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The Impact of Urbanicity on Student Engagement at
Small, Residential, Liberal Arts Colleges

by

Todd Clark

A DISSERTATION

Presented to the Faculty of
The Graduate College at the University of Nebraska
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Under the Supervision of Professor James Griesen

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The Impact of Urbanicity on Student Engagement at
Small, Residential, Liberal Arts Colleges

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University of Nebraska, 2014

Adviser: James Griesen

This study analyzed the impact of urbanicity on student engagement at small, residential, liberal arts colleges. Data from the National Survey of Student Engagement (NSSE) were analyzed from 29 schools (14 rural and 15 urban) using five scales developed by Pike (2006) and six demographic variables from the NSSE survey. This analysis determined how urbanicity impacts student engagement and which group of students is particularly affected from among the demographics studied. The effects of urbanicity were measured in three ways: aggregate student data, school level data, and within-school data. These analyses showed that urbanicity does significantly impact student engagement, though likely only in a small way. Students at urban liberal arts colleges were found to be more engaged in diversity related activities. Senior-year students at urban colleges spent more time and effort on their academic coursework. First-year student-athletes at urban colleges were more likely to have significant differences in their engagement. The study also found that students at rural colleges spent more time in out-of-class interactions with faculty members. At rural schools, first-year Greek students were more engaged across several measures and first-year, first-generation students were more involved in educationally purposeful activities. The

breadth of the analysis in this study identified many areas for further research as well as provided evidence supporting continued use of urbanicity as a critical institutional variable in research on student engagement. The conclusions from this study impact the policies and practices at small, residential, liberal arts campuses as well as provide depth to a variety of other research studies. Families of prospective college students may also benefit from the knowledge generated in this research. Finally, the data identified multiple areas of interest in terms of the frequency and nature of significant variance in student engagement due to the urbanicity of the schools which are beyond the scope of this study and deserve further research.

Dedication

This dissertation is dedicated to a group of men that I have both made promises to and am inspired by the promise that they have. First, is my late Grandfather, Robert Clark. As a young child, I remember sitting by his bedside when his health was failing. That time was some of the most valuable of my childhood and, in a moment when just the two of us were in the room together, I noted that he was the last Dr. Clark in our family and that there was not any real chance that others in my family were going to pursue a doctorate. It is in that isolated back room that I made a promise, which only he heard, to be the next Dr. Clark in this family and this dissertation is the fulfillment of that promise. I dedicate this dissertation to you Grandad for showing me that something like this was attainable and for the love you always gave to me.

The other men that this is dedicated to is the amazing group of men that are my sons. They mean the absolute world to me and the promise that they possess is a great duty and honor that I cherish daily. Their strength, leadership, citizenship, and amazing talents humble me. This dissertation is one of the greatest tangible examples that I can give to them about fulfilling your life's promises. May they find inspiration from it to fulfill their own life's full potential.

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Chapter One

Introduction

As prospective students and families search for the best college to attend, one of the separating factors in that decision is the location of the college/university (Choy & Ottinger, 1998; Paulsen, 1990; Van De Water, Abrahamson, & Lyons, 2009). Yet, there is scant research on the impact of urbanicity on the college experience (Williams, 2009). Are rural colleges places with strong campus communities or bastions of isolation? Are urban colleges enwrapped in cultural learning or engulfed by the intensity of the urban experience? Expanding the research on the impact of urbanicity may help clarify the distinction between rural and urban colleges and provide more complete information to prospective students and families.

A good place to look for these distinctions is at small residential colleges. Small, residential, liberal arts colleges are a distinctly American institution (Schuman, 2005). They provide an interesting subset of American higher education and serve as a focal point to examine the rural/urban distinction as they may be more likely to be impacted by the environment surrounding them. On large campuses, the impact of the surrounding area may not be as influential due to the culture created around such a large institution (Gumprecht, 2010). A small college, on the other hand, must embrace its local surroundings and build from that context (Schuman, 2005). Whether it is rural farmland or a bustling metropolis, the local environment shapes the institution (Gumprecht, 2010; Schuman, 2005).

One way to examine the rural/urban distinction is through student engagement. Student engagement has received a great deal of public attention in recent years as a method to assess a college or university learning environment (Axelson & Flick, 2010; Carini, Kuh, & Klein, 2006; Coddington, DeBarros, & Palmer, 2007; Finn & Zimmer, 2012; Kahu, 2013). The National Survey of Student Engagement (NSSE) has been the best assessment tool used in higher education to measure student engagement's impact on student learning on college campuses (NSSE, 2013a). This quantitative study utilized NSSE data to answer important questions surrounding the impact of urbanicity on the college student experience. Are students more engaged in their learning if they are living in a dynamic city environment that is full of cultural activities and opportunities? Or does the relative peace of a rural environment allow students to connect on a deeper level with the college environment due to fewer distractions? This study was able to analyze urbanicity at a deeper level than was previously seen in the research on student engagement while also offering insights about future areas for research.

Research Problem

As colleges and universities strive for distinction, small liberal arts schools battle to stand out and, at times, survive (Blumenstyk, 2008; Hebel, 2006; Van Der Werf, 2006; Wootten, 2009). Prospective students often limit their college selections based on major demographic differences such as enrollment, size, and institution location (Paulsen, 1990). At the same time, student engagement has become an accepted measure to compare institutions and their impact on students (Association of Public and Land-Grant Universities, 2010; U.S. Department of Education, 2006). Looking at how similar

institutions based in very different localities engage students can provide clarity in describing the student experience at small, residential, liberal arts campuses. There may also be specific sub-groups of students that are best served in either a rural location or an urban location.

Research Purpose

The purpose of this research was to determine: (a) if student engagement at small, residential, liberal arts colleges is affected by a school's urbanicity, and (b) if there are student demographic groups whose engagement levels vary significantly based on the urbanicity of the school.

Research Questions

The following research questions were addressed in this study:

1. Does the location (rural/urban) of a small, residential, liberal arts college have a significant impact on first-year student engagement?
2. Does the location (rural/urban) of a small, residential, liberal arts college have a significant impact on senior-year student engagement?
3. Are there first-year student demographic groups whose engagement level is significantly affected by the urbanicity of a small, residential, liberal arts college?
4. Are there senior-year student demographic groups whose engagement level is significantly affected by the urbanicity of a small, residential, liberal arts college?

Methods

Structure. The population for this study was small, residential, liberal arts colleges in the United States. The sample taken from this population was all rural and urban small, residential, liberal arts colleges as defined by the Carnegie Classifications of Institutions of Higher Education and the National Center for Educational Statistics (NCES) through the Integrated Postsecondary Education Data System (IPEDS) data center. The following Carnegie Classifications were selected to produce the sample used in this study:

- Basic classification – Baccalaureate Colleges – Arts & Sciences
- Undergraduate Instructional Program – Arts & Sciences focus, no graduate coexistence OR Arts & Sciences focus, some graduate coexistence OR Arts & Sciences plus professions, no graduate coexistence, OR Arts & Sciences plus professions, some graduate coexistence
- Enrollment Profile – Exclusively undergraduate OR Very high undergraduate
- Undergraduate Profile – Full-time four-year, selective, lower transfer-in OR Full-time four-year, more selective, lower transfer-in
- Size and Setting – Very small four-year, highly residential OR Small four-year, highly residential
- Region/Locale – Large city OR Mid-size city OR Small City for Urban colleges AND Rural-remote OR Rural-distant OR Rural-fringe OR Town-remote OR Town-distant for Rural colleges

After determining the list of eligible schools from the Carnegie Classification System, the list was narrowed to include only the institutions that completed either the 2009 or 2010 administration of the NSSE survey. Then, each school's Core Based Statistical Area (CBSA) from the U.S. Census was reviewed. Any urban school with under 50,000 population in its CBSA was eliminated and any rural institution with over 20,000 population in its CBSA was eliminated. Finally, four additional institutions were removed from the study after being determined to be outliers, one due to institutional profile and three others due to institutional mission and history. The total sample size after all conditions were met included 14 rural colleges and 15 urban colleges.

Survey instrument. The NSSE survey is designed to “assess the extent to which students are engaged in empirically-derived effective educational practices and what they gain from their college experience” (NSSE, 2010). The NSSE survey reported “student behaviors that are highly correlated with many desirable learning and personal development outcomes of college education” (NSSE, 2010). This survey is comprised of 85 survey items of which 42 items are used to calculate the five benchmarks that are reported through the NSSE survey. These five benchmarks are: (a) Level of Academic Challenge, (b) Active and Collaborative Learning, (c) Student-Faculty Interaction, (d) Enriching Educational Experiences, and (e) Supportive Campus Environment. From these commonly accepted benchmarks, Pike (2006) developed more-reliable scalets that can be used to focus research on specific aspects of student engagement. These scalets were endorsed by the Associate Director of the NSSE Institute at the Indiana University Center for Postsecondary Research for this study (J. Kinzie, personal communication,

November 6, 2013). The literature review of studies using urbanicity as a variable helped identify five scalets that were selected for analysis in this study. They include: Course Challenge, Diversity, Out-of-Class Interaction, Support for Student Success, and Varied Experiences,. A full list of the survey questions contained within each scalet is provided in Appendix A. The NSSE survey also asked 14 demographic questions of which 6 were included in this study: race, sex, Greek affiliation, athletic participation, first generation status, and academic performance. These six factors were added with urbanicity to comprise the seven independent variables included in this study. The NSSE survey is administered to first-year and senior-year students during the latter part of the spring semester of the academic year.

Data analysis. Within each of the five scalets, the first-year and senior-year student data were analyzed across rural vs. urban locations on three levels: aggregate student data, school level data, and within-school data. The study first utilized independent sample t-tests to analyze aggregate student data by reviewing student responses for rural and urban students for significant mean differences. Then, multiple regression was used to determine which independent variables (for example: African American students) were significantly more or less engaged in the aspects of the collegiate experience that are assessed by the scalets used in this study. Effect size data was reported for all significant differences.

Student data for each school were then used to calculate scalet scores for all colleges using methods derived from the NSSE survey. The mean and standard deviation for all rural schools were then compared with similar data for urban colleges. The

resulting difference between means was then tested for significance using independent sample t-tests.

At the within-school level of analysis, demographic factors were analyzed using a two-step hierarchical linear regression model. The two steps utilized were school level and student level data. These regressions were performed on first-year and senior-year student data for all students at each school. Significant differences were noted and effect sizes were calculated and reported. A frequency table which counted the number of significant demographic coefficients was then generated to identify which demographic groups were engaged at a noticeably higher or lower level at rural or urban institutions.

Definitions

Small college – Schools granting bachelor degrees with less than 3,000 students (Carnegie Foundation for the Advancement of Teaching, 2014).

Residential college – At least 50% of students live in on-campus housing (Carnegie Foundation for the Advancement of Teaching, 2014).

Liberal arts college – At least 60% of bachelor degree majors are in the arts and sciences and graduate degrees are awarded in less than half of the undergraduate majors (Carnegie Foundation for the Advancement of Teaching, 2014).

Urbanicity – The degree to which a geographical unit is urban (Martin, 2004).

Rural college – A college located in an incorporated place or Census-designated place with a population less than 20,000 or located in any territory designated as rural by the Census Bureau (U.S. Census Bureau, 2012).

Urban college – a college located in an Urbanized Area with a total population of at least 50,000 in that area (U.S. Census Bureau, 2012).

Student engagement – Time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities (Kuh, 2009a).

Delimitations

This study has been restricted to small, residential, liberal arts colleges in order to provide a clear picture of the rural vs. urban impact as well as provide a targeted audience for the research. Another reason for this restriction is the author's experience at this type of institution. Other institutional types could be included in this study, but doing so may infuse more conflicting variables and make the study less valid.

The study is also limited by the institutions that have participated in the NSSE survey. Other colleges fit the institutional criteria, but have not participated in the NSSE study during the 2009 or 2010 administrations of the NSSE survey and as such, are not included.

Limitations

This study is limited by the scope of the institutions being reviewed. It is uncertain, for example, that the results could be extrapolated to larger institutions. In addition, the liberal arts colleges which met this study's selection criteria are not representative of the most elite liberal arts colleges due in large part to those elite colleges not participating in the NSSE study during 2009 or 2010. Every effort was made to identify relevant factors that impact student engagement. However, differences may

remain which significantly impact student engagement and confound the findings related to urbanicity.

Another limitation to this survey may arise from the inability to control for factors related to student self-selection of colleges. This study makes an assumption that, for example, the backgrounds of female students at rural institutions are similar to those at urban institutions when that in fact may not be the case. Gonyea, Kuh, Kinzie, Cruce, and Nelson Laird (2010), in a study about how student engagement is unique at liberal arts colleges, described how students at liberal arts colleges expected to be more involved in activities that lead to student engagement. This finding is a great example of how this study is limited. This study does not have data which can measure student expectations for engagement and compare those expectations with other institutional types. As such, the conclusions of this study which focus on specific demographic groups may only be relatable to similar demographic groups in this specific institutional type (small, residential, selective, liberal arts colleges).

An additional limitation is related to the anonymity of the data that is received from the Indiana Center for Post-Secondary Research. Without knowing which data set is from which college, the study is unable to account for impacts such as regional differences or institutional programmatic initiatives that may have an impact on student engagement. This anonymity also inhibits the researcher's ability to determine if the sample size of students completing the NSSE survey is representative of the school population that the sample was taken from. Another methodological limitation is the inability to calculate scalet scores that are weighted by demographic factors to better

represent the individual college population that it is taken from as is commonly performed on the NSSE data. The study is also limited to analyzing only the demographic groupings that are identified in the NSSE survey due to the inability to connect the NSSE data to institutional demographic information. Finally, the study is limited by receiving only a 75% random sample (minimum of 43 cases) of all first-year and senior-year student responses from each institution in the study.

Significance

This study is significant for a number of reasons that impact a variety of audiences. A primary significant difference for this study is the focus on urbanicity as a major variable. A school's location is often an integral part of the overall student experience (Schuman, 2005). While urbanicity has shown to be significant in other educational contexts such as K-12 education and community colleges (Castanada, 2002; Isaac & Boyer, 2007; Klopfenstein, 2004; Kools, 2010; Palardy, 2008; Rumberger & Thomas, 2000; Snyder, 2004; Umbach & Wawrzynski, 2005), it has not been widely studied in four-year institutions or, more specifically, liberal arts colleges. This study represents one of the most in-depth analysis of the impact of urbanicity and that alone makes it distinctive.

The study is also designed to provide knowledge and guidance for college and university educators, which includes faculty and staff such as college leaders, administrators, part and full-time faculty, and student development professionals at small, residential, liberal arts colleges. Faculty and staff at these institutions often have many responsibilities and in-depth research, like that performed in this study, is often

unrealistic to consider. The focus on rural and urban liberal arts colleges is also fairly distinctive in the literature and will attract genuine interest from educators at those institutional types. The study will provide faculty and staff with demographic populations that may need greater support and resources. In addition, the results will help identify targeted student populations to recruit and enroll who may be more likely to succeed and graduate at a rural or urban liberal arts college. Faculty and staff at these institutions will be able to provide a more accurate description based in researched conclusions of the distinctive features of their type of institution. This will allow those faculty and staff members to further discuss items such as out-of-class faculty interaction and diversity on campus. This knowledge would be in addition to that faculty or staff member's personal experience and thus bring a depth of knowledge and intentionality that will enhance the effectiveness of that faculty or staff member in recruiting, advising, teaching, counseling, challenging, and supporting the students they serve.

The college admissions process is another area where this study can be particularly significant. Parents and potential students can use the findings from this study to be able to ask more detailed and targeted questions regarding student success initiatives, such as academic support, study abroad programs, and faculty-student research projects, at the schools that they are considering. The conclusions of this study will help prospective students make a more educated college choice. Similarly, this study will help enrollment management professionals and athletic coaches involved in recruiting students to target specific populations who are more likely to be engaged at the institution that they work at. Again, the unique nature of a study focused on rural and

urban small, liberal arts colleges will make the conclusions resonate with the professionals who serve at those types of institutions.

Within the literature on higher education, this study will add depth to the research on student engagement, the NSSE study, liberal arts colleges, small colleges, and rural/urban institutions. In particular, the use of Pike's scalets (2006) allows this study to provide focused conclusions on student engagement which may inspire future studies on specific areas of student engagement. The broad quantitative analysis utilized in this study allows specific areas of engagement to be easily highlighted for further study and analysis. This further research may benefit from alternate research methods that would be better suited for in-depth analysis of any of the five scalets used in this study.

Overall, this study is designed to analyze a relatively unresearched variable which impacts student engagement within a specific institutional population. The potential of focused research on urbanicity is exciting and, when coupled with a narrowed institutional type, the study will have a great deal of relevance to many of the communities identified here. If further research directions evolve from this research and new knowledge on the impact of urbanicity on student engagement is created, the significance of this study would only be further enhanced.

Chapter Two

Review of Literature

Introduction

The purpose of this research was to determine: (a) if student engagement at small, residential, liberal arts colleges is affected by a school's urbanicity, and (b) if there are student demographic groups whose engagement levels vary significantly based on the urbanicity of the school. This review of literature will examine the underpinnings of student engagement as a theoretical concept and the research applications of student engagement within the higher education literature. Particular focus and attention is paid to the National Survey of Student Engagement (NSSE), its history, structure, and applications. The review will also explore the unique context for this study, small, residential, liberal arts colleges. The history, culture, and student learning differences identified in the research about these institutions will be discussed. A summary overview of relevant student demographic research is also included in order to support this study's analysis of student engagement variance across demographic groups at rural and urban institutions. Finally, the central variable for this study, urbanicity, will be examined through research from a variety of contexts to show its relevance and potential for significant impact on student engagement.

Student Engagement

Student engagement serves as the core concept for this study and has, in recent years, become one of the most influential concepts in higher education research. The roots of student engagement began with Astin's theory of student involvement (1984,

1999) and the idea of “quality of effort” supported by Pascarella (1985) and Pace (1980). These foundational theoretical concepts continued through the years to support a wide range of research on the importance of student involvement in educationally purposeful activities (Astin, 1993; Berger & Milem, 1999; Chickering & Gamson, 1987; Kuh, 1995; Kuh, Kinzie, Schuh, & Whitt, 2005; Pace, 1995; Pascarella & Terenzini, 1991, 2005). Taken together, this literature provided a strong foundation that supported the concept that the amount of time and effort a student puts forth in educationally purposeful activities (amount of study time, research with faculty member, dialogue with someone of a different religious background, etc.) is strongly linked to positive educational outcomes (greater persistence, better grades, increased subject mastery, etc.) (Pace, 1990). It is this time and effort that is the core of the definition of student engagement.

The most widely accepted definition of student engagement in the literature is from Kuh (2009a) “Student engagement represents the time and effort students devote to activities that are empirically linked to desired outcomes of college *and* what institutions do to induce students to participate in these activities” (p. 683). This definition not only supported the historical literature on student engagement that emphasizes time and effort, but it also expanded the definition to include the critical role that colleges and universities have in supporting and encouraging student engagement on their campus. An example of policies inducing student engagement would include a campus policy that requires students to live in on-campus residence halls as research has supported the learning gains that result from on-campus living vs. off-campus living (Chickering, 1975; Terenzini, Pascarella & Blimling, 1996). Similarly, students who are more active in class

discussions, are prepared for class, or are involved in tutoring or teaching other students have been shown to be more successful academically and have improved critical thinking (Pascarella & Terenzini, 2005). The idea that student engagement is able to be influenced by institutional practices as well as student and institutional environment variables is a critical concept supporting the current study.

Relevance. The importance and relevance of student engagement as a higher education research topic is evidenced and attested to by a number of authors. In 2006, Carini et al. authored an article on the linkages between student engagement and student learning in which they attested that “student engagement is generally considered to be among the better predictor of learning and personal development” (p. 2). Their research concluded that student engagement is positively linked to critical thinking and grades. Kuh (2009a) stated in his summary article on the important knowledge bases that student affairs practitioners need to understand about student engagement that “virtually every reform report since *Involvement in Learning* emphasized to varying degrees the important link between student engagement and desired outcomes in college” (p. 684). Trowler and Trowler (2010) agreed when they wrote in their evidence summary on student engagement that “the value of student engagement is no longer questioned” (p. 9). Kahu (2013) framed student engagement in higher education when she wrote in her introduction “Student engagement is a current buzzword in higher education, increasingly researched, theorized and debated with growing evidence of its critical role in achievement and learning” (p.1). Axelson and Flick (2010) stated that “the level of student engagement at a particular college or university is increasingly seen as a valid

indicator of institutional excellence” (p. 38). Most recently, Finn and Zimmer (2012) outlined four specific reasons why engagement matters. First, it is easily understood as essential to learning. Second, behaviors (active participation in class, cognitive involvement in learning, extra-curricular activities) can be seen in parallel forms over the course of a student’s education. Third, remaining engaged, persistence, is itself an important outcome of schooling. Finally, engagement behaviors are influenced by teacher/school practices and can be adjusted.

It is clear from the sources outlined in this section that student engagement is a broadly researched concept that has achieved wide acclaim and acceptance as a valid measure of successful student outcomes. Student engagement has become one of the most respected and recognized concepts in higher education research today.

Educational impact. Beyond the relevance and importance of student engagement in higher education research and policy, it is important to understand the research that has identified the various impacts and effects of student engagement on positive educational outcomes. A large body of research has historically supported the premise that student engagement is positively related to measures of gains in critical thinking, grades, persistence, and general student abilities (Gellin, 2003; Kuh & Vesper, 1997; Pascarella, Duby, Terenzini, & Iverson, 1983; Pascarella et al., 1996; Pike, 1999, 2000; Pike & Killian, 2001; Pike, Kuh, & Gonyea, 2003; Terenzini et al., 1996). Pike and Kuh (2005a) authored an article which described a typology of institutions based on their relative strengths and weaknesses with student engagement. In this article, the authors discussed the researched conclusions that support this typology. Namely, that

institutional practices and policies have a strong impact on student engagement while pre-college student characteristics only account for 1-5% of the variance found in student engagement (Pike, 1999, 2000; Pike & Killian, 2001; Pike & Kuh, 2005a; Pike et al., 2003). Pike and Kuh also discussed the impact of institutional characteristics such as institutional investments and policy decisions and found that “it is both possible and probable that other institutional characteristics are shaping engagement in addition to the gross measures of mission that Carnegie purports to emphasize” (2005a, p. 203). The conclusions from these two studies support the structure of this study which analyzed an institutional variable, urbanicity, and provided recommendations that may impact institutional practices and policies.

In 2008, Kuh, Cruce, Shoup, Kinzie, and Gonyea found small influences in first-year student grades and persistence due to levels of student engagement. Hu (2011) expanded on that research and found that the relationship between student engagement and college persistence was not linear. In Hu’s study, it was concluded that social engagement was a better predictor of student persistence than academic engagement. Furthermore, it was noted that students with high academic engagement actually persisted at a lower rate than those with middle academic engagement. This non-linear relationship challenges some of the assumptions that supported measures of student engagement. This study is a clear example of where student engagement research can impact educational practices by informing student development professionals and academic administrators on the relative importance of social engagement vs. academic engagement.

In 2012, Hu and McCormick developed a typology of students based upon their engagement levels. This article presented a new application of student engagement research and the authors concluded that the results “suggest the diagnostic potential of an engagement-based typology to identify students at risk” (p. 751). In the study, the authors found distinctive patterns of engagement that differentiated seven student groups. These patterns “correspond to different patterns of learning and development in the first year of college, and different rates of persistence to the second year” (p. 751). This research provided another example of how analyzing student engagement can potentially have practical impacts on the institutional practices and policies that support student learning and persistence. An example of that impact would be using pre-college student data and early assessments from Orientation to place students in one of these seven groups and then provide targeted interventions that support the student’s specific patterns of learning and development in an effort to increase their learning and persistence.

NSSE history. There is a large and growing body of research which is analyzing the lessons that can be learned from research on student engagement. Almost all of that research is utilizing the National Survey of Student Engagement (NSSE) as a primary data source. As such, it is important to understand the history and relevancy of this survey instrument. The NSSE survey was conceived in 1998 and began with a pilot study across 75 institutions and grew to 275 colleges and universities when it was launched in the spring of 2000 (NSSE, 2001). The purpose of the study is to “query undergraduates directly about their educational experiences” and the survey is designed to ask questions that are grounded in established literature. This literature identified

experiences, such as writing long papers, research with faculty, or experiences with diverse individuals that are empirically connected to increases in student growth and learning. The NSSE survey results are grouped into five benchmarks: Academic Challenge, Enriching Educational Experiences, Faculty-Student Engagement, Active and Collaborative Learning, and Supportive Campus Environment. These benchmarks are reported widely in the media and in the higher education research literature and serve as a foundational data source for this study. To date, 1,554 institutions have administered the NSEE survey (NSSE, 2013c).

The value and impact of the NSSE survey was supported by Kuh (2009a) in his article which summarized critical concepts related to student engagement. In this article, he supported the foundational benefit of student engagement when he stated that “the effects of engagement are generally in the same positive direction for all students” (p. 688). Pascarella, Seifert, and Blaich (2008) supported this position when they found that, net of student background characteristics, institutional type, and other college experiences, “institutions using the NSSE can have reasonable confidence that the benchmark scores do, in fact, measure exposure to experiences that predict student progress on important educational outcomes” (p. 12). Kuh (2009a) also pointed to other external sources to support the importance and relevance of the NSSE survey. Kuh discussed the frequency of the NSSE being supported by educational reform reports and he also referenced the increased requirements from accrediting agencies to have colleges show evidence that they are assessing student outcomes and using this assessment to improve student learning and success. In 2006, Charles Miller, Chair of the Commission

on the Future of Higher Education, suggested that the NSSE survey was a viable tool to assess institutional quality (U.S. Department of Education, 2006). NSSE has also promoted the publication of benchmark results through mass media outlets such as the *USA Today* in an effort to promote transparency and accountability in higher education (LaNasa, Cabrera, & Trangsrud, 2009). Hu and McCormick (2012) summarized the impact of the NSSE survey and its five benchmarks well when they stated “these benchmarks of effective educational practice have been used so widely that they are commonly invoked in higher education research and practice” (p. 2).

NSSE research applications. An example of the acceptance and relevance of the NSSE survey in research on higher education is the breadth of topics in which the NSSE survey has been a primary data source. Persistence and academic success is a natural topic for the NSSE to be used to help study. Hughes and Pace (2003) found a positive relationship between NSSE results and persistence as well as GPA. Kuh et al. (2008) found some small influences on first-year college GPA’s and persistence beyond the first year of college. Hu (2011) deepened our understanding of engagement’s impact on student persistence when he found that the relationship between student engagement and persistence was not linear. In this study, the author separated academic and social engagement and found divergent roles for the different types of engagement. For example, students with a high academic engagement and low social engagement were found to have only marginal increases in retention when compared with students with low academic engagement and low social engagement (62.8% vs. 59.3%). Hu concluded that the role of social engagement in student persistence should be considered when

designing programs for student success. Hu also challenged the assumptions that more engagement is always better and that the relationship between student engagement and learning outcomes is a linear one. Pike (2013), in his response to criticism of the validity of the NSSE benchmarks, found that “multiple regression results clearly indicated that the NSSE institutional benchmark scores are significantly related to institutional retention and graduation rates, net the effects of institutional characteristics. In fact, NSSE benchmark scores were among the factors that were most strongly related to retention and graduation rates” (p. 163). Taken together, it is clear that the research in higher education on NSSE results has shown a positive relationship to student persistence and graduation. The current study is designed using the NSSE in order to measure student engagement with such a relevant data set.

The NSSE survey has also been used to study a variety of demographic populations. A broader review of demographic research is included later in this literature review, this section focuses on utilization of the NSSE survey and how it has found significant and relevant differences across various demographics. Hayek, Carini, O’Day, and Kuh (2002) compared the engagement levels of Greek and non-Greek students and found that Greek students do as well or better than other students. The authors offered this observation about using data such as the NSSE to analyze demographic groups: “Campuses should examine student engagement data to identify those groups and areas of effective educational practice where improvement would be welcome” (p. 658). The current study is designed to build upon this recommendation and show which student groups rural and urban liberal arts colleges can focus their efforts upon and get the

greatest improvement. Bureau, Ryan, Ahren, Shoup, and Torres (2011) also utilized the NSSE to study Greek students and found that Greek students scored significantly higher on all five NSSE benchmarks with small-to-medium effect sizes. Harper, Carini, Bridges, and Hayek (2004) used the NSSE survey to study gender differences at historically black colleges and universities. The authors did not find significant differences to exist which countered previous research on gender gaps at this type of institution. Umbach and Kuh (2004) used the NSSE to study differences in the educational experiences of athletes vs. non-athletes. They found that athletes are as engaged if not more than non-athletes. Taken together, these studies show how the NSSE study has been successfully utilized to identify important demographic differences like those identified in the purpose of the current research.

Outside of student demographics, the NSSE study has been used in research on a variety of topics related to the delivery and design of educational interventions. Umbach and Wawrzynski (2005) utilized the NSSE to study faculty classroom techniques and their impact on student learning. They found that faculty approaches made a significant difference and that “faculty behaviors and attitudes have a dramatic effect on student learning and engagement” (p. 173). More recently, the NSSE survey has also been used to study the impact of technology on student learning. Chen, Lambert, and Guidry (2010) studied the impact of web-based learning technology on student engagement. They found a positive relationship between the use of learning technology and student engagement. Junco, Heiberger, and Loken (2011) utilized the NSSE survey to study the impact of social media on student learning and engagement. The authors found that

using Twitter in the classroom increased student and faculty engagement in the learning process. Their experiment provided evidence that Twitter could be a benefit to the educational process and to inspire faculty to be more active and participatory in that process. Junco (2012) also used the NSSE survey to perform research on the impact of Facebook use on student engagement, studying, and on-campus involvement. He found a variety of impacts, some positive and some negative, which were congruent with what other researchers had found in regards to general internet usage. This research outlines how the studies of NSSE data can impact effective educational practices and curricular designs. It also shows how the NSSE study, despite being a long-standing study, is still relevant to research on current topics such as social media in the classroom.

The NSSE survey has also been used in variety of other studies. For example, Hu (2010) utilized the NSSE survey to explore the connection between scholarship awards, student engagement, and college choice. In this study, he found that scholarship awards were particularly helpful in increasing student engagement and educational opportunities for low-income and minority students. Hu and Wolniak (2010) utilized the NSSE survey to measure how student engagement impacted earnings after college. The authors found a significant relationship between those two main variables and followed the initial study up with a second one (2013) that analyzed that relationship across various student demographic groups. Chambers (2010) used the NSSE in a relatively unique way when he studied the qualitative comments from the NSSE survey at one institution. Most all research using NSSE data has been quantitative and this study showed the potential for identifying themes in the qualitative comments that are part of the NSSE study. One

main theme found in this study was that the academic experience was the most significant concern for students. Also of particular note for the research conducted in this dissertation is the author's comment that "location and designation of the institution (urban and research) impacted the results of this study" (p. 18). Together, these studies show how the current study might be extrapolated to a variety of critical topics, such as earnings after college, scholarship awards, and the academic experience.

Another use of the NSSE survey to create new knowledge has come in the work of researchers who are developing typologies based on the data from the NSSE survey. Pike and Kuh (2005a) developed a typology of college and universities using the NSSE that would serve as a parallel organizational system to the Carnegie classification system. In their typology, the authors developed seven groups of institutions based on their relative strengths and weaknesses with regards to student engagement. They concluded however that their typology may "better serve as a supplement, rather than an alternative, to the Carnegie classification system" (p. 203). Hu and McCormick (2012) developed a different typology using NSSE data. They created a typology of student types based on their engagement across the NSSE benchmark scores. The authors posited that these engagement classifications could help identify students at-risk for attrition from the institution as each of the seven student groups in their typology have different rates of persistence. The authors stated that this approach would help institutions gain value from the administration of the NSSE scores. The NSSE benchmarks are designed for institutional comparisons and a typology such as this may "offer deeper insights into an institution's student subcultures, yielding more nuanced understanding and strategies for

improving student outcomes” (p. 752). While the current study does not attempt to develop any typologies, it is important to note how the results of this study would be applied within the structure of the typologies that have already been developed in the literature.

Another example where the NSSE survey has served as a foundational data source is in the Documenting Effective Educational Practices (DEEP) project. This project involved a team of researchers looking at schools with higher-than-predicted graduation rates and higher-than-expected NSSE benchmark scores and, through longitudinal research, documenting the practices, policies, and cultural forces which were responsible for these positive outcomes (Kuh, Kinzie, Schuh, & Whitt, 2010). The predicted graduation rates and benchmark scores were developed from “regression models that took into account student characteristics and institutional features such as size, selectivity, and location” (p. 10). The conclusions drawn from this research have spawned a number of articles and publications about what successful colleges do to support and encourage student success (Hatch, 2012; Jenkins, 2011; Kinzie & Kuh, 2004; Kuh et al., 2010; Kinzie & Schuh, 2008; Kuh et al., 2005; Tinto, 2010).

Taken together, it is clear to see that the NSSE survey has gained wide acceptance as a valuable tool to use in a wide range of research studies. From student persistence to social media to student typologies, the NSSE study is a foundational source of information on student engagement and learning and has become a central data source in the literature on higher education. This rich background in prominent research was a primary reason why the current study was designed to use NSSE data.

NSSE critique. While the value and impact of student engagement on research on higher education is clear, there have been a series of articles and studies that have provided critiques of the NSSE survey in recent years. It is important, in a study so dependent upon one data source, to be aware of and understand the various criticisms of that data source that has been published. Each year, the researchers who administer the NSSE survey have published a number of studies regarding the validity and reliability of the NSSE survey. In addition, they have published analysis of other indicators of quality including bias, measurement error, mode analysis, and sampling desirability (NSSE, 2013b). While these studies provide a robust analysis of the validity and reliability of the NSSE survey, other researchers have offered critiques of the NSSE survey on a variety of aspects. Those critiques are presented here and are followed by the response from NSSE proponents to those various critiques. The discussion through research adds to the understanding of the data source for this study.

In 2011, *The Review of Higher Education* published a unique edition that was focused around constructively critiquing the various surveys of student engagement that included the NSSE survey. Dowd, Sawatzky, and Korn (2011) argued that the NSSE survey is lacking in theoretical justification, is overly expansive in its content domain, and has vague justifications for item inclusion. The authors questioned the overall validity of the NSSE survey as well as identified new instruments that measure intercultural effort which could enhance the NSSE survey. Porter (2011) wrote a critical piece that suggested that the “typical college student survey question has minimal validity” (p. 45) because of assumptions on the accuracy of student reported data and

students tendency to report inaccurate data which place them in a positive light. Porter argued specifically that the NSSE survey does not reflect the literature that analyzes self-reported data. Campbell and Cabrera (2011) utilized an intense case study at a single institution to analyze the construct and predictive validity of the NSSE survey. They found low reliability scores and high inter-correlations among the benchmarks while also determining that the NSSE benchmarks were not an accurate predictor of cumulative GPA for the students studied. The authors further analyzed the NSSE benchmarks and found poor validity and reliability features. Olivas (2011) added to the constructive criticism of the NSSE survey by suggesting that the literature which supported the NSSE survey was not reflective of the diverse perspectives that are present in the scholarship on student engagement.

Other studies outside of this special journal edition also offered criticism of the NSSE survey. LaNasa et al. (2009) completed a confirmatory factor analysis of NSSE items from a single institution. Their study found a similar conclusion as Campbell and Cabrera (2011) did when they determined that they were unable to replicate the structure of the NSSE benchmarks. LaNasa et al. (2009) concluded that it was “incumbent upon institutions to fully explore their own data” (p. 330) based on the concerns that they identified. They concluded their study by proposing eight dimensions of student engagement that fit the data slightly better and in a more useful way.

Hu (2011), while studying the difference between academic and social engagement, found non-linear relationships between student engagement and student persistence. These non-linear relationships led the author to question the assumption

that more engagement is better and that all engagement is summative. Fuller, Wilson, and Tobin (2011), in a longitudinal study of one institution's data, found that the NSSE benchmarks were not significant predictors of GPA. Gordon, Ludlum, and Hoey (2008) found a similar result in their study when they determined that the NSSE benchmarks accounted for no more than 2.4% of variability in student GPA's. Carini et al. (2006) found a similarly weak effect size for individual NSSE benchmarks in their study which showed the benchmarks accounting for no more than 1.6% of the variability of college outcomes.

Lerer and Talley (2010) took a slightly different perspective in their research and criticism of the NSSE benchmarks. Their study argued for "the restructuring of these problematic benchmarks to accurately reflect educational practices common to all types of students instead of using the current benchmarks, which penalizes institutions with large nontraditional student populations" (p. 355). The authors reviewed research which showed significant differences in engagement for transfer, commuter, older, and part-time students. In this study, completed using data from one institution, the authors analyzed student responses across these variables and found that the current NSSE benchmarks are biased toward traditional college students. As such, institutions with large non-traditional student populations were being penalized unjustly and the authors called for a re-definition and reorganization of the NSSE benchmarks to be more inclusive to schools with different student populations. This criticism is one reason why this study is structured to focus on institutions with large traditional-aged student populations.

Taken together, the numerous critiques of the NSSE data and its application and relevance provided pause and reflection for the design of this dissertation. As such a prominent national data set, it is expected that there are likely to be researched critiques of the NSSE methodology. Yet, these critiques were prominent and pointed. What followed in the research was a group of articles that responded to these criticism and it is these responses which help support the continued use of NSSE data in this dissertation.

McCormick and McClenney (2012) authored a response to the special issue of *The Review of Higher Education* and addressed various criticisms of the NSSE survey. In response to Porter (2011), the authors noted that the NSSE survey instructed users to avoid interpreting small differences and focus on larger trends over time. One of Porter's main criticisms centered on the accuracy of student self-reported data. McCormick and McClenney noted that the NSSE survey questions asked about general quantifiers as opposed to specific reports of behaviors. Finally, the authors noted that Porter did not acknowledge the focus group studies (NSSE, 2013b) that were completed which supported that respondents understood the questions and interpreted them similarly.

McCormick and McClenney (2012) also criticized the appropriateness of using factor analysis to assess the validity of the NSSE survey such as done by LaNasa et al. (2009). They argued that the NSSE questions were never designed to represent psychological constructs and are instead collections of questions on effective educational practices. Pike (2011) also cautioned against using NSSE data for purposes that it was not originally intended for. Ewell, McClenney, and McCormick (2011) echoed another point raised by McCormick and McClenney about the intended design of the NSSE

survey. The survey was created to provide broad institutional information and later subgroup information (e.g., race, athletic status, gender, etc). As such, it was inappropriate to criticize the survey for a lack of connection to student level outcomes such as GPA as done by Fuller et al. (2011) and Gordon et al. (2008).

Pike (2013) created a study on the validity of the NSSE survey in response to the critiques and discussions surrounding the psychometric properties of the survey. In his study, Pike found that the NSSE benchmarks were dependable for 50 or more students and were appropriate to be used for institutional decision making. The study also showed that the “NSSE benchmarks are significantly related to institutional retention and graduation rates, net the effect of institutional characteristics. In fact, NSSE benchmark scores were among the factors that were most strongly related to retention and graduation rates” (p. 163). This study found that the NSSE benchmark of enriching educational experiences was the third strongest factor explaining institutional graduation rates. Pike also concluded that the NSSE survey was valid for assessment and evaluation, but not for prediction of academic success of students. Of interest to the research conducted in this dissertation is the additional conclusion from Pike, institutional size and proportion of full-time students was positively related to institutional retention and the proportion of underrepresented minority students was negative related to graduation rates.

The responses to the critiques were well-written and comprehensive. The major area that is left without a response is the concerns over the theoretical justification of the NSSE study raised by Dowd et al. (2011) and the diversity of the literature supporting the NSSE as described by Olivas (2011). While Kuh (2009b) provided a quality description

of the empirical foundations of the NSSE survey, the more recent criticisms remain valid. For this study, those concerns were not viewed as strong enough to preclude the use of the NSSE data, but the concerns do provide important context for the application of the data and conclusions drawn from it.

Student engagement at liberal arts colleges. Given the nature of the current study, it is also important to understand the research on student engagement which has focused on small, residential, liberal arts colleges. A number of studies have found higher levels of engagement at liberal arts colleges (Hu & Kuh, 2002; Kuh, 1981; Kuh & Siegel, 2000; Pascarella, Wolniak, Cruce, & Blaich, 2004). These studies were reinforced by similar conclusions drawn from the NSSE survey (Indiana University Center for Postsecondary Research) (NSSE, 2000, 2001, 2002). However, the NSSE survey reports noted substantial variation within institutions and that institutions with high engagement scores in one area generally don't score as high in other areas (Kuh 2001, 2003). Pike and Kuh (2005a) found, in their study regarding developing a typology of student engagement, that their engagement types were related to Carnegie classifications and concluded that "student engagement may better serve as a supplement, rather than an alternative, to the Carnegie classification system" (p. 203). The authors also posited that "it is both possible and probable that other institutional characteristics are shaping engagement in addition to the gross measure of mission that Carnegie purports to emphasize" (p. 203). Pike and Kuh (2005a) have both noted the impact that institutional type has on student engagement while also noting that other characteristics are also having a significant impact on engagement. This conclusion supported the need

for the current study on one potential variable, urbanicity, that could be impacting student engagement at liberal arts colleges.

Gonyea et al. (2010) authored a report that further described the unique aspects of student engagement created by liberal arts colleges. They found that liberal arts students expected to and did study more than students at other institutions. Similarly, liberal arts students also expected to and did interact more with persons from different religions and political views. The study indicated that 58% of liberal arts students had these types of diverse interactions as compared with 47% for other schools. Liberal arts college students are also more involved in co-curricular activities. Gonyea et al. concluded that “students who choose to attend liberal arts colleges not only expect to engage more frequently in almost all the activities measured by the NSSE survey, they also do so at higher levels than their counterparts elsewhere” (p. 24). This statement provides empirical evidence which supports one of the limitations of this study related to student self-selection of the college/university that they attend. It also highlights that distinct qualities of liberal arts colleges as evidenced by the authors further concluding that “attending a liberal arts institution is among the strongest influences on gains in the first year of college” (p. 24). Kuh (2006) put it more simply when he wrote that liberal arts colleges are “built to engage” (p. 122). It is this distinctive environment for student engagement that is the backdrop for the research undertaken in this study.

It is clear from this review that student engagement is a central concept within research on higher education. Furthermore, the NSSE survey is the most accepted and analyzed data set which measures student engagement. Student engagement also is

different at small, liberal arts colleges. While recently more authors have criticized various aspects of the survey, others have clarified the appropriate uses and benefits of the NSSE survey.

Small Liberal Arts Colleges

This study focused on liberal arts colleges and they are indeed a distinctive subset of American higher education. Scholars have agreed that liberal arts colleges exemplify the highest quality in undergraduate education (Astin, 1977; Chickering & Gamson, 1987; Hersh, 1999; Koblik & Graubard, 2000; Pascarella & Terenzini, 1991; Rosovsky, 1990). The educational impact of various institutional types almost always favors liberal arts colleges as well (Astin 1977, 1993, 1999; Chickering, 1969; Chickering & Reisser, 1993; Kuh & Hu, 2001; Pascarella & Terenzini, 1991). This body of literature led to the assumption that liberal arts college provided students with greater opportunities to experience good practices in undergraduate education (Koblik & Graubard, 2000; “What Matters in College”, 2010).

In more recent years, this value of liberal arts colleges has been explored empirically and a variety of relative strengths have emerged. Kuh (2003) stated that “liberal arts colleges set the bar” and found that student at liberal arts college had increased educational experiences and higher experiences with diversity. Wolniak, Seifert, and Blaich (2004) found that institutions with a liberal arts emphasis had a greater impact on student learning in five areas: reading comprehension, critical thinking, science reasoning, writing skills, and openness to diversity/challenge. Pascarella et al. (2004) found that liberal arts colleges have a higher impact on a broad range of good

practices when compared with research or regional institutions. The authors found that the impact of liberal arts colleges is most pronounced in the first year. In a separate study, Pascarella (2005) found, after controlling for confounding influences, a consistent, positive relationship between attendance at a liberal arts college and several measures of student learning. Porter (2006) stated that “As institutions move away from a liberal arts curriculum, engagement suffers” (p. 553). Seifert, Pascarella, Goodman, Salisbury, and Blaich (2010) found results consistent with Pascarella et al. (2004) and Pascarella (2005) that students at liberal arts colleges have an increased exposure to good teaching and quality faculty interaction and well as higher academic challenge and expectations. Taken together, the work of Seifert et al. (2010) and Pascarella et al. (2004) extended the findings of the strength of liberal arts colleges across a sample size that cover over a decade of time. Seifert concluded that “the liberal arts college commitment to creating a challenging, yet supportive, learning environment sets them apart” (p. 19). Gonyea et al. (2010) found that liberal arts students expect to spend and do spend more hours/week in academic preparation than students at other institutional types. They also found that liberal arts students expect to be more engaged in their college experience and they are more engaged in almost every measure that they studied. They concluded that “attending a liberal arts institution is among the strongest influences on gains in the first year of college” (p. 24).

The literature also provides examples of authors who have found more critical results when studying liberal arts colleges. Pascarella (2005) wrote “mere attendance at liberal arts colleges did not consistently influence student learning and development and

where influence did occur, the effect was not always positive” (p. 122). Pike et al. (2003) found that an institutions Carnegie classification didn’t impact student learning outcomes. However, this research was done prior to the new Carnegie classification system was implemented. Kuh (2003) also found that students of color, especially African-American students, did not find liberal arts colleges as supportive as other students. While this article does not refute a positive effect from attendance at a liberal arts college, it does highlight relevant populations where that effect is less than for other students.

Other sources however, have found specific demographic subsets where liberal arts colleges have a greater impact on student learning and success. Wolniak et al. (2004) found that a liberal arts experience and emphasis was most important for students of color and students with lower pre-college academic ability. This result appears to contradict Kuh’s (2006) findings regarding African-American students. However, Wolniak et al.’s study (2004) found the positive impact was not determined by institutional type or selectivity. The incorporation of institutions that are not classified as liberal arts colleges (yet have a liberal arts curriculum) makes Wolniak et al.’s study (2004) distinctive from Kuh’s (2006). Seifert et al. (2010) also found liberal arts colleges to have differential impacts for various demographic groups. Their study concluded that students with lower parent education, pre-college academic preparation, academic motivation and high school involvement experienced good practices in undergraduate education more often at liberal arts colleges. The study continued to state that the advantage for attending liberal arts colleges was 1.6 times stronger for students in the bottom half of academic preparation. In the discussion of these findings, the authors posited that the overall increase in

exposure to good practices in undergraduate education at liberal arts colleges may be more likely to accrue in specific subgroups of students. Beyond those mentioned, the authors did not comment on specific sub-groups, but their conclusion informs this study's focus on analyzing within-institutional differences in student engagement.

Another interesting aspect of the literature on liberal arts colleges is the studies that have found differences based on the type of institution being studied. Kuh and Gonyea (2006) studied the impact of religious affiliation and institutional type and found that there is “more to learn about how institutional mission and environments influence student engagement” (p. 2). In this study, they found religious affiliation created different patterns of engagement. Students at non-affiliated private colleges were less engaged in spiritual activities, more likely to interact with diverse views, and more likely to be involved in deep learning activities. The authors also found students at private colleges scored higher than public colleges on measures of deep learning, spirituality, ethics, social growth, and intellectual skills. Porter (2006) expanded on Kuh and Gonyea's conclusions in his study on the interaction of student engagement and institutional structures. He concluded that institutional structures affected student engagement in predictable and significant ways. The author stated that “the effect of institutional characteristics may vary with the type of engagement” (p. 549). This finding suggests that different institutional types may be stronger or weaker on various benchmarks of student engagement and affirms the conclusions of Kuh and Gonyea.

Institutional size is a factor that researchers have described as helping to support the advantages of a liberal arts education. Chickering and Reiser (1993) suggested that

the small size of liberal arts colleges provides a more manageable social-psychological environment that promotes engagement. This finding was supported by research performed by Pascarella et al. (2004). In their study, the authors found an overall positive impact of liberal art colleges on broad learning outcomes. In the discussion of this impact, they identified school size as an important variable which explained these impacts. In particular, the authors highlighted an institution's small size as being positively related to an increase in the frequency, quality, and impact of a student's relationship with faculty. The first and second-year students in this study reported more quality interactions with faculty and higher faculty interest in student development and teaching. It is also interesting to note that Pascarella et al. did not find the small schools had an impact on a student's peer interactions after the influence of full-time enrollment and living on campus was taken into account.

A report from the Center of Inquiry in the Liberal Arts (2008) highlighted three areas that are critical to student success: good teaching and quality interaction with faculty, academic challenge and high expectations, and experiences with diversity. In their national study of liberal arts colleges, they found that small institutions had a larger impact on the first two categories, but no change on the third (experience with diversity). The results of this study further supported the benefits of small colleges and universities. Porter (2006) extended this knowledge further with his study of institutional structures and student engagement. In it, he described that "there has been surprisingly little discussion as to why size should matter" (p. 528). This study focused on institutional density in terms of faculty and students per acre. The results showed that as institutional

density increases, student engagement decreases which supported a positive impact for smaller institutions. The study concluded that more selective, smaller schools with low faculty/student ratios have higher student engagement.

It is important to note that many studies of liberal arts colleges have controlled their results for the impact of mediating factors. Pike et al. (2003) studied the impact of institutional mission and controlled for differences in student backgrounds. Once those differences were controlled for, they found that the “correlations between institutional characteristics and learning outcomes were trivial and nonsignificant” (p. 242). However, Pascarella et al. (2004) found a very different result. While concluding that liberal arts colleges fostered a broad range of good practices, they found that the differences were not explained by full-time, residentiality, selectivity, or background ability, motivation, or interest of students. Porter (2006) also found that institutional structures affect student engagement. His study used a multilevel modeling approach to identify pre-college characteristics and determined that these characteristics had a limited impact on the study’s results. Seifert et al. (2010) found a similar conclusion in their analysis of the positive impact of liberal arts colleges on “good teaching and high-quality interactions with faculty and academic challenge and high expectations” (pp. 12-13). The researchers found that the effects of attendance at liberal arts colleges on good practices were not mediated by other college experiences such as living on campus, working less than their peers, and course selections. Taken together, this body of research supports that the positive impact of attending a liberal arts college is not mediated by a variety of pre-college and college experience factors.

Another interesting discussion in the literature centers on the impact of liberal arts colleges on students' experiences with diversity. Umbach and Kuh (2006) found that attendance at liberal arts colleges had a positive impact on a student's diversity experiences. This finding however was refuted by Jayakumar (2008) who found that attendance at a liberal arts college negatively affected a student's experience with diversity. The Center of Inquiry in the Liberal Arts (2008) found no difference across institutional size for experience with diversity. Seifert et al. (2010) found a similar conclusion when they concluded that "liberal arts college students did not report any advantage in their level of diversity experiences with their peers at research or regional universities" (p. 18). It is unclear from the research what level, if any, that attendance at a small, liberal arts college has on diversity experiences.

Demographics

Academic performance. Pascarella and Terenzini (2005) identified academic performance as "among the most revealing indicators of students' successful adjustment to the intellectual and other demands of a course of study" (p. 618). They reviewed findings from the literature and stated that a student's grades are "the single best predictor of whether a student would earn a bachelor's degree, attend graduate school, or obtain an advanced degree" (p. 618). The authors also noted that academic performance in the first year of college is particularly predictive. In the literature, academic performance was also commonly used as a dependent variable to study a wide range of interventions and variables. Given the clear value and predictive ability of this variable, it is natural to include it in the current study. With academic performance being connected to a wide

range of positive outcomes, it is expected that students with better grades will also be significantly more engaged across the various engagement scalets used in this study.

First-generation students. The uniqueness of the experience of first-generation college students was discussed in great detail by Ward, Siegel, and Davenport (2012) where they analyzed the background, pre-college and within-college experience of first-generation students and recommended practices for institutions to consider which meet the needs of this population. In their book, they discussed, for example, the difference that institutional type (small, selective liberal arts college vs. large public university) made in the experience of first-generation students. That discussion was insightful when placed in the context of this study which attempted to analyze the engagement effects of first-generation students in a specific institutional context.

Other research made it clear that first-generation students were more likely to be less-engaged than non first-generation students. It has been shown that first-generation students are less likely to develop relationships with faculty and peers outside of the classroom (Moschetti & Hudley, 2008; Pascarella, Pierson, Wolniak, & Terenzini, 2004). First-generation students also reported lower satisfaction with the campus environment (Lohfink & Paulson, 2005; Terenzini, Rendon, Upcraft, Millar, Allison, Gregg, & Jalomo, 1994). Yet, the benefits of higher student engagement were greater for first-generation students (Filkins & Doyle, 2002; Pascarella et al., 2004). Ward et al. (2012) argued that, because of the unique experiences of first-generation students, it was even more essential that institutions find ways to encourage these students to participate in

highly engaging experiences such as study abroad, out-of-class conversations with professors, and involvement in campus clubs and organizations.

The research on this student population is noteworthy for this study as it highlighted the importance of understanding the unique facets of student engagement for first-generation students. The current study analyzed student interactions with faculty outside of the classroom, discussions with diverse others, and varied experiences similar to those supported by Ward et al. (2012). Each of those areas were uniquely impactful on first-generation students according to the literature. Thus, the results found here can expand on the depth of understanding of these students' experiences.

Race. Research has shown that students of different races are engaged differently on college campuses. Harper (2009) authored an article discussing the need for race-conscious student engagement based upon his review of the literature. He identified the power of student engagement in helping to close the gap in racial minority success in college. Harper and Quaye (2010) expanded upon Harper's previous article with their book that identified distinct approaches to student engagement for a variety of diverse populations. Kuh (2008) identified 10 high-impact practices which are particularly beneficial to student learning. In this report, he found a gap that students of color experienced in their access to and participation in these high-impact practices. Rendon (1994) also supported the use of engagement practices to validate underrepresented minority students. Pascarella and Terenzini (2005) highlighted that particular aspects of student engagement (peer learning, living-learning programs, etc.) have a greater positive impact on students of color than White students. Together the research showed that there

is a gap in student engagement of non-White students. It also showed that intentionally engaging minority students can have compensatory effects to help close that gap.

In relation to this study, it is important to note the gap in engagement reported by the research. Many small, liberal arts campuses are traditionally racially homogeneous. It would be expected, based upon the research, that the current study would also show a gap in student engagement for students of color. This study may also identify differences in first-year and senior-year engagement for students-of-color.

Gender. Pascarella and Terenzini (2005), in their seminal work summarizing what we have learned about how college affects students, highlighted the research in higher education which illuminated how gender impacts the college student experience. They wrote that “evidence clearly indicates that the net effect of college differ in magnitude according to student sex” (p. 620) and that “many within-college effect vary in magnitude by gender” (p. 623). Other researchers have also found that gender significantly impacts a college student’s experience (Booher-Jennings, 2008; Mastekaasa & Smeby, 2008). These studies and their conclusions serve as an important foundation for the rationale to include gender as an independent variable in this study.

In terms of gender’s impact on student engagement, the research is less clear. Zhao, Carini, and Kuh (2005) found no clear relationship between gender and student engagement. Hu and Kuh (2002) found men more likely to be highly disengaged or highly engaged but overall mean engagement was similar. They also found that women were more likely to spend time in academically challenging tasks such as class preparation and reading and writing. Kuh (2003) reported that women tended to be more

engaged than men. Tison, Bateman, and Culver (2011) attempted to clarify gender's impact on student engagement through use of more refined methodology. They found that the gender composition of an institution provided conditional effects on the impact of gender on student engagement, but their study was limited as it studied just one institution.

Other research found more specific conclusions regarding gender's impact on student engagement that are important to note in the context of this study. Sax, Bryant, and Harper (2005) found that women are more frequently engaged with faculty outside the classroom than men. In terms of various co-curricular experiences that are part of this study, men were less likely to study abroad (Chin, 2004) or participate in service learning (Campus Compact, 2004). Kinzie et al. (2007) found that women are more engaged in the Academic Challenge benchmark used by the NSSE. Their study also identified no difference in senior-year out-of-class interactions with faculty and only trivial differences for first-year students. Small, but significant differences were identified where women felt that their campus environments were more supportive than men and that there was no significant gender differences with regards to experiences with diversity.

The research shows that gender can certainly have a significant impact on a college student's experience and, more specifically, on various measures of their engagement. The research supports small differences in engagement that tend to be positive for women. In the context of this study, it's important to note the nature of gender's impact on upon which scalets used in this study gender has the greatest impact.

Greek life involvement. Studies on the impact of Greek Life involvement indicated fraternity/sorority members may be collectively as engaged if not more so than non-members (Asel, Seifert, & Pascarella, 2009; Blackburn & Janosik, 2009; Pike, 2003). Astin (1993) found that fraternity/sorority membership appeared to contribute positively to involvement in campus life. Hayek et al. (2002) supported Astin's findings by concluding that members were more engaged than non-members on most measures including gains in diversity, general education, involvement in classroom-related activities, and overall engagement in the college environment. Patton, Bridges, and Flowers (2011) studied African-American fraternity/sorority member student engagement between students historically Black colleges and universities and students at predominantly White institutions. They found that African-American Greek students were significantly more engaged and that the African-American Greek students at historically Black colleges and universities were more engaged than their counterparts at White institutions. These conclusions are note-worthy for this dissertation as they highlight how institutional characteristics change the nature of engagement, specifically of African-American Greek students. The variance between institutional type supports the parameters of this study which is confined to small, liberal arts institutions.

Other studies of student engagement and fraternity/sorority membership have based their analysis on NSSE data. Pike (2003) analyzed fraternity/sorority member engagement and he found a weak positive relationship with engagement, including higher means across the five NSSE benchmarks. However, Pike's study was only of students at large, research universities which limits it's applicability to the current study.

Bureau et al. (2011) found a similar conclusion as Pike (2003) when they compared members to non-members across the five NSSE benchmarks as well. This study only looked at senior student data and found a consistent significantly positive relationship between membership and student engagement. The relationship was weak, just like it was with Pike's study, but the confirmation of the relationship is noteworthy. This study was done across all types of institutions (543 in total). Most recently, Routon and Walker (2014) published a study which analyzed the broader impact of Greek membership in a longitudinal study across 400 institutions. In this study, they found that Greek membership increased the likelihood of graduating on time, participation in student government, and performance of volunteer work. This body of research confirms a weak positive relationship between Greek membership and student engagement. It is thus expected that the current study will reflect that relationship and particular differences across institutional characteristics or within specific subsets of engagement would be noteworthy.

Athletes. Past research on the student athlete experience has identified small, but significant gaps in student learning for student athletes. Astin (1993) found athletic participation negatively impacting student scores on graduate school entrance examinations. Pascarella, Bohr, Nora, and Terenzini (1995) disaggregated their study across male and female student athletes as well as separating the men into revenue and non-revenue sports. They noted a gap in student learning for male revenue-sport athletes but no difference for male non-revenue sport athletes or female athletes. Umbach, Palmer, Kuh, and Hannah (2006) expanded on this research by analyzing student athlete

participation in effective educational practices. They compared athlete and non-athlete participation across a large cross-section of institutional types and found that, on balance, athletes were as engaged in effective educational practices as non-athletes and where differences were noted, they favored athletes. Gayles and Hu (2009) found that athletes benefitted from student engagement in similar ways as non-athletes and that athletes' engagement varied based upon the type of sport they were involved in.

While older studies concluded that there is a gap in student learning for student athletes, more recent research has identified potential benefits of athletic participation. Regardless of the direction of the difference, it is clear from the research that athletic participation is a significant variable when it comes to understanding the nature of student engagement. As such, it is appropriate to include this variable in the current study. While the purpose of this study does not include a detailed analysis of student athlete engagement, it will be interesting to note if there is confirmation from this study of any of the prior research on student athletes and their experiences in college.

Urbanicity

Research on the impact of the urbanicity of a school is almost exclusively focused on K-12 schools. This research shows, on a variety of topics, how the urbanicity of a school significantly impacts students and their education. In one of the deepest areas of educational research, persistence and dropout rates, school location was shown to be an important variable to consider. Rumberger and Thomas (2000) found that students at urban schools had lower dropout rates than students at suburban schools. Orfield, Losen, Wald, and Swanson (2004) also researched the impact of urbanicity on student dropout

rates but found an alternate conclusion. They found that urban schools had a higher dropout rate than rural or suburban schools. DiPaula (2008) found a similar impact when researching students of Mexican descent. The students in this study were 256% more likely to persist in school if they were at a rural/suburban school than if they were at an urban school. While the research on persistence and dropout rates is inconclusive about the direction of the effect, it is clear that the location of the school is a significant factor.

Other research has also shown urbanicity to be significant in K-12 contexts. Klopfenstein (2004) found that the school's location significantly impacted advanced placement enrollment and SAT completion, albeit with a small effect size. Snyder (2004) found that attending a rural high school had a negative impact on college attendance and degree attainment. However, Snyder also found that these disadvantages could be overcome by effective use of family and community resources. Kindell (2003) argued that the impact of urbanicity on college attainment is an under-explored area of research that could add to the body of research on high school attainment and effectiveness of urban vs. rural high schools. Anderman (2002) researched the impact of school-level variables on student psychological outcomes and found that a student's sense of belonging was lower in urban schools than suburban schools. Palardy (2008) studied the variables that impact learning differences in high schools across low, middle, and upper social class schools. The study showed that middle class students in urban areas learned significantly more than students attending middle class suburban schools. Similarly, the study found that low class rural schools performed better than low class suburban schools. The focus of Palardy's study was on the educational impacts of social class.

However, the identification of significant impacts based on urbanicity is of particular relevance to this study. In another study, Erwin, Winn, and Erwin (2011) also noted the impact of urbanicity while focusing on a separate research concept. These authors analyzed principal leadership skills in Texas high schools across urban, suburban, and rural schools. They found that principals in different school locations emphasized different skills in their leadership of the school.

Other research on urbanicity within K-12 education provides insights that may be translated to higher education. Students at rural high schools received less instruction and support when it comes to learning about technology than students at suburban schools (Maddux, 2001; Owens & Waxman, 1996). Cook and Van Cleaf (2000) found that student-teachers in urban settings felt better prepared to respond to multicultural issues and concerns that arise in the classroom. Abel and Sewell (1999) found that secondary school teachers at urban schools experienced more stress from poor working conditions and poor staff relations than rural teachers. Research on gifted students showed that rural locations lag behind suburban and urban locations in supporting gifted and talented students (Gentry, Rizza, & Gable, 2001).

Taken together, this body of research shows that, within K-12 schools, school location has a significant impact on many important student and school outcomes. It is thus important to expand our research base to determine if urbanicity has a similar impact on institutions of higher education.

If there is an area of research on higher education where urbanicity has been explored, it is within the literature on community colleges. Castenada (2002), in a study

on the impact of a community college's location on transfer rates, commented while discussing the impact of school location that "the lack of work on this subject illustrates an area that is in need of research and from which much can be learned" (p. 446). Much like the K-12 research, urbanicity is not a very prevalent variable and the studies that have included urbanicity show a variety of results. Isaac and Boyer (2007) studied minority faculty satisfaction and opinions using urbanicity as a variable. They found that rural faculty members were more satisfied with their workload than urban faculty members. However, rural faculty members were less satisfied with their instructional duties and benefits. Lynch Ervin (2010) found no significant differences when she studied urbanicity as a factor in African-American student engagement at community colleges. Kools (2010) studied the impact of urbanicity on community college presidents' perceptions of leadership skills necessary for their positions. Much like Lynch Ervin, he also found no significant difference based on the urbanicity of the school.

In contrast to these studies is research by Umbach and Wawrzynski (2005) on the role of faculty in student learning and engagement. In this study, the authors found a variety of significant difference based upon the urbanicity of the institution. Of particular note is that the population for this study is all institutions that completed the National Survey on Student Engagement while also surveying their faculty on student engagement using a separate instrument. As a result, this study almost exclusively utilized data from four-year institutions. Umbach and Wawrzynski found that faculty members at rural campuses were more likely to engage students outside of the classroom. They also determined that faculty members at rural colleges challenged students less than faculty

members at urban colleges. Urban colleges were also the least likely to emphasize higher order cognitive activities.

The research on urbanicity within higher education is sparse but it shows promise as a line of research to pursue. Some authors commented on the value of such research and others have found significant differences based upon the urbanicity of the institution. At the same time, other authors have used the urbanicity of the school as a variable and found no significant differences. Together, the research base lacks depth and clarity within higher education. In particular, there is a lack of research on urbanicity within 4-year institutions. The research in the K-12 literature shows prevalence for significant differences based on urbanicity and thus informs and encourages research in this area.

Chapter Three

Methodology

The purpose of this research was to determine: (a) if student engagement at small, residential, liberal arts colleges is affected by a school's urbanicity, and (b) if there are student demographic groups whose engagement levels vary significantly based on the urbanicity of the school. In the current study, four research questions and two hypotheses were proposed. Data from the National Survey of Student Engagement (NSSE) was used to measure various aspects of student engagement. The final sample consisted of 3,783 first-year and 3,153 senior-year students across 29 small, residential, liberal arts colleges (14 rural and 15 urban). This chapter presents the methodology of this study by describing the: (a) research design, (b) study population, (c) data instrument, (d) independent and dependent variables, (e) procedures, and (f) data analysis methods used to accomplish this study's purpose.

Research Design

This study is a non-experimental quantitative research study of small, residential, liberal arts colleges in rural and urban locations. The study analyzed data from the National Survey of Student Engagement to determine if urbanicity has an impact on student engagement. Further analyses were conducted to determine which demographic groupings are most and least engaged. These groups were then compared to find if there are common demographics that are best served by certain types of school locations.

Research Questions and Hypotheses

The following research questions were addressed in this study:

1. Does the location of a small, residential, liberal arts college have a significant impact on first-year student engagement?
2. Does the location of a small, residential, liberal arts college have a significant impact on senior-year student engagement?
3. Are there first-year student demographic groups whose engagement level is significantly affected by the urbanicity of a small, residential, liberal arts college?
4. Are there senior-year student demographic groups whose engagement level is significantly affected by the urbanicity of a small, residential, liberal arts college?

It is hypothesized that urbanicity does create a significant difference in student engagement for first-year and senior-year students at small, residential, liberal arts colleges. Furthermore, it is hypothesized that there are student demographic groups whose engagement is significantly impacted by the urbanicity of the college they attend.

Population and Sample

The schools used in this survey were selected from the list of schools who administered the NSSE in 2009 or 2010. The Carnegie foundation classification system and U.S. Census data were utilized to narrow the NSSE list to include only small, residential, four-year, liberal arts colleges that are located in rural and urban locations. The sample data comes from each institution through the Indiana University Center for Postsecondary Research. The data included a 75% random sample (minimum 43 cases each of first-year and senior-year data) of the student responses received at each

institution for the most recent NSSE survey data available (2009 or 2010). These data were coded anonymously and separated into rural schools and urban schools. A complete list of schools included in the study is provided in Appendix B.

Instrument

This study utilized data from the 2009 and 2010 administrations of the National Survey of Student Engagement (NSSE). The 2010 survey is the most recent data that was available at the time of this study's data collection. The 2009 survey was added in order to provide a sufficient number of institutions for this study. The NSSE has been confirmed as the most comprehensive and most studied survey of student engagement (Hu & McCormick, 2012; Kuh, 2009b). Educational reform reports frequently cite the NSSE as a quality assessment of student learning and institutional outcomes (Kuh, 2009b; US Department of Education, 2006). The NSSE is comprised of questions about specific actions and tasks that are related to successful learning outcomes. Each of these questions is grounded in relevant literature and research. The results of the survey are broken down into five benchmarks:

- Level of Academic Challenge
- Active and Collaborative Learning
- Student-Faculty Interactions
- Enriching Educational Experiences
- Supportive Campus Environment

Hu and McCormick (2012) noted that the benchmarks are so widely used in higher education literature that they have become part of the common language and practices.

Reliability and validity of NSSE. The Indiana University Center for Postsecondary Research has maintained a robust series of studies related to the reliability and validity of the NSSE survey (NSSE, 2013b). These studies assess the reliability of the NSSE by studying the internal consistency, temporal stability, and equivalence of the data across various administrations of the NSSE. Validity is assessed seven ways: response process, content, construct, concurrent, predictive, known groups, and consequential. These assessments have detailed that the NSSE is indeed a reliable and valid measure of student engagement. In addition to these assessments, Pike (2013) has also studied the validity of the NSSE and found the benchmarks to be dependable and the study to be an effective instrument for studying institutional persistence and graduation rates.

Recent studies have critiqued the reliability and validity of the NSSE on a variety of matters related to the survey's reliability and validity. Dowd et al. (2011) questioned the theoretical justification, scope, and validity of the NSSE. Porter (2011) argued that the reliance of student reported data undermined the NSSE. Many authors conducted studies which questioned the NSSE's connection to specific student outcomes such as GPA (Campbell & Cabrera, 2011; Fuller et al., 2011; Gordon et al., 2008). McCormick and McClenney (2012) authored a response to the criticism received. In this article, they detailed that the NSSE is designed to focus on larger trends and not small differences.

They also noted that the student reported data in the NSSE was confirmed through focus groups and covers general responses as opposed to specific behaviors. Finally, they argued that it was inappropriate to use NSSE to predict individual student outcomes such as GPA as that is not what the survey was designed to study. The current study looks at student level variance, but does so across broader demographic groups in order to attend to this finding from McCormick and McClenney. Pike (2013) performed a study to confirm the NSSE's reliability and validity. In it, he found support for the psychometric properties of the NSSE and that the NSSE benchmark calculations were reliable for a sample size of 50 or more students. Furthermore, he found that the benchmarks were among the most significantly predictive variables for institutional retention and graduation rates. He concluded that the NSSE survey data was appropriate for assessment and evaluation, but not for predicting individual student success. The amount of critique and response in the literature shows how significant the NSSE study is and the confirmation of the reliability and validity of the NSSE done by McCormick and McClenney (2012) and Pike (2013) further support the strength of the data being used for this study.

Variables

This study involved the analysis of seven independent variables and five dependent variables. A description of these variables is included below.

Independent variables. The NSSE survey provides data on six of the independent variables utilized in this study. Five are nominal, dichotomous variables

(coded 0 and 1 respectively) and one is an ordinal variable with eight values in it. These variables include:

- Academic performance – Ordinal variable where 1 is “C- or below” and 8 is “A”
- First generation status – Non-first generation / First generation
- Race – White / Students of color
- Gender – Male / Female
- Greek Life participation – Non-member / Member
- Varsity athletic participation – Non-athlete / Athlete

NSSE demographic variables not selected include: Age, International status, Transfer status, Housing, Academic major. Some of the variables, such as Academic major and International or Transfer status, were not selected because the number of cases at small colleges would be too small for valid analysis. Others were not selected as they were not found to be as prevalent in the research on student engagement as the variables which were included in this study.

The final independent variable is school location (urbanicity). The researcher was able to use the Carnegie classification system along with U.S. Census data (United States Census Bureau, 2012, 2013) to determine which schools would qualify as urban or rural for this study. This was accomplished by filtering all small, residential, four-year, liberal arts colleges by their school location as measured across a 12-point scale. The three most-urban classifications (large city, medium city, small city) were grouped to make the urban college list. The five most-rural classifications (rural-remote, rural-distant, rural-

fringe, town-remote, and town-distant) were then grouped to make the rural college list. At this point, there were 38 urban and 53 rural schools. The next step was to determine which of these schools administered the NSSE survey in 2009 or 2010. This narrowed the lists to 22 urban and 47 rural schools. Finally, an analysis was completed of the town/city population and the type of Core Based Statistical Area (CBSA) in which each town/city was classified (None = under 10,000 population; Micropolitan = 10,000 – 50,000 population; Metropolitan = over 50,000 population). Urban locations with less than 50,000 residents were excluded from the study bringing the list to 17 urban schools. Rural colleges in towns with more than 20,000 residents were excluded along with rural colleges that were located in metropolitan areas. This brought the list to 18 rural schools. One rural school was eliminated after a comparison of admission, retention, and graduation data showed it to be an outlier. One urban school was eliminated after learning that the response rate for the NSSE survey at that school was too low to allow for valid analysis. Finally, four schools (three rural and one urban) were excluded due to their historical missions being unique and distinct from the other institutions in the study. In the end, there are 14 rural and 15 urban schools included in the study.

Dependent variables. The NSSE survey is the most commonly utilized source of data on student engagement and serves as the data source for this study. The five benchmarks of the NSSE study have also proven to be effective measures of various aspects of student engagement (Hu & McCormick, 2012). Pike (2006) developed an even more reliable method of assessing student engagement levels through the development of 12 scales that analyze engagement within the five NSSE benchmarks

and two additional scalets that study gains in practical skills and general education.

These scalets focus data analysis more narrowly on specific aspects of student engagement and have shown great promise for research. Using the scalets for this study was specifically recommended by the Associate Director of the NSSE Institute at the Indiana University Center for Postsecondary Research, Dr. Jillian Kinzie (personal communication, November 6, 2013). A review of the literature identified five specific scalets that would be affected by the location of the colleges and universities in this study. Those five scalets (and the NSSE benchmark they are developed from) include:

- Course Challenge (Academic Challenge)
- Out-of-Class Interaction (Student-Faculty Interaction)
- Diversity (Enriching Educational Experiences)
- Varied Experiences (Enriching Educational Experiences)
- Support for Student Success (Supportive Campus Environment)

These five scalets serve as the dependent variables for this study and are the aspects of student engagement that the analyses in this study are focused upon.

Data Collection Procedures

Three steps were used to acquire the data for this study. First, approval was requested from the Institutional Review Board (IRB) at the University of Nebraska – Lincoln to study the effects of urbanicity on student engagement at small, residential, liberal arts colleges. This request was received and approved and the necessary documentation is provided in Appendix C. Second, a request for the data was submitted to the Indiana University Center for Postsecondary Research (IUCPR). This request

outlined the specific data and data handling procedures required and a subsequent data sharing agreement was agreed to between the researcher and IUCPR. Funding for data acquisition was supported by a grant from Region III of the National Association of Student Personnel Administrators. The third step in the data collection was to import that data into SPSS Version 21 for analysis. The data used for this study does not contain any individually identifiable information at a student level which lowers the risk of unsecured data. Nonetheless, the data has been maintained on a password protected computer and the data handling requirements outlined in the agreement with IUCPR have been meticulously followed.

Data Analysis

This study involved the manipulation of a large data set taken from each college involved in the study. A total of 6,936 student cases from 29 schools were received from the Indiana University Center of Postsecondary Research (IUCPR) for this study. These student cases were coded to identify which cases were from rural schools and which were from urban schools. In addition, a code was added to identify the institution from which the student cases originated. These institutional identifiers were anonymous, but are essential to analyzing the within-school variability.

Prior to finalizing the list of selected schools for this study, descriptive data from each institution was collected from the Integrated Postsecondary Education Data System (IPEDS). Institutional variables were analyzed for comparability. These variables included graduation rates, retention rates, admission rates, admissions yields, and SAT/ACT scores. The minimum, maximum, mean and standard deviation for the data

was reviewed to determine if any institutions were outliers. From this analysis, one institution was removed from the study. The descriptive data was then divided into rural and urban groups. The minimum, maximum, mean, and standard deviation for each of the aforementioned variables were again calculated and the two groups (rural and urban) were compared via a 2-tailed independent samples t-test of means. This analysis showed no significant differences between rural and urban institutions used in this study. Tables 1 and 2 display these data.

After confirming the institutions which would populate the study, the student case data were collected. These student data were analyzed in three ways in this study: aggregate student data, school level data, and within-school data. Following a review of the literature, five scalets from Pike's study (2006) were chosen for this study: Course Challenge, Out-of-Class Interaction, Diversity, Varied Experiences, and Support for Student Success. These scalets were used in each analysis step of this study.

The first step in the data analysis focused on aggregate student data across all rural and urban institutions. This step was focused on observing broad differences in the data. The data set was first divided into first-year and senior-year responses. Then, the means and standard deviations for each of the five scalets chosen for this study were calculated for both first-year and senior-year responses. These means and standard deviations were calculated for all rural and all urban students. The two means and standard deviations for each scalet were analyzed using independent sample t-tests to determine if any significant differences were present between rural and urban students. Finally, multiple regression was utilized to analyze the variance in each scalet across

Table 1

Rural schools IPEDS Data (2009-2010 school year)

Variable	Min	Max	Mean	Median	SD
Full-time retention rate	61	92	79	81	7.45
Full-time enrollment	557	2,187	1,350	1,377	426.67
Graduation rate, total cohort	57	82	68	69	9.79
Percent admitted – total	12	38	24	26	7.56
Admissions yield – total	44	91	69	72	11.30
SAT Critical Reading 25th percentile score	450	580	507	500	42.68
SAT Critical Reading 75th percentile score	570	710	642	660	46.90
SAT Math 25th percentile score	450	580	512	510	43.72
SAT Math 75th percentile score	570	710	634	650	40.01
ACT Composite 25th percentile score	18	26	22	22	2.30
ACT Composite 75th percentile score	25	30	27	28	1.58

Table 2

Urban schools IPEDS Data (2009-2010 school year)

Variable	Min	Max	Mean	Median	SD
Full-time retention rate	72	94	82	80	7.20
Full-time enrollment	484	2312	1561	1661	601.25
Graduation rate, total cohort	61	86	71	66	9.27
Percent admitted – total	41	81	60	59	13.83
Admissions yield – total	16	41	25	25	7.43
SAT Critical Reading 25th percentile score	460	600	527	520	39.82
SAT Critical Reading 75th percentile score	587	700	645	640	34.96
SAT Math 25th percentile score	460	600	528	520	45.99
SAT Math 75th percentile score	590	720	640	630	42.56
ACT Composite 25th percentile score	20	28	23	23	2.40
ACT Composite 75th percentile score	26	32	28	29	1.85

rural and urban cases for both first-year and senior-year student data. This variance was calculated using the six independent variables identified for this study (academic performance, first-generation status, race, gender, Greek participation, and varsity athletic participation). A significance level of .05 was used for this and all other regression procedures included in this study.

The second step of the data analysis focused on school-level data. This step is designed to find significant differences between institutions and to identify trends for each institutional type (rural/urban). While the first step valued each student's responses equally, this step aggregates those responses within each institution and focuses on differences across institutions. The data were again separated into first-year and senior-year responses and all five scalets were utilized. In order to calculate scalet scores for each institution, individual student scalet scores were calculated. The student scores were then averaged to determine the institutional scores. The means and standard deviations of these scalet scores were then calculated for rural and urban institutions. Independent sample t-tests were again used to identify significant differences at the .05 level of confidence between rural and urban institutions.

The final step of the data analysis focused on variance within each institution. The annual reports generated from the NSSE survey have highlighted the significance of within-school variance (NSSE, 2008). This step attempted to determine which independent variables are significant at each institution. A description and comparison of those significant differences was then performed to help answer research questions three and four in this study.

The methodology used in this step was a hierarchical linear regression model with two levels, the school level and the student level. Using a hierarchical linear model allowed for a more accurate assessment of the between-school and within-school variances. It also allowed for the study to generalize the determined between-school effects across the broader population of small, residential, liberal arts colleges. Utilizing linear regression would risk overstating the statistical significance of the within-school effects by not parsing out the residual variance that resulted from between-school influences. The school level data was regressed to determine which independent variables were significant within all institutions and again within rural and urban institutions. The student level data was regressed within each institution to determine which independent variables significantly affect student engagement as analyzed within the five scales used in this study. Effect sizes for the significant variables was calculated and reported. These significant variables were then collected, analyzed, and reported across all rural and urban institutions to answer the third and fourth research questions for this study.

Chapter Four

Results

This chapter provides the results of this study. In it, I describe the sample used in the study. Following that is a description of the three stages of data analysis applied in this study: aggregate student data, school level data, and within-school variance. The conclusion connects these results back to the four research questions which guide this study.

Sample Description

After accounting for missing data, between 3,370 – 3,490 first year students and 2,907 – 2,979 senior-year students were included in the sample for analysis. The variation in numbers is related to the standards of missing data for each engagement scalet. A listing of the N, mean, standard deviation, and standard error of the mean for each scalet is included in Table 3. Table 4 shows the same descriptive data only with each scalet divided into first-year and senior-year data sets as that is how the data will be analyzed in this study. The sample data were taken from the 2009 and 2010 administrations of the National Survey of Student Engagement (NSSE). In 2009, over 360,000 students from 610 institutions across the nation completed the survey and in 2010, over 362,000 students across 564 institutions participated (NSSE, 2009, 2010).

There are 14 rural and 15 urban schools included in this study. Those schools included 1,865 first-year and 1,601 senior-year students at rural schools and 1,918 first-year and 1,552 senior-year students at urban schools. The range of student cases at each schools was 55 to 229 first-year students and 43 to 181 senior-year students. Table 5

Table 3

Descriptive Statistics for Engagement Scalets for Entire Sample

	N	Mean	Std. Deviation	
	Statistic	Statistic	Std. Error	Statistic
Course Challenge	6433	66.73	.182	14.59
Out-of-Class Interaction	6340	34.33	.317	25.26
Diversity	6305	60.72	.304	24.13
Support for Student Success	6281	57.02	.295	23.41
Varied Experiences	6469	37.87	.279	22.47

Table 4

Descriptive Statistics for Engagement Scalets Sorted by Class-Year

		N	Mean	Std. Deviation	Std. Error Mean
		Course Challenge	First-year	3467	66.91
	Senior-year	2966	66.52	14.72	.270
Out-of-Class Interaction	First-year	3408	24.76	18.57	.318
	Senior-year	2932	45.46	27.36	.505
Diversity	First-year	3389	62.12	24.37	.419
	Senior-year	2916	59.11	23.75	.440
Support for Student Success	First-year	3374	60.50	23.10	.398
	Senior-year	2907	52.98	23.11	.429
Varied Experiences	First-year	3490	23.33	12.68	.215
	Senior-year	2979	54.91	19.23	.352

Table 5
Total Number of Respondents Per School Sorted by Class-Year

Institution Number	Urbanicity	First-Year	Senior-Year	Total
1	Urban	180	134	314
3	Rural	110	99	209
4	Urban	124	94	218
5	Rural	146	141	287
6	Rural	92	89	181
7	Urban	214	101	315
8	Rural	162	132	294
9	Urban	134	147	281
10	Urban	150	123	273
11	Urban	88	111	199
12	Rural	77	78	155
13	Rural	162	139	301
15	Rural	90	90	180
16	Urban	55	62	117
17	Urban	78	73	151
18	Urban	138	108	246
19	Urban	99	51	150
20	Rural	133	78	211
21	Rural	68	43	111
23	Urban	61	53	114
24	Urban	132	83	215
25	Rural	205	138	343
26	Urban	124	70	194
27	Urban	229	177	406
28	Rural	132	90	222
29	Rural	128	185	313
30	Urban	112	165	277
31	Rural	142	118	260
32	Rural	218	181	399
Total		3783	3153	6936

shows the number of first-year and senior-year respondents for each institution included in this study. These numbers do not reflect the cases that were removed later due to missing data.

Aggregate Student Data

In the first part of the data analysis for this study, all students in the sample were grouped by their class year to create two groups, first-year students and senior-year students. Within each of these groups, all rural students were compared with all urban students to see if there were significant differences in the five engagement scalets used in this study. An independent sample t-test was chosen as the method of analysis due to the dependent variables (engagement scalet scores) being continuous variables and having two independent groups to compare (students at rural schools vs. students at urban schools) (Weiss & Weiss, 2012). The independent sample t-test is used to determine if there is significant variance between two groups of independent variables in relation to the dependent variable. In total, ten independent sample t-tests were performed to determine significance and the effect size of any significant differences were reported.

To begin, each of the ten sets of data were tested for outliers by comparing box-plots of the data points (Mendenhall, Beaver, & Beaver, 2012). With such large sample sizes for each t-test (min cases = 1,422; max cases = 1,746), the standard used to determine outliers was +/- 3 box widths before removing the outlying data (Mendenhall, Beaver, & Beaver, 2012). The number of outliers was also considered as a factor and any amount of outliers that was less than 1% of the data was deemed allowable for this study. Using those standards, no outlying data points were identified for the five scalets using

senior-year data. However, for first-year data, a total of 9 outlying data points were identified within the Out-of-Class Interaction scalet (7 rural, 2 urban). Each of those data points were over 3 box widths away and were thus excluded from the analysis for that scalet.

After determining what to do with the outlying data, a test for normality was performed through an observation of normal Q-Q plots (Mendenhall, Beaver, & Beaver, 2012). These plots identified the line of regression and then plot the expected normal quintile versus the observed value quintile. Normally distributed data would show a plot of data that is generally linear and sloped in a positive direction (Stevens, 1996). Twenty Q-Q plots were reviewed, two for each scalet performed over both first-year and senior-year data. Minor skewness concerns were noted in some normal Q-Q plots and the data for those plots was then transformed through a square root function and a log10 function. The transformations did not produce any significant differences which improved the plots. In each case, any minor skewness observed was similar in that scalet for both rural and urban students. As such, it was determined that the data passed the test for normality (Mendenhall, Beaver, & Beaver, 2012).

A final test was performed to determine the homogeneity of the variance in the data. Levene's test for equality of variances was utilized to complete this test. This test confirms if the variance of each group is equal in the population. Failure to confirm homogeneity of the variance would lead to a greater chance of making a Type I error (rejecting a null hypotheses that is true) (Gastwirth, Gel, & Miao, 2009). All of the groups being compared in this portion of the study were found to have variances that

were equal in the populations, except for one. The senior-year data for the Varied Experiences scalet did not have homogeneous variances as shown by Levene's test ($F = 9.279$, $\text{sig} = .002$). As such, the data presented for that specific scalet reflect the calculations where equal variances were not assumed. For all other data analyses in this step, equal variances were assumed.

Descriptive data. A full list of the descriptive data for the aggregate student data analysis is provided in Tables 6 and 7. For senior-year data, it was noted that students at urban schools were more engaged in the Course Challenge, Diversity, and Varied Experiences scalets. Senior-year students at rural schools were more engaged in the Out-of-Class Interaction and Support for Student Success scalets. For first-year data however, students at urban schools were more engaged in four of the five scalets, with first-year students at rural schools only more engaged in the Varied Experiences scalet.

Significant t-test results. An independent samples t-test determined that four scalets (out of 10) had significant mean differences. It was determined that students at urban institutions were more engaged on the Diversity scalet in their first-year ($M = 3.25$, 95% CI [-4.89, -1.62], $t(3387) = -3.895$, $p = .000$, $d = .134$) and on the Diversity ($M = 3.29$, 95% CI [-5.01, -1.57], $t(2914) = -3.744$, $p = .000$, $d = .139$) and Course Challenge ($M = 1.35$, 95% CI [-2.41, -.29], $t(2964) = -2.50$, $p = .013$, $d = .092$) scalets in their senior-year. Rural students were more engaged on the Out-of-Class Interaction ($M = 2.20$, 95% CI [.62, 4.58], $t(2930) = 2.57$, $p = .01$, $d = .095$) scalet in their senior-year. A full report of the results of the t-test is provided in Tables 8 and 9.

Table 6

Descriptive Data: Aggregate Student Data, First-year Students

	Urbanicity	N	Scalet Mean	Std. Deviation	Std. Error Mean
Course Challenge	Rural	1729	66.54	14.35	.345
	Urban	1736	67.28	14.59	.350
Diversity	Rural	1697	60.49	24.37	.592
	Urban	1690	63.75	24.27	.590
Out-of-class Interaction	Rural	1695	24.17	17.58	.427
	Urban	1695	24.59	18.08	.439
Support of Student Success	Rural	1682	59.84	23.16	.565
	Urban	1690	61.17	23.04	.560
Varied Experiences	Rural	1737	23.25	1.17	.292
	Urban	1729	22.92	11.80	.283

Table 7

Descriptive Data: Aggregate Student Data, Senior-year Students

	Urbanicity	N	Scalet Mean	Std. Deviation	Std. Error Mean
Course Challenge	Rural	1514	65.86	14.88	.382
	Urban	1452	67.21	14.53	.381
Diversity	Rural	1491	57.50	23.69	.613
	Urban	1425	60.79	23.71	.628
Out-of-class Interaction	Rural	1496	46.73	26.90	.696
	Urban	1436	44.13	27.77	.733
Support of Student Success	Rural	1485	53.38	22.77	.591
	Urban	1422	52.56	23.47	.622
Varied Experiences	Rural	1519	54.69	18.41	.472
	Urban	1460	55.14	20.06	.525

Table 8

Independent Samples t-test: Aggregate Student Data, First-year Students

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2- tailed)	Mean Diff	Std. Error Diff
Course Challenge	.571	.450	-1.504	3465	.133	-0.74	.491
Diversity	.216	.642	-3.895	3387	.000 **	-3.25	.836
Out-of-class Interaction	.318	.573	-.435	3400	.663	-0.27	.628
Support for Student Success	.005	.942	-1.684	3372	.092	-1.34	.795
Varied Experiences	1.422	.233	.836	3476	.403	0.34	.406

** = $p < .05$

Table 9

Independent Samples t-test: Aggregate Student Data, Senior-year Students

	Levene's Test for Equality of Variances		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2- tailed)	Mean Diff	Std. Error Diff
Course Challenge	.126	.722	-2.499	2964	.013 **	-1.35	.540
Diversity	.248	.618	-3.744	2914	.000 **	-3.29	.878
Out-of-class Interaction	.783	.376	2.572	2930	.010 **	2.60	1.010
Support for Student Success	1.446	.229	.951	2905	.342	0.82	.858
Varied Experiences ^a	9.279	.002	-.636	2931	.525	-0.45	.706

^a equal variances not assumed** = $p < .05$

Regression results. A series of multiple regression analyses were then run to examine the relationship between the five student engagement scales used in this study and the six independent student demographic variables (academic performance, first-generation status, race, gender, Greek participation, and varsity athletic participation) within the aggregate student data. Multiple regression was chosen because it allows for more than one independent variable to be calculated in a regression equation at the same time. It also allows for the researcher to identify coefficients for each independent variable and determine that variable's significance with regard to the variation of the dependent variable (Cohen, Cohen, West, & Aiken, 2003). Numerous tests surrounding the foundational assumptions of multiple regression were performed. From these tests it was determined that the assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met. The multiple regressions were then run for first-year and senior-year data and were split between students attending rural schools and students attending urban schools. Tables 10 and 11 provide the means and standard deviations for dependent and independent variables for students at rural and urban schools.

Comparisons of the fit of the models from the rural and urban school students was then performed using a Fisher Z test. This test transforms the correlation coefficients to a nearly normal distribution (Kenny, 1987). The two regression lines (rural and urban) can thus be compared to determine if the regressions predict the dependent variable equally well. These tests revealed that there was no significant difference between the respective R^2 values and as such, the two regression equations are equally valid in predicting the

Table 10

Descriptive Statistics: Aggregate Student Data, Rural Schools

	Mean	Std. Deviation
Course Challenge	66.57	14.35
Diversity	60.42	24.35
Out-of-class Interaction	24.46	18.22
Support for Student Success	59.89	23.11
Varied Experiences	23.32	12.09
Academic performance	5.74	1.73
Athlete	0.33	0.47
First-Generation	0.32	0.47
Gender	0.62	0.49
Greek	0.14	0.35
Race	0.19	0.39

Table 11

Descriptive Statistics: Aggregate Student Data, Urban Schools

	Mean	Std. Deviation
Course Challenge	67.36	14.56
Diversity	63.73	24.36
Out-of-class interaction	24.86	18.45
Support for Student Success	61.25	23.17
Varied Experiences	23.11	11.71
Academic performance	5.91	1.68
Athlete	0.28	0.45
First-Generation	0.29	0.45
Gender	0.64	0.48
Greek	0.22	0.41
Race	0.28	0.45

value of the engagement scalets. Further analyses were then performed to reveal independent variables which had significantly different regression weights in the rural and urban school samples. This analysis involved calculating a Z-score utilizing the difference in the coefficients and standard errors of each independent variable across all of the multiple regressions (Garbin, 2014). Some variables were found to have significant differences between rural and urban students in specific scalets and student type (first-year or senior-year). Tables showing the unstandardized coefficients (b), standard errors (SE) and significance (sig) of each independent variable at rural schools and urban schools are presented in Tables 12-21. These tables also present the standard error of the difference in the unstandardized coefficients (b) and the calculated Z-score which produces the probability value (p) that is used to judge significance in the difference between the independent variable coefficients, and thus, which demographics have significant differences based on the urbanicity of the school.

School Level Data

The second step of the data analysis for this study focused on grouping the data at the school level and comparing school means to find significant between-school variance. To begin, the school means for each engagement scalet was calculated for both first-year and senior-year data. These school level means then became the data source for this analysis. Tests were performed to make sure the data were normally distributed and did not have any outliers. Normality was assessed using the Shapiro-Wilk test. All engagement scalet means passed the test, except Out-of-Class Interaction scores for

Table 12

Multiple Regression Coefficient Comparison: First-year Students, Course Challenge Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	57.632	1.392	.000	55.548	1.496	.000			
Acad. Perf.	.730	.204	.000	1.152	.213	.000	0.29	-1.43	0.08
Athlete	2.632	.749	.000	1.054	.789	.182	1.09	1.45	0.07
First Gen	.244	.741	.742	.190	.784	.809	1.08	0.05	0.48
Gender	4.677	.725	.000	5.530	.737	.000	1.03	-0.83	0.20
Greek	3.911	.995	.000	3.469	.852	.000	1.31	0.34	0.37
Race	2.042	.892	.022	1.428	.791	.071	1.19	0.52	0.30

Table 13

Multiple Regression Coefficient Comparison: First-year Students, Diversity Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	58.138	2.409	.000	60.639	2.602	.000			
Acad. Perf.	.600	.354	.090	.386	.371	.299	0.51	0.42	0.34
Athlete	-4.084	1.294	.002	-2.138	1.367	.118	1.88	-1.03	0.15
First Gen	-1.388	1.277	.277	.558	1.363	.682	1.87	-1.04	0.15
Gender	-2.257	1.251	.071	-.063	1.277	.961	1.79	-1.23	0.11
Greek	7.337	1.721	.000	.652	1.478	.659	2.27	2.95	0.00**
Race	5.511	1.536	.000	4.233	1.373	.002	2.06	0.62	0.27

** = $p < .05$

Table 14

Multiple Regression Coefficient Comparison: First-year Students, Out-of-class Interaction Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	16.071	1.805	.000	17.778	1.971	.000			
Acad. Perf.	1.128	.266	.000	.946	.281	.001	0.39	0.47	0.32
Athlete	.373	.970	.701	.164	1.035	.874	1.42	0.15	0.44
First Gen	1.272	.959	.185	2.464	1.032	.017	1.41	-0.85	0.20
Gender	-.603	.940	.521	-1.445	.968	.136	1.35	0.62	0.27
Greek	4.630	1.286	.000	3.911	1.122	.001	1.71	0.42	0.34
Race	5.957	1.156	.000	2.947	1.039	.005	1.55	1.94	0.03**

** = $p < .05$

Table 15

Multiple Regression Coefficient Comparison: First-year Students, Support for Student Success Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	58.138	2.409	.000	60.639	2.602	.000			
Acad. Perf.	.513	.339	.090	.386	.353	.299	0.49	0.26	0.40
Athlete	1.039	1.231	.002	1.763	1.302	.118	1.79	-0.40	0.34
First Gen	1.550	1.219	.277	1.129	1.298	.682	1.78	0.24	0.41
Gender	.069	1.192	.071	2.047	1.216	.961	1.70	-1.16	0.12
Greek	10.108	1.639	.000	3.415	1.406	.659	2.16	3.10	0.00**
Race	1.323	1.467	.000	-.319	1.307	.002	1.96	0.84	0.20

** = $p < .05$

Table 16

Multiple Regression Coefficient Comparison: First-year Students, Varied Experiences Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	15.459	1.162	.000	15.015	1.210	.000			
Acad. Perf.	.824	.171	.000	.938	.172	.000	0.24	-0.47	0.32
Athlete	3.047	.624	.000	2.996	.638	.000	0.89	0.06	0.48
First Gen	-1.295	.616	.036	-1.664	.635	.009	0.88	0.42	0.34
Gender	2.137	.603	.000	1.477	.595	.013	0.85	0.78	0.22
Greek	6.970	.828	.000	4.229	.690	.000	1.08	2.54	0.01**
Race	1.384	.743	.063	1.273	.639	.046	0.98	0.11	0.45

** = $p < .05$

Table 17

Multiple Regression Coefficient Comparison: Senior-year Students, Course Challenge Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	57.156	1.935	.000	55.010	1.888	.000			
Acad. Perf.	.618	.282	.028	1.359	.275	.000	0.39	-1.88	0.03**
Athlete	-.370	.905	.683	.605	.990	.542	1.34	-0.73	0.23
First Gen	1.296	.825	.116	2.198	.875	.012	1.20	-0.75	0.23
Gender	5.933	.806	.000	4.213	.811	.000	1.14	1.50	0.07
Greek	3.146	.860	.000	1.523	.865	.078	1.22	1.33	0.09
Race	-.591	1.157	.609	-.214	.997	.830	1.53	-0.25	0.40

** = $p < .05$

Table 18

Multiple Regression Coefficient Comparison: Senior-year Students, Diversity Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	57.216	3.150	.000	57.381	3.176	.000			
Acad. Perf.	.068	.458	.882	.302	.463	.514	0.65	-0.36	0.36
Athlete	-2.159	1.477	.144	-2.720	1.673	.104	2.23	0.25	0.40
First Gen	-.895	1.344	.506	-.065	1.473	.965	1.99	-0.42	0.34
Gender	-.857	1.312	.514	1.972	1.370	.150	1.90	-1.49	0.07
Greek	1.653	1.400	.238	-.459	1.461	.753	2.02	1.04	0.15
Race	6.171	1.877	.001	4.996	1.682	.003	2.52	0.47	0.32

Table 19

Multiple Regression Coefficient Comparison: Senior-year Students, Out-of-class Interaction Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	p
Constant	12.068	3.487	.001	21.627	3.661	.000			
Acad. Perf.	4.880	.508	.000	3.541	.533	.000	0.74	1.82	0.03**
Athlete	-.236	1.631	.885	2.605	1.929	.177	2.53	-1.12	0.13
First Gen	-.329	1.486	.825	-3.658	1.701	.032	2.26	1.47	0.07
Gender	2.263	1.453	.120	-1.463	1.576	.353	2.14	1.74	0.04**
Greek	7.840	1.545	.000	3.366	1.678	.045	2.28	1.96	0.02**
Race	6.077	2.096	.004	3.831	1.940	.049	2.86	0.79	0.22

** = $p < .05$

Table 20

Multiple Regression Coefficient Comparison: Senior-year Students, Support for Student Success Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	P
Constant	43.051	3.056	.000	42.736	3.139	.000			
Acad. Perf.	1.391	.445	.002	1.084	.456	.018	0.64	0.48	0.31
Athlete	1.790	1.425	.209	3.280	1.644	.046	2.18	-0.68	0.25
First Gen	.272	1.299	.834	1.206	1.451	.406	1.95	-0.48	0.32
Gender	1.420	1.269	.263	1.932	1.345	.151	1.85	-0.28	0.39
Greek	1.239	1.353	.360	4.193	1.436	.004	1.97	-1.50	0.07
Race	-.012	1.826	.995	-.109	1.648	.947	2.46	0.04	0.48

Table 21

Multiple Regression Coefficient Comparison: Senior-year Students, Varied Experiences Scalet

	Rural Schools			Urban Schools			Coefficient comparison		
	b	SE (b)	sig	b	SE (b)	sig	SE (b-diff)	Z-score	P
Constant	34.543	2.344	.000	37.098	2.596	.000			
Acad. Perf.	2.459	.341	.000	2.371	.166	.000	0.38	0.23	0.41
Athlete	3.918	1.098	.000	4.166	.080	.002	1.10	-0.23	0.41
First Gen	-2.494	1.000	.013	-5.598	-.121	.000	1.01	3.08	0.00**
Gender	4.537	.976	.000	3.216	.076	.004	0.98	1.35	0.09
Greek	6.494	1.041	.000	5.700	.125	.000	1.05	0.76	0.22
Race	.044	1.403	.975	1.440	.028	.291	1.40	-0.99	0.16

** = $p < .05$

senior-year scores at urban schools (.876, $df = 15$, $p < .05$). It was determined that these data could be maintained without transformation because the violation of this assumption was not a particularly strong one (Sig. = .041) and the independent sample t-test is known to be robust to deviations from normality (Lumley, Diehr, Emerson, & Chen, 2002).

Outliers were determined by reviewing a box plot of the data with outliers identified as being 1.5 box-widths outside of the central box area. 5 first-year data points and 8 senior-year data points were determined to be outliers, they are listed in Table 22. In reviewing these outliers, I was unable to determine that there was significant data entry or measurement errors and thus it is likely that these values are genuinely unusual. Indeed, other research has been done on schools that are significant outliers on student engagement benchmarks (Kuh et al., 2010) and some of the institutions in this study were included in the research cited. I chose to include the outliers in the data analysis because the data, while outlying, is almost certainly accurate and appropriate.

An independent sample t-test was then performed and homogeneity of variance was analyzed using Levene's test for equality of variances. All t-tests were found to have no significance in Levene's test and as such equal variances were assumed for all t-tests performed in this step of the data analysis.

There were 14 rural schools and 15 urban schools included in this step of the analysis. Each school's mean engagement scalet score was utilized for the independent sample t-tests. The goal was to determine if engagement varied significantly between

Table 22

School-level data: Outliers

Class year	Scalet	Urbanicity	Outlying Direction	Institution No. (out of 29)
First	Course Challenge	Rural	High	7
First	Diversity	Urban	High	3
First	Diversity	Urban	Low	17
First	Support for Student Success	Rural	High	7
First	Support for Student Success	Rural	Low	19
Senior	Diversity	Urban	High	20
Senior	Diversity	Rural	Low	26
Senior	Out-of-class Interaction	Rural	Low	22
Senior	Support for Student Success	Urban	Low	1
Senior	Support for Student Success	Urban	Low	3
Senior	Support for Student Success	Urban	Low	8
Senior	Support for Student Success	Urban	High	17
Senior	Support for Student Success	Urban	High	20

rural and urban schools and if so, which scalet and what class year showed those significant variances. None of the between-school effects were determined to be significant when comparing rural schools with urban schools on the five engagement scalets in this study over the two student types (first-year and senior-year). A summary of the results for these t-tests is included in Tables 23 and 24.

Within-School Data

After analyzing the aggregate student variance and the between-school variance, it is important to look for significant variance within each school and then determine if there are commonalities across rural or urban schools. This step is important because the

Table 23

Independent Samples t-test: Urban vs. Rural School Level Data, First-year Students

	Levene's Test		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.
Course Challenge	.038	.847	-.644	27	.525	-0.73	1.136
Diversity	.109	.744	-2.045	27	.051	-3.43	1.677
Out-of-class Interaction	3.713	.065	.188	27	.852	0.20	1.077
Support for Student Success	.007	.933	-1.594	27	.123	-2.41	1.513
Varied Experiences	.003	.955	.621	27	.540	0.65	1.041

Table 24

Independent Samples t-test: Urban vs. Rural School Level Data, Senior-year Students

	Levene's Test		t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	SE Diff.
Course Challenge	.902	.351	-1.284	27	.210	-1.51	1.178
Diversity	.785	.384	-.833	27	.412	-2.14	2.574
Out-of-class Interaction	2.818	.105	.913	27	.369	1.97	2.158
Support for Student Success	.095	.760	-.154	27	.878	-0.23	1.492
Varied Experiences	.143	.709	.015	27	.988	0.03	2.133

NSSE survey researchers have long proven that within-school variance is far greater than between-school variance (NSSE, 2009). In order to best answer the research questions in this study, it is imperative that the nature of the within-school variance is studied.

The best method for parsing out within-school variance is a two-level multilevel regression model. In this model, statistical procedures are run which isolate the between-school variance and separate that variance away from the variance that is occurring

within the school. This separation occurs as the multilevel regression model views the student level variance as nesting within the institutional level variance (Heck, Thomas, & Tabata, 2014). The procedure begins by identifying the school level variance which is called the null model for this analysis. An important test is to see if the variance in this model is significant. As noted during the between-school analysis step of this study, no statistically significant variance was found between schools. The same result occurred in the first step of this multilevel regression model; no significant differences were found. The null model had a $p > .05$ for all coefficients. The lack of significant difference means that one level of the multi-level regression model is insignificant and as such, there was no longer any need for a multi-level model. A multiple regression of the data within each school would suffice to identify the significant variables affecting engagement at each school (Heck et al., 2014).

The multiple regressions were performed within each school for each scalet across both types of student data (first-year and senior-year). For each regression, the tests for assumptions of linearity, independence of errors, homoscedasticity, unusual points, and normality of residuals were met. Out of 290 multiple regression models, 74 were found to be significant. Of those significant models, 1 had a very small R^2 value, 28 had a small R^2 value, 41 had a medium R^2 value, and 1 had a large R^2 value. The significant regression models for first-year and senior-year data are presented in Tables 25 and 26. Adjusted R-squared values, significance levels, F-statistic values, and degrees

Table 25

Significant Multiple Regression Models: Within-school data, First-year Students

Inst Num	Urbanicity	Course Challenge				Diversity				Out-of-class Interaction			
		Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df
1	Urban	x	x	x	x	0.045	0.036	2.310	6,161	0.056	0.020	2.594	6,155
3	Rural	0.093	0.024	2.575	6,86	x	x	x	x	x	x	x	x
6	Rural	0.227	0.000	4.975	6,75	x	x	x	x	x	x	x	x
7	Urban	0.044	0.025	2.471	6,187	x	x	x	x	x	x	x	x
8	Rural	0.122	0.000	4.361	6,139	x	x	x	x	x	x	x	x
9	Urban	0.053	0.043	2.379	5,118	x	x	x	x	x	x	x	x
10	Urban	0.126	0.001	4.103	6,123	x	x	x	x	0.081	0.014	2.810	6,118
12	Rural	0.143	0.016	2.859	6,61	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	x	x	x	x
16	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	0.181	0.000	5.010	5,86	x	x	x	x	x	x	x	x
24	Urban	0.094	0.007	3.115	6,116	x	x	x	x	x	x	x	x
25	Rural	0.046	0.025	2.480	6,178	0.067	0.005	3.183	6,175	x	x	x	x
26	Urban	x	x	x	x	x	x	x	x	x	x	x	x
27	Urban	0.084	0.001	4.547	5,188	x	x	x	x	0.059	0.006	3.392	5,186
28	Rural	0.058	0.044	2.242	6,114	x	x	x	x	0.122	0.002	3.698	6,111
29	Rural	x	x	x	x	x	x	x	x	x	x	x	x
30	Urban	x	x	x	x	x	x	x	x	0.139	0.023	2.877	5,53
31	Rural	x	x	x	x	0.088	0.013	2.844	6,108	x	x	x	x
32	Rural	0.090	0.001	4.159	6,186	x	x	x	x	x	x	x	x

(Table Continues)

Table 25

Significant Multiple Regression Models: Within-school data, First-year Students

InstNum	Urbanicity	Support for Student Success				Varied Experiences			
		Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df
1	Urban	x	x	x	x	0.104	0.001	4.221	6,161
3	Rural	0.104	0.016	2.777	6,86	0.105	0.015	2.801	6,86
6	Rural	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x
8	Rural	x	x	x	x	x	x	x	x
9	Urban	x	x	x	x	x	x	x	x
10	Urban	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	0.141	0.007	3.519	5,72
12	Rural	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	0.077	0.005	3.544	5,148
15	Rural	x	x	x	x	0.145	0.007	3.266	6,74
16	Urban	x	x	x	x	0.356	0.001	5.056	6,38
19	Urban	x	x	x	x	0.105	0.012	3.139	5,86
24	Urban	x	x	x	x	0.239	0.000	7.240	6,113
25	Rural	x	x	x	x	x	x	x	x
26	Urban	x	x	x	x	0.184	0.000	4.694	6,92
27	Urban	x	x	x	x	0.089	0.000	4.723	5,186
28	Rural	x	x	x	x	0.122	0.002	3.790	6,115
29	Rural	x	x	x	x	0.156	0.001	4.354	6,103
30	Urban	x	x	x	x	x	x	x	x
31	Rural	x	x	x	x	0.108	0.004	3.352	6,111
32	Rural	x	x	x	x	0.054	0.011	2.869	6,189

Table 26

Significant Multiple Regression Models: Within-school data, Senior-year Students

Inst Num	Urbanity	Course Challenge				Diversity				Out-of-class Interaction			
		Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df
1	Urban	x	x	x	x	x	x	x	x	x	x	x	x
3	Rural	0.088	0.044	2.286	6,74	0.090	0.041	2.325	6,74	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
6	Rural	0.176	0.002	3.884	6,75	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
9	Urban	0.110	0.009	3.224	5,131	x	x	x	x	x	x	x	x
10	Urban	0.096	0.008	3.050	6,110	x	x	x	x	x	x	x	x
11	Urban	0.240	0.000	7.433	5,97	x	x	x	x	0.084	0.019	2.862	5,97
12	Rural	x	x	x	x	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	0.162	0.009	3.153	6,61	x	x	x	x	x	x	x	x
20	Rural	x	x	x	x	x	x	x	x	x	x	x	x
24	Urban	x	x	x	x	x	x	x	x	x	x	x	x
25	Rural	0.064	0.032	2.400	6,117	0.078	0.017	2.708	6,115	0.065	0.030	2.425	6116
26	Urban	x	x	x	x	x	x	x	x	0.135	0.031	2.538	6,53
27	Urban	0.053	0.020	2.771	5,154	x	x	x	x	0.045	0.038	2.431	5,146
28	Rural	0.165	0.003	3.660	6,75	x	x	x	x	x	x	x	x
29	Rural	0.080	0.004	3.361	6156	x	x	x	x	0.063	0.014	2.771	6153
30	Urban	0.076	0.017	2.691	6118	x	x	x	x	x	x	x	x
31	Rural	0.101	0.007	3.119	6107	x	x	x	x	x	x	x	x
32	Rural	x	x	x	x	x	x	x	x	x	x	x	x

(Table Continues)

Table 26

Significant Multiple Regression Models: Within-school data, Senior-year Students

InstNum	Urbanicity	Support for Student Success				Varied Experiences			
		Adj. R ²	Sig.	F	df	Adj. R ²	Sig.	F	df
1	Urban	x	x	x	x	0.087	0.009	3.024	6,122
3	Rural	x	x	x	x	x	x	x	x
4	Urban	x	x	x	x	0.169	0.003	3.708	6,74
6	Rural	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	0.103	0.015	2.808	6,89
9	Urban	x	x	x	x	0.054	0.030	2.568	5131
10	Urban	x	x	x	x	0.064	0.038	2.314	6110
11	Urban	x	x	x	x	0.171	0.000	5.277	5,99
12	Rural	x	x	x	x	0.152	0.008	3.207	6,68
13	Rural	x	x	x	x	0.123	0.001	4.734	5,128
17	Urban	x	x	x	x	x	x	x	x
20	Rural	x	x	x	x	0.142	0.013	2.951	6,65
24	Urban	x	x	x	x	0.118	0.023	2.649	6,68
25	Rural	x	x	x	x	0.099	0.005	3.250	6117
26	Urban	x	x	x	x	x	x	x	x
27	Urban	x	x	x	x	0.138	0.000	6.107	5,154
28	Rural	x	x	x	x	0.119	0.016	2.818	6,75
29	Rural	x	x	x	x	0.056	0.020	2.591	6,155
30	Urban	x	x	x	x	0.002	0.120	3.831	6119
31	Rural	x	x	x	x	x	x	x	x
32	Rural	x	x	x	x	0.185	0.000	6.986	6,152

of freedom are reported in the tables for each significant model. Adjusted R-squared values were chosen over R-squared values to account for variance associated with interaction effects between the independent variables and thus avoid overstating the impact of the multiple regression models (Weiss & Weiss, 2012).

Tables 27 to 36 detail each engagement scalet for first-year and senior-year data. These tables help answer research question #4 for this study which focuses on the demographics which may be more or less engaged at urban or rural schools. In each table, the p-value (p), unstandardized coefficient (UC), Standard Error (SE) and standardized coefficient (SC) are presented for all significant variables. These tables present the regression results in a manner that shows which demographic variables are more likely to have significant influence on the engagement scalet scores. Table 37 displays the frequency of significant variables between rural and urban schools. These tables provide a representation of the likelihood that certain demographic variables (e.g., gender, race, Greek, etc.) are more likely to be significantly more/less engaged at rural or urban schools.

Conclusion

The analysis of the data for this study covered three important areas of variance: aggregate student data, between-school data, and within-school data. The aggregate student data helped answer research questions one and two which focus on identifying if urbanicity significantly affects first-year or senior-year student engagement. By analyzing all student responses together, the study is able to view those

Table 27

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Course Challenge Scalet

Inst Num	Urbanicity	Acad. Perf.				First Gen				Race			
		p	UC	SE	SC	p	UC	SE	SC	p	UC	SE	SC
3	Rural	x	x	x	x	x	x	x	x	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	x	x	x	x
6	Rural	x	x	x	x	0.012	7.006	2.711	0.261	0.006	8.148	2.884	0.283
7	Urban	0.011	1.381	0.535	0.191	x	x	x	x	0.038	4.359	2.088	0.152
8	Rural	0.000	2.620	0.632	0.346	x	x	x	x	x	x	x	x
9	Urban	0.042	2.149	0.949	0.226	x	x	x	x	x	x	x	x
10	Urban	x	x	x	x	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	x	x	x	x
12	Rural	x	x	x	x	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	0.020	2.000	0.838	0.313	x	x	x	x	x	x	x	x
19	Urban	x	x	x	x	x	x	x	x	x	x	x	x
23	Urban	0.013	3.302	1.271	0.392	x	x	x	x	x	x	x	x
24	Urban	0.012	1.629	0.639	0.228	x	x	x	x	x	x	x	x
25	Rural	0.044	1.189	0.586	0.151	x	x	x	x	x	x	x	x
26	Urban	x	x	x	x	0.007	-9.009	3.240	-0.305	x	x	x	x
27	Urban	0.001	1.944	0.552	0.252	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	x	x	x	x
32	Rural	0.000	2.135	0.572	0.271	x	x	x	x	x	x	x	x

(Table Continues)

Table 27

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Course Challenge Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
3	Rural	0.005	8.630	2.973	0.301	x	x	x	x	x	x	x	x
5	Rural	0.012	7.265	2.839	0.227	x	x	x	x	x	x	x	x
6	Rural	x	x	x	x	0.000	17.456	4.397	0.420	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
8	Rural	x	x	x	x	x	x	x	x	0.010	5.523	2.104	0.224
9	Urban	0.042	5.625	2.737	0.185	x	x	x	x	x	x	x	x
10	Urban	0.000	10.855	2.930	0.322	x	x	x	x	x	x	x	x
11	Urban	0.041	7.740	3.710	0.237	x	x	x	x	x	x	x	x
12	Rural	0.001	13.302	3.895	0.455	x	x	x	x	0.010	10.166	3.846	0.321
13	Rural	0.018	5.974	2.496	0.196	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	0.028	7.825	10.665	0.080
17	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	0.000	10.990	2.995	0.373	x	x	x	x	x	x	x	x
23	Urban	x	x	x	x	x	x	x	x	x	x	x	x
24	Urban	0.016	5.655	2.324	0.213	x	x	x	x	x	x	x	x
25	Rural	0.025	5.131	1.940	0.200	x	x	x	x	x	x	x	x
26	Urban	x	x	x	x	x	x	x	x	x	x	x	x
27	Urban	0.015	4.924	2.011	0.175	x	x	x	x	x	x	x	x
28	Rural	0.049	4.763	2.391	0.193	x	x	x	x	x	x	x	x
31	Rural	0.013	8.821	3.446	0.322	x	x	x	x	0.031	8.038	3.625	0.283
32	Rural	0.018	4.558	1.902	0.172	x	x	x	x	0.041	4.068	1.981	0.150

Table 29

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Out-of-class Interaction Scalet

Inst Num	Urbanicity	Acad. Perf.				First Gen				Race			
		p	UC	SE	SC	p	UC	SE	SC	p	UC	SE	SC
1	Urban	x	x	x	x	x	x	x	x	x	x	x	x
3	Rural	x	x	x	x	x	x	x	x	0.013	10.946	4.291	0.270
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	x	x	x	x
6	Rural	x	x	x	x	x	x	x	x	x	x	x	x
8	Rural	0.019	2.169	0.916	0.210	0.029	7.762	3.522	0.188	x	x	x	x
10	Urban	0.007	2.571	0.928	0.243	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	0.031	9.336	4.247	0.254
12	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	x	x	x	x	x	x	x	x	0.049	6.984	4.867	0.180
18	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	x	x	x	x	x	x	x	x	x	x	x	x
27	Urban	x	x	x	x	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	0.000	14.569	4.052	0.318
29	Rural	x	x	x	x	0.033	6.914	3.193	0.219	x	x	x	x
30	Urban	0.043	3.534	1.707	0.269	x	x	x	x	0.028	13.055	5.797	0.341
31	Rural	0.032	2.860	1.313	0.208	x	x	x	x	x	x	x	x
32	Rural	0.035	1.636	0.771	0.164	x	x	x	x	x	x	x	x

(Table Continues)

Table 30

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Support for Student Success Scalet

Inst Num	Urbanicity	p	Acad. Perf.			p	First Gen			p	Race		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
3	Rural	x	x	x	x	x	x	x	x	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	x	x	x	x	x	x	x	x	x	x	x	x
18	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	x	x	x	x	x	x	x	x	x	x	x	x
20	Rural	x	x	x	x	x	x	x	x	x	x	x	x
21	Rural	0.016	3.036	1.246	0.238	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	x	x	x	x

(Table Continues)

Table 30

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Support for Student Success Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
3	Rural	x	x	x	x	0.001	15.812	4.690	0.356	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	0.047	10.287	5.127	0.202
15	Rural	x	x	x	x	0.044	33.736	16.434	0.232	0.048	10.878	5.397	0.236
17	Urban	x	x	x	x	0.021	15.415	6.491	0.351	x	x	x	x
18	Urban	x	x	x	x	x	x	x	x	0.050	-10.956	5.524	-0.200
19	Urban	0.042	11.721	5.666	0.226	x	x	x	x	0.034	11.699	5.432	0.232
20	Rural	0.041	-9.510	4.600	-0.211	x	x	x	x	x	x	x	x
21	Rural	x	x	x	x	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	0.036	10.745	5.069	0.205	x	x	x	x

Table 31

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Varied Experiences Scalet

Inst Num	Urbanicity	p	Acad. Perf.			p	First Gen			p	Race		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	0.013	1.212	0.480	0.191	x	x	x	x	x	x	x	x
3	Rural	x	x	x	x	x	x	x	x	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	x	x	x	x
7	Urban	0.013	1.195	0.474	0.187	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	0.042	-3.579	1.745	-0.165	x	x	x	x
15	Rural	0.018	1.463	0.604	0.266	x	x	x	x	x	x	x	x
16	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	x	x	x	x	x	x	x	x	x	x	x	x
24	Urban	0.000	1.997	0.548	0.305	x	x	x	x	0.002	7.515	2.427	0.251
25	Rural	x	x	x	x	x	x	x	x	x	x	x	x
26	Urban	x	x	x	x	0.013	-7.121	2.808	-0.261	x	x	x	x
27	Urban	x	x	x	x	x	x	x	x	0.035	3.967	1.868	0.151
28	Rural	0.009	1.527	0.572	0.251	x	x	x	x	x	x	x	x
29	Rural	x	x	x	x	x	x	x	x	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	x	x	x	x
32	Rural	x	x	x	x	x	x	x	x	x	x	x	x

(Table Continues)

Table 31

Significant Multiple Regression Coefficients: Within-school Data, First-year Students, Varied Experiences Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	x	x	x	x	0.015	3.876	1.578	0.183	0.004	5.190	1.797	0.227
3	Rural	x	x	x	x	0.013	6.673	2.623	0.269	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	0.007	6.929	2.505	0.273
5	Rural	x	x	x	x	x	x	x	x	0.018	5.474	2.272	0.217
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	0.001	13.746	3.990	0.367
13	Rural	0.007	4.911	1.806	0.217	x	x	x	x	x	x	x	x
15	Rural	0.006	7.334	2.575	0.314	x	x	x	x	0.023	6.111	2.631	0.259
16	Urban	0.003	-8.308	2.581	-0.446	0.004	7.607	2.496	0.395	0.050	-5.779	2.855	-0.266
19	Urban	0.011	6.190	2.385	0.274	x	x	x	x	0.003	7.046	2.306	0.321
24	Urban	x	x	x	x	0.001	6.677	1.946	0.280	0.001	7.101	2.155	0.269
25	Rural	x	x	x	x	x	x	x	x	0.002	4.846	1.523	0.244
26	Urban	x	x	x	x	0.003	7.329	2.420	0.301	x	x	x	x
27	Urban	0.001	6.144	1.809	0.243	x	x	x	x	0.005	5.715	2.002	0.205
28	Rural	x	x	x	x	0.045	4.453	2.199	0.185	x	x	x	x
29	Rural	0.012	5.639	2.205	0.235	0.003	7.334	2.389	0.275	0.017	4.920	2.021	0.219
31	Rural	x	x	x	x	0.001	11.329	3.333	0.310	x	x	x	x
32	Rural	x	x	x	x	0.007	7.531	2.766	0.194	x	x	x	x

Table 32

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Course Challenge Scalet

Inst Num	Urbanicity	p	Acad. Perf.			p	First Gen			p	Race		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	x	x	x	x	x	x	x	x	x	x	x	x
3	Rural	x	x	x	x	0.028	10.038	4.469	0.254	x	x	x	x
6	Rural	0.022	3.267	1.399	0.276	x	x	x	x	x	x	x	x
9	Urban	x	x	x	x	x	x	x	x	x	x	x	x
10	Urban	x	x	x	x	x	x	x	x	0.041	-5.916	2.861	-0.186
11	Urban	0.000	3.374	0.872	0.352	0.009	7.366	2.750	0.243	x	x	x	x
12	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	0.027	3.317	1.464	0.276	x	x	x	x	x	x	x	x
18	Urban	x	x	x	x	x	x	x	x	x	x	x	x
25	Rural	x	x	x	x	x	x	x	x	x	x	x	x
27	Urban	0.002	2.328	0.753	0.245	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	x	x	x	x
29	Rural	x	x	x	x	x	x	x	x	x	x	x	x
30	Urban	x	x	x	x	x	x	x	x	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	x	x	x	x

(Table Continues)

Table 33

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Diversity Scalet

Inst Num	Urbanicity	p	Acad. Perf.			p	First Gen			p	Race		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
3	Rural	x	x	x	x	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	x	x	x	x
25	Rural	x	x	x	x	0.012	-11.381	4.456	-0.229	x	x	x	x
32	Rural	x	x	x	x	x	x	x	x	x	x	x	x

(Table Continues)

Table 33

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Diversity Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
3	Rural	x	x	x	x	0.037	12.104	5.701	0.234	0.042	11.839	5.715	0.235
7	Urban	0.016	-11.735	4.778	-0.257	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	0.045	11.442	5.615	0.232	x	x	x	x
25	Rural	0.030	-10.501	4.785	-0.206	x	x	x	x	x	x	x	x
32	Rural	x	x	x	x	x	x	x	x	0.050	-9.209	4.651	-0.162

Table 34

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Out-of-class Interaction Scale†

Inst Num	Urbanicity	p	Acad. Perf.			p	First Gen			p	Race		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	0.009	5.443	2.061	0.258	x	x	x	x	x	x	x	x
3	Rural	0.015	6.967	2.785	0.279	x	x	x	x	x	x	x	x
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	0.007	16.733	6.087	0.249
6	Rural	0.011	6.455	2.488	0.317	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
8	Rural	0.010	5.145	1.975	0.247	x	x	x	x	x	x	x	x
9	Urban	0.035	4.359	2.047	0.181	x	x	x	x	x	x	x	x
10	Urban	0.022	4.150	1.781	0.228	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	x	x	x	x
12	Rural	0.000	9.078	2.233	0.445	x	x	x	x	x	x	x	x
13	Rural	0.000	7.442	1.579	0.399	x	x	x	x	x	x	x	x
15	Rural	0.003	5.633	1.829	0.331	x	x	x	x	x	x	x	x
17	Urban	0.005	8.145	2.790	0.361	x	x	x	x	x	x	x	x
25	Rural	0.003	4.128	1.377	0.274	x	x	x	x	x	x	x	x
26	Urban	0.001	8.867	2.471	0.480	x	x	x	x	x	x	x	x
27	Urban	0.041	2.931	1.418	0.168	0.013	-11.098	4.390	-0.205	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	x	x	x	x
29	Rural	0.029	3.417	1.549	0.177	x	x	x	x	x	x	x	x
31	Rural	0.002	5.913	1.854	0.313	x	x	x	x	x	x	x	x
32	Rural	0.000	6.537	1.477	0.347	x	x	x	x	x	x	x	x

(Table Continues)

Table 34

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Out-of-class Interaction Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	x	x	x	x	x	x	x	x	x	x	x	x
3	Rural	x	x	x	x	x	x	x	x	x	x	x	x
4	Urban	0.036	13.540	6.322	0.243	0.014	-16.377	7.617	-0.241	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	x	x	x	x
6	Rural	x	x	x	x	x	x	x	x	x	x	x	x
7	Urban	0.026	-12.600	5.570	-0.237	x	x	x	x	x	x	x	x
8	Rural	x	x	x	x	x	x	x	x	x	x	x	x
9	Urban	x	x	x	x	x	x	x	x	0.023	12.372	5.385	0.195
10	Urban	x	x	x	x	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	x	x	x	x	0.010	31.932	12.192	0.251
12	Rural	x	x	x	x	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	0.016	15.431	6.275	0.265	x	x	x	x
17	Urban	x	x	x	x	x	x	x	x	0.043	-16.494	7.984	-0.250
25	Rural	x	x	x	x	x	x	x	x	x	x	x	x
26	Urban	0.035	-19.001	8.778	-0.284	x	x	x	x	x	x	x	x
27	Urban	x	x	x	x	x	x	x	x	x	x	x	x
28	Rural	x	x	x	x	0.037	-13.462	6.325	-0.248	x	x	x	x
29	Rural	x	x	x	x	0.003	13.336	4.398	0.255	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	x	x	x	x
32	Rural	x	x	x	x	x	x	x	x	0.029	10.518	4.782	0.168

Table 36

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Varied Experiences Scalet

Inst Num	Urbanicity	Acad. Perf.				First Gen				Race			
		p	UC	SE	SC	p	UC	SE	SC	p	UC	SE	SC
1	Urban	x	x	x	x	x	x	x	x	x	x	x	x
4	Urban	0.001	5.319	1.560	0.363	x	x	x	x	x	x	x	x
5	Rural	0.022	3.650	1.568	0.218	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	x	x	x	x	x	x	x	x
9	Urban	x	x	x	x	x	x	x	x	x	x	x	x
10	Urban	x	x	x	x	x	x	x	x	x	x	x	x
11	Urban	x	x	x	x	0.000	-20.739	4.441	-0.439	x	x	x	x
12	Rural	0.014	3.617	1.432	0.285	x	x	x	x	x	x	x	x
13	Rural	0.000	4.326	1.171	0.312	x	x	x	x	x	x	x	x
15	Rural	x	x	x	x	x	x	x	x	x	x	x	x
17	Urban	x	x	x	x	x	x	x	x	x	x	x	x
18	Urban	0.035	2.912	1.361	0.241	x	x	x	x	x	x	x	x
19	Urban	x	x	x	x	x	x	x	x	x	x	x	x
20	Rural	0.020	3.675	1.545	0.282	x	x	x	x	x	x	x	x
24	Urban	x	x	x	x	x	x	x	x	0.042	11.167	5.390	0.232
25	Rural	0.001	3.068	0.909	0.302	x	x	x	x	x	x	x	x
26	Urban	x	x	x	x	x	x	x	x	x	x	x	x
27	Urban	0.029	2.658	1.209	0.166	0.000	-16.215	3.687	-0.331	x	x	x	x
28	Rural	x	x	x	x	x	x	x	x	x	x	x	x
29	Rural	x	x	x	x	x	x	x	x	x	x	x	x
30	Urban	0.001	4.197	1.267	0.295	x	x	x	x	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	x	x	x	x
32	Rural	0.000	4.048	0.907	0.333	x	x	x	x	x	x	x	x

(Table Continues)

Table 36

Significant Multiple Regression Coefficients: Within-school Data, Senior-year Students, Varied Experiences Scalet

Inst Num	Urbanicity	p	Gender			p	Greek			p	Athlete		
			UC	SE	SC		UC	SE	SC		UC	SE	SC
1	Urban	0.038	7.840	3.740	0.182	x	x	x	x	0.004	13.593	4.663	0.255
4	Urban	x	x	x	x	x	x	x	x	x	x	x	x
5	Rural	x	x	x	x	x	x	x	x	x	x	x	x
7	Urban	x	x	x	x	0.000	16.711	4.565	0.367	x	x	x	x
9	Urban	x	x	x	x	x	x	x	x	0.007	8.431	3.098	0.230
10	Urban	0.029	7.977	3.595	0.213	x	x	x	x	0.049	7.197	3.622	0.181
11	Urban	x	x	x	x	x	x	x	x	x	x	x	x
12	Rural	0.008	11.113	4.094	0.301	x	x	x	x	x	x	x	x
13	Rural	x	x	x	x	x	x	x	x	0.005	14.634	5.122	0.243
15	Rural	0.011	11.693	4.487	0.291	x	x	x	x	x	x	x	x
17	Urban	x	x	x	x	0.023	13.891	5.961	0.345	x	x	x	x
18	Urban	x	x	x	x	x	x	x	x	x	x	x	x
19	Urban	0.047	12.941	6.325	0.317	x	x	x	x	x	x	x	x
20	Rural	x	x	x	x	x	x	x	x	x	x	x	x
24	Urban	x	x	x	x	0.004	10.982	3.698	0.332	x	x	x	x
25	Rural	x	x	x	x	x	x	x	x	x	x	x	x
26	Urban	0.013	-14.599	5.672	-0.340	x	x	x	x	x	x	x	x
27	Urban	0.034	7.649	3.568	0.101	x	x	x	x	x	x	x	x
28	Rural	0.002	14.382	4.438	0.387	x	x	x	x	0.003	14.948	4.779	0.362
29	Rural	0.006	8.231	2.980	0.218	x	x	x	x	x	x	x	x
30	Urban	x	x	x	x	0.010	8.171	3.104	0.236	x	x	x	x
31	Rural	x	x	x	x	x	x	x	x	0.020	9.224	3.909	0.227
32	Rural	0.001	8.541	2.616	0.241	x	x	x	x	0.040	6.155	2.966	0.151

Table 37

Count of Significant Scalet Differences for Demographic Variables Grouped by Urbanicity

	Acad. Perf.		First Gen		Race		Gender		Greek		Athlete	
	R	U	R	U	R	U	R	U	R	U	R	U
FY Course Challenge	3	6	1	1	1	1	8	6	1	0	5	0
FY Diversity	0	0	0	0	1	0	1	1	0	0	0	2
FY Out-of-Class Interaction	3	2	2	0	2	3	1	2	3	0	2	4
FY Support for Student Success	1	0	0	0	0	0	1	1	3	1	1	3
FY Varied Experiences	2	3	1	1	0	2	3	3	5	4	4	7
FY Total	9	11	4	2	4	6	14	13	12	5	12	16
SY Course Challenge	1	3	1	1	0	1	6	3	2	1	0	1
SY Diversity	0	0	1	0	0	0	1	1	2	0	2	0
SY Out-of-Class Interaction	10	6	0	1	1	0	0	3	3	1	1	3
SY Support for Student Success	2	3	1	0	0	0	0	1	0	2	0	2
SY Varied Experiences	6	4	0	2	0	1	5	5	0	4	4	3
SY Total	19	16	3	4	1	2	12	13	7	8	7	9

R= Rural school; U = Urban school

differences on a summary level. Some significant differences were identified in this step which warrant reflection and analysis. The second method of analysis, between-school variance, attempted to look at those same first two research questions but now only looking at the differences between schools instead of between groups of rural and urban students. Schools are often being compared against each other in student recruitment, institutional reputation surveys, and internal institutional assessment efforts. As such, it is important for this study to identify the variance that can be attributed to those differences and determine what those variations can explain about the impact of urbanicity. Interestingly, this study found no significant between-school differences when comparing rural schools with urban schools.

Finally, this study used a two-level multilevel regression model to analyze within-school variance. This analysis was used to answer the third and fourth research questions that are asking about demographic groups whose engagement is significantly impacted by the urbanicity of the school that they attend. Looking at within-school variation allows the study to parse out the significance of these demographic variables at each institution and then determine if any patterns emerge which are informative. By noting the frequency of significant demographic variables, this step is able to better understand the impact of urbanicity on the variance across the five engagement scales used in the study. The frequency tables identified particular demographic variables within certain scales where significant engagement differences may occur between students at rural and urban schools.

The following chapter integrates these three steps of analysis to answer the research questions for this study. A broader and deeper discussion of the data will include the implications that these results have in comparison with past research, current practices and policies, and future research. A summary of findings in relation to the four research questions for this study will also be presented.

Chapter Five

Discussion

Introduction

In this chapter, I will answer the four research questions for this study through a discussion of the results presented in Chapter Four. Then, the discussion will focus on the implications of these findings, including implications for past research, for current practices and policies, and for future research. Finally, a conclusion will be offered to place this study in the proper context.

Aggregate Student Effects

The first two research questions for this study ask if urbanicity significantly impacts student engagement at small, residential, liberal arts colleges. The analysis of aggregate student data and between-school variance helped to answer these questions. The same methodologies were used over the two data sets (first-year and senior-year). In the aggregate student data analysis, it was found that urbanicity does significantly affect student engagement. Students at urban schools are more engaged with diversity in both the first year and senior year. This scale is comprised of questions that ask students to identify how often they have serious conversations with students different from themselves and a question about the institutional emphasis on encouraging contact among students from different backgrounds. Urban environments are inherently more diverse simply because there is a larger population within which to find difference. Thus, it is thus logical that students at urban colleges would have a higher engagement level when it comes to interacting with diverse populations. Both the first-year student and senior-year

student differences were similar, yet small in size in terms of how well they predicted differences in the student's engagement with people different from themselves (13.4% for first-year data; 13.9% for senior-year data). While small in terms of a standard level of analysis, this effect size is notable when placed in the context of the numerous variables that could impact a student's engagement level.

There were no other significant differences found in the aggregate student data analysis for first-year students, but other significant differences were found for senior-year students. Senior-year students at urban schools were significantly more likely to be challenged in their courses. This difference was very small in terms of the overall effect on this engagement scale (9.2%). Yet, it still is an interesting conclusion as it is hard to find any inherent advantage urban schools would have in providing an academically challenging environment. The Course Challenge scale comprises questions about the amount of preparation necessary for class, the work level needed to succeed academically, how challenging the examinations are, and how the school emphasizes the need for students to spend significant amounts of time engaged in academic work. It is interesting as well to note that this difference only occurred in the senior year and not in the first year. The lack of a difference in the first year may open up a possibility for further research into the changing nature of academic challenge across students' college experiences.

Another significant difference in engagement was found to occur with senior-year students and their engagement with professors outside of the classroom. Students at rural schools were significantly more likely to be involved in discussing career plans with a

faculty member or advisor, working with faculty on activities outside of coursework, and conducting research with faculty members. This difference had a very small effect size (9.5%) but remains notable. A possible explanation for this difference is the assumption that rural locations likely have fewer opportunities for intellectual stimulation outside of the classroom as compared with urban schools. As such, it is natural to expect that students at rural schools would gravitate towards more discussion and project work with faculty members. It is also understandable that this effect is only noted in the senior year as interaction and relationships with faculty members and advisors may take time to develop.

Key findings: Aggregate student data effects

For first-year students:

- at urban schools, students were more engaged with diversity-related activities.

For senior-year students:

- at urban schools, students were more engaged with diversity-related activities.
- at urban schools, students were more likely to be challenged academically.
- at rural schools, students were more likely to be engaged with faculty outside the classroom.

All effect sizes are small or very small.

Figure 1. Key findings, aggregate student data effects.

Between-school Effects

An analysis of between-school variance was also performed to attempt to find significant differences in engagement based on urbanicity. This analysis was done to help answer the first two research questions. Schools often compare and contrast themselves through recruitment efforts, accreditation reports, and assessment metrics. It was thus assumed that there was likely some significant differences between schools that would arise in this stage of the data analysis. Surprisingly, there were, in fact, no significant between-school differences found across rural and urban institutions. In terms of the institutional programs and policies, this finding is notable. It confirms the findings from the NSSE survey (2009) which identified within-school variance as far greater than between-school variance. The finding also encourages administrators and researchers to focus on student-level variables for important distinctions when studying engagement. The multilevel regression performed to isolate student demographics also confirmed the results of the t-test performed to analyze between-school variance. The multilevel regression had two levels - students and school. The school level analysis also found no significant between-school variance in engagement based on the urbanicity of the school.

Key Finding: Between-school effects

- Urbanicity did not significantly impact student engagement when comparing engagement levels between schools.

Figure 2. Key finding, between-school effects.

Aggregate Student Regression Findings

Research questions three and four asked if there were specific student demographic groups that were significantly more engaged based on the urbanicity of the school that they attended. The variables that were analyzed for this study included academic performance, first-generation status, race, gender, Greek participation, and varsity athletic participation. Cross-variable factors (such as African-American female sorority members) were unable to be analyzed based on the number of viable cases available in this data set for that type of analysis. Two types of analyses were performed to help answer these research questions. The first involved multiple regression analysis using the five engagement scalets as the dependent variables and the demographic variables as the independent variables. Ten regressions were calculated using aggregate student data (five first-year and five senior-year).

Greek students. One of the most interesting findings of this step of the analysis was the number of times first-year Greek students at rural colleges were significantly more engaged than first-year Greek students at urban colleges. On three of the five scalets, there was a significant difference: Diversity, Support for Student Success, and Varied Experiences. However, none of these engagement scalets showed any significant difference for Greek students when analyzing the responses from senior-year students. Greeks at rural schools were significantly more engaged in interaction with their faculty members outside of the classroom in their senior-year. While the engagement scalets were not consistent across first-year and senior-year data, there were multiple significant

differences and each time that difference showed Greek students at rural colleges were more engaged than Greek students at urban colleges.

These findings related to Greek students are noteworthy and help identify part of the answer to the third and fourth research questions for this study. Of particular note is the potential for rural schools to emphasize Greek Life and Greek membership to combat the lower engagement vs. urban school on the Diversity scalet in both the first-year and senior-year. First-year Greek students were the only demographic studied whose engagement on the Diversity scalet was significantly higher at rural schools. Taken together, these findings about Greek Life make a strong case as to why rural schools in particular are wise to support these organizations. It is possible, for example, that first-year students joining Greek organizations develop stronger peer relationships which allow them to better understand the diversity present at their school despite being in generally homogeneous organizations. There is no evidence of a penalty related to Greek involvement in any aspect of this analysis and the significant positive difference found at rural colleges across three of the five engagement scalets would serve as a robust base for discussion across faculty, students, staff, and administration.

Additional demographic groups. This study also found other demographic groups were significantly more engaged at rural schools. First-year students of color were significantly more likely to be engaged in out-of-class interactions with their faculty members. However, the opposite can be said for majority (Caucasian) students in that they are significantly less likely to be engaged in out-of-class interactions with faculty members at rural schools (or more engaged at urban schools). Another similar variable

with dichotomous meanings that was significant was female engagement with out-of-class interactions in their senior-year at rural colleges. Men are more engaged on this scalet at urban colleges while women are more engaged at rural colleges (senior-year only).

Senior year out-of-class engagement. Two other demographic variables had significantly higher engagement scores at rural colleges in out-of-class interactions with faculty in their senior year - Academic Performance and Greek members. The concept which states that students make better grades when they are engaged with faculty outside the classroom is fairly common sense. However, what this finding is showing is that there is an even greater amount of engagement outside the classroom at rural colleges. Taken together, female Greek students with good grades are much more likely to be engaged with faculty outside the classroom at rural colleges. The senior-year out-of-class interactions scalet was the only scalet with multiple significant demographic variables. All of the variables favored rural schools as well, thus showing a strong argument that there are certain demographic groups at rural colleges who are more engaged with their faculty outside the classroom.

First-generation students. Two other senior-year scalets showed significant difference. In Varied Experiences, there was a significant difference favoring rural first-generation students. Both the rural and urban means were negative, but the difference between them showed that first-generation senior-year students had a significantly smaller engagement penalty at rural colleges versus urban colleges. It is interesting to discuss why the senior-year Varied Experiences scalet was the only one that showed a

significant difference for first-generation students. The senior-year Varied Experiences scalet asks students to identify their involvement with internships, volunteer work, learning communities, study abroad programs, capstone experiences, and co-curricular clubs or organizations. Many of these experiences are part of the integral fabric for student success in college. It is insightful to note that rural colleges are engaging senior-year first-generation students more often in these activities versus urban colleges. This finding might serve as an important conclusion to prompt urban colleges to look for better ways to engage first-generation students and motivate them to participate in these experiences.

Academic performance at urban schools. Finally, there was one demographic that showed to be significantly more engaged at urban schools. The scalet involved in this finding was the senior-year Course Challenge scalet. As urban students improved their grades, they are reporting a significantly greater amount of effort on academic coursework than rural students who showed similar improvement in their grades. The connection between greater effort on academic work and higher grades is easy to understand, but the difference between urban and rural senior-year students is interesting, especially being that this is the only demographic variable where urban schools have a significantly higher level of engagement. This finding is also in concert with the earlier finding that showed urban students were overall more engaged in the Course Challenge scalet than rural students.

Key findings: Aggregate student data regression

For first-year students:

- at rural schools, Greek students were more engaged on several measures than non-Greek students.
- at rural schools, students of color were more engaged with faculty outside of the classroom than White students.

For senior-year students:

- at rural schools, Greek students were more engaged with faculty outside of the classroom than non-Greeks.
- at rural schools, women were more engaged with faculty outside of the classroom than men.
- at rural schools, students with high academic performance were more engaged with faculty outside of the classroom than those with lower academic performance.
- at rural schools, first-generation students were more engaged with important experiences such as study abroad, learning communities, practicums and culminating senior experiences than non-first-generation students.
- at urban schools, students with high academic performance, were more engaged with academically challenging activities than those with lower academic performance.

Figure 3. Key findings, aggregate student data regression analysis.

Within-school Data Findings

The final method of data analysis focused on within-school variance. For each institution in this study, ten multiple regressions were calculated (two data types, five scales). Each of the six demographic independent variables was included in the regressions. All significant regression models and demographic variables were noted. From those regression models, the number of schools with significant differences were

counted and identified as being from a rural or urban school. These data were reported in Chapter Four and presented in Table 37.

Regression models. It is interesting to note that only two of the five scalets had a noticeable number of statistically significant regression models across both first-year and senior-year data (Course Challenge and Varied Experiences). The other three scalets had no more than five schools with significant models out of 29 that were analyzed. As such, it is only appropriate to look at the two scalets with more schools with significant data and in those two scalets, the number of urban and rural schools were evenly split or very nearly evenly split. For first-year data, out of 13 significant regression models using the Course Challenge scalet, 7 were rural and 6 were urban. For the Varied Experiences scalet, 7 significant models were from rural schools and 7 were from urban schools. For senior-year data, there was again an even split of schools for the Course Challenge scalet (6 rural, 6 urban) and the split for Varied Experiences was nearly even (7 rural, 9 urban). The finding is that student demographics taken together are not significantly affected by urbanicity in terms of their ability to predict variation in student engagement.

Demographic findings. The second part of the within-school variation analysis involved looking at specific demographic variables in each of the five scalets and each of the two data sets (first-year and senior-year). All significant differences between rural and urban schools were noted and counted. The totals were reviewed to determine if there was a difference in the number of rural and urban schools where the demographic variables significantly affected one of the five engagement scalets. It was found that

there were only two demographic groups that had a noticeably different number of significant results at rural vs. urban schools.

Greek students. First-year Greek students have been highlighted in other sections of this discussion for having significant engagement differences. Those differences are replicated in this section as well. Across all five scalets, there were 17 instances where first-year Greek students were significantly more engaged than non-Greek students. Out of those 17 instances, 12 were at rural schools and 5 were at urban schools. This result supports the finding, reported on page 107-108, that first-year Greek students are more engaged at rural schools than urban schools.

First-year student-athletes. The second interesting result is the nature of engagement for first-year student athletes. While the frequency in which athletic participation significantly predicts student engagement is split fairly equally (12 rural, 16 urban), the breakdown across the scalets tells an interesting story. For the Course Challenge scalet, only athletes at rural schools showed significantly different engagement (all in a positive direction). There was noticeably more urban schools (7 rural, 16 urban) across the other four scalets where athletes had significant variation in their engagement scores. However, of the 16 significant differences noted for athletes at urban schools, 5 of those differences indicated that athletes were significantly less engaged. Thus, while the direction of the difference in student engagement for first-year student athletes at urban schools is not uniform, it is more likely to have a significantly different level of engagement across all scalets except Course Challenge. First-year student athletes at rural schools are more likely to be significantly more engaged in academically

challenging work. If there is a significant difference in student-athlete engagement at a rural school, it is very likely that the student-athletes are more engaged than non-athletes.

Finally, it is notable that there was no senior-year demographic in which the number of schools with significant variance in that demographic was noticeably different for rural or urban schools. The two findings within first-year data are not replicated in the senior-year data. As such, it is concluded that the answer to the fourth research question is that there are no senior-year student demographic variables that have a significantly different engagement levels due to the urbanicity of the school that they attend.

Key findings: Within-school analysis

For first-year students:

- only the Course Challenge and Varied Experiences scales had a noticeable number of significant regression models. However, no difference was noted based on the urbanicity of the school.
- at rural schools, Greek students were more likely to be highly engaged than non-Greek students.
- at rural schools, student-athletes were more likely to be engaged in academically challenging work than non-athletes.
- at rural schools, if student-athletes had a significant difference in their engagement, it was very likely that the student-athletes were more engaged than non-athletes.
- at urban schools, student athletes were more likely to have a significant difference in their engagement than non-athletes, but they may be either significantly more engaged or less engaged.

Figure 4. Key findings, within-school analysis.

Research Question Responses

The first research question for this study asks if the location of a small, residential, liberal arts college significantly impacts first-year student engagement. It was found that first-year students at urban colleges were significantly more engaged in diversity related activities than students at rural colleges.

The second research question asked if the location of the college significantly impacted senior-year student engagement. Again, this study found significant differences where the urbanicity of the school was related to an aspect of student engagement. For senior-year students at urban schools, it was found that they reported more engagement on the Diversity and Course Challenge engagement scales. Senior-year students at rural schools were significantly more likely to be engaged in out-of-class interactions with their faculty members.

The third research question asked if there were first-year student demographic groups whose engagement level was significantly impacted by the urbanicity of their small, residential, liberal arts college. It was noted that first-year Greek students showed significantly more engagement at rural schools on the Diversity, Support for Student Success, and Varied Experiences engagement scales. Students of color were also more engaged at rural institutions with out-of-class interactions with faculty members. Additional analyses of within-school variance through multiple regression models for all schools in this study provided additional support for first-year Greek students being more engaged at rural schools. In addition, the analysis of the within-school variance identified differences for first-year student athletes. Athletes were more likely to be

significantly more engaged in rigorous academic pursuits at rural schools, but more of the schools who showed significant difference on the other engagement scales were urban schools.

The fourth research question asked if there were any senior-year demographic groups whose engagement level was significantly impacted by the urbanicity of their school. This study found that Greek students, women, and students with higher grades were significantly more engaged in out-of-class interactions with faculty at rural schools. Senior-year first-generation students were significantly more engaged in Varied Experiences at rural schools and students with higher grades were significantly more engaged in challenging academic work at urban schools. However, the results of the within-school variance analyses using multiple regression models showed no noticeable difference in the frequency of significant variation in engagement for senior-year students.

Implications

Past research. There are a number of findings from this study which reflect and deepen the knowledge generated from past research. Umbach and Kuh (2006) found that “both first-year and senior students at liberal arts colleges, on average, are more likely than their peers at other types of colleges and universities to engage in diversity-related activities (effect sizes ranging from .19 to .30)” (p. 177). In the current study, the understanding of the nature of students at liberal arts colleges and their involvement with diversity-related activities has deepened. The finding in this study that both first-year and senior-year students at urban colleges are significantly more likely to engage in these

Key findings: Overall study

- First-year student engagement was impacted by urbanicity, but only on the Diversity scalet where students at urban schools were more engaged.
- Senior-year student engagement was also impacted by urbanicity. Urban students were more engaged on the Diversity and Course Challenge scalets. Rural students were more engaged in out-of-class interactions with faculty.
- First-year Greek students were more engaged on multiple scalets at rural schools.
- First-year students of color were more likely to be engaged with faculty outside the classroom at rural schools.
- First-year student-athletes were more likely to be engaged in academically challenging work at rural schools.
- First-year student athletes were more likely to have significantly different engagement on all other scalets (Diversity, Out-of-class Interaction, Support for Student Success, and Varied Experiences) at urban schools
- Senior-year Greek students, women, and students of color at rural schools were more likely to be engaged in out-of-class interactions with faculty.
- Senior-year first-generation students at rural schools were more engaged with important experiences such as study abroad, learning communities, practicums and culminating senior experiences.
- Effect sizes for any differences related to urbanicity were most likely to be small.

Figure 5. Key findings, overall study.

activities focuses the findings that Umbach and Kuh published. Not only are students at liberal arts colleges more likely to be engaged with people and activities different from themselves, but there is a particular difference in that effect based on the urbanicity of the school. Urban liberal arts college students have an even greater chance of being significantly engaged in diversity-related activities. Thus, the urban liberal arts college is

placed in a premier position for promoting the distinctive nature of their campuses and the likelihood that students will learn more through these diverse interactions.

A body of research has identified that membership in fraternities and sororities creates an increase in the members' student engagement across the five benchmarks used in the NSSE study. Pike (2003) found this when studying large, public universities. Bureau et al. (2011) studied just senior-year students and found a significant relationship between Greek membership and student engagement. Routon and Walker (2014) also found Greek membership having a significantly positive relationship with positive outcomes such as student persistence, co-curricular involvement, and participation in service learning programs. In this study, that positive relationship was also confirmed, but it was isolated to first-year students and was significantly more positive for students at rural campuses. Pike (2003) limited his study to large public universities and the other two studies used a large sample of many types of institutions. The current study is distinctive in its focus on liberal arts colleges and the finding that urbanicity impacts the nature of Greek student engagement is notable and adds to the research on this topic.

Lynch Ervin published a study (2010) on the nature of African American student engagement at community colleges. The study used urbanicity as a variable and found no significant differences in the engagement levels of African American students at urban, suburban, and rural community colleges. However, it was concluded that first-year students of color were significantly more likely to be engaged with faculty outside of the classroom at rural institutions. While the institutional type is different and there cannot be a direct relationship between a study of African American students and this

study's analysis of "students of color," it is worth considering the finding in the context of Lynch Ervin's study. Her study also used a benchmark on faculty-student engagement and found no significant differences due to the urbanicity of the schools. The inclusion of suburban schools may have mediated the effect that was found in this study. Further research on the nature of faculty-student engagement outside of the classroom for non-white students would help clarify the distinctions between these two studies.

The current study's findings that first-year student athletes are more likely to have significantly different engagement levels in four of the five scales if they are attending an urban college also adds to the body of research on student athletes. Umbach et al. (2006) noted in their study of student athletes and engagement that there are rarely differences between athletes and non-athletes in terms of their engagement, and when differences were found, they tended to be positive for Athletes. The current study confirmed these generally positive engagement results for first-year students, but not for senior-year students. In addition, the current study helped to differentiate the nature of the gains in engagement by identifying that first-year student athletes at rural colleges are more likely to be more engaged in academically challenging tasks while first-year student athletes at urban colleges are more likely to have significant differences in how they feel supported, are engaged with faculty outside the classroom, are involved in discussions with diverse others, and are involved in a variety of educationally purposeful activities. The specific nature of these differences and the fact that they also show a positive gain for athletes is important. Umbach et al. (2006) noted that other studies and the discussion in the national media about student athletes painted a picture of a student athlete

experience that was less than that of a non-athlete. The current study agrees with Umbach et al. (2006) in concluding that indeed student athletes are likely to be at least as engaged as non-athletes, and where there are differences, they are generally positive for student athletes.

Ward et al. (2012) emphasized the importance of first-year experiences for first-generation college students and supported the use of specialized programmatic efforts targeted at this student population in the first-year. As such, it is noteworthy to consider the finding of this study that first-year students at rural small liberal arts colleges were more engaged in the Varied Experiences scalet than students at urban colleges. First-generation, first-year students were still less engaged than other first-year students, but that engagement gap was significantly smaller on this scalet at rural schools. This finding should inspire further research into the nature of student engagement for first-generation students and how institutional type and urbanicity significantly impact that engagement.

The findings from the current study connect with past research in a variety of interesting ways. In some ways, it deepens the knowledge base, in others it conflicts with prior research, and in still others it inspires potential for further areas of research on institutional type, urbanicity, and specific student demographics. While the findings of this study may stand on their own merit, it is insightful and important to consider how these same findings can expand on the knowledge bases relating to student engagement, liberal arts colleges, and urbanicity within higher education.

Current policies and practices. The results of this study provide a number of insights that have the potential to impact the development and implementation of current policies and practices in higher education. A primary finding that faculty and staff can take from this study is that it is important to understand that the location of the school may make a difference in the nature of how students at their institution are engaged with their college experience. Furthermore, while there are some findings that can be noted across demographics or engagement sub-types, this study supports the notion that each school has a unique story to tell. The analysis of within-school variance details the variety of significant results across engagement scales and student demographics. When reviewed on a per-school basis, the nuances of the changing nature of student engagement at each institution are noteworthy. Senior administrators would be served well by better understanding the nature of student engagement at their institution and comparing it with the broader results from this study and others like it. Furthermore, understanding the unique nature of student engagement at a specific institution might encourage faculty and staff to develop targeted and differentiated investments and programs to address relative weaknesses or support relative strength in student engagement levels.

For rural, small, liberal arts colleges, this study highlights the relative strengths that these institutions have in student engagement with faculty outside the classroom, in first-year Greek student engagement, and in the increased engagement with a variety of educationally purposeful activities (e.g., study abroad, research with faculty, and learning communities) for first-year, first-generation students. Knowing this information might

inspire staff running first-year student orientation to highlight fraternities and sororities as well as develop intentional opportunities for students to develop relationships with their faculty members. A number of institutions also place restrictions on first-year student membership in Greek organizations with some banning it entirely. The results in this study, which show first-year Greek students have greater engagement across multiple engagement scales, should inspire administrators and Greek Life advisors to re-examine those policies and consider supporting increases in first-year student membership in Greek Life.

For urban, small, liberal arts colleges, this study supports the uniquely positive nature of their students' experiences with diversity as well as the increased engagement in academically challenging activities for senior-year students. Finally, this study shows a likelihood for student athletes to show significantly different engagement on multiple scales. The increased engagement for both first-year and senior-year students in diversity-related activities is a dynamic finding for urban, small, liberal arts institutions. As student racial and socio-economic demographics continue to diversify in the college student population, these urban institutions will be able to highlight this strength in their student recruitment and persistence efforts. Liberal arts colleges have been found to have a distinctly positive environment for diversity (Umbach & Kuh, 2006) and this study highlights the even greater level of engagement on that metric for small urban colleges. It is also pertinent to enrollment management professionals and faculty to note that senior-year students at urban liberal arts colleges are more likely to be engaged in academically challenging activities. This can have an impact on course and curriculum

design as well as aid in the recruitment of a stronger profile for the entering class in terms of academic ability and aspirations. The conclusions about the nature of varsity athlete student engagement at urban colleges can be a boon to coaching staff in their recruitment of student athletes. It also can provide a discussion point for athletic administrators and faculty about the nature of the varsity athlete student experience. Those conversations might help dispel inaccurate myths about student athletes and their college experience that were noted in the Umbach et al. (2006) study and turn those perceptions of weakness and deficiencies into perceptions of strength and talent.

Indeed, across both rural and urban institutions, this study provides a variety of important results which can better inform the practices and policies of the institution. In addition, this study can have particular impact on ways that certain offices or departments design and market their programs from first-year student orientation to student athlete academic support. As noted in the literature review for this study, the impact of urbanicity at four-year institutions is largely missing from the literature on higher education. By narrowing this study to a specific institutional type (small, residential, liberal arts colleges), the conclusions are able to have greater efficacy among the faculty and staff that develop and design aspects of the student experience.

Future research. This study reports a wide range of data from the 310 multiple regressions that were calculated. While those data were effective in answering the research questions posed for this study, they also identified new information that is worthy of consideration for future research. One of the main observations researchers should analyze is whether urbanicity of a school has a relationship with important

learning outcomes. Urbanicity has rarely been researched, especially within four-year colleges and universities. While the effect sizes of the significant differences found in this study were typically small, finding significant differences is important and should help future research define the institutional variables to consider when researching student engagement or other similar outcomes of a college education.

The results of this study also highlight and confirm that each school has unique nuances in terms of how students are engaged at that institution. It would be valuable to develop a knowledge bank of results similar to those from this study by covering other institutional and student level variables. Institutional assessment staff could run the internal analysis for their school and compare it against that knowledge base to see where their engagement patterns are distinctive. These comparisons could potentially be highly effective in helping to develop programs and curricula as well as inform resource investments made in those initiatives.

Additionally, the broad conclusions of this study allow for depth to be created from other qualitative or mixed methods studies. There are a number of ways that the conclusions in this study could be enhanced through interviews, focus groups, document reviews, and other methods. Diving into the nature of first-year Greek student engagement at rural colleges or the nature of interactions with diversity at urban colleges would seem to be areas ripe for deeper analysis given the conclusions from this study. While a completely quantitative study has its merits, there also are some aspects which would greatly benefit from qualitative methods and that is one of the real implications on future research which is derived from the conclusions in this study.

Implications outside the scope of this study. While there are many implications which come from the research questions in this study, the data also revealed information which has implications for research beyond the research questions answered in the current study. An area of rich potential for future research is the analysis performed in this study around within-school variance. The summary Tables 27-36 provide an in-depth overview of student engagement and the impacts of various demographics which are beyond the scope of this study. A discussion of those differences is important to consider and may be one of the most important outcomes of this study.

One main finding from the within-school data analysis which is interesting and worth further study is the variation in the frequency of significant regression models across the five student engagement scalets. Both the Course Challenge and Varied Experiences scalets had close to 50% of the schools with significant regression models while the other three scalets never had more than five schools (out of 29). When you consider that it is reasonable to have one to two significant models given the .05 probability level being used in this study, it is almost as if the demographic variables used in this study fail to describe the variance in those engagement scalets at all. For example, there is only one school that had a significant model for the Support for Student Success scalet across both first-year and senior-year data (58 total regressions) and only five that had a significant model on the Diversity scalet. Both of those numbers are near or below what you would expect to find in a truly random distribution; yet, Course Challenge and Varied Experiences have 28 and 30 institutions with significant models across first-year

and senior-year data. The nature of those differences and what we can learn from it would be a rich area for future research.

Similarly, there are specific demographics that were more frequently significant across all schools. Academic performance (55), gender (52), and varsity athletic participation (44) were demographics that were much more frequently found to be significant than race (13) and first-generation status (13). With a .05 significance level, a normal distribution would produce, on average, 29 significant coefficients. Thus, race and first-generation status show fewer significant differences than would be expected in a random distribution. Academics, gender, and athletics show nearly twice as many significant differences as would be expected by chance. These results can inspire future research to better understand how academic success, gender, and athletic participation impact student engagement at small, residential, liberal arts colleges.

The lower than expected levels for race and first-generation status are also noteworthy. Both variables have been frequently studied within higher education, yet both variables may benefit from research that confirms the effects noted in previous research. Are those effects still as strong or has the nature of race and support for first-generation students on college campuses changed significantly enough to minimize the impact that those variables have on student learning? In addition, it is surprising to note that, on the Diversity engagement scalet, race and first-generation status respectively were only significant at one institution and for one type of student (first-year or senior-year). With a .05 significance level, that should be around 5-6 findings of significance. In addition, the lack of significant variation between students of color and majority

students in terms of their interactions with diversity-related activities is striking. Further research is needed across other institutional types and student types to determine if that observation is consistent and can be confirmed.

For Greek students, it is important to consider the direction of the significant differences found in this study. Of the 32 findings of significance for the Greek variable, only three were found to be significantly lower. Additionally, all findings of significance for first-year students were positive towards increased student engagement for Greek members. These results highlight a potential vein of research to clarify the nature of the impact of membership in a fraternity or sorority. Is that membership impact different at small, residential, liberal arts colleges? Does that impact differ for first-year students vs. senior-year students? Do the findings from this study about the significantly positive nature of rural Greek student engagement translate to other institutional types? These questions and others could provide the basis for interesting future research.

The nature of the impact of gender on first-year academic challenge is also worth further study. Across all of the first-year engagement scalets in this study, gender was a significant variable 27 times. Over half (14) of those significant findings were in the Course Challenge scalet and every one of those 14 findings showed females students being significantly more engaged in academically challenging work than males students. That is compared with a split of 7 (male) and 6 (female) for the other 13 findings that cover the other four engagement scalets. Understanding why first-year female students are more engaged in challenging academic work (or why male students are less engaged)

could provide key insights to develop curricula and academic support methods for all students.

While the current study focused on answering questions about urbanicity, it is clear that a number of interesting and important questions remain about the nature of student engagement at small, residential, liberal arts colleges. In particular, the nature of within-school variance appears to provide a vibrant palate to generate further knowledge and insight.

Conclusion

The findings of this study highlight the impact that the urbanicity of a small, residential, liberal arts college has on the nature of student engagement and student learning. In addition, the findings identify particular student demographics that are more or less engaged in certain aspects of student engagement. These results provide a depth to the knowledge base on student engagement that was not previously available. In addition, the study shows that the urbanicity of a school can have a significant impact on student outcomes and should be considered more broadly. A number of observations are provided where future research may be able to create further insights into the nature of the impact of a school's location or the demographics that are significantly impacting student engagement today.

American higher education is facing a variety of challenges today. The value and the cost of college degrees are being questioned and it is essential that college leaders find ways to best explain the impact that our programs and institutions have on student success. Part of being successful in that endeavor involves a deeper understanding of the

factors that contribute to our students' success. That knowledge base grows from the findings in this study and thus aid in the quest to explain how higher education intentionally improves student learning.

Furthermore, this study identified some critical areas that are valuable to recruiters and prospective students and their families. If enrollment management staff and athletic coaches are more aware of how their rural or urban college is distinctive, then they can become better recruiters. Having a brand promise that matches with the actual experience at the institution is a critical part of student retention and persistence (Kalsbeek, 2013). This study helps connect that brand promise to the real experience occurring on liberal arts college campuses today. The study also can inform prospective families on the types of schools that would fit their individual priorities and concerns.

Urbanicity is a variable that is under-researched and this study identifies some of the impacts created by a school's location. Understanding those differences and explaining them can make for more successful and purposeful institutions and greater learning and engagement for our students. The findings from this study add to the ability to achieve those goals and aspirations.

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Appendix A

Engagement Scalet Survey Questions

Engagement Scalet Survey Questions

Course Challenge

- How often have you...worked harder than you thought you could to meet an instructor's standards or expectations?
- How often have you...come to class without completing reading or assignments?
(reverse scored)
- To what extent have...your examinations during the current school year challenged you to do your best work?
- How many hours a week do you spend preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program)?
- To what extent does your institution emphasize...spending significant amounts of time studying and on academic work?

Diversity

- How often have you...had serious conversations with students of a different race or ethnicity than your own?
- How often have you...had serious conversation with students who differ from you in terms of their religious beliefs, political opinions, or personal values?
- To what extent does your institution emphasize...encouraging contact among students from different economic, social, and racial or ethnic backgrounds?

Out-of-class Interaction

- How often have you...talked about career plans with a faculty member or advisor?

- How often have you...worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)?
- Have you, or do you plan to,...work on a research project with a faculty member outside of course or program requirements?

Support for Student Success

- To what extent does your institution emphasize...providing the support you need to help you succeed academically?
- To what extent does your institution emphasize...helping you cope with your non-academic responsibilities (work, family, etc.)?
- To what extent does your institution emphasize...providing the support you need to thrive socially?

Varied Experiences

- Have you, or do you plan to,...participate in a practicum, internship, field experiences, co-op experience, or clinical assignment?
- Have you, or do you plan to,...participate in community service or volunteer work?
- Have you, or do you plan to,...participate in a learning community or some other formal program where groups of students take two or more classes together?
- Have you, or do you plan to,...take foreign-language coursework?
- Have you, or do you plan to,...study abroad?
- Have you, or do you plan to,...participate in an independent study or self-designed major?

- Have you, or do you plan to, ...participate in a culminating senior experience (comprehensive exam, capstone course, thesis, project, etc.)?
- How many hours a week do you spend ...participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)?
- To what extent does your institution emphasize ...attending campus events and activities (special speakers, cultural performances, athletic events, etc.)?

Appendix B

Institutions Included in the Study and Year of NSSE Data Used

Institutions Included in the Study and Year of NSSE Data Used

Rural Schools

Alma College - 2010
Central College - 2010
Centre College - 2010
Cornell College - 2009
Emory & Henry College - 2009
Hanover College - 2010
Hartwick College - 2010
Hiram College - 2009
Sewanee-The University of the South - 2010
St. Mary's College of Maryland - 2010
Susquehanna University - 2010
University of Minnesota-Morris - 2010
Washington College - 2009
Wells College - 2009

Urban Schools

Albright College - 2010
Birmingham Southern College - 2010
Centenary College of Louisiana - 2009
Eckerd College - 2010
Guilford College - 2010
Illinois Wesleyan University - 2010
Kalamazoo College - 2009
Millsaps College - 2010
Occidental College - 2009
Randolph College - 2010
Rhodes College - 2009
Transylvania University - 2010
Union College - 2009
Wisconsin Lutheran College - 2009
Wittenberg University - 2009

Appendix C

IRB Approval Letter

January 9, 2014

Todd Clark
Department of Educational Administration

James Griesen
Department of Educational Administration
125 TEAC, UNL, 68588-0360

IRB Number: 20140114068 EX

Project ID: 14068

Project Title: The impact of urbanicity on student engagement at small, residential, liberal arts colleges

Dear Todd:

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 4.

You are authorized to implement this study as of the Date of Exemption Determination: 01/09/2014.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- * Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman, CIP
for the IRB

