predictor of Academic Success

Fursman, Paul, M.A. Minnesota State University, Mankato, 2012

Student engagement measures have been shown to be excellent predictors of desirable educational outcomes, and in some cases, these measures are being used as a means of institutional accountability. The National Survey of Student Engagement (NSSE) is one of the most widely used measures of student engagement. In this study, I examine the relationship between NSSE subscale scores and measures of student academic success. I also examine the extent to which pre-college ability and ethnicity moderate the relationship between engagement scores and academic outcomes. Results indicate that the benchmark academic challenge was a significant predictor of freshmen GPA and the benchmark supportive campus environment was a significant predictor of senior GPA. For the outcome of freshmen retention, both supportive campus environment and active and collaborative learning were significant predictors. Pre-college ability was not a significant moderator of the engagement GPA relationship nor was ethnicity a significant moderator of freshmen retention.

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A PREDICTOR OF iv
ACADEMIC SUCCESS

Table of Contents

INTRODUCTION	1
NSSE Subscales	3
Outcomes of Student Engagement	4
Antecedents of Student Engagement.....	7
Current Study and Hypotheses	10
METHODS	12
Participants	12
Measures.....	12
Procedures	12
RESULTS	14
Preliminary Analyses	14
NSSE Benchmarks in Predicting GPA.....	17
NSSE Benchmarks in Predicting Freshmen Retention	17
NSSE Benchmarks in Predicting Overall Satisfaction.....	18
Moderating Effects of Pre-college Ability and Ethnicity.....	19
DISCUSSION	21
Academic Outcomes	22
Limitations	23
Implications and Future Directions	25
References.....	28

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A PREDICTOR OF v
ACADEMIC SUCCESS

List of Tables

<i>Table 1.</i> Cronbach's alpha values for benchmark scales based on national NSSE and MSU results	14
<i>Table 2.</i> Bivariate Correlations Between All Benchmarks and Academic Outcomes	15
<i>Table 3.</i> Reported means of overall engagement scores by groups	16

THE NATIONAL SURVEY OF STUDENT ENGAGEMENT AS A PREDICTOR OF vi
ACADEMIC SUCCESS

List of Figures

<i>Figure 1.</i> Model of antecedents, outcomes and conditional effects of student engagement	10
---	----

The National Survey of Student Engagement as a Predictor of Academic Success

Student engagement is a multidimensional construct that can be defined as a student's involvement in educationally purposeful activities that lead to learning and personal development. Researchers have described this construct in terms of the time and energy students put into educationally purposeful activities, and have found that a student's level of involvement in those activities is the best predictor of personal development and learning (Astin, 1993; Pascarella & Terenzini, 1991, 2005).

Chickering and Gamson (1987) outlined the "Seven Principles for Good Practice in Undergraduate Education," which include student-faculty contact, cooperation among students, active learning, prompt feedback, spending time on educational tasks, high teacher expectations, and respect for diverse talents and ways of learning. These principles are the best indicators of engagement and have been used as a basis for engagement research and measurement (Kuh, 2009). Kuh (2003) adds that applying these principles not only leads to desirable outcomes, but engagement is a valued end in itself. He states that with students, "engagement helps to develop habits of the mind and heart that enlarge their capacity for continuous learning and personal development" (p. 28).

In an effort to synthesize the engagement literature, Zepke and Leach (2010) examined 93 empirical studies from 10 countries and developed a conceptual framework of student engagement. They found that researchers operate from four perspectives that include student motivation and energy, transactional engagement (student and teacher interactions), institutional support, and active citizenship. Although student engagement

includes several dimensions and can be quite complex, there have been several popular methods for measuring this construct.

Of the earlier measures of student engagement, the most popular was the College Student Experience Questionnaire (CSEQ) developed by Robert Pace who termed this construct “quality of effort” (Pace, 1990). Pace found that students who invested more time and energy into such tasks as studying and applying what they learned to real life situations gained more from their college experiences than those who did not.

Today, the most widely used measure of student engagement is the National Survey of Student Engagement (NSSE; Kuh, 2009). The NSSE is designed to measure a variety of student behaviors associated with desired outcomes of college and was developed using many validated items from other well-regarded measures of student engagement, with two-thirds of the original NSSE items coming from the CSEQ. The NSSE goes beyond traditional measures of engagement and was created with three core purposes in mind (Kuh, 2009). The first, and most important, was to provide institutions with actionable data that could be used to improve student’s educational experiences. The second purpose was to uncover and document the most effective educational practices in order to duplicate those in other institutions. The last purpose was to generate public advocacy for the use of empirically-derived indicators of collegiate quality. Altogether, NSSE was developed to improve institutional practices, document good practices already in place, and to seek public advocacy for the use of empirical conceptions of collegiate quality.

NSSE Subscales

NSSE items can be analyzed individually or combined into five clusters (subscales) the authors call the Benchmarks of Effective Educational Practice (Kuh, 2001). These benchmarks define what student engagement is and they include, level of academic challenge, active and collaborative learning, student faculty interaction, enriching educational experience and supportive campus environment. These benchmarks are frequently used to summarize student engagement scores in an understandable way, establish baselines to track progress over time, and to compare scores across academic institutions (Kuh, 2001).

According to Kuh (2009), level of academic challenge includes items that assess student perceptions of how challenging an institutions intellectual and creative work is. The premise here is that setting high expectations for student performance and emphasizing the importance of academic effort will promote high levels of student achievement. An example item assesses if students have “*course work emphasizing application of theories or concepts to practical problems or in new situations.*”

Active and collaborative learning describes student behaviors and whether or not they are actively involved in their learning either individually or working with others. Students tend to learn more when they are deeply involved in their studies. Collaborating with others during difficult projects prepares students for the problems they will face during and after college. A sample item assesses whether or not a student “*asked questions in class or contributed to class discussion.*”

Student faculty interaction describes student and faculty behaviors, and summarizes how often students work with faculty members inside and outside the

classroom. Faculty have much to teach their students and should act as mentors and role models to encourage continuous, life-long learning. A sample item determines if students “*talked about career plans with a faculty member or advisor.*”

Enriching educational experience include items that assess if students behaviors, or involvement, in complementary learning opportunities. Such opportunities provide a chance to integrate and apply knowledge learned in a classroom setting. A sample item examines whether or not students participate in a “*practicum, internship, field experience, co-op experience or clinical assignment.*”

Supportive campus environment assesses whether or not students perceive their institution as committed to their success. When a student feels that their institution is committed to their success, they will perform better and be more satisfied with their collegiate experience. A sample item asks students if the *campus environment provides the support you need to help you succeed academically.*”

Outcomes of Student Engagement

The NSSE is based on a large body of research on educational practices that lead to desirable educational outcomes. It should make sense, then, that student scores on the NSSE should be correlated with educational outcomes. Carini, Kuh, and Klein (2006) found that engagement scores, although weak, were positively related to grade point average (GPA), Graduate Record Examination (GRE) scores, and newly designed cognitive and performance tests developed by RAND. Partial correlations between the benchmarks and these three outcomes range from .08 to .13.

Other researchers have linked engagement scores with college GPA, persistence data and degree progress (NSSE Psychometric Portfolio, 2009). Students who reported

higher levels of engagement were more likely to return to school after their second semester and had earned more credits after their sophomore year than those who reported low levels of engagement. Hughes and Pace (2003) examined the relationship between scores on the NSSE and student retention and withdrawal. They found that students who withdrew after their first year of school had substantially lower engagement scores than those who were retained. According to Hughes and Pace (2003), “A large number of the items reflect attitudes that could be identified in conversations between students and advisors” (p. 2), suggesting that practitioners could be made more aware of these behaviors in order to decrease the likelihood of student withdrawal.

Fuller, Wilson and Tobin (2011) also tested the relationship between NSSE benchmarks and undergraduate GPA; however, they employed both a cross-sectional and longitudinal examination. The results of the cross-sectional analysis suggest that Level of Academic Challenge is a significant, yet modest, predictor of final GPA for freshmen, whereas Active and Collaborative Learning is a significant predictor for seniors, suggesting that students in different stages of their college career convert different behaviors into academic success. Alternatively, the results of the longitudinal data showed that no benchmark was a significant predictor of final GPA for either freshmen or senior students, even though the longitudinal data accounted for more variance in GPA than did the cross-section study. The reason for these findings is that the study lacked the necessary power to detect modest effects, suggesting that a larger sample size may be necessary when using longitudinal analysis. A more positive finding, however, is that in examining the longitudinal data, Fuller et al. (2011) found that on average, scores on each benchmark increased from the first administration (taken as freshmen) to the second

(taken as seniors), indicating that student engagement increased during their time at college.

Gordon, Ludlum and Hoey (2008) were also able to predict several collegiate outcomes using NSSE benchmark scores. They found several positive, although weak, relationships between the benchmarks and freshmen retention, GPA, pursuit of graduate education, and employment upon graduation. They found that Level of Academic Challenge, Active and Collaborative Learning and Enriching Educational Experiences were most highly related to freshman GPA and that Supportive Campus Environment and Student-faculty Interaction were most highly related to senior GPA, once again suggesting that students in different phases of their college career translate different behaviors and experiences into academic success.

Another possible outcome measure of student engagement is overall satisfaction. According to Kuh, Kinzie, Buckley, Bridges, and Hayek, (2006), satisfaction is an important variable in determining the quality of an institution, but it is often overlooked. Researchers have rarely examined the relationship between overall satisfaction and the NSSE benchmarks, even though in the past, satisfaction has been shown to be related to engagement (Astin, 1993), persistence (Pascarella & Terenzini, 2005) and academic performance (Pike, 1993). There is one study, though, that did examine this relationship on a national level and found that the Supportive Campus Environment benchmark is the single best predictor of student satisfaction with their collegiate experience (NSSE, 2005). This would make sense because a student's satisfaction with college is more highly dependent on the college environment and not so much on entering characteristics such as gender and parental education levels (Kuh et al., 2006). Since overall satisfaction has

been shown to be related to desirable academic outcomes, it is an important variable to include in the current study.

Antecedents of Student Engagement

In researching student engagement, it is also important to identify any processes or predispositions that may lead to lower or higher engagement. Several researchers have indeed identified student and university level characteristics that can lead to different levels of engagement, and this information can be used to tailor programs and university processes. For example, Kuh (2003) discovered several student characteristics that are positively linked to student engagement. He determined that women, full-time students, students living on campus, students involved in learning communities, international students and those with diversity experiences are all, on average, more engaged than their counterparts. Kuh (2003) also discovered that transfer students struggled significantly to fully engage in their new institutions when compared to native students, and recommends that more resources and effort be directed toward this group in particular. Cole, Kennedy and Ben-Avie (2009), on the other hand, examined the role of student expectations using a modified version of NSSE called the Beginning College Survey of Student Engagement (BCSSE). They found that high school experiences, entering expectations and attitudes are significant predictors of student success in college.

Hu and Kuh (2002) also examined individual characteristics, but additionally investigated institutional characteristics and its link to student engagement by comparing disengaged students to engaged students. The authors found that students with parents who had more education, who had more academic preparation and who had positive perceptions of their environment were less likely to be disengaged. They also found that

white students, male students, those in public institutions, and first year students are more likely to be disengaged when compared to their counterparts. When they examined institutional selectivity and aggregate institutional environment measures, they found no relationship with student engagement scores. Hu and Kuh (2002) did find, though, that institutional type had an impact on engagement in that those students attending research universities were most likely to be disengaged when compared to all other institutional types. These findings suggest that individual characteristics may be more highly related to student engagement than institutional characteristics, and that more research on institutional characteristics is necessary.

Moderators

One important area of research that has received only minimal attention is the conditional effects, or moderators, of student engagement. A moderator, in this case, alters the strength and/or direction of the relationship between student engagement and academic outcomes. More specifically, researchers should ask if certain groups of students (i.e. males vs. females) benefit more from being engaged in terms of gains in outcomes like GPA and persistence ratings when compared to their counterparts?

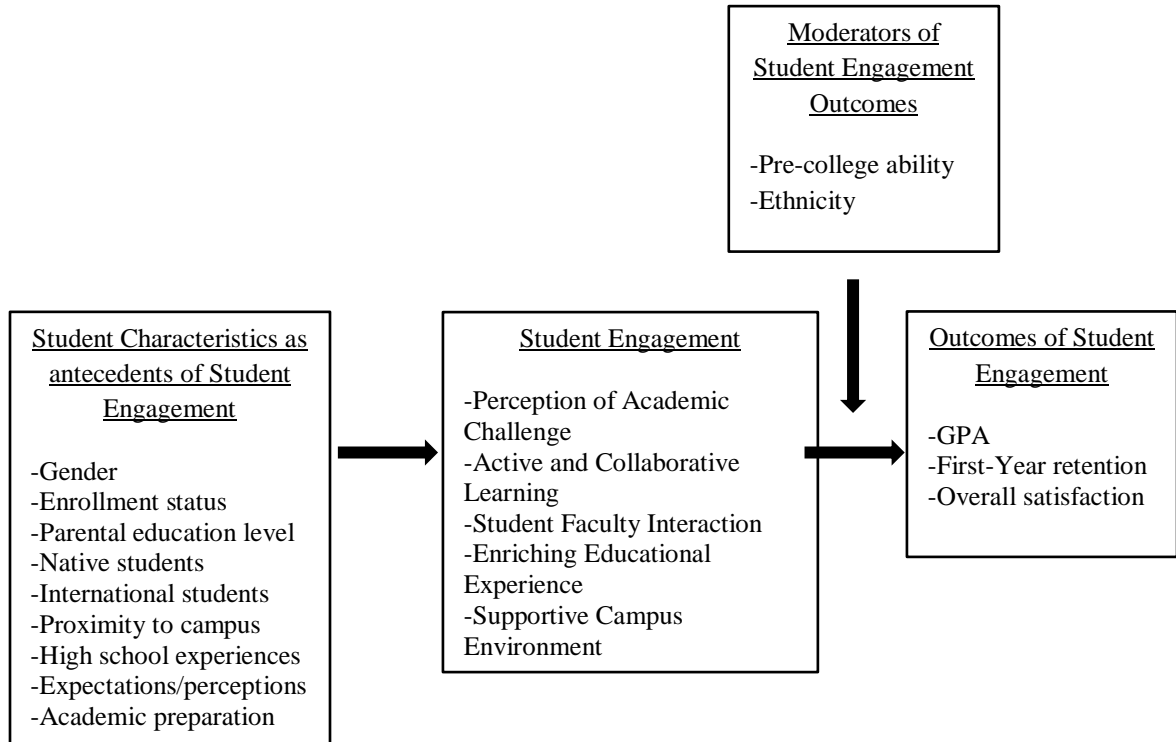
In one study, researchers examined the moderating effects of pre-college ability on the relationship between student engagement and GPA (Carini et al., 2006). When comparing the lowest and highest ability students, as indicated by SAT scores, researchers found that low ability students (those who scored below 1030) benefited more from being engaged when compared to high ability students (those who scored above 1330). Based on these findings, Carini et al. (2006) suggest that interventions to boost student engagement may best be directed at the lower ability students, since they realize

the greatest gains from being engaged. Other studies have also examined the moderating effects of pre-college abilities and engagement on undergraduate GPA (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008; Kuh et al., 2006). Both studies found that low ability students gain more from engagement than high ability students.

In addition to pre-college abilities, Kuh et al. (2008) examined the impact of engagement on GPA and first-year student retention rates for students who differed by ethnicity. The authors found that when compared to White students, Hispanic students realized greater gains in their GPA from being engaged, and African American students were more likely to be retained as their engagement increased. These findings suggest that Hispanic and African American students gain more from higher levels of engagement when compared to White students.

Figure 1 below outlines the known antecedents and outcomes of student engagement, as well as the moderators of the engagement outcome relationship.

Figure 1. Model of antecedents, outcomes and conditional effects of student engagement



Current Study and Hypotheses

The main purpose of the current study is to determine the predictive power of the NSSE benchmarks on several desirable academic outcomes at Minnesota State University (MSU). In this study, I tested the degree to which each benchmark relates to college GPA, first year retention rates and overall satisfaction. The proposed hypotheses are presented below.

***Hypothesis 1:** The benchmark Level of Academic Challenge would be positively related to freshmen GPA and not to senior GPA.*

***Hypothesis 2:** The benchmark Supportive Campus Environment would be positively related to freshmen retention rates.*

Hypothesis 3: *The benchmark Active and Collaborative Learning would be positively related to senior GPA and not to freshmen GPA.*

Hypothesis 3: *The benchmark Supportive Campus Environment would be positively related to overall satisfaction for both freshmen and senior students.*

The second purpose of the current study is to determine if the effects of engagement on collegiate outcomes are general or conditional. In other words, do students with certain characteristics benefit more from engagement than their counterparts? Although few studies have researched the conditional effects of student engagement on outcomes, this study examines whether ethnicity and student pre-college ability moderate the relationship between student engagement and collegiate outcomes. For this study, I proposed the following hypotheses:

Hypothesis 5: *Low ability students would benefit more from being engaged in terms of GPA, than will high ability students.*

Hypothesis 6: *Freshmen minority students would benefit more from being engaged in terms of retention rates, than will non-minority students.*

Method

Participants

Participants for this study consisted of undergraduate students at Minnesota State University, Mankato. Participants ranged from first-year undergraduate students to seniors, however, only freshman ($N = 643$) and senior ($N = 449$) student data was assessed. The participants were predominantly female (61% for freshmen and 58% for seniors), white (non-Hispanic) (83% for freshmen and 90% for seniors) and full-time students (99% for freshmen and 88% for seniors).

Measures

Student Engagement Data. The data for this study was obtained from the NSSE administration at Minnesota State University, Mankato in 2011. The data was collected in the spring of 2011 via online administration.

Student Academic Information. Student demographic (sex, ethnicity, class level, etc.) and pre-college (ACT scores, high school GPA) information was provided by MSU's institutional student records. This data was linked to each student's engagement data and used to control for the possible confounding influence of pre-college ability on the relationship between student engagement and academic outcomes of GPA and retention rates. This information was also linked to the engagement data in order to examine the moderating effects of student characteristics on the relationship between student engagement and desirable academic outcomes.

Procedures

To test the relationship between student engagement and academic outcomes, hierarchical regression was used. Several regressions were run with undergraduate GPA,

first-year retention rates, and overall satisfaction set as the dependent variables. When testing for GPA and retention rates, student ACT scores and high school GPA were entered in the first block to control for pre-college abilities. In the next block, all five benchmarks were entered to determine their relationship with each on the outcome variables. When overall satisfaction was set as the dependent variable, undergraduate GPA and retention rates were entered in the first block as control variables. In the next block, all five benchmarks were entered to determine their relationship with overall satisfaction.

To test for the moderating effects of pre-college ability and ethnicity on the engagement outcome relationship, moderated regression analysis was used. Pre-college ability was examined to determine if it moderates the relationship between overall engagement and GPA for all students. Ethnicity was examined to determine if it moderates the relationship between overall engagement and retention rates for freshmen students only.

Results

Preliminary Analyses

Table 1 below shows the Cronbach’s alpha values for both the national and MSU NSSE results. These values represent the reliability, or internal consistency, of each scale. An alpha value of .70 is considered minimally (Nunnally, 1978). At MSU, both the benchmarks of *Active and Collaborative Learning* and *Enriching Educational Experiences* fall below the .70 cutoff, however, each is above .60 and is in line with the national results. Even though these lower alphas can reduce the association between the benchmarks and outcomes, it is of less concern considering the values are very similar to that of the national results.

Table 1. Cronbach's alpha values for benchmark scales based on national NSSE and MSU results

Benchmark	NSSE 2011		MSU 2011	
	First-year	Senior	First-year	Senior
Level of Academic Challenge	0.73	0.76	0.70	0.73
Active and Collaborative Learning	0.67	0.67	0.69	0.65
Student-Faculty Interaction	0.71	0.74	0.74	0.73
Enriching Educational Experience	0.60	0.66	0.65	0.62
Supportive Campus Environment	0.79	0.80	0.74	0.74

For exploratory purposes, the relationship between each benchmark was examined (Table 2). All inter-correlations were positive and significant at the .01 level, and ranged from .22 to .64, suggesting the subscales are measuring similar yet non-identical components of student engagement. It appears that as scores on one benchmark increases, so do scores on the other benchmarks.

Table 2. Bivariate Correlations Between All Benchmarks and Academic Outcomes

	Level of Academic Challenge	Active and Collaborative Learning	Student-Faculty Interaction	Enriching Educational Experiences	Supportive Campus Environment
Level of Academic Challenge	1				
Active and Collaborative Learning	.546**	1			
Student-Faculty Interaction	.529**	.639**	1		
Enriching Educational Experiences	.443**	.527**	.481**	1	
Supportive Campus Environment	.316**	.272**	.374**	.218**	1
Undergraduate GPA	.154**	.089**	.037	.133**	.083**
Retention Rates (freshmen only)	.060	.071	.024	.054	.114**
Overall Satisfaction	.199**	.183**	.179**	.113**	.510**

** . Correlation is significant at the 0.01 level (2-tailed).

Table 3 illustrates how groups of students differ in terms of their overall engagement. For overall engagement, significant differences were found in terms of class level, ethnicity, international and transfer status. Seniors ($M = 46.82$) were more engaged than freshmen ($M = 40.49$), $F(1, 1012) = 69.83, p < .001$. International students ($M = 53.25$) were more engaged than non-international students ($M = 42.62$) $F(1, 993) = 37.49, p < .001$, and transfer students ($M = 45.08$) were more engaged than non-transfer students ($M = 42.44$), $F(1, 995) = 8.89, p < .01$. In terms of ethnicity, African American students ($M = 53.32$) were the most engaged and white students ($M = 42.18$) are the least engaged, $F(9, 993) = 5.23, p < .001$.

Table 3. Reported means of overall engagement scores by groups

Variable	Mean	SE	Sig.
Class Level			***
Freshmen	40.49	0.49	
Senior	46.82	0.58	
Gender			-
Female	42.70	0.62	
Male	43.81	0.50	
Ethnicity			***
American Indian/Native American	43.47	4.57	
Asian/Asian American/Pacific Islander	48.49	1.71	
Black/African American	53.52	1.93	
White (non-Hispanic)	42.18	0.42	
Mexican/Mexican American	43.32	3.64	
Puerto Rican	44.30	8.54	
Other Hispanic or Latino	43.90	5.40	
Multiracial	42.55	2.64	
Other	49.26	4.27	
I prefer not to respond	45.22	2.04	
Enrollment Status			-
Full-time	43.00	1.61	
Less than full-time	45.39	0.40	
International Student			***
Yes	53.25	1.69	
No	42.62	0.39	
Transfer Status			**
Yes	45.08	0.45	
No	42.44	0.77	
First-Generation Status			-
First-generation	42.59	0.53	
Non first-generation	43.68	0.58	

* p<.05, ** p<.01, *** p<.001.

NSSE Benchmarks in Predicting GPA

To determine if benchmark scores were significant predictors of cumulative GPA, hierarchical regression was used. In the first step I entered the two control variables, ACT scores and high school GPA to control for pre-college ability, with undergraduate GPA as the dependent variable. In the second step I added the five benchmarks of effective educational practice. The overall model for freshmen students, including the two control variables and five benchmarks, was significantly related to freshmen GPA, $R^2 = .14$, $F(7,545) = 12.49$, $p < .001$. The two controls, ACT scores ($\beta = .30$, $p < .001$) and high school GPA ($\beta = .15$, $p < .001$) accounted for the majority of the explained variance in cumulative GPA (11.0%). Of all the benchmarks, only level of academic challenge ($\beta = .14$, $p < .01$) was a significant predictor of GPA, accounting for an additional 1.3% of the explained variance. More specially, as a freshmen student's level of academic challenge increased, so did their GPA.

The overall hierarchical model for seniors, also including the two control variables and five benchmarks, was significantly related to senior GPA, $R^2 = .15$, $F(7,196) = 4.80$, $p < .001$. The two controls, ACT scores ($\beta = .23$, $p < .001$) and high school GPA ($\beta = .19$, $p < .01$) accounted for the majority of the explained variance in cumulative GPA (9.8%). Of all the benchmarks, only supportive campus environment ($\beta = .15$, $p < .05$) was a significant predictor of GPA, accounting for an additional 2.1% of the explained variance. In other words, when senior students perceived higher levels of support, they realized greater gains in their GPA. It should be noted, however, that student-faculty interaction was nearing significance ($\beta = -.17$, $p = .067$) but was negatively correlated with senior students cumulative GPA.

NSSE Benchmarks in Predicting Freshmen Retention

To determine if the benchmarks predict freshmen retention rates, hierarchical regression was used. In the first step I entered the control variable, ACT scores to control for pre-college ability along with persistence rates as the dependent variable. In the second step I added the five benchmarks of effective educational practice as independent variables practice as independent variables. The overall model, including the control variable and five benchmarks, was significantly related to freshmen retention rates, $R^2 = .04$, $F(6,545) = 3.75$, $p < .01$. The control variable, ACT scores ($\beta = .23$ $p < .001$), accounted for the majority of the explained variance in retention rates (1.5%) along with the benchmarks supportive campus environment ($\beta = .13$, $p < .01$) and active and collaborative learning ($\beta = .13$ $p < .05$) accounting for an additional 1.3% and .9% of the explained variance. The more students perceived campus support and the more they were involved in their learning, individually and with others, the more likely they were to be return the following year, even though the effect is quite small.

NSSE benchmarks in predicting overall satisfaction

To determine the relationship between student engagement and overall satisfaction, hierarchical regression was used. I entered the two control variables, undergraduate GPA and persistence rates scores, with overall satisfaction as the dependent variable. In the second step I added the five benchmarks of effective educational practice as independent variables practice as independent variables. The overall model, including two control variables and five benchmarks, showed a significant relationship with overall satisfaction for both freshmen, $R^2 = .29$, $F(7,572) = 33.47$, $p < .001$, and seniors. $R^2 = .34$, $F(7,420) = 30.08$, $p < .001$. For freshmen students, only one

control variable, was the student retained ($\beta = .24 p < .001$), accounted for a significant portion of explained variance (7.1%), whereas the benchmark supportive campus environment ($\beta = .43 p < .001$) accounted for an additional 17.4% of the explained variance. For senior students, only one control variable, undergraduate GPA ($\beta = .15 p < .001$), accounted for a significant portion of explained variance (3.0%) whereas the benchmark supportive campus environment ($\beta = .52 p < .001$), accounted for an additional 24.1% of the explained variance. In other words, the more students, both freshmen and seniors, perceived their campus to be supportive, the more satisfied they were with their education.

Moderating Effects of Pre-college Ability and Ethnicity

To test for moderators, I used moderated regression analysis. First, the independent variables were centered by subtracting the means from each participant's score. Next, using the centered variables, a multiplicative, cross product term was created. For the regression analysis, the main effects of ACT scores and overall engagement were entered on the first step along with undergraduate GPA as the dependent variable. On the second step, the multiplicative interaction term (ACT scores x overall engagement) was entered into the regression equation as the third variable for the moderation analysis. The test of the incremental variance accounted for by the multiplicative interaction term is the critical statistical test for the stated hypotheses. To test moderating effects on retention rates, logistic regression was used. Freshmen retention was set as the dependent variable, ethnicity (dichotomized as white students vs. all other minorities) and overall engagement were set as main effects and entered on the first step, and the multiplicative interaction term (ethnicity x overall engagement) was

entered into the regression equation as the third variable for the moderation analysis. To test the moderating effects of pre-college ability on the engagement GPA relationship, moderated regression analysis was used. Results of the analysis indicate significant main effects for ACT scores ($\beta = .31$ $p < .001$) and overall engagement ($\beta = .13$ $p < .001$) on cumulative GPA, $R^2 = .11$, $F(3,841) = 51.90$, $p < .001$. The interaction between ACT scores and engagement, however, was not significant ($\beta = -.02$ $p = .59$). Pre-college ability, as indicated by ACT scores, did not moderate the relationship between engagement and GPA.

To test the moderating effects of ethnicity on the engagement retention relationship, logistic regression was used. Results indicate a significant main effect of engagement on retention rates ($\beta = .11$ $p < .05$), but not for ethnicity ($\beta = -.004$ $p = .932$). The interaction between ethnicity and engagement was also not significant ($\beta = .05$ $p = .343$), suggesting that ethnicity does not moderate the relationship between engagement and freshmen retention.

Discussion

The primary purpose of the current study was to determine the relationship between student engagement and desirable academic outcomes. More specifically, the present study examines the ability of the NSSE benchmarks to predict undergraduate GPA, freshmen retention rates, and overall satisfaction of students at Minnesota State University (MSU). In line with previous research, I hypothesized that level of academic challenge would be positively related to freshmen GPA, the benchmark supportive campus environment would be positively related to freshmen retention rates, active and collaborative learning would be positively related to senior GPA, and that supportive campus environment would be positively related to overall satisfaction for both freshmen and senior students. Furthermore, this study investigated the role of pre-college ability and ethnicity in moderating the relationship between engagement and desirable academic outcomes of GPA and freshmen retention rates. I hypothesized that low ability students would benefit more from being engaged in terms of GPA, than will high ability students and that freshmen minority students would benefit more from being engaged in terms of retention rates, than would non-minority students. Consistent with previous research, student engagement, as indicated by the benchmarks, was positively, although modestly linked to grades (Carini et al., 2006; Fuller et al., 2011; Gordon et al., 2008), retention rates (Hughes and Pace, 2003; NSSE Psychometric Portfolio, 2009), and overall satisfaction (NSSE, 2005). The results do not support the moderating effects of pre-college ability and ethnicity on the engagement outcome relationships.

Academic Outcomes

Results of the study indicate that students in different parts of their academic career convert different forms of engagement into academic success. The benchmark level of academic challenge was a significant predictor of GPA in freshmen students. Although this finding is consistent in the literature (Carini et al., 2006; Fuller et al., 2011; Gordon et al., 2008), one might think the opposite, in that as school gets harder, student grades would go down. One possible explanation is that students need to be challenged in order for them to put in the effort to succeed at college. If the work is too easy, the students may become bored and reduce their efforts at school.

As for senior students, supportive campus environment was significantly related to GPA. This means that the more senior students perceive the university as being supportive, the greater their returns in grades. This finding is not supported by previous research (Carini et al., 2006; Fuller et al., 2011; Gordon et al., 2008), however, supportive campus environment was significantly related to retention rates and overall satisfaction for both seniors and freshmen. It could be that at MSU, students find more value in having a supportive campus environment and that this university does a good job supporting its students. These are encouraging findings for the university, and the processes in place to support students are doing what they are meant to do.

The results of the current study indicate there are no moderating effects of pre-college ability or ethnicity on the engagement academic outcome relationship. This means that group membership does not affect the benefits participants gain from being engaged. Although this finding is inconsistent with previous research (Carini et al., 2006; Kuh, et al., 2006; Kuh et al., 2008), it shows that all students, in terms of pre-college

ability and ethnicity, are able to convert engagement into academic outcomes. These results are promising in that not any one group should be targeted to increase engagement, since all students can realize the same benefits.

Limitations

Although several of the NSSE benchmarks were shown to be significant predictors of undergraduate GPA and retention, these relationships were only modest. One explanation for these findings could be from having highly correlated benchmarks. These high correlations may be suppressing the significance of the benchmarks in the regression. Also, Gordon et al. (2008) suggest that using generic subscales to predict academic outcomes has its limitations and that targeting individual items most related to those outcomes may offer superior explanatory power and predictive validity. Although the ability to compare the national benchmark scores with other, similar institutions may be lost, the results can paint a more accurate picture about the relationship between engagement and academic outcomes at a specific school or university at a specific moment in time.

Another possibility is to use other indicators of learning and development beyond just GPA. In addition to examining GPA as an academic outcome, Carini et al. (2006) utilized both GRE scores and newly designed cognitive and performance tests developed by RAND. These tests may reflect learning more accurately and could be used for future research efforts. Another possibility, as argued by Fuller et al. (2011), is to examine latent factors that maybe decreasing NSSE's ability to predict collegiate GPA. Fuller et al. (2011) urges researchers should analyze these latent factors which may more clearly influence student grades.

Another area of concern is the terminology used by student engagement researchers. Student engagement is currently defined as an involvement in educational purposeful activities that have been shown to lead to learning and development. Work engagement, on the other hand, is defined in relation to the employee. Schaufeli and Bakker (2004) define engagement as “a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption” (p. 295). The authors discuss *vigor* as high energy and resilience while working, *dedication* as experiencing a sense of challenge, significance and enthusiasm, and *absorption* as being fully immersed in work. Engagement in this sense describes an individual’s state of mind, whereas items from the NSSE describe the conditions under which engagement occurs. This is similar to the Gallup Q12 which proposes to measure an individual’s engagement, when it actually measures the engagement potential of the job (Macey & Schneider, 2008). Researchers could benefit from having common terminology across both work and educational research when it comes to engagement. That way, this construct could be compared across settings, and we could more easily advance our knowledge of engagement.

When examining surveys like the NSSE, there always exists the issue of using self-report data. Researchers, however, indicates that self-report measures are valid and reliable under six general conditions. These conditions include (1) the respondent knows the information well, (2) clarity of questions asked (3) questions refer to current activities (4) respondents feel the question calls for a thoughtful and serious response, (5) answers to questions are potentially verifiable, and (6) answers to these questions do not embarrass or violate the privacy of respondent, which may encourage responding in a

socially acceptable way (Bradburn & Sudman, 1988; Pace, 1984). With this in mind, the NSSE was intentionally designed to satisfy all six conditions (Kuh et al., 2001).

Implications and Future Directions

One characteristic of student engagement that can be particularly attractive is the idea that it can be enhanced by the encouragement of educationally purposeful activities through specific actions by an educational institution. In other words, there are certain programs and initiatives an institution can introduce to increase student engagement.

Through their meta-analysis, Zepke and Leach (2011) discovered ten common proposals for improving student engagement. These include: (1) *enhance students' self-belief, enable students to work autonomously*, (2) *enjoy learning relationships with others and feel they are competent to achieve their own objectives*, (3) *recognize that teaching and teachers are central to engagement*, (4) *create learning that is active and collaborative and fosters learning relationships*, (5) *create educational experiences for students that are challenging, enriching and extend their academic abilities* (6) *ensure institutional cultures are welcoming to students from diverse backgrounds*, (7) *invest in a variety of support services*, (8) *adapt to changing student expectations*, (9) *enable students to become active citizens*, (10) *enable students to develop their social and cultural capital*. Although these proposals seem to appear consistently in the literature, increasing student engagement is not limited to this list. Engagement is a complex construct, and it includes multiple factors that interact in multiple ways to either increase engagement or hinder it (Zepke & Leach, 2011). It is important, then, to use a specific plan of action for a certain institution with its own unique characteristics. This list can be

used to create a plan of action or at the very least, be used as a starting point to begin discussions on improvement efforts.

Other researchers have investigated specific initiatives and practices to determine how they relate to student engagement. Zhao and Kuh (2004) examined one such relationship between participation in learning communities and engagement in educationally purposeful activities. Even though learning communities have a long history and have taken on several different forms and definitions, they have several common features including having the same group of students enrolling in two or more of the same classes and having those students live in close proximity of one another (Zhao & Kuh, 2004). Taking this perspective, the authors define a learning community as “a formal program where groups of students take two or more classes together, and may or may not have a residential component” (Zhao & Kuh, 2004; p. 119). Results of this study indicate that students, both freshmen and seniors, who participated in learning communities were more engaged in that they exhibited higher levels of academic effort, academic integration, active and collaborative learning and reported more frequent interactions with faculty members. Students in learning communities were also more satisfied with their college experience and reported higher collegiate gains than those who did not participate. In this study, learning communities had the strongest impact, as indicated by effect sizes (larger than .50), on the benchmarks of active and collaborative learning and student-faculty interaction, and on freshmen students when compared to senior students. These findings suggest that learning communities maybe best suited for first-year students who score low on the benchmarks of active and collaborative learning and student-faculty interaction.

Examining NSSE data is only the start of research at MSU using student engagement data. Along with the student engagement data, MSU also uses the Beginning College Survey of Student Engagement (BCSSE) and the Faculty Survey of Student Engagement (FSSE) to compliment the NSSE. BCSSE assesses entering college students' high school academic and co-curricular experiences, as well as their expectations for participating in academic activities during the first college year. BCSSE administration typically takes place before the start of fall classes and can be paired with the NSSE administration at the end of students first year of college to provide an in-depth understanding of first-year student engagement. FSSE gauges faculty perceptions of how frequently students engage in educational purposeful activities and interact with faculty members, the significance faculty place on different areas of learning and development, and how faculty members manage their time in and out of the classroom. Both surveys can be paired with NSSE data to examine the relationship with beginning college expectations and faculty perceptions with student engagement data. This data can paint a more thorough picture of student engagement and its relationship with academic outcomes.

References

- Astin, A. (1993). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education*. Phoenix, AZ: Oryx Press.
- Bradburn, N., & Sudman, S. (1988). *Polls and surveys: Understanding what they tell us*. San Francisco: Jossey-Bass.
- Carini, R., Kuh, G., & Klein, S. (2006) Student Engagement and student learning: Testing the linkages. *Research in Higher Education, 47*, 1-32.
- Chickering, A., & Gamson, Z. . (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, 3–7.
- Cole, J., Kennedy, M., & Ben-Avie, M. (2009). The role of precollege data in assessing and understanding student engagement in college. *New directions for institutional research, 141*. Retrieved from <http://www.interscience.wiley.com>
- Fuller, M., Wilson, M., & Tobin, R. (2011). The national survey of student engagement as a predictor of undergraduate GPA: A cross-sectional and longitudinal examination. *Assessment & Evaluation in Higher Education, 36*, 735-748.
- Gordon, J., Ludlum, J., & Hoey, J. (2008). Validating NSSE against student outcomes: Are they related? *Research in Higher Education, 49*, 19-39.
- Hu, S., & Kuh, G. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education, 43*, 555-575.
- Hughes, R., & Pace, R. (2003). Using NSSE to study student retention and withdrawal. *Assessment Update, 15*, 1-16.

- Kuh, G. (2001). Assessing what really matters to student learning: Inside the national survey of student engagement. *Change, 33*, 10-17.
- Kuh, G. (2003). What we're learning about student engagement from NSSE. *Change, 35*, 24-32.
- Kuh, G. (2009). The national survey of student engagement: Conceptual and empirical foundations. *New directions for institutional research, 141*. Retrieved from <http://www.interscience.wiley.com>
- Kuh, G., Cruce, T., Shoup, R., Kinzie, J., & Gonyea, R. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*, 540-563.
- Kuh, G., Hayek, J., Carini, R., Ouimet, J., Gonyea, R., & Kennedy, J. (2001). *NSSE technical and norms report*. Indiana University Center for Postsecondary Research and Planning, Bloomington, IN.
- Kuh, G., Kinzie, J., Buckley, J., Bridges, B., & Hayek, J. (2006). *What matters to student success: A review of the literature*. Report prepared under contract for the National Symposium on Student Success, National Postsecondary Education Collaborative. Washington, DC: U.S. Department of Education.
- Macey, W., & Scheider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology, 1*, 3-30.
- National Survey of Student Engagement (NSSE) (2005). *Student engagement: Exploring different dimensions of student engagement*. Bloomington, IN: Indiana University Center for Postsecondary Research.
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

NSSE Psychometric Portfolio. (2009). Bloomington, IN: Center for Postsecondary

Research, Indiana University, School of Education. Retrieved from

<http://www.nsse.iub.edu>

Pace, R. (1984). *Measuring the Quality of College Student Experiences*. University of California, Higher Education Research Institute, Los Angeles.

Pace, R. (1990). *College student experiences questionnaire*. Los Angeles: University of California, Center for the Study of Evaluation.

Pascarella, E., & Terenzini, P. (1991). *How college affects students: Findings and insights from twenty years of research*. San Francisco, CA: Jossey-Bass Publishers.

Pascarella, E., & Terenzini, P. (2005). *How college affects students: A third decade of research*, Vol. 2. San Francisco, CA: Jossey-Bass Publishers.

Pike, G. (1993). The relationship between perceived learning and satisfaction with college: An alternative view. *Research in Higher Education*, 34, 23-40.

Schaufeli, W., & Bakker, A. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior*, 25, 293-315.

Zepke, N., & Leach, L. (2010). Improving student engagement: Ten proposals for action. *Active Learning in Higher Education*, 11, 167-177.

Zhao, C., & Kuh, G. (2004). Adding value: Learning communities and student engagement. *Research in Higher Education*, 45, 115-138.