

Crossing Boundaries: Understanding What Factors Encourage Undergraduate Students to  
Interact with People Different from Themselves

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## Dedication

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**Abstract**

This study examines factors that are related to openness to diversity among undergraduate college students. Openness to diversity is increasingly viewed as a desirable student-learning outcome in universities. The factors investigated here in relation to students' openness to diversity are level of academic challenge and community engagement. Four institutional samples from the 2009 National Survey on Student Engagement were analyzed. Results show that both academic challenge and community engagement, as well as some personal characteristics, are related to being more open to diverse people. This study contributes to the understanding of how universities can use curriculum, policy and best practices to develop experiences that will help students to become more open to diverse people.

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## CHAPTER ONE: INTRODUCTION

Higher education in the United States has always had the explicit purpose of developing well-rounded, educated citizens for the perpetuation of the democracy. It is necessary to understand the role that higher education must play in developing educated student-citizens who can function in the diverse world they will face upon graduation (Dey, Ott, Antonaros, Barnhardt & Holsapple, 2010). Public research universities have a role to play in investigations of why some students are well prepared to work with people different from themselves and others are not, even when educated in the same environment. With limited financial resources as an external constraint to education at all levels and employers' higher expectations of college graduates, public research universities can prepare the educated citizens of tomorrow's world by conducting research and making data-driven decisions about how to structure curriculum, educational policies and practices.

By establishing postsecondary institutions with the mission to create, teach and disseminate knowledge to members of society who will be the future leaders in communities, business and government, the nation set up a succession model to create the citizens needed to support the democracy. The 21<sup>st</sup> century provides a more complex roadmap for U.S. higher education to navigate (Arnone, 2003; Gose, 2002). Universities and colleges are struggling to provide access to education; support students, staff and faculty with adequate resources; prove they are a value-added endeavor for students and parents; maintain the spirit of their liberal arts roots against a culture of skepticism and entitlement; and be viable financially. Higher education is being asked to transform itself

into a system that can accommodate more global perspectives, a more diverse student body, resource constraints, tenure debates, pragmatic preparation of the future workforce, and regular legal challenges about educational boundaries.

Public research universities will have a difficult time balancing their established missions of research, teaching, and service with constituent demands to do more educationally with few fiscal resources. In the 1990's, parents, students, external stakeholders and faculty demanded a recommitment of public research universities to undergraduate education. While the calls for reform were meant for all of higher education, they were aimed primarily at research universities (Clark, 1997; Fairweather & Beach, 2002). Public research universities occupy a special niche, because many times they are their state's flagship institutions for innovative research and discovery of new knowledge. They are responsible for the education of both undergraduate and graduate/professional students. Finally, they are publicly funded, and so they are accountable to their state legislatures and citizens in a way that private institutions are not. The 21<sup>st</sup> century brings opportunities for a substantial shift in thinking about how U.S. higher educational works, whom it serves, and why it exists. Public research universities have obligations to (1) reinterpret the fundamental ideals of higher education in context of today's world and (2) balance the classical canon with practical skill-building.

As Leslie and Fretwell (1996) observed 15 years ago,

“It has become crystal clear that the public values higher education and wants it to be universally available—but the public also wants higher education to be responsive and responsible to the real needs of real people. It has also become apparent that the values systems of many colleges and universities have become too

narrowly focused on faculty interests in research or in intellectual trends that the public does not understand” (p.xiii).

Large colleges and universities may find it difficult to change their organizational cultures. Scott (2003) defines an organization as “...social structures created by individuals to support the collaborative pursuit of specified goals (p.11).” Public research universities are complex organizations whose goals tend to be entrenched. If student outcome goals are aligned with the public call to meet the needs of the real world and these needs are met, public research universities might then assist in rebuilding the public trust and continue to make them relevant to society. Leslie and Fretwell (1996) noted that

“Higher education as a whole needs an awakening to its role in serving society. Funding is going to become even more difficult in the future for many institutions. Public policy will place more pressure on colleges and universities to meet the demands of the marketplace. The institutions that thrive are going to go be the ones that respond in focused ways – to the demand for efficient and effective undergraduate education, the demand for graduates who are prepared to work and produce, to society’s social and economic problems with practical and realistic solutions, to the need to educate good citizens who will understand and take responsibility for the civic community. No amount of money guarantees that a college or university will act as a leading corporate citizen in a turbulent and confused society. But no institution of higher education that fails to be a leader in helping society through its most troubled eras will deserve or get that society’s support” (p.xiii).

Public research universities need to embark on directed and focused plans for strategic alignment that would allow institutions to balance their institutional and public stakeholder needs. Public research universities have to respond to community demands for resolutions to public problems to continue to receive public support (Leslie & Fretwell, 1996). Student outcome development, measurement and assessment might be a place to start establishing common goals in the execution of such plans.

## Statement of the Problem

One student development outcome deemed important by both the academy and public stakeholders is undergraduate students' ability to deal with diversity in all its forms – racial, religious, political, and gender, among others. For employers, the ability of college graduates to work with diverse colleagues, clients and community partners, on local, regional, national, and international scales, is important (Chang, 2005; Engberg, 2007; Zhao, Kuh & Carini, 2005). Diverse perspectives on problem resolution and conflict resolutions are also valued by educators and employers (Engberg, 2007). Other external stakeholders, such as leaders in nonprofit organizations and government, note that citizens must understand diverse viewpoints and frames of reference in order to make decisions about the future of communities and the United States (Chang, Chang & Ledesma, 2005). From a global perspective, undergraduate students must know how to function in a more diverse world and be prepared to operate in cultures and societies different from their own, as they will meet people from around the world and possibly travel to foreign states and countries for work or pleasure (Umbach & Kuh, 2006; Zhao et al., 2005). Domestically, undergraduate students need to have exposure to a wide range of citizens, so they can understand the importance of context and be culturally competent in the workforce environments and with the life experiences of others they encounter on a regular basis.

Openness to difference is important for life after students graduate, but research also suggests that college is a time when it is developmentally appropriate and

educationally beneficial for students to interact with people different from themselves.

Openness is important because enrollment and employment demographics at public research universities show that student, faculty, and staff diversity is increasing (Milem, Chang & Antonio, 2005).

First, as the racial diversity of undergraduate students increases due to demographic shifts, staff and faculty must be prepared to work with all types of students (Umbach & Kuh, 2006). Diverse students may want faculty to teach an academic curriculum that incorporates diversity in epistemologies, research methods, and content areas (Milem et al., 2005). Second, diversity of perspective is important to the educational product that public research universities offer – knowledge. Institutions must accommodate diversity of research questions and subject matter to continue such innovation in the academic enterprise (DeZure, Babb & Waldmann, 2005).

In the past, public research universities may have assumed all undergraduate students were ready to be exposed to diversity in all its forms – race, religion, sexual orientation, political affiliation, and family type, among others. Also, institutions may have assumed that students were ready for exposure to diverse intellectual theories and ideas about a range of disciplines. Empirical evidence, however, does not confirm those two assumptions about current undergraduate students in public research universities. Instead, students' openness to diversity, in its broadest forms, may be more closely linked to their life experiences inside and outside the classroom instead of their chronological age (Tatum, 2000). Institutions cannot change personal characteristics that students bring to college, but they can use student development theories to assist students in the

development of characteristics that lead to more openness to difference. Also, researchers and administrators at public research universities can explore what types of student engagement lead students to value diversity and use their findings to construct those types of engagement opportunities, inside and outside the classroom, to achieve the outcome of openness towards others.

Within the current structures of public research universities, researchers need to understand what factors are important to help students develop an attitude of openness to difference, so such understanding can inform actions to create opportunities for individuals to reach competency. The literature clearly identifies both curricular and co-curricular experiences as important in understanding the way an undergraduate student develops knowledge and skills to be used after graduate from college (Keen & Hall, 2009).

The question driving this research is: In what ways are undergraduate students' levels of academic challenge and engagement activities associated with their openness to diversity at public research universities? Level of academic challenge refers to how much effort one puts forth on their intellectual and creative work. Engagement activities refer to particular experiences that take place in communities external to the collegiate campus. For the purpose of this study those activities include voting in elections, participating in a course community-based project, volunteering, and an attitude of wanting to improve the welfare of one's community. This research question is investigated using data from the National Survey of Student Engagement (NSSE), which measure academic challenge, student engagement, and openness to diversity.

## Organization of the Study

This dissertation is organized into five chapters. Chapter 1 provides the introduction, background information, and the statement of the problem. Chapter 2 synthesizes the relevant literature about academic challenge, student engagement activities, and diversity attitudes. It also presents the guiding conceptual framework, *What Matters to Student Success* (Kuh, Kinzie, Buckley, Bridges & Hayek, 2006). Chapter 3 presents the research methods used for this study; this chapter includes information about the research question, sample construction, variables, data collection and data analyses. Chapter 4 discusses the results of the data analyses and Chapter 5 discusses the implications for institutional curriculum, policy, and best practice.

## CHAPTER 2: REVIEW OF THE LITERATURE

The research study investigates three concepts – academic challenge, student engagement, and openness to diversity. This research provides information to faculty and administrators on how to develop undergraduate students who can interact with people different from themselves in preparation for the world they face after matriculation. Research finds that undergraduate students learn both inside and outside the traditional classrooms (Keen & Hall, 2009), prompting the investigation of variables related to their academic personal investment of time (academic challenge), student engagement activities (curricular and co-curricular), and openness to diverse peoples, broadly defined (Kuh et al., 2006). This chapter outlines the literature related to the context of higher education. It presents the conceptual framework for the study and synthesizes the literature relevant to academic challenge, student engagement and openness to diversity. Finally, the chapter explains how this study builds upon and expands the research in this field.

### Contextual History

The philosophical foundations of U.S. higher education were laid at Harvard University in the 21<sup>st</sup> century. At first, the vast majority of students and faculty were Caucasian, financially well-off, and male. Education was a private good with a specific purpose of teaching the future clergyman and “gentlemen,” defined as a politician or important member of society (Brubacher & Rudy, 1997).

In accordance with that purpose, teaching was the main duty of the first faculties. Faculty members taught a classical canon to students, and conducting original research was not a part of the academic responsibilities. Teaching using the recitation method remained the primary duty of U.S. faculty until the 20<sup>th</sup> century (Bogue & Aper, 2000; Brubacher & Rudy, 1997).

The foundational purpose was to educate the young adults who would be the future leaders of the United States and make sure they were educated for civic activity (Caputo, 2005; Thornton & Jaeger, 2008). Expectations were such that, if a man possessed a college degree, he should use it to advance democracy. Eventually, that purpose and those expectations were extended into a “social contract” between society and colleges and universities (Giroux, 2003). The implication of the social contract was that society would be obligated to meet the needs of its youth so that future generations could become entrusted to participate in the United States’ governance as educated citizens (Caputo, 2005; Couturier, 2005). Eventually, a college education was seen as a necessity for the majority of young adults to become informed citizens. As history indicates, this stepping stone eventually become crucial for women, people of color, and other underrepresented populations (Giroux, 2003).

In the 1800’s, research developed at colleges and universities in the United States as U.S. professors and students visited German universities where a new model was developing. The German impetus for creating “real universities” had two underlying principles. The first principle was *lernfreiheit*, translated as freedom of learning, and the second principle was *lehrfreiheit*, freedom of teaching (Brubacher & Rudy, 1997).

Those two German concepts created a symbiotic relationship between teaching and research. Generally, *lernfreiheit* was interpreted to mean that students had autonomous control over their learning, and *lehrfreiheit* implied that professors had the freedom to investigate those problems deemed important to the curriculum and to reveal their findings through teaching and published works (Brubacher & Rudy, 1997). The German professor advanced knowledge by conducting original research and teaching his students both content and methodology. Teaching and research agendas worked together in identifying societal problems to be investigated, supporting new empirical research, and in teaching about the results (Brubacher & Rudy, 1997). U.S. faculty visiting German institutions realized the added value of developing a research agenda to infuse new knowledge and methodologies into U.S. curriculum and discourse.

The service or outreach component of that current research university mission started with the Morrill Act of 1862. The U.S. federal government gave public funds for the establishment of land-grant universities, many of which became the agricultural and mechanical or “A&M” colleges (Bogue & Aper, 2000). While the specifics of the Morrill Act involved designating money to be used to purchase land and buildings, its actual outcome was increased access to higher education. Through physical, curricular, and enrollment expansion, more diverse students were able to attend college. While service had always been part of the work of faculty, the founding of a new type of college to study agriculture and the mechanical arts made external service to citizens of the state and country an explicit part of the institutional mission. Those disciplines had service-

oriented and applied research curricula. Society is still benefiting from the local, national, and international service mission of land-grant colleges and universities.

Research universities gained prominence during World War II because of national interests and new funding streams. U.S. higher education changed and research was given priority over teaching (Bogue & Aper, 2000; Serow, 2000). The federal government gave universities millions of dollars to conduct new research. Rather than create separate research institutes, which had been done in other countries, the federal government leveraged its substantial resources to enable research universities to engage in unprecedented amounts of research in a variety of disciplines. This period witnessed the research university becoming the preeminent type of higher education institution in the United States (Bogue & Aper, 2000; Serow, 2000).

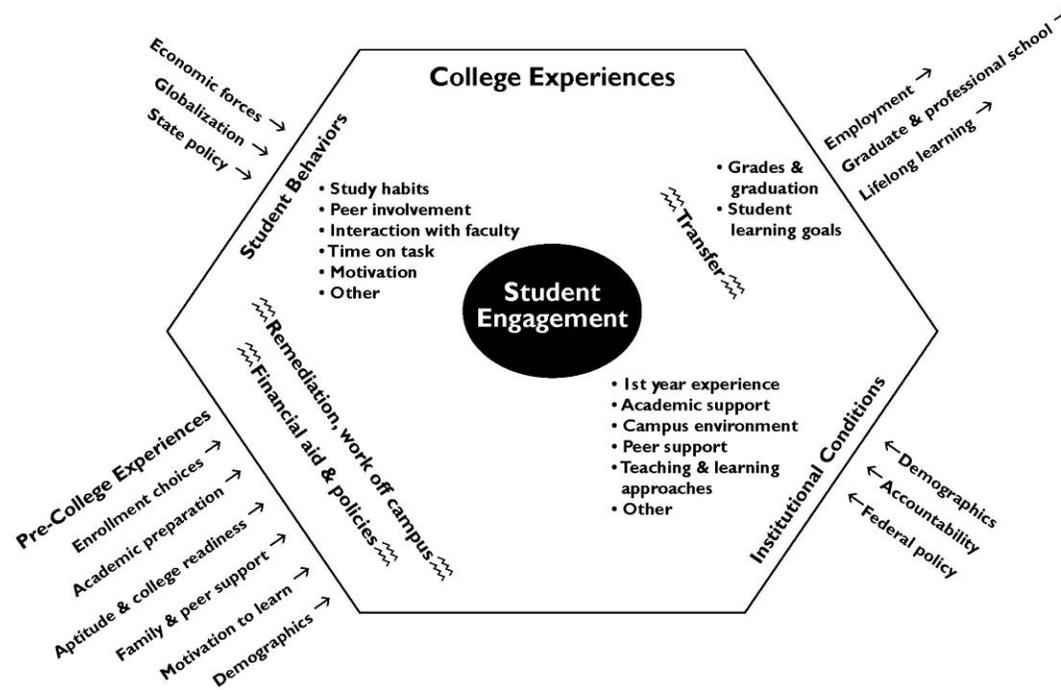
Many articles have been written about the purpose and mission of public research universities. Some authors call for a return to the roots of the Morrill Act of 1862 (Martin, 2005). They argue that many land-grant universities were specifically created to allow for the common, everyday person to receive a higher education, and that education allows the United States to continue its democratic form of government. Public research universities are poised to continue its democratic form of government. Public research universities are poised to continue their traditional civic role, but they must also achieve new outcomes with less financial support than ever before.

Conceptual Framework

This research takes as its proper context public research universities. Those institutions have mission-driven goals about educating students for the diverse workforce, our democracy, and the greater good of society. This study utilizes the framework outlined in the 2006 National Postsecondary Education Cooperative report, *What Matters to Student Success: A Review of the Literature* (Kuh et al., 2006), which synthesized the scholarship on student success up to 2006 and developed a conceptual framework for the most important aspects of a college experience for undergraduate students.

Figure 1: Conceptual Framework from What Matters to Student Success, Kuh et al., 2006 (permission to use found in Appendix A)

### What Matters to Student Success



The strength of this framework over other frameworks is how it features and combines the best literature related to student success. Rather than portraying a typical pipeline image, this framework attempts to account for all the boundaries and obstacles that undergraduate students face from the “pre-college” experiences to the “post-college” outcomes (Kuh et al., 2006, p.7). Student success can be defined as actual degree attainment, but the scholarship also denotes things like persistence, length of time to degree, learning outcome development, and workforce achievement after graduation (Kuh et al., 2006, p.4). Many things affect student success in postsecondary education; some factors are within institutional control and some factors are not. For the purposes of this paper, the outcome of interest is achievement of openness to diversity, broadly defined.

The first part of the framework indicates that a set of “pre-college characteristics” have been found to be related to which types of students will succeed at getting into college and graduating. Those factors are enrollment choices, academic preparation, aptitude and college readiness, family and peer support, motivation to learn, and demographic variables. Besides those experiences that students have before entering four-year institutions, there are three common obstacles undergraduate student must negotiate to begin a path to success: (1) financial aid and policies, (2) remediation coursework, and (3) working off-campus. If students can find ways to afford college without having to work off-campus and are academically prepared enough to avoid enrollment in remedial courses that do not count towards degree attainment, then they have overcome those three obstacles in the best-case scenario. Any other negotiation of

those obstacles leaves the student susceptible to not graduating or attaining of other measures of student success.

The second part of the framework addresses factors that occur during the college experience itself – student behaviors and institutional conditions. Student behaviors include measures such as study habits, peer involvement, faculty interaction, and time on task (Kuh et al., 2006, p.8). Literature in the field suggests that the time students spent on homework and preparation for coursework, time spent on trying to incorporate and learn the new material from their classes, and time in interaction with their peers and faculty all tend to be associated with a higher statistical chance of graduation and achievement of learning outcomes (Kuh et al., 2006).

According to the framework, institutional conditions include the first-year experience, academic support, campus environment, peer support, and teaching and learning approaches. Scholarship has shown that a bad fit between the student and institution can result in the student's leaving that institution before graduation (Kuh, Cruce, Shoup, Kinzie & Gonyea 2008). Institutional fit means that the undergraduate student encounters a particular type of learning environment that works best for him or her. For some students, this environment could consist of small student-to-faculty ratios in classes, and for others it could mean having many options for student involvement. It is important for the student and university to consider this factor to try and maximize the chances for student success (Tinto, 1998).

The framework then denotes a special term for the intersection point between institutional conditions and student behaviors called “student engagement.” Institutional

have some ability to affect student engagement experiences, which means it is more pragmatic for institutions to try and affect change once students enroll rather than before they get to campus. The literature has also shown that undergraduate students relate student engagement to both graduation and achievement of important learning outcomes (Kuh, 2007).

The chances for graduation and positive post-college outcomes are increased if students experience a high level of student engagement and good institutional fit at their undergraduate institution. If not, then the obstacle of transferring has to be dealt with. More and more students will actually graduate from a different institution than the one where they began their college experience. This framework acknowledges that factor.

### Constructs

Understanding the link between level of academic challenge and diversity has useful implications for curriculum, policy, and best practice, as more stakeholders make the argument that undergraduates must be prepared to deal with diversity in their lives during and after college (Hurtado, Engberg, Ponjuam, & Landreman, 2002). There is no universal agreement, however, on how diversity is defined in the educational literature. Diversity can have a wide range of meanings in research. In some research studies it can be used in reference to the construct of race, as in the case of Milem et al. (2005), where the researchers were studying the impacts of racial diversity on student learning objectives and educational experiences on college and university campuses. Yet as Chang (2005) notes, over the last several decades the term diversity has grown to include

a much broader spectrum of difference such as age, religion, ethnicity, gender, class, sexual orientation, and disability.

For the purposes of this study, I seek to broaden the definition of diversity even more, to encompass political difference, because this category is an important element of our contemporary U.S. society. Broadening the definition strengthens the current study by defining diversity not only in terms of openness to perceived racial difference but other differences as well, such as religion, gender, political opinion, etc. (Chang et al., 2005; *Practicing Diversity Leadership in Higher Education*, 2006). It is important to note that diversity is constituted as a “perceived difference” on the behalf of the observer about another person or group, because it is not possible to know if the perceived difference is accurate without validation from the other person or group (Keen & Hall, 2009). For example, undergraduate student A may think he is engaged in a conversation during a class discussion with undergraduate student B, believing student B to be of a different racial background, but unless student B openly acknowledges what racial background she comes from, there is no way for student A to know if his assumption is correct. Student A may believe student B is African-American when really student B is of Hispanic origins.

In addition, researchers can study student diversity-related outcomes from two main perspectives – student and institution (Umbach & Kuh, 2006). Understanding how intellectual development and openness to diversity are related is important because engaging with different types of people is no longer optional in U.S. society (Meacham, McClellan, Pearse & Greene, 2003; Zhao et al., 2005). Public research universities can

be a place where undergraduate students learn how to engage with diversities in a safe environment where developmentally appropriate curricula, policies and practices are used to propel students into “disequilibrium.” That unsettling state is defined as the process that students assimilate and accommodate new sources of information that allow them to reach a place where they can interact effectively with people who are different from themselves (Ginsberg & Opper, 1988).

Since public research universities have the tripartite mission of research, teaching, and service, it seems natural that fostering openness to diversity and diverse experiences will involve a variety of strategies throughout all parts of the mission that, when compiled together, allow for undergraduate students to graduate with an attitude of openness to diversity. For example, Deakins (2009) found that when using research-based teaching methods that incorporate diversity curriculum, students valued “difference” more at the end of the course. In his study, students needed to be allowed to explore diversity in the context of an issue that was simultaneously important to them and part of the substantive course content – which allowed diversity to be indirectly part of the classroom discussions. Deakins’ (2009) small class size of eleven students in New Zealand does not allow for generalizability to mid-sized to large courses in the United States, but it does provide some idea of where to begin to try practically understand how to design diversity curricula.

Tatum (2000) also offers pedagogical tools for assisting in the development of students’ appreciation of diversity. She suggests that strategies such as “assigning students to diverse discussion groups (rather than letting them choose groups themselves)

help students make connections with one another across lines of different” (Tatum, 2000, p. 25). Again, it is important that researchers learn what personal characteristics, as well as institutional curricula and tools, promote an increased openness to people who are different.

“Experiencing diversity” (Kuh and Umbach, 2005) clearly indicates that, despite having low numbers of students from racially and ethnically diverse backgrounds, liberal arts colleges are overcoming the numbers and their students are engaging in diversity-related activities more so than at any other type of institution. Kuh & Umbach (2005) found that by intentionally infusing diversity into “educationally purposeful activities and outcomes”, (p.17) also defined as student engagement, small liberal arts colleges created campus climates that encourage their students to have diversity interactions despite low numbers of diverse students. Numbers alone will not create positive diversity outcomes, but diverse interactions allowing for undergraduate students to negotiate new information they learn about people different from themselves do help undergraduate students develop a willingness to be around people different from themselves – and hopefully that experience will carry over to the post-college world (Cole, 2007; Kuh & Umbach, 2005; Tatum, 2000; Umbach & Kuh, 2006; Zhao et al., 2005).

Cole’s (2007) research supports the idea that a critical mass of diverse undergraduate students is not enough, but that there has to be an intentional component in the experience in order for students to value diversity. Cole studied how racial background affected students’ interactions with faculty since those interactions are related to such outcomes as persistence, intellectual development, satisfaction, academic

performance, and others. The findings were informative because they showed that interracial interactions differed depending on student racial background. White students were able to avoid such interactions if they wanted to, but minority students were not. The study used 1994 and 1998 data from the Cooperative Institutional Research Program from UCLA; he received 7,063 responses from 119 predominantly white institutions. In 2002, Hu and Kuh published “Being (Dis)Engaged in Educationally Purposeful Activities: The Influence of Student and Institutional Characteristics.” They found that students at public institutions and research universities were less likely to be engaged than their peers at private colleges. Student engagement measured as educationally purposeful activities, has been documented as the single most important factor in measuring student-learning and personal development outcomes (Hu & Kuh, 2002).

#### Expansion of the Literature

In order to build upon and expand knowledge in the field, I found several research studies that informed my work. First, Keen and Hall (2009) found that, indeed, experiences in service-learning activities, paired with other programmatic components consisting of informal dialogue, coaching, reflection opportunities, retreats, and others, have resulted in a program in which students do appreciate diversity more and are engaged in more cross-cultural dialogue with others different from themselves.

Their study defined service-learning as strictly co-curricular, because they acknowledged that not all service-learning opportunities were offered as part of academic coursework and that the potential for learning might still be robust. Their study was

noteworthy because it used a quantitative survey to measure whether co-curricular service-learning experiences impacted the institutionally desired outcomes of appreciate of diversity and dialogue across boundaries of perceived difference. Their study was longitudinal in nature and was completed at 23 liberal arts colleges across the country. The response rates were high during all three measuring points: 96% in 2000 (n = 790), 70% for 2002-03 (n = 467), and 75% in 2003-04 (n = 537). The scope of this research helps to justify the expansion of analyses of student engagement to activities located off-campus. Next steps include investigating if the study could be replicated for public research universities, where opportunities for co-curricular service-learning are available, to see how size and scope affect the results.

Chirapar Tongstri's master's thesis, entitled *The Contributions of Demographic Background and Service-Learning Experiences to Undergraduates' Perceptions of Appreciation of Diversity* (2005), studied how one type of students activity – service-learning –affected students' appreciation of diversity. This study was done at the University of Maryland, College Park, and the researcher wanted to understand how the variables of race, gender, and academic standing, and service involvement prior to college related to how the student currently perceived the impact of service-learning opportunities on the appreciation of diversity. The study had 290 subjects and was done using a local instrument. Tongstri found that there were gender differences and class-standing differences in how students perceived service-learning opportunities contributing to their appreciation of diversity. Key findings were that women appreciated diversity more than men, and seniors more than freshman. This study differs from

previous research because it defines diversity more broadly, and utilizes a national instrument with a larger sample pool.

A dissertation by Jonathon Dooley (2007) focused on the impact of service-learning on student attitudes towards race and social justice. Like Tongsri's study, it defines diversity as racial diversity, but it goes further as Tongsri's does not have the social justice component present in Dooley's work. This research study was qualitative and, as such, was methodologically different than other work and my own, too. His work had four key questions, the last of which is closest to my work: "What are the positive and negative effects of service-learning on the development of knowledge, skills, and attitudes about race and social justice for college students from racially and socioeconomically privileged groups?" (p.1). The study took place at a Jesuit school that is private and affiliated with the Catholic Church but does use Piaget's work along with Perry and Magolda's, which expanded on Piaget (Dworetzky, 1991). The 25 respondents were from a single service-learning course. His research found that service-learning did have potential for changing people's attitudes, but found some instance of reifying stereotypes. His sample is small and compromising generalizability. Also, he notes that the quality of the service-learning is very important and service-learning of poor quality has the potential to do the most damage to students and community members.

## Conclusion

The important contribution of the present study could be to build upon what has been learned from one type of engagement, service-learning, at smaller institutions

involving a smaller sample and expand upon it for larger samples at public research universities. As the framework explains, context and environment are important, so the expansion of types of engagement, a larger sample size, and larger institutions might allow researchers to discover more about how curriculum, policy, and practice can be used in those contexts to create students who are more open to difference (Kuh et al., 2006).

Understanding how to build capacity for diversity is advantageous, but understanding how it may be impacted by student engagement opportunities can prompt institutional culture change, to meet the needs of the academic and external community stakeholders. As Leslie and Fretwell (1996) noted, “responsibility for change has to be more widely shared than it now is on many campuses...But commitment is also needed from outside the academic community. Business leaders, community leaders, and policy makers can all play a substantial role by participating in positive change (p. xviii).”

### CHAPTER 3: RESEARCH METHODS

The literature on undergraduate student engagement examines how curricular and co-curricular activities can together maximize students' intellectual pursuits and skill sets for the lives they will have upon graduation. Public research universities face increasing competition for students. They make the case for being well positioned to provide both the traditional higher education outcomes (critical thinking, ability to construct a reasonable argument, enhanced mathematical and scientific reasoning, among others) and the practical skills students need to do their future jobs. In the United States, four-year colleges and universities have to prepare students for the “real world” and new work environments. Students' lives after college include working, living, and traveling in a diverse world. Institutions have to design curricula, programs, and activities, both inside and outside the classroom, that are intentional and developmental to assist students in building the capacity for openness to diversity in all its forms. This research will contribute to the literature on what types of students develop an attitude of openness to diversity.

According to the Carnegie Foundation for the Advancement of Teaching, there are 246 large four-year institutions of higher education ([classifications/carnegiefoundation.org](http://classifications/carnegiefoundation.org)). All of the public research universities are found in three categories: (1) large four-year primarily non-residential; (2) large four-year primarily residential; and (3) large four-year, highly residential. Of the 246 large four-year institutions, 198 institutions are public universities, responsible for educating approximately 26% of all students who are enrolled in postsecondary institutions –

approximately 4,500,000 undergraduate students. Their influence over educational trends in higher education is substantial (Fairweather & Beach, 2002).

### Research Question

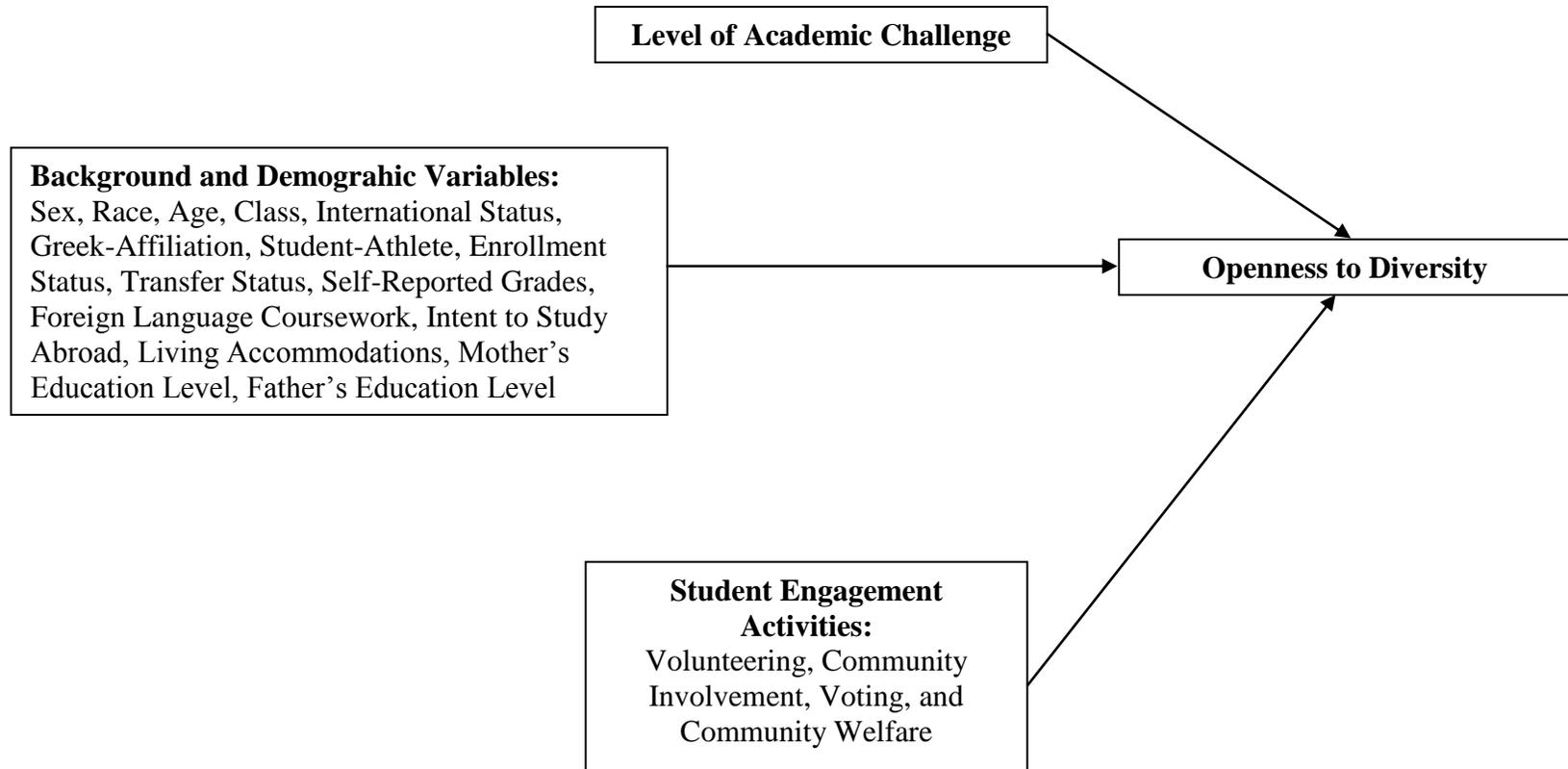
If public research universities' administrators, faculty and staff assume that undergraduates need to be prepared to work, live and negotiate with diverse people, then they need to understand how to design institutional curricula, policies, and practices that create experiences in students' collegiate years and that allow them to obtain the outcome of openness toward people who are different from themselves. In other words, attitudes of openness toward "difference" do not happen by mistake (Zhao et al., 2005). One strategy for efficiently designing curricula and experiences that lead to a particular outcome for undergraduate students is to understand how students are achieving this outcome within the current institutional system, so that institutions recognize what is working and how strategic improvements can be made.

As stated earlier, this study examines the relationship between levels of academic challenge, engagement activities and openness to diversity for undergraduate students at public research universities. The literature indicates that experiences in student engagement activities in particular can have a profound effect on students' academic and personal lives, because such experiences allow students to apply what they are learning in a classroom to complex human systems either on or off campus. To research the desired outcome of openness to diversity means that one has to examine student experiences and individual students. By analyzing different student characteristics that assist in the

development of openness to diversity, institutional stakeholders can better design pathways that will lead to the outcome. For example, Gurin, Dey, Hurtado, and Gurin (2002) have documented that students with higher grade point averages tend to have more propensity for diverse experiences, but not every undergraduate student has a high grade point average, so this research seeks to discover what other characteristics may be indicative of the outcome. Academic challenge is a characteristic that has not been studied before in relation to openness to diversity. Figure 2 outlines the research question: In what ways are undergraduate students' levels of academic challenge and engagement activities associated with their openness to diversity at public research universities?

For the purposes of this study, I use the term "student engagement" to indicate activities that students participate in and outside the formal academic classroom. Such activities include service-learning, co-curricular service, internships, outreach, practica, and volunteering. These activities range from those that solely benefit the undergraduates to activities that benefit the community, and those that benefit both (Corcoran & Bree, 2006). The broadness in scope is due to the fact that students at large, public research universities engage in a wide variety of activities that fit their needs at the time. Also, the inclusion of off-campus activities is a definitional strength that has not been investigated in previous research studies (McCormick, Pike, Kuh & Chen, 2009; Dooley, 2007).

Figure 2: Research Question



## Methods

This section addresses the technical aspects of how quantitative statistics methods were used to answer the research question. For the purposes of this study, data from the 2009 National Survey of Student Engagement (NSSE) was utilized because it contains measures of all three constructs.

## Setting

Data were drawn from four large Midwest public research universities in the United States'. Those universities face similar challenges related to their size and the scope of their public mission. They must pay attention to the needs of their public stakeholders including future employers, legislatures, nonprofit organizations, and others. Also, it is important to understand that public research universities must educate undergraduate students that come with a wide range of academic abilities and experiences with diverse people.

## Survey Instrument

The NSSE is administered by the Indiana University Center for Postsecondary Research and Planning in collaboration with the Indiana University Center for Survey Research ([http://nsse.iub.edu/html/quick\\_facts.cfm](http://nsse.iub.edu/html/quick_facts.cfm)). The first NSSE was developed to examine the extent “to which students are engaged in educationally purposeful activities that contribute to their learning and success during college” (Pike, 2004). The pilot

version was disseminated in 2000 after pilot groups were conducted in 1999. The survey has been validated and refined since its inception.

Results from NSSE data have been used to research student readiness for college (Kuh, 2007), persistence (Kuh et al., 2008), academic achievement (Kuh, 2007), student-faculty interactions (Kuh et al., 2008), experiences with technology (Hu & Kuh, 2002; Laird & Kuh, 2005), residential facility expansion (LaNasa, Olson, Alleman, 2007), disengagement from the academic community (Hu & Kuh, 2002; Tinto, 1998), attitudes towards diversity (Cole, 2007; Umbach & Milem, 2004), as well as institutional expenditures (Ryan, 2005) and sports participation (Gayles & Hu, 2009) as related to student engagement.

The questions from the survey describe five national benchmarks: level of academic challenge, active and collaborative learning, student interactions with faculty, enriching educational experiences, and supportive campus environments (LaNasa, Cabrera & Transgrud, 2009; March, 2001, Mark & Boruff-Jones, 2003). Those benchmarks, established by the NSEE design team, were based on theoretical frameworks including Chickering & Gamson's (1991) *Seven Principles for Good Practice in Undergraduate Education*, Alexander Astin's (1999) *Theory of Student Involvement*, the concepts of quality of student efforts, and other relevant research on student outcomes and engagement (Kuh, 2001; Pike, 2006). *The National Survey of Student Engagement: Conceptual Framework and Overview of Psychometric Properties* (Kuh, <http://nsse.iub.edu>) documents how the survey design team established reliability and validity estimates as well as stability estimates for the questions, and how the team

will continue to do so for future versions of the NSSE. While researchers continue to raise concerns about the NSSE's validity and reliability of its psychometric properties, Kuh (2001) notes that both the construct validity and item analysis have been repeatedly analyzed and found to be within acceptable ranges for social science research. A copy of the survey instrument is included in Appendix B.

#### Limitations of the Instrument

NSSE has undergone increased scrutiny due to Stephen Porter's paper, *Do College Student Surveys Have Any Validity?*, presented at the 2009 Association for the Study of Higher Education annual conference. His paper asserts that the NSSE is not a valid and reliable instrument for measuring what we know about college students (Porter, 2009). He states that both the validity and reliability measures are nonexistent and that since the NSSE is one of the leading student surveys used in the United States, researchers need to question it with a critical eye.

The two most important criticisms that Porter (2009) makes are: (1) the lack of underlying theoretical explanation for each test item included in the survey, and (2) the inability of students to accurately recall participation levels in varying events and activities over the course of time. I was not able to find an item analysis that lists the theoretical or relevant research for each item included in the NSSE. While general statements are made about the theoretical underpinnings and guiding principles for the construction of the instrument, I could not find an actual listing for each question. For that reason, Dr. Porter's criticism is important.

In addressing criticism about human failure to accurately recall information over the course of time, NSSE researchers state that while the NSSE is not perfect, it does attempt to deal with this problem by not adding many attitude questions on the survey and by continual refinement of the wording of questions for clarity purposes (Kuh, 2001; Schmidt, 2010). Also, while NSSE researchers acknowledge that Dr. Porter's criticisms are not without merit, they note that these problems exist within virtually all of social science and that indeed there are regular attempts by the NSSE team to deal with these issues (Jaschik, 2008; Schmidt, 2010).

Kuh (2001) deals with this issue by noting the NSSE's five conditions that are thought to promote more accurate report. The five conditions are the following: "(1) when the information requested is known to the respondents; (2) the questions are phrased clearly and unambiguously; (3) the questions refer to recent activities; (4) the respondents think the questions merit a serious and thoughtful response; and (5) answering the questions does not threaten, embarrass, or violate the privacy of the respondent to respond in socially desirable ways" (Kuh, 2001). He states the NSSE design team considered all of those parameters when developing the questions for inclusion on the survey so as to elicit accurate and thoughtful answers (Kuh, 2001).

Porter (2009) makes some interesting suggestions about what is wrong with social science research, but does not offer any useful alternatives. His suggestion of students' recording experiences in diaries has its own methodological concerns and flaws. I have decided to use the NSSE instrument because at this time it is widely used and no alternative instrument has the amount of comparative data that the NSSE offers. In

addition, Pike (2006) has found that NSSE scales produce dependable group means even on small sample sizes. Since my study uses group data, it is possible to be careful about the interpretations of the findings to compensate for any instrument concerns. All survey instruments have some bias, so it is impossible to find an instrument that would not have some item or sample concerns. As Ewell (2005) notes, the NSSE and its scales are open and transparent about its methodological processes and underlying values and assumptions. The instrument is not completely objective, but objectivity is not possible and so its transparency allows for the instrument to be useful (Ewell, 2005). In the meantime, scholars will continue the national debate on how education and, more broadly, social science research can improve survey construction so as to try to accurately reflect the landscape of higher education across time.

### Respondents

The Association of American University (AAU) is a non-profit organization with 62 of the most prestigious research universities in the United States and Canada included as members ([www.aau.edu/about/default.aspx?id=58](http://www.aau.edu/about/default.aspx?id=58)). To become an AAU institution, an institution must receive a membership invitation from the AAU executive board; the organization includes both public and private institutions and many of the institutions that the University of Minnesota, Twin Cities considers peers.

Through the University of Minnesota's participation in a consortium of colleges and universities that have agreed to share NSSE institutional data, I had access to comparative institutional data. As of November 2009, 13 public research universities

were both members of the AAU and participants in the 2009 NSSE survey. Those institutions are shown in Table 1.

**Table 1: Potential Sample Institutions**

Indiana University
Iowa State University
Texas A & M University
The University of Arizona
University of Colorado, Boulder
University of Maryland, College Park
University of Michigan
University of Minnesota, Twin Cities
University of Missouri, Columbia
University of North Carolina, Chapel Hill
University of Oregon
University of Texas, Austin
University of Washington

Source: ([www.aau.edu](http://www.aau.edu) and <http://nsse.iub.edu>)

Research shows that NSSE results are most accurate with regard to specific institutions and when taken within a specific context (Chen et al., 2009; LaNasa et al., 2009; Pike, 2004, and Wasley, 2006). For this analysis, data were drawn from four schools: (1) Indiana University, (2) Iowa State University, (3) University of Michigan, and (4) University of Minnesota, Twin Cities, which are all Midwestern public research universities (*Chronicle of Higher Education*, 2010); they are the four universities which participate in the NSSE data sharing consortium. Chen et al. (2009), suggests weighting each institutional sample in order to make comparisons between institutions; however, because this research question is exploratory in nature and looking for overall trends in the data, weighting samples was not done. Finally, the data were deidentified, but the University of Minnesota designator was included so that additional analyses could be performed. Since NSSE results need to be interpreted within the institutional context, those analyses can be done due to the fact that the researcher is familiar with the University of Minnesota context.

In order to gain understanding about the type of student bodies the NSSE samples were drawn from, it was important to note the overall undergraduate profiles for each institution; Table 2 highlights undergraduate student demographic variables for each institution and the in-state cost of attendance, based on university websites and *The Chronicle of Higher Education* (2010). Data from 2009 were used when possible so that the profiles would match when the NSSE was administered.

**Table 2: Institutional Demographics**

	<b>Indiana (2009)</b>	<b>Iowa State U (2009)</b>	<b>Michigan (2008)</b>	<b>Minnesota (2009)</b>
<u>Undergraduate Population:</u>	36,732	22,521	25,994	33,236
<u>Gender:</u>				
Men	50%*	9,790 (43.5%)	12,938 (50%)	14,909 (45%)
Women	50%*	12,154 (56.5%)	13,056 (50%)	13,360 (41%)
<u>Race:</u>				
African American	1,442 (4%)	582 (2.6%)	1,640 (6%)	1,624 (5%)
Asian American	1,259 (4%)	689 (3.0%)	3,097 (12%)	3,126 (9%)
Native American	62 (0.2%)	52 (0.2%)	204 (1%)	369 (1%)
Hispanic American	1,087 (3%)	667 (3.0%)	1,156 (4%)	750 (2%)
European American	25,097 (78%)	18,932 (84.1%)	16,508 (64%)	24,156 (73%)
Unknown	313 (1%)	NA	2,021 (8%)	1,464 (4%)
International	2,592 (8%)	1,454 (6.5%)	1,368 (5%)	1,747 (5%)
Multiracial	492 (2%)	145 (0.6%)	NA	NA
<u>Geographic Distribution:</u>				
In-state residents	60%	66%	65%	71%
Out-state residents	40%	29%	29%	25%
Other countries:	NA	5%	6%	4%
<u>Average Age of Undergraduates:</u>	21	20	20	21
<u>Cost of Attendance:</u>				
In-state tuition	\$8,613	\$6,651	\$22,729	\$23,058
Out-state tuition	\$26,160	\$17,871	\$46,893	\$27,358

\*only percentage provided

Sources: [admit.indiana.edu/life/profile.shtml](http://admit.indiana.edu/life/profile.shtml); <http://www.ir.iastate.edu/factbk.html>;  
<http://provost.umich.edu/college-portrait/2009/index.html>; [http://www.oir.umn.edu/college\\_portrait](http://www.oir.umn.edu/college_portrait); 2010  
*Chronicle of Higher Education Almanac edition*

The undergraduate populations ranged from 22,521 (Iowa State) to 33,236 (Minnesota). The undergraduate classes were fairly gender balanced and overwhelmingly European American, although the University of Michigan had 28% of their undergraduates coming from historically underrepresented groups. The students were largely of traditional college-going age and from in-state communities, with the average undergraduate being 20 or 21 years of age. The University of Michigan and the University of Minnesota were more comparable in terms of tuition costs, while Iowa State and Indiana University had lower tuition.

#### Institutional Review Board

Ronald Huesman, assistant department director for the Office of Institutional Research at the University of Minnesota, Twin Cities, agreed to assist me by creating a dataset from a consortium data set of 2009 NSSE survey data. The data were deidentified so that no specific student could be identified and three of the institutions could not be traced.

The research met the standards for an expedited review. The survey data have already been collected as part of an institutional research project. My use of the data represents very minimal risk to the human subjects, because the data was deidentified ([www.research.umn.edu/irb/](http://www.research.umn.edu/irb/)). Appendix D documents the IRB approval of this study.

#### Data Analysis

Statistical Package for the Social Sciences (SPSS) software was used to conduct the data analyses including generating descriptive statistics, frequency distributions, factor analyses, correlations, and multiple regression analyses.

I began the data analyses by generating a descriptive analysis of each variable in the data set, so that coding corrections could be made and outliers identified. Then, dichotomous background and control variables were recoded to fit traditional education research coding, which meant that the most frequent response was coded as zero and the other was coded as one.

Next, an exploratory factor analysis on the data items that were considered for scale construction was done. Three scales to measure the constructs of level of academic challenge, student engagement activities, and openness to diversity were needed. It was important to conduct an exploratory analysis because the construct validity of NSSE survey's scales has been debated (LaNasa et al., 2009; Porter, 2009).

### Scale Development

This section documents the process for creating scales for the three constructs and the resulting measures. The NSSE instruments had its own scales in order to measure the constructs as defined as the following: (1) level of academic challenge, (2) active and collaborative learning, (3) student-faculty interaction, (4) supportive campus environment, and (5) enriching educational experiences ([http://nsse.iub.edu/pdf/nsse\\_benchmarks.pdf](http://nsse.iub.edu/pdf/nsse_benchmarks.pdf)). Only one scale was applicable to my research inquiry (level of academic challenge). Thus, the other two scales to measure

student engagement and openness to diversity would need to be created through a process of exploratory factor analysis.

### *Level of Academic Challenge*

Level of academic challenge is defined as “challenging intellectual and creative work” ([http://nsse.iub.edu/nsse\\_benchmarks.pdf](http://nsse.iub.edu/nsse_benchmarks.pdf)), which is imperative to promoting student learning. Institutions expect that students will put forth maximum academic efforts and set standards for student performance. It is important to understand how students that put forth lots of academic effort in the classroom and achieve high performance standards utilize this process to be open to others who are different from them. Inversely, it is important to measure how students that do not put forth effort and achieve low performance standards relate to others who are difference. Grade point average is an indicator of a general performance measure, but with grade inflation being a widely documented issue, it is important to also measure effort and not just outcome (high grade point average). Hurtado (2002) found that those who have high grade point averages also tend to be more open to diversity as defined by her study.

The survey items used to measure level of academic challenge can be summed together for each person to give a numeric score. The higher the score, the more time and effort the individual dedicated to academic activities for his or her coursework. See Table 3 for the psychometric properties associated with the level of academic challenge scale development.

**Table 3: Statistics for Level of Academic Challenge Scale (n=4,583)**

<b>Survey Item</b>	<b>Item Total Correlations</b>	<b>Cronbach's Alpha</b>
# of assigned textbooks/books/booklength packets	.276	
# of written papers/reports over 20 pages	.189	
# of written papers/reports of 5-19 pages	.344	
# of written papers/reports less than 5 pages	.219	
Coursework required analyzing basic elements of an idea/experience/theory	.441	
Coursework required synthesizing ideas/information/experiences into new ideas	.495	
Coursework required making judgments about the value of information/arguments/methods	.423	
Coursework required applying theories/concepts to practical problems or new situations	.401	
During the current school year, worked harder than you thought you could to meet instructor expectations	.411	
# of hours spent preparing for class	.314	
To what extent does your school emphasize spending time studying and doing academic work	.299	
		.708

The possible range of scores for the level of academic challenge scale are from a low of 10 to a high of 48. Survey participants' scores for the scale were between 24 and 38.

### *Student Engagement Scale*

The literature on student success, usually defined as graduation with a Bachelor's degree, denotes that student engagement is a critical behavior for students to experience in order to graduate. What the literature is not clear about is exactly how student engagement is defined. For the purposes of this study, student engagement was defined as "...the extent to which they take part in educationally effective practices" (Kuh et al., 2006, p.31). Furthermore, educationally effective practices are thought to be experiences, on or off campus, that assist students ability to apply what they are learning in the classroom to different contextual settings resulting in a set of student learning or development outcomes upon graduation. The learning or development outcome pertinent to this study is openness to diversity (that is, to those who are perceived to be different from oneself).

The NSSE did not have a ready measure of student engagement as it is defined by this research study. Rather it includes items that measure student bridging experiences, on and off campus, as part of the Enriching Educational Experiences benchmark. I attempted to construct a new scale with just those items that pertained to "bridging" types of student experiences. Items considered for the student engagement scale included participating in academic service-learning, internships, volunteering, working, voting,

tutoring, attending dance, art, theater or other fine arts performances, living in a learning community, and being active in institutional co-curricular offerings, among others.

The exploratory factor analysis revealed that those survey items did not cluster together into any discernible factors. Furthermore, despite trying numerous combinations of variables, no grouping of variables resulted in a Cronbach's Alpha level higher than .598. Therefore, instead of creating a scale to measure student engagement as preliminarily defined by this research study, specific survey items were picked to represent student engagement. The four items were Volunteering (community service or volunteer work), Community Involvement (participated in a community-based project as part of a course), Voting (how much your institutional experiences contributed to your voting in a local, state, or national election), and Community Welfare (how much your institutional experiences contributed to the welfare of your community). Those four variables are all specific measures of a student's experience in a community outside of the geographic boundaries of the institutional campus. The refinement of the student engagement variable represents a new perspective on how student engagement is defined for the purposes of this study.

### *Openness to diversity*

Finally, a scale to measure students' openness to diversity was needed. Survey items that asked questions related to students' experiences with relating to difference were used in the initial exploratory factor analysis. The factor analysis resulted in seven survey items being summed together to form the scale.

**Table 4: Statistics for Openness to Diversity Scale (n=4,539)**

<b>Survey Item</b>	<b>Item Total Correlations</b>	<b>Cronbach's Alpha</b>
In the current school year, how often did you include diverse perspectives in class discussions and assignment	.429	
In your current school year, how often did you have serious conversations with students of different race or ethnicity	.551	
In the current school year, how often did you have serious conversations with students different from you with regard to religion, politics, or personal values	.588	
During the current school, did you examine your strengths and weaknesses of personal views on a topic	.537	
During the current school, did you try to understand someone's views and perspectives on a topic	.607	
During the current school, did you learn something that changed the way you understand a topic	.547	
To what extent, have your institutional experiences contributed to your understanding of people of a different race or ethnic background	.415	
		.796

The range of scores for the scale is from 7 (low) to 28 (high). The higher the score, the more a person is open to diversity experiences.

Once the factor analyses were completed, reliability analyses for each variable verified that items in scales belong together. Then for each participant, composite scale scores were created for each of the three variables. Next, a series of analysis of variance tests and multiple regressions analyses were used to answer the specific research question of understanding the relationships between level of academic challenge, student engagement, and openness to diversity after controlling for the background and demographic variables.

#### Background and Demographic Variables

In addition, demographic variables were used as predictors for my regression analyses. Those variables included age, class, sex, race, international student status, Greek-affiliation, athletic status, enrollment status, transfer student status, self-reported grades, educational attainment of the students' mothers and fathers, living arrangements, foreign language study, and intention to study abroad.

A literature review had not found empirical studies to believe that participation in a foreign language class or study abroad experience are related to how much time one puts into his or her academic coursework studies or increases one's willingness to experience diversity, but there may be reason to assume a relationship could exist. Students who are taking courses in a non-native language or preparing to study in an international setting are more open to people different from themselves, possibly because

they are enrolling in courses designed to expose students to something different from their domestic American experience. Also, learning another language or about a different culture would require more time to practice the language or prepare to learn in a foreign setting, thus more academic effort.

## CHAPTER 4: RESULTS

Institutions of higher education are facing demands from external stakeholders for increased accountability (Brennan, 2008). Public constituents indicate they want to know that students are better off after investing in their postsecondary education, and universities and colleges need to be able to prove it (Brennan, 2008). One approach public research universities are using is to document competency-based outcomes for students, and experience with diversity is often included among those outcomes (Keen and Hall, 2009). The purpose of this study is to investigate to what degree students are achieving competence in interacting with those who are different from themselves, broadly defined. The question driving this research is: In what ways are undergraduate students' academic challenge and engagement activities associated with their openness to diversity at public research universities?

To answer the question, data from the National Survey for Student Engagement, which measures academic challenge, student engagement and openness to diversity, were used. Scales were developed to measure academic challenge, student engagement and openness to diversity. Then, regression analyses were used to account for how academic challenge and student engagement are related to openness to diversity attitudes, after controlling for the background and demographic variables. Descriptive findings are presented in Tables 5 and 6 and highlight frequency and mean data for the background and demographic variables included in this study.

**Table 5: Distribution of Responses to Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Percent</b>
<b>Sex</b>	
Male (0)	41.9
Female (1)	58.1
<b>Race</b>	
Caucasian (0)	75.1
Students of Color (1)	18.8
<b>International Status</b>	
Domestic Student (0)	93.5
International Student (1)	6.5
<b>Fraternity or Sorority Member</b>	
Not Greek-Affiliated (0)	87.1
Greek-Affiliated (1)	12.9
<b>Student-Athlete</b>	
Not student-athlete (0)	96.5
Student-Athlete (1)	3.5
<b>Enrollment Status</b>	
Full-time (0)	94.8
Less than Full-time (1)	5.2
<b>Transfer Status</b>	
Started college at this institution (0)	83.2
Stated college at a different institution (1)	16.8
<b>Mother's Education Level</b>	
Did not graduate from college (0)	43.2
Completed at least one college degree (1)	56.8
<b>Father's Education Level</b>	
Did not graduate from college (0)	40
Completed at least one college degree (1)	60

**Table 5 (con't): Distribution of Responses to Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Percent</b>
<b>Foreign Language Coursework</b>	
Taken coursework (0)	48.0
Have not taken coursework (1)	52.0
<b>Study Abroad</b>	
Have not studied abroad (0)	84.4
Have studied abroad (1)	15.6
<b>Living Accommodations</b>	
On-Campus (0)	47.3
Off-Campus (1)	52.7
<b>Age</b>	
19 or younger (1)	46.9
20-23 (2)	44.9
24-29 (3)	5.0
30-39 (4)	2.0
40-44 (5)	1.0
Over 45 (6)	.2
<b>Current Class in College</b>	
Freshman (1)	44.3
Sophomore (2)	4.0
Junior (3)	4.0
Senior (4)	46.7
Unclassified	1.0
<b>Self-Reported Grades</b>	
C- or lower (1)	.6
C (2)	1.7
C+ (3)	3.1
B- (4)	6.7
B (5)	19.5
B+ (6)	20.4
A- (7)	25.5
A (8)	22.6

The recoding of variables before any data analyses are conducted was done for clarification purposes. For five of the background variables (sex, international status, student-athlete, enrollment status, and transfer status) respondents were only given two options for answering the question. Those variables were simply recoded from a designator of 1 or 2 to designators of 0 and 1 in order to conform to traditional research practices. Mother's education and father's education were recoded from the original seven options into two categories – either did or did not complete a college degree. The reason for recoding these data was that the setting for this study is at the collegiate level, so I was only interested in parental education level relative to the collegiate setting. Foreign language coursework, study abroad and living accommodations were recoded from an original four options into two choices. From an analysis framework, the study focused on factors that influence a student's openness to difference. Those variables each had only one choice where the condition was met and three choices where it was not met; therefore, all the choices where the condition was not met were put together into one categorical choice. Finally, the variables age, class designation and grade point average were left in their original forms.

The students surveyed are fairly traditional as U.S. undergraduate students at a state public research university. Also, as noted earlier, the sample is fairly representative of the types of students found at Indiana University, Iowa State University, University of Michigan, and the University of Minnesota, Twin Cities. The sample was majority female, Caucasian, and of domestic origin. Most were students enrolled full-time and 83% of the students were still at the same institution where they initially started. On

average, students were somewhere between their sophomore and junior years and the self-reported mean grade point average was 6.19 (somewhere between a B+ and A-). The sample did not have a large group of Greek-affiliated students or student-athletes. Finally, the majority of the students' mothers and fathers had completed at least one college degree.

### Analytical Findings

To answer the study's question, in what ways are undergraduate students' levels of academic challenge and engagement activities associated with their openness to diversity at public research universities, a variety of analyses were used. The analyses included means comparisons, correlations and regression tests. For the purposes of this study, those students who did not designate what class they were in at their university were treated the same as missing.

#### *Means analysis of Background and Demographic Variables by Institution*

In order to determine if the statistical results in this study were generalizable to a broader sample, a means analysis by institution was conducted. The results of the means analysis is found in Table 6.

**Table 6: Means Analysis for Background and Demographic Variables by Institution (n=5,373)**

<b>Variable</b>	<b>Institution A (Mean)</b>	<b>Institution B (Mean)</b>	<b>Institution C (Mean)</b>	<b>Minnesota (Mean)</b>	<b>F-Statistic</b>
<b>Age</b>	1.72	1.68	1.59	1.64	5.266***
<b>Class</b>	2.70	2.65	2.69	2.38	16.370***
<b>International Student</b>	1.07	1.07	1.07	1.06	.632
<b>Fraternity or Sorority Member</b>	1.13	1.19	1.17	1.07	33.373***
<b>Student-Athlete</b>	1.02	1.03	1.05	1.04	3.051*
<b>Enrollment Status</b>	1.97	1.96	1.94	1.93	7.493***
<b>Transfer Status</b>	1.23	1.14	1.07	1.20	35.073***
<b>Self-Reported Grades</b>	5.86	6.28	6.34	6.25	20.119***

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

For seven of the background and demographic variables, the results indicated the samples differed significantly by institution. For international-student status the results were not statistically different by institution. This result suggests the research question is best interpreted within specific institutional contexts. That conclusion is consistent with the recommendations of Kuh and others, who state that the NSSE survey instrument results are most informative within the specific campus context (Kuh, 2001). To that end, I analyzed the research question first utilizing the overall sample and then the University of Minnesota subset because I was most familiar with that campus culture.

*One-way Analysis of Variance for Background and Demographic Variables on Level of Academic Challenge, Engagement Activities, and Openness to Diversity Constructs*

Table 7 presents results for the one-way analysis of variance examining differences in the level of academic challenge. Table 8 presents the results for the one-way analysis of variance examining difference in the level of openness to diversity by the 15 background and demographic variables. Academic challenge and openness to diversity were measured by scales, whereas student engagement was measured by individual items.

**Table 7: Analysis of Variance for Level of Academic Challenge for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	30.41	4.84	3.171
Female (1)	31.05	4.60	
<b>Race</b>			
Caucasian (0)	30.65		.538
Students of Color (1)	31.15		
<b>International Status</b>			
Domestic Student (0)	30.70	4.71	.022
International Student (1)	31.82	4.72	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	30.74		.057
Greek-Affiliated (1)	30.98		
<b>Student-Athlete</b>			
Not student-athlete (0)	30.78	4.72	.061
Student-Athlete (1)	30.64	4.54	
<b>Enrollment Status</b>			
Full-time (0)	29.25	5.03	3.200
Less than Full-time (1)	30.89	4.67	
<b>Transfer Status</b>			
Started college at this institution (0)	30.79	4.65	13.444****
Stated college at a different institution (1)	30.71	5.06	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	30.51	4.76	1.348
Completed at least one college degree (1)	30.99	4.61	
<b>Father's Education Level</b>			
Did not graduate from college (0)	30.46	4.77	1.665
Completed at least one college degree (1)	31.00	4.67	

**Table 7 (con't): Analysis of Variance for Level of Academic Challenge for Background and Demographic Variables (n=5,373)**

<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	30.22	4.66	1.95
Taken coursework (1)	31.36	4.70	
<b>Study Abroad</b>			
Have not studied abroad (0)	30.61	4.69	.942
Have studied abroad (1)	31.62	4.79	
<b>Living Accommodations</b>			
On-Campus (0)	30.62	4.54	9.419**
Off-Campus (1)	30.92	4.87	
<b>Age</b>			
19 or younger (1)	30.59	4.40	3.211**
20-23 (2)	31.04	4.93	
24-29 (3)	30.66	4.80	
30-39 (4)	30.32	5.42	
40-44 (5)	28.84	5.97	
Over 45 (6)	27.75	3.62	
<b>Current Class in College</b>			
Freshman (1)	30.65	4.38	3.685**
Sophomore (2)	29.77	4.93	
Junior (3)	31.28	5.08	
Senior (4)	30.95	4.91	
Unclassified (5)	31.15	6.39	
<b>Self-Reported Grades</b>			
C- or lower (1)	28.29	4.39	13.157***
C (2)	29.08	5.27	
C+ (3)	28.36	4.39	
B- (4)	30.14	5.02	
B (5)	30.33	4.69	
B+ (6)	30.90	4.64	
A- (7)	31.16	4.59	
A (8)	31.34	4.60	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

The Analysis of Variance results in Table 7 highlight, which variables show a significant difference in the level of academic challenge means. For the measure of level of academic challenge, 10 variables did not have a significant difference in the means of the groupings. That means, for the variables sex, race, international status, Greek affiliation, athletic status, enrollment status, mother's education level, father's education level, foreign language coursework, and study abroad status, respondents in the groupings did not experience academic challenge in statistically different ways. For example, men and women experienced how much effort they put into their academic work the same way.

Transfer status, living accommodations, age, class designation, and self-reported grade point average did have statistically significant results with regard to the level of academic challenge. Transfer status and grade point average were significant at the  $p < .001$  level. The respondents who enroll at the same institution had a mean of 30.79 while those who transferred institutions during their postsecondary education had a mean of 30.71. The data shows that students who enroll continuously at the same institution tend to spend more time on and put more effort into their academics than those students who transfer between institutions. In addition, the higher the self-reported grade point average, the higher the score on level of academic challenge scale in general. The literature supports the finding that grade point average is significantly related to how much effort a student is putting forth in their academic coursework (Hurtado, 2002).

Living accommodations, age and class status, were significant at the  $p < .01$  level. Respondents who lived on campus had a mean score of 30.62 while those respondents

who lived off campus had a mean score of 30.92. That result may reflect the time students who live off campus spend commuting to campus. For those students who reside on campus, it may be easier to find time to spend working on academic-oriented work or get together with others to study or work on academic projects.

For age, a pattern emerged. Starting in the categorical age range of 20-23, the mean of level of academic challenge hits a high value of 31.04 and then with each increase in age range the mean decreases. From the age range of 19 or younger to 20-23 there is an increase in means from 30.59 to 31.04. The pattern may coincide with the developmental life cycle. As students get older they may have more responsibilities other than attending college.

The results for the class variable show that the mean of level of academic challenge starts high for freshman (30.65), lowers for the sophomore year (29.77), higher in the junior year (to an overall high of 31.28) and then lower again among seniors (30.95). Interestingly, this pattern appears to be similar to undergraduate retention data (Maldonado, Rhoads & Buenavista, 2005). Generally, student development professionals note that university resources are concentrated in the freshmen and senior years, but it is increasingly clear that the sophomore year is important for student retention. These data support that a strong sophomore program might enhance student academic efforts.

The analysis of variance results were very different for openness to diversity. Table 8 shows that only three background or demographic variables were related to the openness to diversity measure – sex, Greek-affiliation, and grade point average. This result is important for later regression analysis because the data allow for an

interpretation that in general a respondent's openness to diversity is not highly correlated to any of the background or demographic variables. The regression will indicate how level of academic challenge and student engagement activities are related to a respondent's openness to diversity without substantial interference from confounding variables.

The differences in means between males and females with regard to their openness to diversity scores was significant at the  $p < .05$  level. That result means that men and women experience interacting with diversity in significantly different ways. The mean for male respondents was 18.97 while the mean for female respondents was 19.40. Women, in this sample, were more open to interacting with people different from themselves.

In addition, the difference in means between students in fraternities and sororities and student who do not participate in those organizations was significant at the  $p < .05$  level as well. The mean for Greek students was 19.217 while for non-Greek students it was 19.215, so in this sample students who were members of fraternities or sororities were more open to interacting with people different from themselves.

As in the case of level of academic challenge, the grade point average factor showed a positive relationship, that is, an increase in higher grade point averages are associated with higher scores on the openness to diversity scale. The relationship was significant at the  $p < .001$  level. Students who had a grade point average of C- or lower had a mean of 17.88 and students who had an A average had a mean of 19.28. Respondents

who got better grades were also more open to people different from themselves but their mean scores were not close to the highest score on the scale of 28.

**Table 8: Analysis of Variance for Openness to Diversity Scale for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	18.97	4.33	5.154*
Female (1)	19.40	4.08	
<b>Race</b>			
Caucasian (0)	19.07	4.17	1.470
Students of Color (1)	19.68	4.24	
<b>International Status</b>			
Domestic Student (0)	19.21	4.20	.733
International Student (1)	19.37	4.01	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	19.22	4.17	3.919*
Greek-Affiliated (1)	19.22	4.36	
<b>Student-Athlete</b>			
Not student-athlete (0)	19.21	4.20	.850
Student-Athlete (1)	19.40	4.02	
<b>Enrollment Status</b>			
Full-time (0)	18.52	3.98	1.181
Less than Full-time (1)	19.26	4.20	
<b>Transfer Status</b>			
Started college at this institution (0)	19.28	4.17	.503
Stated college at a different institution (1)	18.92	4.30	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	18.97	4.21	.058
Completed at least one college degree (1)	19.40	4.17	
<b>Father's Education Level</b>			
Did not graduate from college (0)	19.05	4.24	.04
Completed at least one college degree (1)	19.33	4.15	

**Table 8 (con't): Analysis of Variance for Openness to Diversity Scale for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	18.48	4.14	.01
Taken coursework (1)	20.00	4.10	
<b>Study Abroad</b>			
Have not studied abroad (0)	19.05	4.20	1.298
Have studied abroad (1)	20.07	4.08	
<b>Living Accommodations</b>			
On-Campus (0)	19.16	4.18	.008
Off-Campus (1)	19.23	4.20	
<b>Age</b>			
19 or younger (1)	19.12	4.18	.647
20-23 (2)	19.33	4.17	
24-29 (3)	19.08	4.32	
30-39 (4)	19.14	4.39	
40-44 (5)	19.22	4.57	
Over 45 (6)	18.14	3.53	
<b>Current Class in College</b>			
Freshman (1)	19.12	4.17	1.274
Sophomore (2)	18.89	4.18	
Junior (3)	19.10	4.38	
Senior (4)	19.33	4.18	
Unclassified (5)	19.94	4.93	
<b>Self-Reported Grades</b>			
C- or lower (1)	17.88	5.02	8.109***
C (2)	17.00	4.78	
C+ (3)	18.36	4.17	
B- (4)	18.42	4.05	
B (5)	19.02	4.16	
B+ (6)	19.41	4.10	
A- (7)	19.64	4.14	
A (8)	19.28	4.23	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

In chapter three, it was noted why a scale that measured student engagement could not be created. Instead, four variables were selected to represent a specific type of student engagement activity that was community-based. The redefined student engagement variables were chosen to be community-based because previous literature has investigated relationships between diversity attitudes and co-curricular activities which may or may not take place on an institutional campus. The present study expands the concept to specifically include community-based student engagement activities and attitudes to investigate if off-campus activities may be unique in their contributions towards openness to diversity attitudes when experienced by undergraduate students. The four variables utilized for the purposes of this study were volunteering, participating in a community-based for an academic course, voting in elections, and contributing to the improving the welfare of your community.

Overall, student engagement activities that were located in the community vary greatly in terms of the analysis of variance results. The volunteer experience data showed the most statistically significant results. Every background and demographic variable, except father's education level, showed a difference in mean with regards to volunteer experiences. The variables with the highest means were sex, foreign language coursework, student-athlete status, study abroad and Greek-Affiliation; therefore women (3.42), students who studied a second language (3.43), student-athletes (3.51), students who spent time outside the U.S. (3.57) and members of a fraternity or sorority (3.65) participated more in volunteer experiences than other types of students.

The other three variables, class community project, voting participation, and contributing to the welfare of the community showed greater differences in their means. For the class community project, the analysis of variance results showed that only sex (3.42) showed a positive and statistically significant mean. Women participated in more course-based community projects than men. Other variables, international status (1.84), study abroad (1.71) and race (1.67), were statistically significant but had differences in means that indicated that international students, students of color and students who studied outside the U.S. rarely if ever participated in course-based community services projects. What is not evident from the data is whether those course-based opportunities were required or optional as part of completing the course requirements and that type of information might be helpful in trying to interpret mean differences between groups.

The third student engagement activity variable was voting participation. This variable was included because as stated earlier the original purpose of American colleges and universities was to educate citizens to perpetuate the democracy. The analysis of variance results showed significant mean differences in voting participation occurred for those students who were members of a fraternity or sorority (2.79) and collegiate-sponsored athletic teams (2.87). Also, significant mean differences in voting participation occurred according for students living on-campus (2.78) and age 19 or younger (2.79).

**Table 9: Analysis of Variance for Volunteer Experience for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	3.08	1.04	106.098****
Female (1)	3.42	.85	
<b>Race</b>			
Caucasian (0)	3.26	.96	5.290*
Students of Color (1)	3.29	.92	
<b>International Status</b>			
Domestic Student (0)	3.28	.95	4.675*
International Student (1)	3.07	.96	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	3.21	.97	138.953****
Greek-Affiliated (1)	3.65	.68	
<b>Student-Athlete</b>			
Not student-athlete (0)	3.26	.96	10.797****
Student-Athlete (1)	3.51	.80	
<b>Enrollment Status</b>			
Full-time (0)	3.17	1.00	6.764**
Less than Full-time (1)	3.28	.95	
<b>Transfer Status</b>			
Started college at this institution (0)	3.29	.93	36.416****
Stated college at a different institution (1)	3.14	1.04	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	3.21	.98	6.632**
Completed at least one college degree (1)	3.32	.93	
<b>Father's Education Level</b>			
Did not graduate from college (0)	3.21	.97	2.732
Completed at least one college degree (1)	3.31	.94	

**Table 9 (con't): Analysis of Variance for Volunteer Experience for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	3.12	1.00	22.981***
Taken coursework (1)	3.43	.88	
<b>Study Abroad</b>			
Have not studied abroad (0)	3.21	.96	41.774***
Have studied abroad (1)	3.57	.84	
<b>Living Accommodations</b>			
On-Campus (0)	3.23	.91	85.487***
Off-Campus (1)	3.31	1.00	
<b>Age</b>			
19 or younger (1)	3.16	.91	25.991***
20-23 (2)	3.43	.96	
24-29 (3)	2.98	1.05	
30-39 (4)	2.88	1.10	
40-44 (5)	3.28	.95	
Over 45 (6)	2.63	1.50	
<b>Current Class in College</b>			
Freshman (1)	3.16	.90	16.084***
Sophomore (2)	3.12	.94	
Junior (3)	3.32	.98	
Senior (4)	3.38	.99	
Unclassified (5)	3.10	1.05	
<b>Self-Reported Grades</b>			
C- or lower (1)	2.75	1.18	10.805***
C (2)	3.01	1.01	
C+ (3)	3.07	1.04	
B- (4)	3.01	1.10	
B (5)	3.18	.99	
B+ (6)	3.26	.96	
A- (7)	3.39	.89	
A (8)	3.35	.89	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

**Table 10: Analysis of Variance for Class Community Projects for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	3.08	.80	23.071***
Female (1)	3.42	.86	
<b>Race</b>			
Caucasian (0)	1.51	.80	43.915***
Students of Color (1)	1.67	.90	
<b>International Status</b>			
Domestic Student (0)	1.53	.82	6.308*
International Student (1)	1.84	.90	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	1.53	.82	8.025**
Greek-Affiliated (1)	1.66	.89	
<b>Student-Athlete</b>			
Not student-athlete (0)	1.54	.83	.330
Student-Athlete (1)	1.62	.84	
<b>Enrollment Status</b>			
Full-time (0)	1.56	.86	1.760
Less than Full-time (1)	1.54	.83	
<b>Transfer Status</b>			
Started college at this institution (0)	1.54	.82	2.002
Stated college at a different institution (1)	1.57	.85	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	1.56	.83	.480
Completed at least one college degree (1)	1.53	.83	
<b>Father's Education Level</b>			
Did not graduate from college (0)	1.59	.84	10.435**
Completed at least one college degree (1)	1.51	.82	

**Table 10 (con't): Analysis of Variance for Class Community Projects for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	1.52	.78	25.002***
Taken coursework (1)	1.57	.87	
<b>Study Abroad</b>			
Have studied abroad (0)	1.71	.92	42.337***
Have not studied abroad (1)	1.50	.80	
<b>Living Accommodations</b>			
On-Campus (0)	1.51	.80	16.277***
Off-Campus (1)	1.59	.85	
<b>Age</b>			
19 or younger (1)	1.49	.79	5.200***
20-23 (2)	1.60	.85	
24-29 (3)	1.51	.84	
30-39 (4)	1.39	.79	
40-44 (5)	1.58	.85	
Over 45 (6)	1.25	.46	
<b>Current Class in College</b>			
Freshman (1)	1.49	.79	6.491***
Sophomore (2)	1.58	.82	
Junior (3)	1.40	.76	
Senior (4)	1.59	.85	
Unclassified (5)	1.78	.94	
<b>Self-Reported Grades</b>			
C- or lower (1)	1.43	.57	1.737
C (2)	1.33	.68	
C+ (3)	1.44	.75	
B- (4)	1.53	.82	
B (5)	1.53	.80	
B+ (6)	1.55	.82	
A- (7)	1.59	.86	
A (8)	1.52	.83	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

**Table 11: Analysis of Variance for Voting Participation for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	2.47	1.06	2.391
Female (1)	2.72	1.05	
<b>Race</b>			
Caucasian (0)	2.65	1.05	23.711***
Students of Color (1)	2.50	1.18	
<b>International Status</b>			
Domestic Student (0)	2.65	1.05	.086
International Student (1)	2.06	1.08	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	2.59	1.07	4.670*
Greek-Affiliated (1)	2.79	1.04	
<b>Student-Athlete</b>			
Not student-athlete (0)	2.61	1.07	8.274**
Student-Athlete (1)	2.87	.98	
<b>Enrollment Status</b>			
Full-time (0)	2.37	1.08	.158
Less than Full-time (1)	2.63	1.06	
<b>Transfer Status</b>			
Started college at this institution (0)	2.69	1.05	.196
Stated college at a different institution (1)	2.24	1.06	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	2.58	1.07	.827
Completed at least one college degree (1)	2.64	1.06	
<b>Father's Education Level</b>			
Did not graduate from college (0)	2.61	1.06	.614
Completed at least one college degree (1)	2.62	1.07	

**Table 11 (con't): Analysis of Variance for Voting Participation for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	2.53	1.06	.079
Taken coursework (1)	2.71	1.07	
<b>Study Abroad</b>			
Have not studied abroad (0)	2.63	1.06	1.681
Have studied abroad (1)	2.55	1.08	
<b>Living Accommodations</b>			
On-Campus	2.78	1.03	19.533***
Off-Campus	2.46	1.07	
<b>Age</b>			
19 or younger (1)	2.79	1.04	34.693***
20-23 (2)	2.53	1.06	
24-29 (3)	2.15	1.08	
30-39 (4)	2.05	1.04	
40-44 (5)	1.94	.98	
Over 45 (6)	1.75	1.04	
<b>Current Class in College</b>			
Freshman (1)	2.79	1.04	26.814***
Sophomore (2)	2.63	1.06	
Junior (3)	2.45	1.10	
Senior (4)	2.47	1.07	
Unclassified (5)	2.29	1.11	
<b>Self-Reported Grades</b>			
C- or lower (1)	2.44	1.25	1.558
C (2)	2.32	1.06	
C+ (3)	2.53	1.10	
B- (4)	2.55	1.05	
B (5)	2.65	1.05	
B+ (6)	2.65	1.06	
A- (7)	2.63	1.06	
A (8)	2.60	1.07	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

Finally, table 12 shows the results for the engagement variable of contributing to the welfare of the community. The data found significant mean differences between groups for the categories of race, age, class, foreign language coursework and grade point average. Respondents of color and students who were 19 years of age or younger had higher mean scores (2.48 and 2.49, respectively), which means that those students were more likely to be concerned about how their experiences contributed to the welfare of the community. However, those variables are predetermined before students arrive at a public research university. The last three categories – class, foreign language coursework and grade point average – are linked to their institutional experiences. Respondents who have taken foreign language coursework and those with good grade point averages have mean scores that indicate more of a sense that their university experiences related a value of concern about the welfare of their community.

Overall, the four measures of student engagement had varying relationships to the background and demographic variables. Those results are not completely unexpected because the four measures are quite different types of activities but with one commonality – developing an educated and engaged citizenry. No background or demographic variable was statistically associated with every measure, but as a group the data begin to provide some understanding of what engagement work assists in the development of the democratic citizenry.

**Table 12: Analysis of Variance for Contribute to the Welfare of the Community for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Sex</b>			
Male (0)	2.33	.96	.565
Female (1)	2.52	.95	
<b>Race</b>			
Caucasian (0)	2.43	.95	6.126*
Students of Color (1)	2.48	.98	
<b>International Status</b>			
Domestic Student (0)	2.43	.96	.097
International Student (1)	2.57	.94	
<b>Fraternity or Sorority Member</b>			
Not Greek-Affiliated (0)	2.41	.95	.766
Greek-Affiliated (1)	2.67	.94	
<b>Student-Athlete</b>			
Not student-athlete (0)	2.44	.96	.102
Student-Athlete (1)	2.59	.95	
<b>Enrollment Status</b>			
Full-time (0)	2.24	.94	2.292
Less than Full-time (1)	2.45	.96	
<b>Transfer Status</b>			
Started college at this institution (0)	2.48	.95	1.406
Stated college at a different institution (1)	2.24	.96	
<b>Mother's Education Level</b>			
Did not graduate from college (0)	2.40	.96	.185
Completed at least one college degree (1)	2.47	.96	
<b>Father's Education Level</b>			
Did not graduate from college (0)	2.43	.94	2.151
Completed at least one college degree (1)	2.45	.96	

**Table 12 (con't): Analysis of Variance for Contribute to the Welfare of the Community for Background and Demographic Variables (n=5,373)**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>	<b>F-Statistic</b>
<b>Foreign Language Coursework</b>			
Have not taken coursework (0)	2.37	.94	8.921**
Taken coursework (1)	2.51	.97	
<b>Study Abroad</b>			
Have not studied abroad (0)	2.42	.95	.160
Have studied abroad (1)	2.56	.96	
<b>Living Accommodations</b>			
On-Campus (0)	2.51	.94	1.605
Off-Campus (1)	2.38	.97	
<b>Age</b>			
19 or younger (1)	2.49	.93	6.933***
20-23 (2)	2.44	.97	
24-29 (3)	2.22	.98	
30-39 (4)	2.13	1.00	
40-44 (5)	2.23	.88	
Over 45 (6)	1.75	.71	
<b>Current Class in College</b>			
Freshman (1)	2.50	.93	4.657***
Sophomore (2)	2.33	.97	
Junior (3)	2.27	.97	
Senior (4)	2.41	.97	
Unclassified (5)	2.41	1.08	
<b>Self-Reported Grades</b>			
C- or lower (1)	2.07	1.00	4.069***
C (2)	2.13	.93	
C+ (3)	2.22	.95	
B- (4)	2.35	.96	
B (5)	2.42	.95	
B+ (6)	2.45	.98	
A- (7)	2.49	.95	
A (8)	2.49	.93	

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

### *Multiple Regression Analyses*

Two regression analyses were performed to answer the research question: In what ways are undergraduate students' level of academic challenge and engagement activities association with their openness to diversity at public research universities? Multiple regression analyses were performed to see how all the variables in the model are associated with the openness to diversity scale, indicating a willingness to engage in diverse experiences. The regressions were done in two blocks. The first block consisted of the 15 background and demographic variables and the second block consisted of the level of academic challenge scale scores and the four student engagement variables. The analyses were performed in blocks so it was possible to understand how the level of academic challenge and student engagement activities affected the openness to diversity variable after controlling for the predictor variables.

Table 13 shows the change in variance accounted for by using the two-block method of regression analysis. For the overall regression analysis, the first block of control variables only accounted for 4.8% of the variance with an  $R=.22$ , while block two, with the level of academic challenge and student engagement variables, analysis accounted for 30.7% of the variance and the model had an  $R=.55$

**Table 13: Modeling of Block Differences for Entire Sample Regression Analysis  
(n=5,373)**

<b>Block</b>	<b>R</b>	<b>R-Squared</b>	<b>R-Squared Change</b>
1	.219	.048	--
2	.554	.307	+.259

Table 14 results show that both the amount of effort that undergraduate students put into their academic coursework and their engagement in community-based activities are important to their development of an openness to diversity attitude. The coefficients for level of academic challenge, participation in a course community-based project, voting participation, and wanting to improve the welfare of your community were all positive and statistically significant at the  $p < .001$  level. The remaining student engagement variable, volunteering, was statistically significant at the  $p < .05$  level.

**Table 14: Standardized Regression of Openness to Diversity Scale for All Variables (n=5,373)**

<b>Variable</b>	<b><math>\beta</math>-coefficient</b>
Age	.055*
Class	-.030
Sex	-.035**
Race	.053***
International Student	-.034*
Fraternity or Sorority Member	-.048***
Student-Athlete	.006
Enrollment	-.004
Transfer	-.014
Self-Reported Grades	.016
Mother's Education	.023
Father's Education	-.006
Living Accommodations	.005
Foreign Language Coursework	-.102***
Study Abroad	-.022
Level of Academic Challenge Score	.304***
Volunteering	.033*
Course Community-Based Project	.064***
Voting in local, state, national elections	.128***
Improving the welfare of your community	.241***

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

While all five variables of interest are statistically significant, level of academic challenge has the strongest association ( $\beta = .304$ ), followed by improving the welfare of the community ( $\beta = .241$ ), voting participation ( $\beta = .128$ ), course-based community project ( $\beta = .064$ ) and finally volunteering ( $\beta = .033$ ). Since the NSSE instrument results are best interpreted within specific campus contexts, I conducted a regression analysis on the University of Minnesota subset. No other institution's data were identified in the overall dataset. Tables 15 and 16 document the same blocking and regression analysis used on the general sample.

For the University of Minnesota sample, the regression analysis first block of control variables only accounted for 5.4% of the variance with an  $R=.23$ , while block two with the level of academic challenge and student engagement variables, accounted for 32.1% of the variance and the model had an  $R=.57$

**Table 15: Modeling of Block Differences for University of Minnesota Sample  
Regression Analysis (n=1,957)**

<b>Block</b>	<b>R</b>	<b>R-Squared</b>	<b>R-Squared Change</b>
1	.233	.054	--
2	.567	.321	+.267

Table 16 results show that both the amount of effort that University of Minnesota undergraduate students put into their academic coursework and their engagement in community-based activities are important to their development of an openness to diversity attitude. The coefficients for level of academic challenge, voting participation, and wanting to improve the welfare of your community were all positive and statistically significant at the  $p < .001$  level. Participation in a course community-based project was significant at the  $p < .01$  level, while the remaining student engagement variable, volunteering, was statistically significant at the  $p < .05$  level.

**Table 16: Standardized Regression on the Openness to Diversity Scale for University of Minnesota Sample (n=1,957)**

<b>Variable</b>	<b><math>\beta</math>-coefficient</b>
Age	.048
Class	-.005
Sex	-.068**
Race	.041
International Student	-.003
Fraternity or Sorority Member	-.026
Student-Athlete	-.008
Enrollment	.001
Transfer	.001
Self-Reported Grades	.025
Mother's Education	-.010
Father's Education	.007
Living Accommodations	-.022
Foreign Language Coursework	-.131***
Study Abroad	-.022
Level of Academic Challenge Score	.322***
Volunteering	.054*
Course Community-Based Project	.060**
Voting in local, state, national elections	.153***
Improving the welfare of your community	.207***

Significance Levels: \*p<.05, \*\*p<.01, \*\*\*p<.001

As in the case of the entire sample, all five variables of interest are significantly important in the development of an openness to diversity attitude for undergraduate students at the University of Minnesota. In addition, the level of academic challenge is the most important single factor with a  $\beta = .322$ .

In addition to the level of academic challenge and community-based engagement activities, both the overall sample and the University of Minnesota sample found some background and demographics variables that were statistically significant in the regression analysis. For the overall sample, age ( $\beta = .055$ ), sex ( $\beta = -.035$ ), race ( $\beta = .053$ ), international status ( $\beta = -.034$ ), Greek-affiliation ( $\beta = -.048$ ), and foreign language coursework ( $\beta = -.102$ ) were significant. However, public research universities can only influence Greek-affiliation and foreign language coursework and the purpose of this study was to study institutional factors and not pre-college characteristics. Both Greek-affiliation and foreign language coursework have a negative relationship with developing an attitude of openness to diversity; therefore, students who affiliate with a fraternity or sorority or engage with the study of a foreign language are less likely to develop an open attitude towards diversity.

In the University of Minnesota subset only two background and demographic variables, sex ( $\beta = -.068$ ) and foreign language coursework ( $\beta = -.131$ ), were significant. Again, public research universities are only in a position to influence curricular, policy and practice decisions related to foreign language coursework.

## CHAPTER 5: IMPLICATIONS

This research study investigated the question, In what ways are undergraduate students' levels of academic challenge and engagement activities associated with their openness to diversity at public research universities? Openness to diversity is one student development outcome that is valued by both academia and public stakeholders in industry, business, and community agencies. Due to a cultural shift in society, higher education has become less well understood and supported by external stakeholders. In addition, workforce demands in the United States have pushed many stakeholders and students to view higher education as a means for job training and only to a lesser extent for contributing to an educated citizenry.

### Implications

The study suggests that public research universities should find ways to assist students in spending more time on their academic coursework and have experiences in the community if students are to become more open towards people different from themselves. Just as institutions have integrated critical thinking and writing across the curriculum at all levels, it may be reasonable to assume that a culture of academic effort may be related to openness to difference in their peers. Level of academic challenge measures how much effort students put into their academic coursework, not the outcome of grades. If students are not receiving the proper tools before entering public research universities to know how to put more time and effort into their academic studies, then

approaches to academic effort may have to be taught by the faculty and other staff members with teaching responsibilities.

Increasing students' experiences with community-based engagement experiences may also contribute to students' being more open to diversity. Institutional policies could be revamped to include requirements about the integration of developmental community-based experience with the hope that openness to diversity might rise as well. Those experiences could be attached to a formal curriculum through their required coursework, or they could be integrated into the co-curricular offerings and led by academic professionals. Again, it would be important to structure the curriculum and any policy on the basis of the best evidence-based practices from the community engagement literature. For example, the community-based experiences should be developmental in nature and recurrent, as opposed to one-time experiences that do not allow for reflection on learning. Ideally, the curriculum and any accompanying policy should require community-based experiences across the timespan of a student's time with the university. Finally, each public research university should analyze its own data to interpret how to customize any institutional curriculum, policy or practice according to the factors that are most relevant to its undergraduate student body.

### Limitations

The limitations of this research study are mainly related to the data. First, the data were de-identified, except the data for the University of Minnesota. Since the National Survey of Student Engagement results are best interpreted within the context of a specific

campus culture, it would have been ideal to have the data connected to the other institutions. Institutional samples would have allowed the study to compare the four institutions and see if there were issues of campus culture that may have contributed to specific institutional results. Also, the answers were self-reported and point-in-time data, which can affect accuracy and not reflect changes that may have occurred across time.

Second, all the sample institutions are located in the upper-Midwest portion of the United States of America. In order to increase the generalizability of the results, utilizing a more inclusive sample of public research universities from across the country would be important. In addition, including other types of institutions would have shown if the results are specific to public research universities or if other types of post-secondary institutions, such as Historically Black Colleges and Universities or private four-year institutions, could expect the same results from their student populations. A broader sample would have allowed for a more complete interpretation of the data for curricular and policy recommendations.

Third, the research study was a secondary analysis of the dataset. I did not distribute the sample or collect the data, but rather received the data from the University of Minnesota Office for Institutional Research. Although human subjects were protected by using the institutional data set in that manner, the process did not allow for the utilization of sampling techniques that could have diversified the sample.

Directions for Future Research

Four major areas for further investigation would be useful to build on the results found in this study. The first major area of future inquiry could focus on better preparing students for college and certain desired learning outcomes. While public research universities are not able to control pre-college characteristics and student experiences, it will be useful to understand what types of students are more likely to engage in curricular and co-curricular activities that will lead to desired institutional educational outcomes. That student information could be used to help shape incoming freshmen and transfer student classes. In that manner, the information about what types of students are more likely to engage in college activities that promote particular student outcomes, such as openness to difference, could also allow for broader partnerships between K-12 schools and public research universities. Better coordination could lead to students' being more likely to graduate from college with the desired learning outcomes.

The second major area of inquiry could utilize mixed methods in a longitudinal framework to investigate if students who score higher on openness to diversity in college continue to score high or if a change takes place. As noted earlier, one purpose for higher education in this country is to perpetuate an educated (Brubacher & Rudy, 1996). The collegiate years can be important in shaping a person's future framework or perspective on how to engage in local or global communities. If public research universities can make sure students have pathways to achieve competence in the desired learning outcomes, such as openness to diversity, it will be important to know those competencies are put into practice beyond the collegiate experience. If so, there may be things to learn

from how particular experiences continue the growth in those competencies or, if not, what causes a person's competency level to stagnate or even regress.

The third major area of investigative inquiry to build on this research could extend the empirical investigation to other articulated learning outcomes. If public research universities are going to identify specific competencies that students' education will provide, then it will be important to build the pathways inside and outside the classroom for students to gain the skill. While students will come into their collegiate education with a wide variety of experiences that may or may not prepare them for specific learning outcomes, public research universities will need to know how to use the resources within their control to shape students' educational experiences to attain mastery of a specific set of learning outcomes. One benefit of this line of inquiry could be that perhaps the same type of experience can contribute to more than one learning outcome. For example, if empirical research found that level of academic challenge contributed not only to an attitude of being more open to diversity but also to another student learning outcome, that is important information for faculty, staff, and administrators to know.

The fourth major area of inquiry could be to better understand the dynamics of academic challenge, community-based student engagement activities, and openness to diversity. Qualitative methodologies would allow researchers to understand better what exactly was happening within undergraduate student experiences that allowed for time spent on academic preparation and community-based engagement experiences that contribute to students' having a more open attitude towards people different from themselves. A quantitative survey can contribute to a better understanding of

correlational relationships, but qualitative research could assist researchers in understanding the complexity amongst those variables and relationships.

In conclusion this research study investigated the ways in which undergraduate students' levels of academic challenge and community-based engagement activities are associated with their openness to diversity at public research universities. The results found that both variables are important for undergraduate students' development of an attitude of being open to people they perceive to be different from themselves, broadly defined. With vital stakeholders such as community members, legislators, state and federal agencies, and students and families holding public research universities accountable for a "return on investment" in higher education, it is necessary that such institutions be able to document how they are contributing to students' educations. It is imperative that public research universities model how to apply the very research conducted within their walls so as to realize the foundational purpose of higher education – educating students for their professional and democratic lives. To do otherwise, public research universities may find themselves at risk of not being able to fulfill their historic mission.

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## APPENDIX A



Michelle Kuhl &lt;witt0160@umn.edu&gt;

**RE: Author Permission**

2 messages

**Kuh, George D.** <kuh@indiana.edu>  
 To: "witt0160@umn.edu" <witt0160@umn.edu>

Mon, Jan 14, 2013 at 6:33 AM

Hi Michelle:

Thanks for your note. It's fine to use the framework, as long as you make the appropriate attributions.

Best wishes. gk

-----Original Message-----

From: witt0160@umn.edu [mailto:witt0160@umn.edu]  
 Sent: Monday, January 14, 2013 12:03 AM  
 To: Kuh, George D.  
 Subject: Author Permission

Dear Dr. Kuh,  
 I am emailing you to request permission to use the Theoretical Framework you put forth in the 2006 report, What Matters to Student Success.

I am using this framework in conjunction with the NSSE to research how undergraduate students develop attitudes that are more open to diversity.

Please contact me if you have any questions or concerns about my use of this theoretical framework.

Thank you for your time.

Sincerely,  
 Michelle Kuhl

**Michelle Kuhl** <witt0160@umn.edu>  
 To: "Kuh, George D." <kuh@indiana.edu>

Mon, Jan 14, 2013 at 8:11 AM

Of course. Thank you Dr. Kuh.

Sincerely,  
 Michelle Kuhl  
 [Quoted text hidden]

--  
 Michelle Wittcoff Kuhl, M.A.  
 Assistant to the Dean  
 College of Education and Human Development  
 612-624-1562

## APPENDIX B



# National Survey of Student Engagement 2009

## The College Student Report

**1** In your experience at your institution during the current school year, about how often have you done each of the following? Mark your answers in the boxes. Examples:  or

	Very often	Often	Some- times	Never		Very often	Often	Some- times	Never
	▼	▼	▼	▼		▼	▼	▼	▼
a. Asked questions in class or contributed to class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	r. Worked harder than you thought you could to meet an instructor's standards or expectations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Made a class presentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Prepared two or more drafts of a paper or assignment before turning it in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Worked on a paper or project that required integrating ideas or information from various sources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	u. Had serious conversations with students of a different race or ethnicity than your own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Come to class without completing readings or assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
g. Worked with other students on projects <b>during class</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
h. Worked with classmates <b>outside of class</b> to prepare class assignments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
i. Put together ideas or concepts from different courses when completing assignments or during class discussions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
j. Tutored or taught other students (paid or voluntary)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
k. Participated in a community-based project (e.g., service learning) as part of a regular course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
l. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
m. Used e-mail to communicate with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
n. Discussed grades or assignments with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
o. Talked about career plans with a faculty member or advisor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
p. Discussed ideas from your readings or classes with faculty members outside of class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
q. Received prompt written or oral feedback from faculty on your academic performance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

**2** During the current school year, how much has your coursework emphasized the following mental activities?

	Very much	Quite a bit	Some	Very little
	▼	▼	▼	▼
a. <b>Memorizing</b> facts, ideas, or methods from your courses and readings so you can repeat them in pretty much the same form	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. <b>Analyzing</b> the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. <b>Synthesizing</b> and organizing ideas, information, or experiences into new, more complex interpretations and relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. <b>Making judgments</b> about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. <b>Applying</b> theories or concepts to practical problems or in new situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**3** During the current *school year*, about how much reading and writing have you done?

- a. Number of assigned textbooks, books, or book-length packs of course readings
- None    1-4    5-10    11-20    More than 20
- b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment
- None    1-4    5-10    11-20    More than 20
- c. Number of written papers or reports of **20 pages or more**
- None    1-4    5-10    11-20    More than 20
- d. Number of written papers or reports **between 5 and 19 pages**
- None    1-4    5-10    11-20    More than 20
- e. Number of written papers or reports of **fewer than 5 pages**
- None    1-4    5-10    11-20    More than 20

**4** In a *typical week*, how many homework problem sets do you complete?

- None   1-2   3-4   5-6   More than 6
- a. Number of problem sets that take you **more** than an hour to complete
- 
- b. Number of problem sets that take you **less** than an hour to complete
- 

**5** Mark the box that best represents the extent to which your examinations during the current school year have challenged you to do your best work.

- Very little   Very much
- 1    2    3    4    5    6    7

**6** During the current school year, about how often have you done each of the following?

- Very often   Often   Some-times   Never
- a. Attended an art exhibit, play, dance, music, theater, or other performance
- 
- b. Exercised or participated in physical fitness activities
- 
- c. Participated in activities to enhance your spirituality (worship, meditation, prayer, etc.)
- 
- d. Examined the strengths and weaknesses of your own views on a topic or issue
- 
- e. Tried to better understand someone else's views by imagining how an issue looks from his or her perspective
- 
- f. Learned something that changed the way you understand an issue or concept
- 

**7** Which of the following have you done or do you plan to do before you graduate from your institution?

- |  | Done                     | Plan to do               | Do not plan to do        | Have not decided         |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Practicum, internship, field experience, co-op experience, or clinical assignment   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Community service or volunteer work   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Participate in a learning community or some other formal program where groups of students take two or more classes together | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Work on a research project with a faculty member outside of course or program requirements                                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Foreign language coursework   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Study abroad  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Independent study or self-designed major  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h. Culminating senior experience (capstone course, senior project or thesis, comprehensive exam, etc.)                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**8** Mark the box that best represents the quality of your relationships with people at your institution.

- a. Relationships with **other students**
- Unfriendly, Unsupportive, Sense of alienation   Friendly, Supportive, Sense of belonging
- 1    2    3    4    5    6    7
- 
- b. Relationships with **faculty members**
- Unavailable, Unhelpful, Unsympathetic   Available, Helpful, Sympathetic
- 1    2    3    4    5    6    7
- 
- c. Relationships with **administrative personnel and offices**
- Unhelpful, Inconsiderate, Rigid   Helpful, Considerate, Flexible
- 1    2    3    4    5    6    7

**9 About how many hours do you spend in a typical 7-day week doing each of the following?**

- a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- b. Working for pay **on campus**
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- c. Working for pay **off campus**
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- d. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- e. Relaxing and socializing (watching TV, partying, etc.)
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- f. Providing care for dependents living with you (parents, children, spouse, etc.)
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week
- g. Commuting to class (driving, walking, etc.)
- 0    1-5    6-10    11-15    16-20    21-25    26-30    More than 30
- Hours per week

**10 To what extent does your institution emphasize each of the following?**

- |  | Very<br>much<br>▼        | Quite<br>a bit<br>▼      | Some<br>▼                | Very<br>little<br>▼      |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Spending significant amounts of time studying and on academic work                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Providing the support you need to help you succeed academically   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Encouraging contact among students from different economic, social, and racial or ethnic backgrounds    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Helping you cope with your non-academic responsibilities (work, family, etc.)                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Providing the support you need to thrive socially   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Attending campus events and activities (special speakers, cultural performances, athletic events, etc.) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Using computers in academic work  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**11 To what extent has your experience at this institution contributed to your knowledge, skills, and personal development in the following areas?**

- |  | Very<br>much<br>▼        | Quite<br>a bit<br>▼      | Some<br>▼                | Very<br>little<br>▼      |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| a. Acquiring a broad general education                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Acquiring job or work-related knowledge and skills          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Writing clearly and effectively                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Speaking clearly and effectively                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Thinking critically and analytically                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Analyzing quantitative problems                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Using computing and information technology                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| h. Working effectively with others                             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i. Voting in local, state, or national elections               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| j. Learning effectively on your own                            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| k. Understanding yourself                                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| l. Understanding people of other racial and ethnic backgrounds | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| m. Solving complex real-world problems                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| n. Developing a personal code of values and ethics             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| o. Contributing to the welfare of your community               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| p. Developing a deepened sense of spirituality                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**12 Overall, how would you evaluate the quality of academic advising you have received at your institution?**

- Excellent
- Good
- Fair
- Poor

**13 How would you evaluate your entire educational experience at this institution?**

- Excellent
- Good
- Fair
- Poor

**14 If you could start over again, would you go to the same institution you are now attending?**

- Definitely yes
- Probably yes
- Probably no
- Definitely no

15 Write in your year of birth:

16 Your sex:  
 Male  Female

17 Are you an international student or foreign national?  
 Yes  No

18 What is your racial or ethnic identification? (Mark only one.)  
 American Indian or other Native American  
 Asian, Asian American, or Pacific Islander  
 Black or African American  
 White (non-Hispanic)  
 Mexican or Mexican American  
 Puerto Rican  
 Other Hispanic or Latino  
 Multiracial  
 Other  
 I prefer not to respond

19 What is your current classification in college?  
 Freshman/first-year  Senior  
 Sophomore  Unclassified  
 Junior

20 Did you begin college at your current institution or elsewhere?  
 Started here  Started elsewhere

21 Since graduating from high school, which of the following types of schools have you attended other than the one you are attending now? (Mark all that apply.)  
 Vocational or technical school  
 Community or junior college  
 4-year college other than this one  
 None  
 Other

22 Thinking about this current academic term, how would you characterize your enrollment?  
 Full-time  Less than full-time

23 Are you a member of a social fraternity or sorority?  
 Yes  No

24 Are you a student-athlete on a team sponsored by your institution's athletics department?  
 Yes  No (Go to question 25.)

On what team(s) are you an athlete (e.g., football, swimming)? Please answer below:

25 What have most of your grades been up to now at this institution?  
 A  B+  C+  
 A-  B  C  
 B-  C- or lower

26 Which of the following best describes where you are living now while attending college?  
 Dormitory or other campus housing (not fraternity/sorority house)  
 Residence (house, apartment, etc.) within walking distance of the institution  
 Residence (house, apartment, etc.) within driving distance of the institution  
 Fraternity or sorority house  
 None of the above

27 What is the highest level of education that your parent(s) completed? (Mark one box per column.)

Father	Mother
<input type="checkbox"/>	<input type="checkbox"/> Did not finish high school
<input type="checkbox"/>	<input type="checkbox"/> Graduated from high school
<input type="checkbox"/>	<input type="checkbox"/> Attended college but did not complete degree
<input type="checkbox"/>	<input type="checkbox"/> Completed an associate's degree (A.A., A.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/> Completed a bachelor's degree (B.A., B.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/> Completed a master's degree (M.A., M.S., etc.)
<input type="checkbox"/>	<input type="checkbox"/> Completed a doctoral degree (Ph.D., J.D., M.D., etc.)

28 Please print your major(s) or your expected major(s).

a. Primary major (Print only one.):

b. If applicable, second major (not minor, concentration, etc.):

**THANKS FOR SHARING YOUR RESPONSES!**

After completing the survey, please put it in the enclosed postage-paid envelope and deposit it in any U.S. Postal Service mailbox. Questions or comments? Contact the National Survey of Student Engagement, Indiana University, 1900 East Tenth Street, Suite 419, Bloomington IN 47406-7512 or nsse@indiana.edu or www.nsse.iub.edu. Copyright © 2008 Indiana University.

## APPENDIX C

No need to tell me you [sic] intended use, feel free to cite it.

Cheers,

Steve--

Stephen R. Porter  
 Associate Professor of Research and Evaluation  
 Department of Educational Leadership and Policy Studies  
 N232-A Lagomarcino Hall, Iowa State University  
 Ames, IA 50011  
 Phone: 515-294-7635  
 Fax: 515-294-7635 (same as voice)  
 Email: [srporter@iastate.edu](mailto:srporter@iastate.edu)  
 Website: <http://srporter.public.iastate.edu>

**From:** Michelle Kuhl [mailto:witt0160@umn.edu]  
**Sent:** Monday, November 16, 2009 1:48 PM  
**To:** srporter@iastate.edu  
**Subject:** Permission

Dear Dr. Porter,

My name is Michelle W. Kuhl, and I am a doctoral candidate at the University of Minnesota. I am writing to you, because your paper *Do College Student Surveys Have Any Validity* is relevant to my dissertation. I am using the NSSE as my survey instrument, and I would like to include some of your work in relation to the limitations and future directions sections of my research proposal. The paper states that I must receive your permission to do so.

I look forward to any questions that you may have about my intended use so that you may give your permission.

Sincerely,

Michelle W. Kuhl, M.A.  
 Assistant To the Associate Vice President for Public Engagement  
 612-624-1562 : [witt0160@umn.edu](mailto:witt0160@umn.edu)

-----

Office of the Senior Vice President for System Academic Administration  
 University of Minnesota Twin Cities  
<http://www.academic.umn.edu/system/>

## APPENDIX D

TO : [mand@umn.edu](mailto:mand@umn.edu), [witt0160@umn.edu](mailto:witt0160@umn.edu),

The IRB: Human Subjects Committee determined that the referenced study is exempt from review under federal guidelines 45 CFR Part 46.101(b) category #4 EXISTING DATA; RECORDS REVIEW; PATHOLOGICAL SPECIMENS.

**Study Number:** 1012E93899

**Principal Investigator:** Michelle Kuhl

**Title(s):**

Rethinking diversity curricula: Understanding the impact of student engagement activities on the relationship between academic diligence and openness to diversity attitudes

This e-mail confirmation is your official University of Minnesota RSPP notification of exemption from full committee review. You will not receive a hard copy or letter. This secure electronic notification between password protected authentications has been deemed by the University of Minnesota to constitute a legal signature.

The study number above is assigned to your research. That number and the title of your study must be used in all communication with the IRB office.

If you requested a waiver of HIPAA Authorization and received this e-mail, the waiver was granted. Please note that under a waiver of the HIPAA Authorization, the HIPAA regulation [164.528] states that the subject has the right to request and receive an accounting of Disclosures of PHI made by the covered entity in the six years prior to the date on which the accounting is requested.

If you are accessing a limited Data Set and received this email, receipt of the Data Use Agreement is acknowledged.

This exemption is valid for five years from the date of this correspondence and will be filed inactive at that time. You will receive a notification prior to inactivation. If this research will extend beyond five years, you must submit a new application to the IRB before the study's expiration date.

Upon receipt of this email, you may begin your research. If you have questions, please call the IRB office at [\(612\) 626-5654](tel:6126265654).

You may go to the View Completed section of eResearch Central at <http://eresearch.umn.edu/> to view further details on your study.

## APPENDIX E



*Office of Institutional Research  
Office of Planning*

272 McNamara Alumni Center  
200 Oak Street SE  
Minneapolis, MN 55455-2009  
612-624-4851  
Fax: 612-624-6057  
<http://www.iu.umn.edu/>

November 25, 2009

To whom it may concern:

I am pleased to write this letter in support of Michelle Kuhl's dissertation research. In coordination with her advisor, Professor Melissa Anderson we have agreed to support Ms. Kuhl work to address questions related to her dissertation research. Our office will provide the necessary data elements to support Ms. Kuhl's research questions. The study will utilize data elements of the University of Minnesota's National Survey of Student Engagement (NSSE), as well as central records, all unit level records will be de-identified.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ronald Huesman'.

Ronald Huesman  
Associate Director