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How Does High Impact Practice Predict Student Engagement? A Comparison of White and Minority Students

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Keywords
High impact practice, Engagement, Retention, Race

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A Comparison of White and Minority Students

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Abstract

High Impact Practices (HIPS) contribute to higher retention and graduation rates. HIPS are effective for racial and ethnic minorities in particular, who disproportionately experience high and persistent levels of post-secondary attrition. Little is known about the mechanism by which HIPS promote retention. Based on a random survey of 268 undergraduate students, we conclude that HIPS correlate with *engagement*, defined as the alignment of student and institution (identified in the present study by behavioral and cognitive measures) and posit that this is the likely mechanism by which HIPS affect retention. Moreover, exposure to HIPS and the relationship between HIPS and engagement varies based on race/ethnicity.   HIPS that have an effect on engagement across racial categories are service learning, undergraduate research, group assignments, learning communities, sequence courses, and, especially, having a close faculty mentor. In addition to these factors, diversity-related course content is especially effective for racial/ethnic minority engagement. Implications for educators and policy-makers are elucidated.

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Introduction

Low retention rates for all students and the racial/ethnic gap in graduation rates mean that too many students do not acquire the desired knowledge, skills, and competencies they need for the complexities of the twenty-first century (Brownell & Swaner, 2010; Kinzie, et al, 2008). While the general trend over the past two decades has been improvement in overall student retention in four-year colleges, in recent years the freshman-sophomore retention rate has actually dropped (Heiman, 2010). Notably, attrition for minority[1]

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[1] We use the term "minority" throughout as a short-hand for members of racialized groups or communities. The term runs the risk of both glossing over other dimensions of stratification and reifying racial or ethnic categories, neither of which is the intention of the authors. It is used merely as a convenient term for a highly complex social process by which racial and ethnic categories (among many others) are socially constructed and hierarchically ordered.

students lags substantially behind those of White students. Nationally, the six-year graduation rate gap between Latinos and White college students is 12%, and that between black males and their White peers is nearly 20%, resulting in fewer than half of underrepresented minorities who enter college attaining their bachelor's degree within six years (Carey, 2008; Museus, 2011).   According to a 2010 report by the American Council on Education,

> …young Hispanics and African Americans have made no appreciable progress in postsecondary education attainment as compared to their older peers, and attainment rates have dipped for the youngest group aged 25-34. These flat-lining attainment rates indicate that today's young adults are no better educated than the baby boomer generation. (Shelton, 2011. p. 3)

This trend is especially alarming given the demographic shifts in the U.S. population. The fact that the fastest growing minority in the U.S. (namely Hispanics) has the lowest educational attainment raises concerns regarding the health of our economy and racial/ethnic relations in the coming decades (Scurry, 2003; Kelly, 2005). To address the retention and graduation problems faced by higher education today, there is a growing body of literature from which colleges and universities can draw to minimize their attrition rates: High Impact Practices.

High Impact Practices
Kuh, et. al. (2005) discuss how six campuses started assessing conditions to enhance student success. Positive restlessness is a term the authors use to describe one of the characteristics of the colleges and universities profiled in their book *Student Success in College: Creating Conditions that Matter*. Despite being different in many ways, all of these schools have higher graduation rates and scores on the National Survey of Student Engagement (NSSE) than would be expected, given their student and institutional characteristics such as resources and selectivity. The authors point out that institutions marked by an ethos of improvement are constantly adjusting what they do by talking about what works well and what needs to be fixed, "experimenting with home-grown approaches for improving teaching, appropriately adapting promising practices from other institutions, monitoring campus information systems, and maintaining momentum toward positive change. In addition, these institutions use data to inform decision-making. Anecdotes and personal experiences are combined with systematically collected information about student and institutional performance to gauge how effectively the college or university is meeting its mission and goals" (p. 9). Aspiring educational institutions should note, "at high – performing institutions, student learning is the raison d'être for institutional policies, programs, and practices and the rationale for daily activities as well as broad institutional directions" (p. 12). Finally, the authors emphasize that a commitment to improvement is an essential condition for student success (p. 18).

Resulting from this approach, Kuh (2008) identified ten promising High Impact Practices (HIPS) that facilitate learning in all students. These practices include: 1) First Year Seminars and experiences that bring small groups of students together with faculty or staff on a regular basis; 2) Common Intellectual Experiences- a set of required common courses or general education program combining broad themes; 3) Learning Communities designed for students to take two or more linked courses as a group and work closely with one another and with their professors on a common topic, which may include service learning; 4) Writing-intensive Courses that emphasize writing at all levels of instruction and across the

curriculum, including final-year projects; 5) Collaborative Assignments and Projects that use an approach ranging from study groups within a course, to team-based assignments and writing, to cooperative projects and research; 6) Undergraduate Research done in courses that connect key concepts and questions with students' early and active involvement in systematic investigation and research; 7) Diversity/Global Learning, which happens in courses and programs that help students explore cultures, life experiences, and worldviews different from their own, which may include study abroad; 8) Service and Community-based Learning, which happens when students participate in and reflect on ongoing efforts to analyze and solve problems in the community; 9) Internships, which are a direct experience in a work setting—usually related to their career interests—giving students the benefit of supervision and coaching from professionals in the field; and 10) Capstone Courses and projects, defined as a senior-level course or project that integrates and applies what students have learned. There is a growing body of evidence that these practices can lead to a wide range of positive outcomes (academic, personal, and civic) for the general population of college students as well as underserved student populations and specifically underrepresented minorities, low-income students, and first-generation college students (Swaner & Brownell, 2008).

Theoretical Framework: Student Engagement, Integration, and Retention
Student retention stems from interplay between the student and institution. Tinto (1975, 1993) takes a systems approach to understanding college attrition, in which personal attributes and experiences prior to entering college lead to a student's goals and intentions with regard to pursuing a college degree. Once in the post-secondary educational institution, students are confronted with a set of experiences not entirely of their choosing, namely academic performance standards, interactions with faculty, staff and peers, as well as extracurricular activities, all of which may or may not align with their expectations and abilities.

One way to understand the success of High Impact Practices is that they work to the extent that they engage students, thereby fostering a greater commitment to one's educational goals. We define ***engagement*** as a set of experiences and perceptions that bring students and institutions into greater alignment, such that there is a match between student goals and institutional expectations; this requires the provision of opportunities to participate in activities that result in an increased student commitment to learning and pursuing a degree. Students who are more thoroughly integrated in the college setting are necessarily practicing a number of academic and social behaviors as well as experiencing a heightened level of commitment to their educational goals that mark them as highly engaged. Pascarella et.al. (1983) argue that persistence is associated with two distinct types of integration. ***Structural integration*** is the sense of connection to the institution through formal, extrinsic processes such as the commitment and effort put into earning a good grade. ***Normative integration*** involves more intrinsic factors such as attending college in order to better oneself in terms of intellectual development and personal growth. An array of both structural and normative forms of integration leads to a higher likelihood of persisting to graduation. Among the mechanisms by which High Impact Practices are effective are that they provide student-centered opportunities for learning and social networking that build relationships between a student and his or her faculty and peers, foster a personal investment in educational goals, and provide opportunities for students to experience and take part in the intellectual culture of the college or university. In short, High Impact Practices are specific opportunities and experiences that may correlate with structural and normative integration. Integration is embedded in our concept of

engagement (alignment of student and institution). This study seeks to determine this relationship between HIPS and engagement/integration.

A student's level of academic and social integration will vary depending on the degree to which there is a match or mismatch between (1) a student's skills and expectations derived from their socialization experiences, including family background and prior schooling, and (2) their institutional experiences within the academic environment of college. If there is a high level of discordance between the two, the student is more likely to become disengaged, less committed to their schooling, and more likely to develop alternative goals and external commitments that pull them away from academia.   Miller et al. (2005) demonstrate the importance of attempts to align student expectations and the "reality" of college life in order to enhance student success. The degree to which institutions are able to bridge the gap between student expectations and their college experiences contributes to student engagement, success, and retention.

Minority students are more likely to find that there is a gap between their K-12 academic preparation and college expectations (Fischer, 2007). Moreover, minority students are disproportionately the first in their families to attend college (Chen, 2005). Próspero and Gupta (2007) found that first generation college students tend to struggle with motivation (due to a perceived disconnect between college experiences and one's personal academic/career goals, as well as factors perceived by the student to be outside of her/his control), which has a negative impact on their academic performance.   An especially important factor in academic success among this group is academic and social integration (p. 972) to overcome these structural disadvantages.

High Impact Practices and Minority Student Retention
Given the importance of minority retention, both for minority students and for the benefit of all, research on the impact of High-Impact Practices specifically for minority students has been informative. Past research demonstrates that certain HIPS appear to be particularly effective for minority students. While space limitations prohibit an exhaustive survey of the existing literature on the effectiveness of HIPS for minority students, a brief review of some notable findings is illustrative of the point that HIPS are an important means of promoting retention and graduation among racial/ethnic minority college students.

Zhao and Kuh's 2004 study of the connection between learning communities and student engagement showed that participating in learning communities is "uniformly and positively linked with student academic performance, engagement in educationally fruitful activities, gains associated with college attendance, and overall satisfaction with the college experience" (p. 124). The study also points out which students are most likely to get involved with learning communities; they found students of color, members of fraternities and sororities, full-time students, students in the pre-professional majors, and those with two or more majors… first-year students from families with lower levels of parental education, and students living on campus are more likely to get involved in learning communities (p. 127). Zhao and Kuh point out that given the uniformly positive effects, academic leaders of colleges and universities should "take stock of how many more kinds of learning communities are operating and the numbers of different groups of students who are participating in them." The authors argue that all students should have the chance to benefit from structured efforts that "create conditions for connected learning and promote integration of their academic and social experiences." The authors point out that research

needs to be done on individual campuses to find out if the national results hold true for their campuses (p. 131).

Pascarella and Terenzini (2005) found in their meta-analysis of higher education research that undergraduate research has a positive effect on minority students, specifically in terms of "increased rates of persistence through to graduation," for which the "effects were strongest for African Americans and for sophomores" (p. 406-7). He et al. (2008) found positive outcomes when underrepresented students participate in undergraduate research: "Student retention and clarified goals for career options and graduate school attendance, especially among those who are first-generation students or from underrepresented groups, is promoted by undergraduate research experiences" (p. 35). Ishiyama (2001) found that undergraduate research had similar benefits for the retention and graduate school acceptance for first-generation, low-income college students. In a study of the Ronald E. McNair Program (a federal program to encourage financially-needy first-generation or traditionally underrepresented groups to prepare for doctoral studies) at Truman State University, Ishiyama conducted a comparison of McNair Program students with a comparable control group of high-ability, high-ambition students as identified by Cooperative Institutional Research Program (CIRP) data. The study found that retention rates for McNair Program students were higher than those of the comparison group at both the two-year and five-year mark (92.9% to 64.7%, and 93.6% to 44.1%, respectively). The McNair students also entered graduate school within five years after their first entrance to the university at a higher rate (55.3% compared to 19.5% of the comparison group). In a small study of seven Lakota students involved in a three-year aging research project in American Indian communities, Anagnopoulos (2006) found the retention rate was 86% for these students — better than the non-American Indian student retention rate. The author explains that "for the Lakota students involved in this project, the mentorship opportunity gave them occasions to develop their confidence and skill in asking questions, offer opinions and ideas, improve their comprehension of methodology within the field, and discover answers together" (p. 523). Given the high attrition rates for American Indian students, the author recommends "engaging these students in faculty-mentored research" to increase student retention (p. 524).

While these studies have suggested that High Impact Practices are effective in increasing retention and graduation rates for minority students (and the general student body), there is much more to be considered. Our study contributes to the literature in three ways. First, many HIPS studies use the academic institution as the unit of analysis, utilizing mean engagement scores and retention/graduation statistics to establish the effectiveness of HIPS. We argue that studies that use the institution as the unit of analysis suffer from the ecological fallacy (Freedman, 2002), in which individual-level processes are assumed to follow from aggregate statistics based on a higher-level unit of analysis. Persistence and engagement are individual and interpersonal in nature; while aggregate institution-level correlations are a good starting point to highlight the phenomenon, a clearer picture ensues from analyzing the data using the student as the unit of analysis, which is our approach. Second, while the existing literature establishes the relationship between HIPS and persistence in colleges and universities, it largely ignores what we argue, along with Tinto (1974, 1993), is the causal mechanism of this relationship: ***integration***. By including two index measures of engagement (behavioral and cognitive), that extend beyond measures of HIPS, this study sheds light on this mechanism. Specifically, our more elaborate measures of engagement fill in the picture of *how* HIPS contribute to retention and graduation.

Finally, on a related point, the existing literature defines engagement in a tautological manner. For example, Harper & Quaye's (2009) definition of engagement is representative of the existing HIPS literature and illustrative of an important theoretical limitation of such studies: engagement is defined in the literature as "participation in educationally effective practices, both inside and outside the classroom, which leads to a range of measurable outcomes: [persistence, satisfaction, learning, and graduation]" (p. 2-3). We escape the circular reasoning of defining the causal variables as those which lead to the outcomes by differentiating HIPS exposure from engagement, and by including measures of engagement that operationalize the concept of integration.

Research Questions

This study was guided by three research questions. First, do White and minority students have differential exposure to HIPS? Second, to what extent does exposure to HIPS predict student engagement? Third, do White and minority students differ in the extent to which HIPS and student engagement are associated? These research questions lead to the following hypotheses:

Hypothesis 1: White students are exposed to HIPS more than minority students.

Hypothesis 2: HIPS exposure will predict student engagement significantly.

Hypothesis 3: Specific HIPS that predict student engagement will differ between White and minority students.

Method

Participants
The anonymous, volunteer sample consisted of 267 undergraduates enrolled at a mid-sized, teaching-oriented Midwestern university in the United States. The mean age of the participants was 23.8 (*SD* = 6.54). The sample included 141 Whites (52.8%), 16 African Americans (6.0%), 17 Native Americans (6.4%), 63 Asian Americans (23.6%), 27 Latino/as (10.1%), and 3 not reporting (1.1%). The educational status of the participants was 38 freshmen (14.2%), 27 sophomores (10.1%), 22 juniors (8.2%), and 180 seniors (67.4%). There were 124 females (55.1%), 97 males (43.1%), 2 transgendered (.9%), and 2 declining a gender label (.9%) in the sample.

Instruments
High impact practices (HIPS). The authors developed 3-4 questions for each HIP based on their definitions in the literature, in either dichotomous or Likert-type scale format (Appendix A). Each question was designed to address a unique aspect of each HIP so that 3-4 questions for a given HIP could cover the whole spectrum of that HIP. For example, for writing intensive courses, three questions "Other than freshman composition courses (English 090, 101, 102, 111, 112), how many courses have you taken in which your grade was tied to the quality of your writing as well as your knowledge of the subject matter demonstrated in writing?", "Other than freshman composition courses, how many writing intensive courses have you taken?", and "How many of your courses required peer review of your writing or research presentation?" were included.

Student engagement-cognitive. The Institutional Integration Scale (IIS; French & Oakes, 2004) was used to measure cognitive aspects of student engagement, because the IIS measures students' academic and social integration to a given university. The 34-item instrument consists of 5 subscales of Academic and Intellectual Development (e.g., "Most of my courses have been intellectually stimulating"), Peer-Group Interactions (e.g., "I have developed close personal relationships with other students"), Interaction with Faculty (e.g., "My nonclassroom interactions with faculty members have positively influenced my intellectual growth and interest in ideas"), Faculty Concern for Student Development and Teaching (e.g., "Many faculty members I have had contact with are genuinely interested in students"), and Institutional and Goal Commitments (e.g., "I am confident that I made the right decision in choosing to attend this university"). Its validity was supported by the adequate fit of the subscales structure model to the data (French & Oaks, 2004). Its internal consistency Cronbach's alphas ranged from .61 to .86 for the subscales, and was .92 for the total score. The total score was used in this study and its internal consistency coefficient was .93.

Student engagement-behavioral. We used a student engagement scale Gaston-Gayles & Hu (2009) developed based on the Progress in College and the Social and Group Experiences subscales of the NCAA Basic Academic Skills Study, to measure a behavioral component of student engagement. The scale included 4 factors of Interaction with Faculty (3 items, e.g., "discussed career plans with a faculty member"), Interaction with Students (3 items, e.g., "talked with students outside class about course content"), Participation in Student Organizations and Other Activities (5 items, "served as an officer of a student organization"), and Participation in Academic Related Activities (6 items, "read assigned textbooks, articles"). The validity of the scale was supported by its correlation with positive learning outcomes of students (Gaston-Gayles & Hu, 2009). The internal consistency Cronhach's alpha coefficients ranged from .70 to .86. The total score of student engagement was used in this study. The internal consistency score in this sample was .86.

Demographic questions. A brief form of demographic information was administered. Questions included age, race/ethnicity, gender, educational status, first-generation college student status, and four additional questions that were not used in the analysis.

Procedure. An anonymous survey invitation was sent to all 662 non-transfer underrepresented racial/ethnic minority students at the university and a random sample of 662 White non-transfer students. Students were sent an email with a link to the online survey. This email explained the purpose of the study and listed the risks and benefits of participating, an approximate length of time to complete the questionnaire, how the incentive worked, and contact information for the investigators.   The incentive of winning one of eight gift cards (one $100 , three $50, and four $20) was given through a random drawing.   Reminder emails were sent after two weeks. The response rate was approximately 17%.

Results

Student Exposure to HIPS

Our sample reported varying rates of exposure to High Impact Practices. Table 1 shows means and standard deviations for the Likert-type scaled questions and frequencies and percentages for the dichotomous (Yes or No) type questions.

Table 1. Descriptive Statistics of 10 HIPS Exposure in Students

Number of Courses/ Yes or No		Whites	Minority	Total
HIPS1: 1st year Seminar & Experiences	Class less than 20 students	1.81 (.98)	2.02 (1.05)	1.90 (1.01)
	Courses of own interests(Y/N)	92 (72.4%)	76 (78.4%)	168 (75.0%)
	1st year seminar(Y/N)	53 (42.1%)	51 (52.6%)	104 (46.6%)
	Overview of a major(Y/N)	99 (78.0%)	69 (70.4%)	168 (74.7%)
HIPS2: Common Intellectual Experiences	Sequence Courses	3.05 (1.01)	2.79 (1.10)	2.94 (1.05)
	Field Trips/Cultural Events (Y/N)	72 (56.7%)[a]	43 (43.9%)[b]	115 (51.1%)
HIPS3: Learning Communities	LC experience (None, LC, LLC)	1.43 (.48)	1.69 (.89)	1.54 (.84)
	LC experience	1.67 (.92)	1.60 (.82)	1.64 (.87)
HIPS4: Writing Intensive Courses	Quality writing	2.94 (1.03)	2.48 (1.07)	2.74 (1.07)
	Intensive writing	2.45 (1.10)	2.22 (1.06)	2.36 (1.09)
	Peer review of writing	3.01 (.99)	2.74 (1.04)	2.89 (1.02)
HIPS5: Collaborative Assignments	Team assignments	3.75 (.59)	3.28 (.93)	3.55 (.79)
HIPS6: Undergraduate Research	Publication/ presentation of research	1.41 (.76)	1.41 (.72)	1.41 (.75)
	Research paper or project	3.28 (.89)	2.81 (.99)	3.08 (.96)
	Creative work	2.66 (1.15)	2.28 (1.05)	2.50 (1.12)
HIPS7: Diversity & Global Learning	Study Abroad (Y/N)	19 (15%)	11 (11.2%)	30 (13.3%)
	Diversity/Global learning themes	2.65 (1.10)	2.26 (.96)	2.48 (1.06)
	Exposure to different worldviews	2.99 (1.01)	2.69 (1.07)	2.86 (1.04)
	Minority issues as contents	2.46 (1.05)	2.21 (1.04)	2.35 (1.05)
HIPS8: Service Learning	Service/ community based learning	2.06 (1.05)	2.02 (.94)	2.04 (1.00)
HIPS9: Internship	Internship related to major (Y/N)	57 (44.9%)[a]	23 (24.0%)[b]	80 (35.9%)
	Mentoring by professionals (Y/N)	57 (44.9%) [a]	24 (24.5%)	81 (36.0%)
	Faculty Mentor (Y/N)	81 (63.8%)	55 (56.1%)	136 (60.4%)
HIPS10: Capstone courses	Research (Y/N)	58 (46.0%) [a]	19 (19.6%)[b]	77 (34.5%)
	Applied/creative project (Y/N)	61 (48.0%) [a]	21 (21.4%)[b]	82 (36.4%)

Note: (Y/N) are dichotomous type questions, for which % are reported. For all others, average scale score is reported. Standard deviations appear in parentheses. Significant differences are indicated with the superscripts a and b, with a>b significantly.

Research Question 1: Difference in HIPS Exposure Between White and Minority Students

The first research question addressed a difference in HIPS exposure between White and minority students. Our hypothesis that White students would be exposed to HIPS more than minority students was supported by the Multivariate Analysis of Variance (MANOVA) result with race/ethnicity as an independent variable, Wilk's $\lambda = .74$, $F(27, 190) = 2.50$, p

< .001, η^2 = .26. White students were exposed more than minority students to courses that require quality writing, F (1, 218 = 9.99., p =.002, η^2 = .04, courses that require peer review of writing, F (1, 218) = 3.93, p = .049, η^2 = .02, group assignments, F (1, 218) = 20.32, p < .001, η^2 = .09, courses that require research, F (1,218) = 13.38, p<.001, η^2 = .06, courses that require creative work, F (1, 218) = 6.49, p = .01, η^2 = .03, courses that address diversity-related contents, F (1, 218) = 7.72, p = .006, η^2 = .03, courses that address different worldviews, F (1, 218) = 4.34, p = .038, η^2 = .02, internships, F (1, 206) = 9.52, p = .002, η^2 = .04, mentor by professionals, F (1, 218) = 10.68, p = .001, η^2 = .05, a capstone experience that requires research, F (1, 218) = 20.08, p < .001, η^2 = .09, a capstone experience that requires applied/creative projects, F (1, 218) = 19.87, p <. 001, η^2 = .08, and participation in a learning community, F (1, 218) = 5.36, p = .02, η^2 = .02. MANOVA with educational status (i.e., freshman, sophomore, junior, senior) as another independent variable did not show interactive effects between race/ethnicity and educational status. However, the main effect of educational status was found, Wilk's λ = .417, F (81, 578.119) = 2.42, p < .001, partial η^2 = .25. Meaning overall, juniors and seniors were exposed to various HIPS more than freshmen and sophomores, indicating that, over time as they retained longer in college, students appeared to have more experiences with HIPS.

Research Question 2: Does HIPS Exposure Predict Student Engagement? Research Question 2 was whether exposure to HIPS predicted student engagement. Our hypothesis that exposure to HIPS would predict both cognitive and behavioral indicators of student engagement was supported. Multiple regression analyses for all students revealed that HIPS predicted both indicators of student engagement significantly (Table 2). Specifically, having a close faculty mentor, β = -.31, t (223) = -5.08, p < .001, service learning, β = ,23, t (223) = -3.80, p < .001, group assignments, β = .21, t (223) = 3.53, p = .001, research publications/presentations, β = -.19, t (223) = -3.03, p = .003, participation in a learning community, β = .18, t (223) = 2.99, p = .003, and internships, β = .13, t (223) = 2.13, p = .034 predicted the cognitive indicator of student engagement significantly, R = .50, R^2 = .25, F (1, 216) = 4.55, p=.034. Service learning, β = .35, t (223) = 7.64, p < .001, sequence courses, β = .30, t (223) = 6.77, p < .001, having a close faculty mentor, β = -.21, t (223) = -4.95, p < .001, group assignments, β = .19, t (223) = 3.99, p < .001, participation in a learning community, β = .23, t (223) = 5.25, p < .001, courses that address diversity-related content, β = .16, t (223) = 3.33, p = .001, courses that require research, β = .14, t (223) = 2.95, p = .004, courses that require peer review of writing, β = -.14, t (223) = -2.93, p = .004, study abroad, β = -.12, t (223) = -2.70, p = .007, research presentation/ publication, β = -.11, t (223) = -2.60, p = .011, and courses with intensive writing, β = .11, t (223) = 2.54, p = .012 predicted the behavioral indicator of student engagement significantly, R = .82, R^2 = .67, F (1, 211) = 6.44, p=.012.

Table 2. Summary of Hierarchical Linear Regression for HIPS Predicting Cognitive and Behavioral Indicators of Student Engagement for All Students

	Cognitive Indicator of Student Engagement				Behavioral indicator of Student Engagement		
	B	SE B	β		B	SE B	β
Having a close faculty mentor	-.30	.06	-.31***	Having a close faculty mentor	-.33	.07	-.21***
Service learning	.11	.03	.23***	Service learning	.27	.04	.35***
Group assignment	.13	.04	.21**	Group assignment	.18	.05	.19***
Research publication/ presentation	-.12	.04	-.19**	Research publication/ presentation	-.12	.05	-.11*
Learning community	.10	.03	.18**	Learning community	.20	.04	.23**
Internships	.13	.06	.13**	Sequence courses	.22	.03	.30***
				Diversity content	.12	.04	.16**
				Course that require research	.11	.04	.14**
				Peer review of writing	-.11	.04	-.14**
				Study abroad	-.27	.10	-.12**
				Intensive writing	.08	.03	.11*
	R^2 = .25, F = 4.55*				R^2 = .67, F = 6.44*		

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

Research Question 3: Do Whites and Minority Students Differ in HIPS–Student Engagement Prediction?

Research Question 3 was whether exposure to HIPS predicted student engagement in Whites vs. minority students (Table 3). Our hypothesis that specific HIPS that predict student engagement would differ between White and minority students was supported. Multiple regression analyses revealed that, for White students, service learning, $β$ = .24, t (124) = 2.85, p = .005, group assignments, $β$ = .26, t (124) = 3.19, p = .002, having a close faculty mentor, $β$ = -.21, t (124) = -2.49, p = .014, and research publication/presentations, $β$ = -.20, t (2124) = -2.47, p = .015, predicted the cognitive indicator of student engagement significantly, R = .46, R^2 = .22, F (1, 119) = 6.08, p = .015. Also, service learning, $β$ = .38, t (124) = 6.07, p < .001, sequence courses, $β$ = .18, t (124) = 2.81, p = .006, group assignments, $β$ = .23, t (124) = 3.69, p < .001, having a close faculty mentor, $β$ = -.20, t (124) = -3.30, p = .001, courses that provide an overview of a major, $β$ = -.14, t (124) = -2.47, p = .015, courses that require research, $β$ = .18, t (124) = 3.06, p = .003, research publication/ presentations, $β$ = -.21, t (124) = -3.72, p < .001, participation in a learning community, $β$ = .18, t (124) = 3.10, p = .002, courses with intensive writing, $β$ = .16, t (124) = 2.56, p = .011, and study abroad, $β$ = -.13, t (124) = -2.10, p = .038, predicted the behavioral indicator of student engagement significantly, R = .81, R^2 = .66, F (1, 113) = 4.42, p = .038.. On the other hand, for minority students, having a close faculty mentor, $β$ = -.47, t (94) = -5.36, p < .001, participation in a learning community, $β$ = .22, t (94) = 2.54, p = .013, service learning, $β$ = .23, t (94) = 2.57, p = .012, group assignments, $β$ = .22, t (94) = 2.49, p = .015, and a capstone that requires

applied/creative project, β = .24, t (94) = 2.47, p = .016, predicted cognitive indicator of student engagement significantly, R = .63, R^2 = .39, F (1, 87) = 6.08, p = .016. Courses with diversity content, β = .30, t (94) = 4.20, p < .001, sequence courses, β = .40, t (94) = 6.35, p < .001, a capstone that require research, β = -.15, t (94) = -2.31, p = .023, participation in a learning community, β = .21, t (94) = 3.26, p = .002, service learning, β = .24, t (94) = 3.43, p = .001, and having a close faculty mentor, β = -.20, t (94) = -3.14, p = .002, predicted the behavioral indicator of student engagement significantly, R = .84, R^2 = .70, F (1, 87) = 9.87, p = .002.

In sum, service learning, group assignments, having a close faculty mentor, participation in a learning community, and sequenced courses predicted student engagement in both White and minority students. Unique HIPS predictors for White students were research publication/presentations, group assignments, courses that provide an overview of a major, courses with intensive writing, courses that require research, and study abroad. Unique HIPS predictors for minority students were courses with diversity content and a capstone course that requires research. Counter-intuitively, a capstone course that requires applied/creative work was associated with declines in the cognitive indicator of student engagement for minority students.

Table 3. Summary of Hierarchical Linear Regression for HIPS Predicting Cognitive and Behavioral Indicators of Student Engagement for White vs. Minority Students

Whites	Cognitive Indicator of Student Engagement				Behavioral indicator of Student Engagement		
	B	SE B	β		B	SE B	β
Service learning	.12	.04	.24***	Service learning	.28	.05	.38***
Group assignment	.22	.07	.26**	Sequence courses	.13	.05	.18**
Having a close faculty mentor	-.22	.09	-.21*	Group assignments	.29	.08	.23***
Research publication /presentation	-.13	.06	-.20*	Having a close faculty mentor	-.32	.10	-.20**
				Overview of a major	-.27	.11	-.14*
				Courses that require research	.16	.05	.18**
				Research publication /presentation	-.21	.06	-.21***
				Learning community	.15	.05	.18**
				Courses with intensive writing	.12	.05	.16*
				Study abroad	-.27	.13	-.13*
R^2 = .22, F = 6.08*				R^2 = .67, F = 6.44*			

Minorities							
Having a close faculty mentor	-.42	.08	-.47***	Diversity courses	.22	.05	.30***
Learning community	.11	.04	.22*	Sequences courses	.27	.04	.40***
Service learning	.19	.10	.23*	Capstone with research	-.29	.13	-.15*
Group assignments	.11	.04	.22*	Learning community	.19	.06	.21**
Capstone with applied project	.27	.11	.24*	Service learning	.19	.06	.24**
				Having a close faculty mentor	-.30	.10	-.20**
R^2 = .39, F = 6.08*					R^2 = .70, F = 9.87**		

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

Discussion

Racial and ethnic differential educational attainment persists in the U.S. system of education. In recent years there has been increasing attention to the issue of minority student retention in higher education. The benefits of increased minority student retention and graduation for all students and for society at large should be recognized. A number of studies (Kuh & Umbach, 2005; Gurin et.al., 2002; Hurtado et.al., 2003) demonstrate the value of providing students with exposure to diversity. Namely, diversity experiences lead to "improved intergroup relations, critical thinking, and satisfaction with the learning environment" (Kuh & Umbach, 2005):

> Ultimately, what really matters is that students encounter in their studies perspectives that reflect a range of human experiences and that they are encouraged and supported to interact with others in ways that help them think and respond in novel, more complex ways to contemporary circumstances… [I]nstitutions can vary substantially in structural diversity, mission, type, size, and location but still present diverse views in the classroom, communicate the value of diversity, and support the academic and social needs of students from different backgrounds. Thus, ensuring that our students gain valuable experiences with diversity during college is… a matter of institutional will. (p. 20-21)

There is a need to create powerful learning experiences so that all students, both those in the majority and those in the minority in terms of race and ethnicity, can succeed in college. Active and engaged learning are gateways to the desired outcomes in college. Given the positive impact of diversity experiences on retention, the goal of improving engagement and retention of minority students is consistent with improvements in these outcomes for all students.

A long-standing problem in higher education is the unacceptable rate at which students who start college fail to stay in school and graduate. This is especially the case with racial/ethnic minority students, who are overrepresented among those who drop out. It is critical for the economic and social well-being of our society to create an environment in which a college degree is accessible to all people with the desire and ability to pursue it. There are many

factors outside of the control of our colleges and universities that affect retention and graduation; however, there are also many things that can be done to increase the integration of students in higher education institutions and to better engage them, thus optimizing the chances that students will succeed in their educational goals. This study investigates to what extent students were exposed to different High Impact Practices (HIPS), whether White and minority students differ in HIPS exposure, and whether HIPS exposure predicts student engagement in White and minority students.

First, as predicted, White students were exposed to HIPS more than minority students. Specifically, although White and minority students were equally exposed to First-Year Seminar, Common Intellectual Experiences (e.g., sequence courses), Learning Communities, and Service Learning, White students were more exposed to Writing-Intensive Courses, Collaborative Assignments and Projects, Undergraduate Research, Diversity/Global Learning, Internship, and Capstone Courses. Usually Writing-Intensive Courses, Collaborative Assignments and Projects, Undergraduate Research, Internship, and Capstone Courses occur later in one's college career (e.g., junior, senior). White students persist longer in college; and therefore, are more likely to have opportunities to experience those HIPS. This speculation is also supported by the fact that majority of our White sample was seniors (N=108, 85%), as opposed to the minorities (N=39, 40%).

Second, consistent with previous findings on HIPS and student engagement (Kuh et. al., 2008; Swaner & Brownell, 2008), HIPS exposure predicted both cognitive and behavioral indicators of student engagement among White and minority students. Specifically, in all students, including both White and minority students, Service Learning, Group Projects/Assignments, Learning Community, Undergraduate Research, Internship, Writing-Intensive Courses, Study Abroad, and Close Faculty Mentor were significant predictors of student engagement. Perhaps connection with others—through meaningful interactions with classmates and learning community members, faculty, and community (i.e., service learning), and the sense of interpersonal connection—is a key factor that motivates students to engage in proactive learning behaviors and feel integrated with the university (Cabrera et. al., 1999). Particularly noteworthy was that having a close faculty mentor was the strong and significant predictor for both indicators of student engagement for White and minority students alike. Having a meaningful mentoring relationship with faculty members, either through advising, participating in faculty research, or learning communities, appears to be one of the most important factors in enhancing student engagement. Knowing that faculty care about their learning and success could instill self-confidence, hope, and motivation, thereby enhancing engaged behaviors and a sense of integration with the institution.

Unique predictors of student engagement for White students only included group assignments, research publication/presentations, courses that provide an overview of a major, writing-intensive courses, and studying abroad, most of which White students are exposed to more than minority students. It is possible that, if minority students are exposed to them sufficiently, these HIPS could enhance student engagement in minority students as well. For instance, in courses that provide an overview of a major, White students might be better prepared by pre-college experiences to understand the purpose and acknowledge the value of these courses which orient and socialize students into their majors and develop a metacognitive context for their learning; and therefore, they might have reported more exposure to that particular HIP compared to minority students. Related to this, participation in a learning community was not a predictor of student engagement for White students. On the contrary, for minority students, participation in a learning community was a significant

predictor of engagement. Perhaps having the extra structure for connections with other students is more important in minority student engagement, unlike White students who may already feel relatively better connected to the dominant White culture of the campus. In addition, minority-focused course content was the predictor of student engagement that was unique in minority students. It could be that minority students feel acknowledged and appreciated by taking courses on their cultural heritage, which in turn enhances their attachment to and integration with the institution.

It is noteworthy that Diversity/Global Learning and Writing-Intensive Courses predicted student engagement when White and minority students were collapsed into one group, but that Diversity/Global Learning did not predict engagement for White students, and Writing-Intensive courses did not for minority students. This discrepancy may indicate that Diversity/Global Learning components were not well designed to have an educational impact on White students, whereas Writing-Intensive components were less catered to the expectations and prior skills that minority students, on average, possess given the social inequities in their communities of origin and K-12 schools. Although these were the HIPS that were found to promote student engagement, if they are not specifically tailored for different groups of students considering their previous level of experiences and expectations, they could rather undermine students' integration and engagement (Miller et al., 2005). Therefore, awareness of these findings can inform educational practices to meet the distinctive needs of diverse groups.

Limitations
This study has several limitations. First, because we surveyed students who were already retained, we did not examine whether HIPS exposure predicted actual retention and graduation rates. Instead, we limited our dependent variables to engagement rather than retention. Second, some measurement error may have stemmed from students not clearly understanding what types of courses they took. For example, some students might not have known that some courses were a part of a sequence. Such misunderstandings might have biased the results, although we provided a clear definition of each HIP in the survey to promote students' understanding of the questions. Third, there might have been recall error or bias in this self-report study. For example, students might not have remembered whether they had a group assignment or not in a course that they took a while ago. Fourth, the response rate, while consistent with many other studies based on online surveys, may have introduced sampling error; therefore, these results are provisional and additional research is necessary to enhance confidence that the findings are generalizable. Fifth, there was some conceptual overlap between HIPS and student engagement. Including two distinct scales of engagement reduced the impact of this limitation on our findings.

Implications
Educators. In order to improve overall retention rates and to address the racial/ethnic disparities in retention and graduation, there is a need to create powerful learning experiences so that more students can succeed in college. Active and engaged learning are gateways to the desired outcomes in college.

Faculty could use these results to endorse the use of more HIPS in their courses, thereby enhancing student engagement. Also, becoming a faculty mentor, especially to a first-generation or minority student, can facilitate their engagement and chances of retention. This meaningful relationship with a faculty mentor committed to intellectual discovery helps them gain an early and lasting understanding about the heart of the academic enterprise.

Faculty could design collaborative group assignments in the way that minority students can feel more included (e.g., random assignment of groups rather than allowing students to group freely). Also, although internship and capstone courses are for seniors, faculty could develop and include writing-intensive components, collaborative assignments and projects, and a research requirement in freshmen or sophomore courses, so that all students, including minority students (who otherwise may not become exposed to them if they are at greater risk of attrition and they are only provided later in ones' college career) are exposed to them earlier.

Higher education administrators.   At many institutions, the utilization of active and engaging learning practices is unsystematic, to the detriment of student learning (Kuh, 2010). Administrators could institutionalize the systematic assessment of the access their students have to HIPS and equitable access of minority students as compared to White majority students. This would include the impact of HIPS on retention and graduation rates. These results could also be used to promote student engagement. For example, administrators could encourage and support faculty to endorse more service learning projects, undergraduate research, and learning communities by providing training workshops on these pedagogies or incentives such as a partial release time and valuing these faculty efforts for tenure and promotion. They could institute faculty mentoring time for students, allocate resources to first year seminar courses, or encourage and support faculty to develop courses with diversity content. Such courses will benefit minority students in enhancing engagement, but also benefit White students by providing more diversity/global learning opportunities.

Future research. A next step of research would be for campuses to conduct their own systematic assessment of which faculty are using HIPS in the classroom, whether there is equitable access to HIPS comparing minority and majority students, and then to explore if exposure to HIPS is influencing retention and graduation rates. Generating sufficient sample sizes would be important for disaggregating "minority students" into specific racial and ethnic groups to determine if there are processes occurring that are unique to different minority groups. Such quantitative analyses should be complemented with qualitative research to further "unpack" the students' lived experience of how the exposure to HIPS may have impacted their retention.

Conclusion
The findings of this study are consistent with the existing literature that demonstrates the effectiveness of HIPS for all students, and for minority students in particular. In addition, we contributed to the corpus of knowledge regarding HIPS and student engagement by comparing the relative effect of HIPS exposure to two distinct measures of engagement. By separating cognitive and behavioral dimensions of engagement, we were able to illuminate the mechanisms by which HIPS may lead to retention and graduation by measuring behavioral engagement as well as operationalizing integration in the form of a cognitive engagement index. Additionally, we compared the effects of each HIP on engagement for White and minority students, allowing a nuanced understanding of how higher education practices impact racial/ethnic sub-groups of students.

Our research indicates that the HIPS that have an effect on engagement across racial categories are service learning, group assignments, learning communities, sequence courses, and, especially, establishing opportunities for students to have a close faculty mentor. Administrators and educators may wish to emphasize these areas for the broadest

impact. For a targeted approach that aims to increase retention and graduation rates specifically for minority students, putting additional resources and efforts (beyond those listed above) into diversity-related course content would, based on this study, likely be an effective strategy.

The authors' standpoint is that every student deserves access to teachers and teaching practices that will facilitate their engagement, retention, and completion of their chosen educational goals. A high-quality, practical liberal education should be the standard of excellence for all students.

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Appendix 1. Survey Instrument: High Impact Practices

Below is a list of questions about your educational activities at UW-Stout. Please choose your answer that best describes your experience.
As a freshman, how many classes were you in with less than twenty students?
None   One   Two   Three or more

As a freshman, were you able to choose a course that had a topic or theme of interest to you? (Y/N)

As a freshman, did you participate in a small seminar (a course in which the topic is discussed by the teacher and a small group of students) structured around a theme? (Y/N)

Have you taken any introductory course offering you an overview of a major/program/or field of study? (Y/N)

How many courses have you taken that had a first, and second or more semester sequence? (e.g. English 101 and 102, or Research methods 1 and Research methods 2.)
None   One   Two   Three or more

Did you participate in any field trips or cultural events as part of a class that included critical reflection or in-class discussion? (Y/N)

Were you in a freshman learning community?
No
Yes, learning only
Yes, living and learning

Were you in linked courses where two professors collaborated together or where the professors taught the same group of students in more than one course?
None   One   Two   Three or more

Other than freshman composition courses (English 090, 101, 102, 111, 112), how many courses have you taken in which your grade was tied to the quality of your writing as well as your knowledge of the subject matter demonstrated in writing?
None   One   Two   Three or more

Other than freshman composition courses, how many writing intensive courses have you taken?
None   One   Two   Three or more

How many of your courses required peer review of your writing or research presentation?
None   One   Two   Three or more

How many courses have you taken that required a team or group-based assignment? (e.g. group research, group project, study group, peer tutoring, etc.)
None   One   Two   Three or more

Did you participate in a course that led to any of the following activities: publication in the Journal of Student Research, UW-Stout Research Day; UW-Symposium, NCUR, other conferences or publications/presentations?
None   One   Two   Three or more

Were you in a course that required a research paper or project in which you did academic research in the library or used scholarly sources?
None   One   Two   Three or more

Were you in a course where you examined or created original documents, creative works, or artifacts for the purpose of research?
None   One   Two   Three or more

Did you participate in a study abroad program? (Y/N)

How many courses have you taken that specifically had diversity or global learning or global perspectives as the theme? (e.g. Women Writers, World Literature, World History, African American History, Culturally Distinct Child and Family.)
None   One   Two   Three or more

How many courses have you taken in which you were exposed, through the use of text, lecture or discussion, to a world view that was different from your own. World view is defined as a political view, a religious view, or a philosophy of life.
None   One   Two   Three or more

How many courses have you taken in which the content focused on minorities such as racial, ethnic, sexual minorities, gender, disability, or age?
None   One   Two   Three or more

How many courses have you taken that required service learning and critical reflection? (e.g. Did you participate in meaningful community service, learn civic responsibility, or help strengthen the community and do critical reflection?)
None   One   Two   Three or more

Did you do an internship directly related to your major program? (Y/N)

Were you coached or mentored by a professional other than a professor in your field of study such as co-op, internship, or practicum? (Y/N)

Do you have a close mentor, professor, or advisor that helps you plan your course of study and or discusses your career interests? (Y/N)

Did you take a capstone (senior level) course that required research? (Y/N)

Did you take a capstone (senior level) course that required an applied project or creative activity? (Y/N)

Appendix 2: Survey Instrument: Behavioral Measures of Engagement

Below is a list of your activities at UW-Stout. Please indicate how often you did each of the followings by choosing the appropriate number on the 6-poing scale:

1--------2--------3--------4--------5--------6

Never   Very Often

1. I have talked with a faculty member about a class.

2. I have discussed career plans with a faculty member.
3. I have discussed personal issues with a faculty member.
4. I have talked to other students about social matters.
5. I have talked with students about personal concerns.
6. I have talked with students outside class about course content.
7. I have voted in student elections (club, student government, etc.).
8. I have served as an officer of a student organization.
9. I have done volunteer or community service.
10. I have participated in organized student activities.
11. I have read assigned textbooks and articles.
12. I have written a paper of 8 pages or more.
13. I have made a presentation in class.
14. I have made a presentation outside of class.
15. I have attended a public lecture not part of class assignment.
16. I did activities not listed above that showed a commitment to being a good student.

Appendix 3. Survey Instrument: Cognitive Measures of Engagement (Institutional Integration Scale)

Following is a list of statements characterizing various aspects of academic and social life at the UW-Stout. Please indicate the extent of your agreement or disagreement with each statement, as it applies to your experience <u>during the past few months</u> by circling the appropriate number. Please circle ONLY ONE number for each statement.

So far at the University:

1--------------2---------------3---------------4--------------5

Strongly Disagree   Not Sure   Strongly Agree

1. Most of my courses have been intellectually stimulating.
2. I am satisfied with my academic experience at the university.
3. I am more likely to attend a cultural event (e.g., a concert, lecture, or art show) now as compared to few months ago.
4. I am satisfied with the extent of my intellectual development.
5. In addition to required reading assignments, I read many of the recommended books in my courses.
6. My interest in ideas and intellectual matters has increased since starting classes.
7. I have an idea about what I want to major in.
8. This year my academic experience has positively influenced my <u>intellectual growth and interest in ideas</u>.
9. Getting good grades is important to me.
10. I have performed academically as well as I anticipated.
11. My interpersonal relationships with students have positively influenced my <u>intellectual growth and interest in ideas</u>.
12. I have developed close personal relationships with other students.
13. The student friendships I have developed have been personally satisfying.

14. My personal relationships with other students have positively influenced my <u>personal growth, values, and attitudes</u>.
15. It has been easy for me to meet and make friends with students.
16. I am satisfied with my romantic relationship(s).
17. Many students I know would be willing to listen and help me if I had a personal problem.
18. Most students at Stout have values and attitudes similar to mine.
19. I am satisfied with the opportunities to participate in organized extra curricular activities at this University.
20. I am happy with my living/residence arrangement.
21. I am satisfied with my opportunities to meet and interact informally with faculty members.
22. Many faculty members I have had contact with are willing to spend time outside of class to discuss issues of interest and importance to students.
23. I have developed a close, personal relationship with at least on faculty member.
24. My non classroom interactions with faculty members have positively influenced my <u>intellectual growth and interest in ideas</u>.
25. My non classroom interactions with faculty members have positively influenced my <u>personal growth, values, and attitudes</u>.
26. My non classroom interactions with faculty members have positively influenced my <u>career goals and aspirations</u>.
27. Many faculty members I have had contact with are genuinely outstanding or superior teachers.
28. Many faculty members I have had contact with are genuinely interested in <u>students</u>.
29. Many faculty members I have had contact with are genuinely interested in <u>teaching</u>.
30. Many faculty members I have had contact with are interested in helping students grow in more than just academic areas.
31. It is important to me to graduate from college.
32. It is important to me to graduate from this University.
33. I am confident that I made the right decision in choosing to attend UW-Stout.
34. I will most likely register at this University next fall (or I am graduating in May 2012).

Appendix 4. Survey Instrument: Demographic Information

Are you a degree-seeking student? (Y/N)

Please indicate your class standing according to number of credits earned:
      Freshman (1-29.5 credits)
      Sophomore (30-59.5 credits)
      Junior (60-89.5 credits)
      Senior (90 or more credits)
      Dual Enrollment (grad/undergrad)

Please indicate your cumulative grade point average (GPA):
      3.50-4.00
      3.00-3.49
      2.50-2.99
      2.00-2.49
      1.99 or less
      I don't know

Are you the first person in your immediate family to attend college? (Y/N)

Please indicate your type of enrollment:
      Reentry Student
      Transfer Student
      Transfer and reentry student
      New Student
      Continuing Student

What was your age as of January 1, 2012?   ____

Race (choose 1 or more):
      African American or Black American Indian or Alaska Native (specify tribal affiliation)
      Native Hawaiian/Pacific Islander
      Cambodian
      Hmong
      Laotian
      Vietnamese
      Other Asian (please specify)
      White

Ethnicity: Are you of Hispanic or Latino/a origin?
      No
      Yes, Cuban
      Yes, Puerto Rican
      Yes, Mexican American or Chicano/a
      Yes, Other Hispanic or Latino/a

Gender:
      Female

Genderqueer/Androgynous
Male
Transgender
Transsexual
Cross-dresser
Female-to-Male
Male-to-female
Other (please specify)
I decline a gender label

People are different in their sexual attraction to other people. Which best describes your feelings? Please select the option that best describes you:
Only attracted to females
Mostly attracted to females
Equally attracted to females and males
Mostly attracted to males
Only attracted to males
Not sure
None of the above (please explain)