STUDENT ENGAGEMENT IN NURSING SCHOOL: A SECONDARY ANALYSIS OF THE NATIONAL SURVEY OF STUDENT ENGAGEMENT DATA

By

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Abstract

Student engagement has received considerable attention in higher education research because of the link between increased student knowledge, greater student satisfaction with educational experience, and increased student retention and persistence. The National Survey of Student Engagement (NSSE) has been used since 2000 to assess engagement in undergraduate college students. NSSE results have been used to gain an understanding about levels of academic engagement for freshman and senior college students. Institutions use NSSE results to make changes in policies and practices to improve undergraduate education.

This comparative descriptive study examined levels of undergraduate nursing students' engagement during college by conducting a secondary analysis of NSSE data. The overall aim of this study was to gain a better understanding of nursing students' levels of engagement at two points in time and comparing two geographic regions, and how they spent their time while in college. In a 2007 report, the National Leadership Council for Liberal Education and America's Promise (LEAP) identified ten innovative high-impact practices in higher education. Since then, these practices have been implemented across the nation and have been associated with gains in student learning and personal development (Kuh, 2008). This study compared senior nursing students' levels of engagement before and after these high-impact practices were recommended to see if engagement levels in senior nursing students differed between 2003 and 2010.

Astin's student involvement theory was used as a guiding framework for this study to examine how nursing students engage in the learning process and what educational resources nursing students use to become involved in the learning process. Astin's theory focuses on what the college student does to be an active participant in the learning process and describes the environmental influences on college student development.

Although statistically significant, the differences between the 2003 and 2010 nationwide cohorts of nursing students for the *Level of Academic Challenge* and *Student-Faculty Interaction* benchmarks were trivial. Senior nursing students were equally as engaged in 2010 as they were in 2003. This finding suggests consistency and stability in nursing education with regard to the *Level of Academic Challenge* and *Student-Faculty Interaction* benchmarks.

Senior nursing students from Kansas and Missouri were compared to senior nursing students from all other states. Senior nursing students from KS/MO were similar to students from all other states in relation to *Level of Academic Challenge* and *Active and Collaborative Learning* benchmarks and how they spent their time in a typical 7-day week. Although statistically significant, the difference between the KS/MO cohort of nursing students and cohort of nursing students from other states for the *Student-Faculty Interaction* benchmark was trivial.

In general, senior nursing students in 2010 were as engaged in their education as they were in 2003, reflecting stability in nursing education during this same time period. Senior nursing students from KS/MO were as engaged and spent their time in a similar manner as senior nursing students from all other states. This indicates that nursing students from these Midwest states have similar educational engagement as nursing students from other states and nursing education in the Midwest is consistent with the rest of the country. These findings of stability and consistency over time and across regions of the US are encouraging for nursing education. Nurse educators and higher-education administrators can build upon this strong foundation and make concerted efforts to further increase engagement in nursing students.

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Chapter 1

Introduction

Student engagement, also known as academic engagement, academic learning time, or academic involvement, is receiving considerable attention by higher education scholars. Student engagement represents "both the time and energy students invest in educationally purposeful activities and the effort institutions devote to using effective educational practices" (Axelson & Flick, 2011, p. 41). Researchers have linked student engagement to increased student knowledge and greater student satisfaction with educational experience (Carini, Kuh, & Klein, 2006), as well as increased student retention and persistence (Tinto, 2012). The National Survey of Student Engagement (NSSE) is used to measure levels of student engagement in higher education. In 1998, the Pew Charitable Trusts selected the National Center for Higher Education Management Systems (NCHEMS) to coordinate the development of what would eventually become the NSSE. After pilot administration in 1999, administration of the survey started in 2000 as a joint venture between the Indiana University Center for Postsecondary Research, the Indiana University Center for Survey Research, and the National Center for Higher Education Management Systems. The NSSE is a self-reporting instrument consisting of five benchmarks of effective educational practice (level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment) as well as three deep learning subscales (higher-order learning, integrative learning, and reflective learning). NSSE results have been used to identify features+ of the undergraduate experience that could be improved upon through changes in policies and practices that are consistent with good practices in undergraduate education (NSSE, 2014).

In the 2007 Association of American Colleges & Universities (AAC&U) report, titled *College Learning for a New Global Century*, the National Leadership Council for Liberal

Education and America's Promise (LEAP) identified ten innovative high-impact practices in higher education. Since then, these practices have been implemented across the nation and have been associated with gains in student learning and personal development (Kuh, 2008). The NSSE has been used to evaluate the effects of participating in the LEAP high-impact activities.

The ten practices include first-year seminars, common intellectual experiences, learning communities, service learning, undergraduate research, study abroad, and other experiences with diversity, internships, and capstone courses and projects. In a follow-up AAC&U report, Kuh (2008) described strong positive effects of participating in high-impact activities as measured by the NSSE. In particular, students who participated in learning communities, service learning, study abroad, student-faculty research, and senior culminating experiences reported greater gains in learning and personal development.

Examining levels of engagement in undergraduate nursing students can provide valuable information about nursing student behavior and institutional practices that contribute to student success. This information has the potential to shape teaching practices as well as institutional policies and procedures related to educational resources for nursing students. In the current study, levels of engagement in senior year nursing students in the years 2003 and 2010 are described. In addition, levels of engagement of senior nursing students in Kansas and Missouri (KS/MO) are compared to senior nursing students from other states. Since LEAP identified the high-impact educational practices in 2007 and Kuh reported strong positive effects of the practices on student engagement scores in 2008, this study sought to identify if the implementation of high-impact practices had an effect on engagement scores of nursing students over time.

Background and Significance

Educational research has shown the amount of time and energy that college students devote to educationally purposeful activities is related to student learning and personal development. Carini, Kuh, and Klein (2006) found positive relationships between engagement as measured by the NSSE and both critical thinking and grades. Pascarella and Terenzini (1991) found that the interactions between students and faculty had a significant positive impact on learning. In 1987, Chickering and Gamson published an article on the seven principles for good practice in undergraduate education. These seven practices include: encourages contact between students and faculty, develops reciprocity and cooperation among students, encourages active learning, gives prompt feedback, emphasizes time on task, communicates high expectations, and respects diverse talents and ways of learning (Chickering & Gamson, 1987). These principles were based on 50 years of educational research that supported student/faculty interaction in college being related to positive student outcomes and satisfaction with educational experience. Kuh, Kinzie, Schuh, and Whitt (2005) studied 20 four-year colleges for two years and found students with high levels of engagement as measured by the NSSE had higher than predicted graduation rates given their student and institutional characteristics. The literature supports the link between educational best practices, student engagement, and student outcomes; however, the discipline of nursing lacks evidence that evaluates student characteristics and engagement and their role in successful academic outcomes.

Instruments such as the NSSE have been used to assess the extent to which students are engaged in sound educational practices and what they derive from their collegiate experience (Kuh, 2001a). Results from the NSSE have been used to make institutional changes as well as changes in teaching strategies in efforts to improve student outcomes. For example, in Halifax

(Nova Scotia), Dalhousie University's 2008 NSSE results indicated a need for more active and collaborative learning in computer science. More hands-on, project-driven first-year classes were implemented to help students link theory with everyday applications. As a result, engagement scores increased and the department saw an increase in second-year retention rates (NSSE, 2012a).

Since the NSSE's inception in 2000, which has allowed measurement of student engagement, levels of engagement in undergraduate students have increased nationwide. These higher levels of engagement could be related to individual schools' practice modifications, combined with a growing national emphasis on improving undergraduate education. In an analysis of data from over 200 institutions who administered the NSSE at least four times between the years 2004 and 2009, and in a more recent analysis of the NSSE data involving more than 400 institutions between the years 2004 and 2012, the majority of institutions either showed a positive trend or stayed the same on engagement scores (NSSE, 2009; NSSE, 2012).

Follow-up investigations suggest that the positive trends might be a result of several factors: intentional efforts by institutions to engage students in at least two high-impact practices during college, institutional commitment to improving undergraduate education, attention to data that reveal a need for improvement, as well as faculty interest in improving undergraduate education (McCormick, Gonyea, & Kinzie, 2013). McCormick, Kinzie, and Korkmaz (2011) surveyed 142 institutions that had used the NSSE at least four times between the years 2001-2009 and had positive trends in engagement scores. Nearly all respondents identified one of the motivators behind the change efforts as an institutional commitment to improving undergraduate education. The second most frequent response revealed concerns about undergraduate education including unfulfilled aspirations and dissatisfaction with performance (McCormick et al., 2011).

The 2012 NSSE Annual Report suggests that the increase in first-year student engagement scores could be attributed to concerted efforts nationwide to strengthen first-year programs, such as early-alert systems, freshman experience courses, and learning communities as strategies to increase student retention.

The NCHEMS (2014) reported that the national retention rate of first-time college freshmen returning for their second year of college from the years 2009-2010 was 77.1%. The NCHEMS defines this retention as the rate at which entering freshmen in a fall semester enroll the following fall semester and includes only students who begin full-time study in associate and baccalaureate programs. The NCHEMS (2014) reported that students were more likely to drop out of postsecondary education during the first year than any other time. This report also showed that if a state can implement policies that help to increase retention rates either within institutions or through transfer, the likelihood of students persisting to graduation is far greater (NCHEMS, 2014).

The attrition rate for the second year may be a result of a lack of student support during the first year of college; therefore, many higher education institutions have implemented first year student success programs (Tinto, 2012). Efforts to increase levels of engagement in students with educational opportunities (faculty, resources such as tutoring programs, and writing centers) are crucial in order to promote student success and retain students to graduation. Completing an educational program can benefit a person and society in a number of ways. Baum and Ma (2007) found a positive correlation between higher levels of education and higher earning for all racial/ethnic groups for both men and women as well as the fact that college graduates are more likely than others to enjoy employer-provided health insurance and benefits. Higher levels of

education correspond to lower unemployment and poverty rates and decrease demand on public assistance budgets (Baum & Ma, 2007; Carnevale & Rose, 2011).

Hunt (2006) describes the challenge of the emergence of a global and highly competitive new knowledge-based economy, which requires large numbers of workers with education and training beyond high school. Options for this education and training include career and technical education pathways, employer-based training, industry-based certifications, apprenticeships, postsecondary certificates, and a college education. Selingo (2012) states that if America is to improve its standing in the world in terms of an educated work force and strong economy, colleges and universities must see themselves as part of the larger education system to train and prepare individuals after a high school education.

There can be substantial personal, national, and global financial benefits when students complete a bachelor's degree as compared to completing an associate's degree or no college degree at all. According to Baum and Ma (2007), people who earn an associate's degree earn about $650,000 less over their working lifetime than graduates with a baccalaureate degree, who earn over a million dollars more during their lifetime, compared to those who do not go to college (Baum & Ma, 2007; Baum & Payea, 2004). These economic gains represent just one of the benefits to completing a college education, especially a bachelor's degree.

When more citizens are college graduates, the benefits to a nation as a whole include improved health, increased school readiness of children, higher rates of volunteerism as well as lower rates of unemployment, poverty, and incarceration (Baum & Payee, 2004; Baum & Ma, 2007; Carnevale & Rose, 2011). Having a college-educated workforce also improves a nation's ability to be competitive globally (Pusser et al., 2007). In spite of these benefits, the United States is falling behind many other nations in its ability to produce college graduates (National

Center for Public Policy and Higher Education, 2006; Tierney, 2006). Overall, the US must do a better job of retaining students in college to graduation to remain a global competitor (Tinto, 2012). Keeping students engaged in their studies and the college experience may be key aspects of this solution.

There is a gap in the literature related to specific college majors and the levels of engagement as measured by the NSSE. Additionally, there is little in the literature documenting the effects of implementation of high-impact educational practices on engagement in higher education, particularly in nursing students. This study adds to the body of knowledge on engagement of nursing students before and after high-impact educational practices were identified in 2007. Understanding engagement as an indicator of student learning potential is important to understanding teaching strategies, institutional resources, and learning outcomes.

Theoretical Framework

The student involvement theory focuses on what the college student does in order to be an active participant in the learning process (Astin, 1984). Active participation could include: interacting with faculty and peers, participating in campus organizations, attending campus events, working, studying, and volunteering are all ways in which Astin saw that students could be involved in their learning process (Astin, 1984). The use of the term "engagement" in the NSSE is very similar to Astin's term "involvement." Astin defined student involvement as "the amount of physical and psychological energy that the student devotes to the academic experience" (Astin, 1984, p. 297).

Astin's theory, originally published in 1984, describes the environmental influences on college student development. In 1996, Astin suggested that levels of involvement occur along a continuum, vary in intensity for each student, and differ between students. Astin (1996) also

found negative outcomes associated with forms of involvement that either isolated students from their peers or removed students physically from campus. In 1999, Astin stated that involvement can be measured both quantitatively and qualitatively through measurement of students' physical engagements (participating through observable behaviors) and mental applications (such as concentration, commitment, and motivation).

The core concepts of the theory are based on the three elements of inputs, environments, and outputs, as well as five postulates about involvement. The first element, Inputs, refers to the student's demographics, background, and previous experiences. Environment, the second element, accounts for all of the experiences a student has during college. The third element, Outputs, refers to the student's characteristics, knowledge, attitudes, beliefs, and values that exist after a student has graduated from college. Outputs include outcome indicators such as grade point average, student retention, course performance, and degree completion (Astin, 1984).

Astin's student involvement theory advances three assumptions: (a) involvement is the investment of physical and psychological energy in tasks, people, or activities, (b) involvement occurs along a continuum, and (c) involvement has both quantitative and qualitative features. The following propositions of the theory provide direction for designing more educational programs for students: a) amount of student learning and personal development associated with any educational program is directly proportional to the quality and quantity of student involvement, and b) the effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement (Astin, 1984). This theory directs attention away from the subject matter and toward the motivation and behavior of the student by viewing the student's time and energy as institutional resources. This theory suggests

that the more students are involved with a variety of people and activities in their academic institutions, the more likely it is the student will graduate.

Research findings based on Astin's theory can be used for both researchers to guide the study of student development as well as for college administrators and faculty to design effective learning environments (Astin, 1984). Many studies have used Astin's student involvement theory. Thurmond and Popkess-Vawter (2003) applied the theory to web-based instruction and found student satisfaction can be attributed to what happened in the virtual classroom (environment) and not to student characteristics (input). Pike and Kuh (2005) found that student involvement in co-curricular activities such as activity in campus residence halls, leadership positions, and student organizations was positively correlated with student retention and academics. Rust, Dhanatya, Furuto, and Kheiltash (2008) investigated student involvement in study abroad as part of the collegiate experience and found a positive correlation between students who reported active participation in social, academic, community, political, and diversity activities were much more likely to study abroad than those who were not as active participants. Popkess (2010) found that student engagement in the learning process may have been positively influenced by an active learning environment in the classroom. In a secondary analysis of NSSE data, Popkess and McDaniel (2011) found that although nursing students are engaged in rigorous curricula, they do not perceive themselves to be engaged in student-centered and interactive pedagogies. Sharkness and DeAngelo (2011) also used Astin's theory in their comparison of the psychometric utility of Classical Test Theory and Item Response Theory for scale construction with data from higher education student surveys. In summary, the application and use of the student involvement theory in these studies provided support for the theory's assumptions and propositions.

Astin's student involvement theory was selected for this research study as a guiding framework to examine how nursing students engage in the learning process, what educational resources nursing students use to become involved in the learning process, and if student demographics have an effect on levels of engagement. The current study focused on the input element (student demographics) and the environment element (experiences during college) of the student involvement theory. Outputs were not measured in this study and are suggested as an area for future research in Chapter 5.

Purpose of the Study

This comparative descriptive study examined issues related to undergraduate nursing students' engagement during college by conducting a secondary analysis of NSSE data. The purpose of this study was to describe and compare levels of engagement in senior year nursing students in the years 2003 and 2010 as well as to compare levels of engagement of senior nursing students in KS/MO to senior nursing students from other states.

Over the past decade, there has been a push in nursing education to move toward more active learning strategies and away from traditional classroom lectures (Benner, Sutphen, Leonard, & Day, 2009). Active teaching strategies recommended by Benner et al. (2009) have been implemented in nursing education and have resulted in improved test scores and critical thinking scores. The years 2003 and 2010 were chosen to be able to examine levels of engagement before and after high-impact practices in higher education were identified by LEAP in 2007 (AAC&U, 2007) and before and after Benner et al. (2009) emphasized active teaching strategies in nursing education. Since NSSE data are made available no sooner than three years after institutional reports are mailed to participating institutions, the most recent report available when the current study was proposed was from 2010.

Another reason the 2003 NSSE dataset was chosen as a year to study is it is based on a pilot study by Popkess and McDaniel (2011). In that study, the authors used the NSSE 2003 dataset to describe differences in student engagement as measured by the NSSE between nursing students and other pre-professional groups. The current study is similar to the Popkess and McDaniel study as it uses the same theoretical framework, the same year the dataset came from (2003), and some of the same statistical analyses. The studies differed from one another because the current study only examined nursing students where Popkess and McDaniel (2003) compared nursing students to other majors. In addition, this study compared levels of engagement in two different years, as well as two different regions in the US, as well as the interaction between year and state and levels of engagement. Another difference between the two studies is Popkess and McDaniel (2003) examined all five NSSE benchmarks and this current study examined three benchmarks. Some of the results of each study are compared to one another in Chapter 5.

The three benchmarks examined in this study: *Level of Academic Challenge*, *Active and Collaborative Learning*, and *Student-Faculty Interaction* were selected for this study because the items within these benchmarks are affected more by instructors' actions and expectations than the *Supportive Campus Environments* and *Enriching Educational Experiences* benchmarks. Since the researcher is a nurse educator, the three benchmarks most affected by educators were examined in this study.

Information about how nursing students spend their time in a typical 7-day week also was examined to better understand how nursing students prioritize and use their time. Nursing students from Kansas/Missouri (KS/MO) were compared to nursing students from the rest of the country. These states were used in this study for a few reasons. Only 59 senior nursing students from KS completed the survey in 2003 and 120 senior nursing students from KS completed it in

2010. Senior nursing students from MO that completed the NSSE were added to the group to increase the sample size and because of the similarities of nursing education in KS and MO and the collaboration that exists among nursing programs in these states.

Statement of Research Hypotheses

The aim of this study was to examine levels of engagement in senior year nursing students as measured by the NSSE. First, the levels of engagement on three of the benchmarks in nursing students were compared between the years 2003 and 2010. Second, student engagement levels on three of the benchmarks for KS/MO nursing students were compared to senior nursing students from all other states. Third, nursing students were examined as to how they spent their time while in college in 2003 and 2010 and how nursing students from KS/MO spent their time compared to students from other states.

The following hypotheses were tested:

1. The mean scores for the NSSE benchmarks *Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will be higher for the 2010 nationwide cohort of senior nursing students as compared to the 2003 nationwide cohort of senior nursing students.
2. The mean scores for the NSSE benchmarks *Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will not differ between senior nursing students in KS/MO schools and senior nursing students in non-KS/MO schools.
3. Changes from 2003 to 2010 in the mean scores for the NSSE benchmarks *of Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will not differ between senior nursing students in KS/MO schools and senior nursing students enrolled in non-KS/MO schools.

Hypothesis 1 was posed to examine if the recent national emphasis on active learning has had an effect on engagement scores in senior nursing students in the US. National recommendations to increase opportunities for active learning may result in an increase in engagement scores. Hypothesis 2 was posed to explore whether senior nursing students enrolled in KS/MO schools differ on engagement scores from senior nursing students enrolled in schools located in other states. Since baccalaureate programs in the US prepare graduates for the National Council Licensing Exam for Registered Nurses (NCLEX-RN) and are held to similar accreditation standards, the similarity in program requirements likely will result in similar experiences by nursing students nationwide. It was expected that the mean scores for the benchmarks would be similar for nursing students from KS/MO compared to scores for students from other states.

Hypothesis 3 was posed to explore if there was an interaction between Year (2003/2010) and State (KS/MO and non-KS/MO) on engagement scores in senior nursing students. Senior nursing students from KS/MO were expected to be similar to nursing students from all other states on engagements scores at both points in time.

In order to more fully understand how senior nursing students spent their time in 2003 and 2010, responses to this NSSE question were analyzed: "About how many hours do you spend in a typical 7-day week doing each of the following?" Respondents chose between 0 to more than 30 hours per week spent on these activities: preparing for class, working for pay on campus, working for pay off campus, participating in co-curricular activities, providing care for dependents living in the same household, and commuting to class. The responses provided data to answer these secondary research questions:

1. In a typical 7-day week, how did senior nursing students in 2003 spend their time?

2. In a typical 7-day week, how did senior nursing students in 2010 spend their time?

3. Are there differences between the 2003 and 2010 cohorts with respect to each of the activity variables?

The overall aim of this study was to gain a better understanding of nursing students' levels of engagement over time, to determine if nursing students from KS/MO differed from other states in levels of engagement, and to examine how nursing students spent their time while in college.

Chapter 2

Review of the Literature

The literature review will focus on factors that contribute to engagement of college students and specifically engagement of nursing students. Active learning as a method to increase engagement in college students will be described as well as historical information and benchmarks on the NSSE.

A systematic review of the literature was conducted using the Cumulative Index to Nursing and Allied Health Literature (CINAHL), the Education Resource Information Center (ERIC), and the PubMed Medline databases. Keywords used for this search included: engage, active learning, collaborative learning, college, university, students, nursing education, undergraduate, higher education, retention, attrition, and engagement. Inclusion criteria for sources considered for review included those in the English language and articles from peer-reviewed scholarly journals, dissertations, educational websites, and books. The majority of the sources selected for review were from the past 10 years; however, older sources were considered for review if they provided a historical reference on the topics. Over 100 articles were found related to these topics and 50 of these that met inclusion criteria and closely reflected the secondary research questions and hypotheses were retained for the review of literature.

The review of literature begins with an overview of nursing education in the United States. Engagement in college students is addressed followed by a discussion about active learning. A detailed description of the NSSE is covered, including its use and administration as well as the five Benchmarks of Effective Educational Practice. Finally, a focused discussion about engagement in nursing students is presented.

Nursing Education

Currently in the United States, there are three routes to becoming a registered nurse: a 3-year diploma program typically based in a hospital; a 3-year associate degree program usually offered at community colleges; and the 4-year baccalaureate degree typically offered at colleges and universities. Graduates of all three nursing programs take the same licensing exam, the National Council Licensure Examination for Registered Nurses (NCLEX-RN).

Baccalaureate nursing programs include all of the course work taught in associate degree and diploma programs in addition to more in-depth content in the physical and social sciences, nursing research, public and community health, nursing management, and the humanities. According to the American Association of Colleges of Nursing (AACN) *Fact Sheet: The Impact of Education on Nursing Practice* (2014), the additional course work in baccalaureate programs improves the student's professional development, prepares nurses for a broader scope of practice, and provides the nurse with an enhanced understanding of the cultural, political, economic, and social issues that can affect patients and influence healthcare delivery.

The American Association of Colleges of Nursing (AACN), American Organization of Nurse Executives (AONE), American Nurses Association (ANA) and other leading nursing organizations recognize the BSN as the minimum educational requirement for professional nursing practice in today's complex healthcare environment (AACN, 2010). The AACN has a leadership role in shaping the preferred vision for nursing education and refers to baccalaureate nursing education as a foundation upon which all graduate nursing education builds (AACN, 2008). The *Essentials* go on to state that the baccalaureate nurse is viewed as a generalist who is a provider of care, a designer/manager/coordinator of care, and member of a profession. Amos (2005) recommends that the education of a nurse must transcend traditional areas, such as

anatomy and chemistry, in order to enable nurses to gain a deeper understanding of health promotion, disease prevention, screening, genetic counseling, and immunization. Baccalaureate prepared nurses are prepared to deliver care to individuals, families, groups, and communities in institutional, home, and community settings (Boland & Finke, 2012).

A baccalaureate curriculum is designed to meet AACN's *The Essentials of Baccalaureate Education for Professional Nursing Practice* (AACN, 2008) and incorporates a strong foundation of liberal arts and sciences in addition to professional education and training in nursing care. Typically in a university or college setting, the first two years include prerequisite courses in the sciences, arts, and humanities before admission to the nursing program. In some programs, students take prerequisite courses concurrently with nursing courses. Within the nursing program, the curriculum focuses on the nursing sciences both in didactic and clinical settings. Courses typically include health promotion, family planning, adult and pediatric health, environmental and occupational health, psychiatric/mental health, medical and surgical care, community health, nurse leadership, research, pharmacology, management, and home health care. In many baccalaureate programs, a capstone course or project is completed during the senior year in which students engage heavily in the clinical setting to transition from student to professional practice.

Traditionally, content in nursing theory courses has been presented in lecture format with students passively listening. There is a nationwide push to move away from these traditional teaching strategies to ones that actively engage the students in learning activities. This is discussed in further detail later in the review of literature in the sections on active learning as well as engagement in nursing students.

College Student Engagement

Research on student engagement in the college setting has increased over the past ten years. One of the most commonly used measures of student engagement is the NSSE: more than 1,500 different colleges and universities in the US and Canada, and approximately four million students have participated in NSSE since its first administration in 2000 (NSSE, 2014). Other methods to measure student engagement in college students include the Engaged Learning Index (Schreiner & Louis, 2006), the Student Engagement Index (Langley, 2006), the Revised Student Experiences Questionnaire (CSEQ) (Koljatic & Kuh, 2001), the Revised Student Engagement Questionnaire (Handelsman, Briggs, Sullivan & Towler, 2005), the Student Engagement Survey (SE) (Ahlfeldt, Hehta & Sellnow, 2005), the Classroom Survey of Student Engagement (CLASSE) (Smallwood & Ouimet, 2009), and the Faculty Survey of Student Engagement (FSSE) (Ouimet & Smallwood, 2005). The Student Engagement Index, the SE, the FSSE, and the CLASSE are all adapted from the NSSE but are more specific to individual courses than the NSSE as are the other assessments listed.

Engagement has been defined as "the amount of time and effort students put into their studies, and into other activities that lead to the experiences and outcomes that constitute student success" (Pascarella & Terenzini, 2005, p. 602). This definition is very similar to the one used by NSSE (2014).

> "Student engagement represents two critical features of collegiate quality. The first is the amount of time and effort students put into their studies and other educationally purposeful activities. The second is how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning" (para. 1).

Upon examination of the definitions of student involvement or engagement used in previous studies, Pascarella and Terenzini (2005) did not specify what "other activities" led to student success, whereas NSSE (2014) identified the institution as a factor in engaging students in activities that might be linked to student success. Moreover, Astin focused on the student when defining student involvement; however, NSSE considered the student's time and effort as well as institutional resources and availability of those resources for its definition of student engagement. Even though Astin's theory includes ways that students are involved with the learning process through the use of institutional resources, these are not included in his definition of involvement. According to principles underlying the NSSE items, the student and the educational institution both are responsible for contributing to student engagement.

According to these definitions of engagement, the more students are actively involved in their subject and the educational resources available to them, the more they will learn. Likewise, the more students practice and get feedback on their writing and other learning activities, the more adept they should become on a subject (Kuh, 2003). Carini, Kuh, and Klein (2006) examined 1,058 students at 14 four-year colleges and universities and found positive relationships between engagement and both critical thinking and grades. Even the lowest-ability students benefited more from engagement than less engaged classmates. Certain institutions more effectively convert student engagement into better performance on critical thinking measures. For example, a liberal arts college, a general liberal arts college, and a historically black college and university (HBCU) had a number of substantial positive associations between engagement and Research and Development (RAND) scores, which contain critical thinking and performance tests (Carini et al., 2006). Fischer (2007) surveyed approximately 4,000 students using the National Longitudinal Survey of Freshmen which examined how the different forms of

engagement in the freshman year of college were related to student satisfaction, retention to the sophomore year, and academic achievement. Students having a larger number of formal connections with faculty, as well as a larger number of formal and informal social connections with faculty, staff, and peers were more likely to report greater satisfaction and higher retention.

In a related study, the link between higher levels of engagement (as measured by the NSSE) and increased student learning gains was demonstrated in the use of learning communities in first-year college students. A learning community is a formal program in which groups of students take two or more classes together, and may or may not have a residential component (Zhao & Kuh, 2004). Student learning gains included integration of academic and social experiences, positive perceptions of the college environment, and self-reported gains in personal and social development, general education as well as practical competence since beginning college (Zhao & Kuh, 2004).

Moreover, a study of student learning among 26,103 fraternity and sorority members (Bureau, Ryan, Ahren, Shoup, & Torres, 2011) found that these students were significantly more engaged than non-fraternity/sorority members on the majority of the NSSE subscales and reported higher involvement in critical developmental practices, which may be related to positive feelings about being involved in learning-oriented campus activities. In another related study, positive relationships were found between many measures of student engagement and students' critical thinking and grades, in particular, lowest-ability students benefitted more from engagement than classmates (Carini et al., 2006). Additionally, Pascarella, Seifert, and Blaich (2010) showed institution-level NSSE benchmark scores had a significant positive overall association with the seven liberal arts outcomes at the end of the first year of college. These seven outcomes included the following: effective reasoning and problem solving, moral

character, inclination to inquire and lifelong learning, intercultural effectiveness, and personal well-being.

Taken together, these findings support the notion that higher levels of engagement can lead to better student outcomes. Specifically, engagement has been associated with higher grades (McClenney & Marti, 2006), higher levels of critical thinking (Carini et al., 2006; Zhao & Kuh, 2004), greater satisfaction with the learning institution (Carini et al., 2006; Zhao & Kuh, 2004), and higher levels of academic achievement (Fischer, 2007) as well as student retention (Kuh, Kinzie, Cruce, Shoup, & Gonyea, 2008; McClenney & Marti, 2006; Tinto, 2012).

Active Learning

Active learning, often associated with engagement, can be defined as any class activity that involves students in doing things and thinking about the things they are doing (Bonwell & Eison, 1991). This definition was expanded upon by Fink (2003) to include two basic kinds of experiences: doing and observing, and referring to "thinking about the things they are doing" as "reflection."

Active learning is an important principle of good practice in undergraduate education, according to Chickering and Gamson (1987). Other principles identified by Chickering and Gamson (1987) include contact between students and faculty, reciprocity and cooperation among students, prompt feedback, time on task, high expectations, and respect of diverse talents and ways of learning. Examples of active learning strategies include case studies, concept mapping, role play/simulation, journal reading, games, student generated test questions, gaming, and reflection activities such as one-minute papers (Bowles, 2006; Fink, 2003). These activities shift the focus from sitting and passively listening to lecture to giving students more "doing" and "observing" experiences related to the course subject. Reflective activities can be powerful

active learning strategies by giving students the opportunities to step back from the other activities in the course and reflect on the learning process itself. Reflection can also allow students to realize what content is still unclear and needs further review before moving on to new content.

Currently, there is an emphasis in nursing education to move toward more active learning strategies. Benner et al.(2009) recommend integrating classroom and clinical teaching techniques, moving from an emphasis on critical thinking to an emphasis on clinical reasoning, and developing teaching methods that are focused on patient care, such as simulations, unfolding case studies, and live interviews. In a study on third semester undergraduate nursing students, Everly (2013) compared exam results of students who had lecture-only preparation to those who had active learning activities in the classroom. Students who had active learning strategies scored significantly higher on a standardized assessment test than students who received lecture only (Everly, 2013). This supports findings from previous studies on student experiences and perceptions of increased learning when using active learning strategies in nursing education (DeSanto-Madeya, 2007; Garity, 2009; Neuman, Pardue, Grady, Gray, Hobbins, Edelstein, & Herrman, 2009).

In 2003, the year from which one of the samples of students for this study was taken, nursing education still relied heavily on passive learning strategies such as lecture and PowerPoint presentations. Even though lecture has the advantage of being able to present a large amount of information in a short amount of time, passive lectures only encourage learning at the lowest cognitive levels, whereas active learning strategies promote learning at higher cognitive levels (DiPiro, 2009).

National Survey of Student Engagement (NSSE)

The NSSE was created in 1998 as a new approach to gathering information about collegiate quality. The survey was piloted in 1999 with funding from The Pew Charitable Trusts. The NSSE is a self-reporting instrument consisting of five subscales or benchmarks of effective educational practice (level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment) as well as three deep learning subscales (higher-order learning, integrative learning, and reflective learning). The NSSE also contains items related to activities involved in a student's typical 7-day week as well as demographic items. Most of the items (with the exception of those within the *Enriching Educational Experiences* benchmark) are scored on a four-point Likert-type scale, with scores indicating the frequency students reported performing the behavior described in the item (1=never, 2=sometimes, 3=often and 4= very often). For the items in the *Enriching Educational Experiences* benchmark, the survey asks the question: "Which of the following have you done or do you plan to do before you graduate from your institution?" Respondents have the option of marking "yes," "no," or "undecided" on these items.

The NSSE takes about 15 minutes to complete and is administered to first-year and senior bachelor's degree-seeking students in the United States and Canada. The 2003 and 2010 NSSE surveys can be found in Appendix A and Appendix B, respectively.

The survey items on the NSSE represent empirically confirmed good practices in undergraduate education. Many of the items included on the NSSE were derived from existing student questionnaires including the College Student Experiences Questionnaire (CSEQ), the Cooperative Institutional Research Program (CIRP) freshman and follow-up surveys, and student and alumni surveys administered by the University of North Carolina system (NSSE, 2014). To

establish validity and reliability, psychometric analyses were conducted following the first five administrations of the instrument, beginning with the field tests in spring 1999. These analyses were based on 3,226 students at 12 institutions in spring 1999; 12,472 students at 56 institutions in fall 1999; 63,517 students at 276 institutions in spring 2000; 89,917 students at 321 institutions in spring 2001; and 118,355 students at 366 institutions in spring 2002 (Kuh, 2003). In general, the psychometric properties of the NSSE were very good, with the vast majority of the items meeting or exceeding recommended measurement levels and strong face and construct validity. Researchers did acknowledge that a shortcoming of the analysis was in the ability to know if the respondents were interpreting the questions as intended by the design team. To address this issue, researchers conducted focus groups at eight schools that participated in the 2000 administration of the NSSE (Kuh, 2003). Students in the focus groups found most of the questions to be clear and easy to complete, and a few items were identified that the design team revised for clarity for the 2001 administration (Kuh, 2003).

After the analyses of the first five administrations of the NSSE and feedback from focus groups and cognitive testing, revisions were made to individual items and the overall instrument (Kuh, 2001b). Modifications and refinements of test items continued based on psychometric analyses of NSSE results until 2005 (McCormick et al., 2013). For consistency, the NSSE then kept the survey unchanged for the most part, which enabled institutions to track their results over time. Even though major revisions to test items were not made until 2013, NSSE focused on enhanced reporting and services for NSSE users, analyzing survey properties and performance, collecting input from users about valued items and recommended changes, and carrying out research and development to inform a future revision (McCormick et al., 2013). In 2009, a multi-year update process was initiated to refine measures, improve the clarity and applicability

of survey language, update terminology to reflect current educational contexts, and to develop new measures related to effective teaching and learning (McCormick et al., 2013). The results of these changes are reflected in the 2013 NSSE.

There are some minor differences between the 2003 and 2010 versions of the NSSE. The race variable changed in 2005. In both 2003 and 2010 versions of the NSSE, Question 19 read: "What is your racial or ethnic identification? (Mark all that apply.)" There were five options to choose from in 2003 and ten options in 2010, including "I prefer not to respond," which was not a choice in 2010. The standard for NSSE is to not include the variables when comparing multiyear datasets before and after 2005 since the variables cannot be merged. Another difference between the two versions of the NSSE is that the social variable was changed in 2005. Prior to 2005, Question 9 read: "About how many hours do you spend in a typical 7-day week doing each of the following? Relaxing and socializing (watching TV, partying, exercising, etc.)." In 2005, the word "exercising" was removed from the question and the variable name was changed. Other than these two differences, the 2003 and 2010 versions of the survey are very similar.

Administration and use of the NSSE. Institutions that choose to administer the NSSE are charged a non-refundable $300 registration fee and a standard NSSE administration fee based on the institution's total undergraduate enrollment (ranges from $1500 to $7500). NSSE is conducted annually; however, not all institutions participate every year. Past participation of NSSE institutions suggests that most institutions participate at least one time within a three-year period. In essence, a review of participation patterns suggests that most NSSE participating institutions have settled into an every-third-year participation cycle (NSSE, 2014).

Institutions that administer the NSSE are assigned to an NSSE Project Services Team that will assist with recruitment and administration of the survey, including invitations, reminder messages, and delivery of the online survey. NSSE also provides a secure web portal for uploading files and managing survey administration. According to NSSE (2014), this process is in place to ensure consistency and comparability among institutions and to establish a foundation for accurate comparisons. Registration by participating institutions is from June to September; survey administration opens in winter/spring, and closes on June 1. Institutional reports and data files are available for download in August; major field reports are available for download in October, and NSSE Annual Results are available in November.

The NSSE results are used by institutions to make improvements in practices both in and out of the classroom as well as to better understand undergraduate college students. NSSE's widespread use has spawned several other nationally-used instruments including the Beginning College Survey of Student Engagement, the Community College Survey of Student Engagement, the Faculty Survey of Student Engagement, and the Law School Survey of Student Engagement (NSSE, 2014). An annual report summarizes findings as well as reports topical research and trends in student engagement results. NSSE results also can be used by prospective students and their parents to learn how students spend their time at different universities. Even though the NSSE doesn't directly measure student learning, it does identify areas that universities may need to improve upon to better engage students, which can contribute to better student outcomes.

The individual items on the NSSE are grouped into five subscales which are the NSSE Benchmarks of Effective Educational Practice: *Level of Academic Challenge*, *Active and Collaborative Learning*, *Student-Faculty Interaction*, *Enriching Educational Experiences*, and *Supportive Campus Environments*. There are 11 items in the *Level of Academic Challenge*

subscale, seven items in the *Active and Collaborative Learning* subscale, six items in the *Student-Faculty Interaction* subscale, 12 items in the *Enriching Educational Experiences* subscale, and six items in the *Supportive Campus Environments* subscale for a total of 42 items in the entire survey. Using factor analysis, Nelson Laird, Shoup, and Kuh (2008) identified a Deep Learning Scale with three subscales (Higher-Order Learning, Integrative Learning, and Reflective Learning) within these 42 items on the NSSE. This scale has since been used to assess and investigate deep approaches to learning in students who have taken the NSSE, but was not used in this current study because the scale can only be computed using data from 2005 or later.

The benchmarks are computed by transforming all subject responses to a 0 – 100 point scale. For the items within the *Enriching Educational Experiences* benchmark (question 7 on the survey), those students who indicated that they had already "done" the activity receive a score of 100, while those students who "plan to do," "do not plan to do," or who "have not decided" to do the activity receive a 0. Other items with four response options (e.g., never, sometimes, often, very often) are recoded with values of 0, 33.33, 66.67, or 100 (NSSE, 2014). Part-time students' scores are adjusted on four *Level of Academic Challenge* items. Student-level benchmark scores are created by taking the mean of each student's scores. A mean is calculated for each student if the student had answered at least three-fifths of the items in any particular benchmark. Demographic and academic characteristics collected from students include age, gender, race, college grades, whether or not the subject is a member of a sorority or fraternity, full-time or less than full-time enrollment, whether or not the subject started college at their current institution or elsewhere, and whether or not the subject is an international student or a student athlete.

The five NSSE Benchmarks of Effective Educational Practice will be described in the following sections. For the United States NSSE cohort of colleges and universities, the average score of each benchmark for the combined years 2001- 2003 and 2010 were available from the 2003 Annual Report and the 2010 Annual Report and are presented in Table 1. The 2003 Annual Report scores were based on the combined results from 2001, 2002, and 2003. The mean scores from the 2010 Annual Report were from a random sample of respondents for that year. This information is presented for the purpose of comparing scores from senior nursing students to all senior students, regardless of their major. The information is also presented to demonstrate relative stability in scores over time on the NSSE.

Table 1

Average Benchmark Scores of Senior Nursing Students from Current Study and Senior Students in 2003 and 2010

Benchmark	2003		2010	
	Nursing Students[a]	All Senior Students[b]	Nursing Students[c]	All Senior Students[d]
Level of Academic Challenge	63	57	64	58
Active and Collaborative Learning	55	50	55	52
Student-Faculty Interaction	48	43	50	39

[a]*n= 1,886.* [b]*n=92,919.* [c]*n*=9,073. [d]*n*=196,231

Level of academic challenge. On this 11-item subscale, students report the time they spend preparing for class, the amount of reading and writing they have done, and the institutional expectations for academic performance (Pascarella et al., 2010). This benchmark includes items about how often students reviewed notes after class, identified key information from reading assignments, and summarized what was learned from class. Information about evaluating points of view, applying methods to practical problems and reaching conclusions based on analysis of numerical information are also included within this benchmark (NSSE, 2012b).

NSSE provides two items for this benchmark: adjusted for enrollment and unadjusted for enrollment. Independent sample *t*-tests of mean differences (equal variances not assumed) have indicated that part-time students score lower than full-time students on four items that contribute to the *Level of Academic Challenge* benchmark (NSSE, 2014). To compensate, NSSE adjusts the responses of part-time students at each school to resemble those of full-time students on each of these items. For the current study, the adjusted scores for this benchmark were used for analyses.

Active and collaborative learning. This subscale contains seven items regarding the extent of students' class participation, the degree to which they have worked together with other students both in and out of the classroom, and the amount of tutoring and community-based projects in which they have been involved (Pascarella et al., 2010).

Student-faculty interaction. The student-faculty interaction subscale contains six items on the extent of students' interaction with faculty members and advisors as well as discussions of ideas with faculty outside of class; students also report on the extent of prompt feedback on academic performance and work with faculty on research projects (Pascarella et al., 2010). This subscale asks students about work with faculty on committees, student groups, as well as academic performance (NSSE, 2012b).

Enriching educational experiences. This 12-item subscale probes the extent of students' interactions with persons of another race, economic background, religious beliefs, and political views as well as working with other students in general to understand course content (Pascarella et al., 2010). It also asks students about their use of information technology and co-curricular activities (NSSE, 2012b).

Supportive campus environments. On this six-item subscale, students are asked about the extent to which they feel their institution helped them succeed academically and socially as

well as in non-academic responsibilities such as work and family (Pascarella et al., 2010). This subscale also includes items related to whether the institution provided supportive relations among students, peers, faculty members, administrative personnel, and offices (NSSE, 2012b).

The scores in the subscales are typically reported independently in an effort to help assessment professionals discover actionable solutions for institutional improvement (NSSE, 2014).

Research involving NSSE. Popkess and McDaniel (2011) examined differences between levels of nursing students' engagement and those of education and other health professional students (medicine, dentistry, veterinary, pharmacy, allied health, therapy, or social work) as measured by the NSSE. The study included 3,000 participants: 1,000 students each of nursing, education, and other health professional students with 500 freshmen and 500 college seniors in each category. Post hoc tests revealed that nursing students scored significantly higher (M=58.71) on the *Level of Academic Challenge* benchmark than either education (M=55.22) or other health professional students (M=56.14). Additionally, although nursing students (M=46.44) and other health professional students (M=45.58) did not differ significantly from one another on the *Active and Collaborative Learning* benchmark, both were significantly lower than the education students (M=48.59). No other significant differences were found in the remaining benchmark scores (*Student-Faculty Interaction, Enriching Educational Experiences*, and *Supportive Campus Environments*) among students in the three groups. In the comparison of the freshman and senior nursing students, the mean scores of the freshman were significantly lower than those of seniors on four of five subscales. Popkess and McDaniel (2011) interpreted these findings as nursing students having seen themselves to be more academically challenged than their peers in education and other health professions, yet they did not perceive themselves to

be engaged in student-centered and interactive pedagogies. In addition, the authors posited that nursing students become more engaged with their studies and their school by the time they are a senior.

An example of how an institution has used NSSE data to inform and improve pedagogy includes Wofford College using assessment data within a specific department to identify an area of weakness in computer science students and poor presentation skills. Faculty and staff made efforts to organize workshops and guest speakers on public speaking to improve student performance in that area (NSSE, 2012a). Pace University in New York used data from their NSSE reports to identify areas in which they were doing well and areas that needed improvement. They found that an issue they were having with "sophomore slump" correlated with a number of NSSE questions, so a taskforce incorporated those items into a survey to administer to sophomores. The survey provided information that led to an advisement model for sophomore students to ultimately increase satisfaction and retention (NSSE, 2009b). Another example of using NSSE data to influence teaching strategies was in Viterbo University, Wisconsin. Faculty at Viterbo increased the use of active learning strategies in the classroom starting in 2004 and received feedback from experts in active learning strategies on individual performance in the classroom. NSSE student responses from both 2006 and 2007 indicated that they learn more when they are asked to collaborate with faculty and other students on projects and when they are intensely involved in their education (NSSE, 2009b).

Engagement of Nursing Students

Historically, nursing students have been faced with learning a large amount of material in a short amount of time. The method of PowerPoint-facilitated lectures has been a predominant teaching strategy in nursing education where the instructor is in charge of delivering the course

content and students are passive listeners. Instead of this passive method, Benner et al. (2009) recommend pedagogies that keep students focused on the patient's experience such as unfolding case studies, simulation exercises, problem-based and group-based learning to allow students to envision how they would approach patient problems. Recent trends in nursing education encourage that exit goals for graduating nursing students include critical thinking skills and problem-solving skills for complex health care situations (Clark, Nguyen, Bray, & Levine, 2008). Additionally, these students must develop a high level of critical thinking skills in order to be successful in nursing school and in the nursing profession. Scheffer and Rubenfield (2000) conducted a Delphi study with a panel of 55 experts from nine countries to develop the following consensus statement about critical thinking in nursing education:

> "Critical thinking in nursing is an essential component of professional accountability and quality nursing care. Critical thinkers in nursing exhibit these habits of the mind: confidence, contextual perspective, creativity, flexibility, inquisitiveness, intellectual integrity, intuition, open-mindedness, perseverance, and reflection. Critical thinkers in nursing practice (possess) the cognitive skills of analyzing, applying standards, discriminating, information seeking, logical reasoning, predicting and transforming knowledge" (p. 357).

Nurse educators are charged with creating meaningful learning experiences that will facilitate students in developing strong critical thinking skills (Scheckel, 2012). Carlson-Catalano (1992) believed that traditional nursing teaching strategies encourage students to be obedient, passive, and fearful in caring for their patients; therefore, nursing faculty should adopt the principles of critical thinking as the foundation of practice in order to empower student nurses. Methods to empower students to become critical thinkers include active learning

strategies, faculty as facilitators of learning rather than teachers of content, and faculty demonstrating their own critical thinking and problem-solving (Burns & Egan, 1994). Creating a learning environment that is conducive to active learning, critical thinking, and student engagement are challenges in nursing education.

Another critical piece of nursing education is teaching students to collaborate with their nursing peers as well as other healthcare professionals. One of the NSSE subscales that could have particular significance for nursing students and other healthcare related students is the "active and collaborative learning" benchmark. There is a national emphasis on interprofessional collaboration among healthcare professionals. Interprofessional collaborative practice has been recognized as a key component to safe, high-quality, accessible, patient-centered healthcare (Interprofessional Education Collaborative Expert Panel, 2011).

Popkess and McDaniel (2011) found that nursing students perceived themselves as significantly more challenged and engaged in more rigorous curricula than students in education or other health professions. Furthermore, nursing students did not see themselves to be engaged in student-centered and interactive pedagogies and compared to education students, they saw themselves as less engaged in active and collaborative learning. These results indicate that nurse educators may need to make changes in creating learning environments in which students feel actively engaged, are comfortable collaborating with one another, and are aware of the active collaboration taking place.

Learning collaboratively puts the individual in the position of potentially experiencing both convergent and divergent opinions and thoughts, which are necessary for reflective and fully developed thinking (Penn, 2008). The teamwork associated with collaborative and problem-based learning can strengthen the following student skills: communication; negotiation;

social, creative, and critical thinking; and clinical reasoning abilities (Rowles, 2012) as well as student achievement and interpersonal skills (Johnson, Johnson, & Smith, 1998).

Promoting collaboration with peers can be considered a form of engagement and also can prepare students for nursing practice after graduation. Shared governance in nursing education generates professional nurses who are able to practice in a quickly changing healthcare environment (Wake, Coleman, & Kneeland, 1992). In the Institute of Medicine's (IOM) report: *Crossing the Quality Chasm: A New Health System for the 21st Century*, (2001), a set of ten simple rules, or general principles were developed to inform efforts to redesign the healthcare system in the United States. One of the principles called for clinicians to collaborate with one another to ensure accurate sharing of information and coordination of care. This IOM report (2001) reinforced that cooperation among clinicians is a priority and emphasized the need to base quality improvement work within the team and to recognize the contributions that all members of the group could make. Hospitals that use shared governance models in nursing report lower levels of attrition and higher levels of satisfaction and empowerment among nursing staff (Overcash, Petty, & Brown, 2012). Teaching nursing students to collaborate intra- and inter-professionally can allow them to practice these skills while still in school in to carry them into their professional nursing practice.

Results of the 2012 NSSE revealed that participation in high-impact practices varied considerably by major. NSSE describes high-impact practices as learning communities, service-learning projects, research with faculty, internship or field experiences, study abroad, and culminating senior experiences (NSSE, 2013). In 2012, the NSSE data found that astronomy, biochemistry, and physics students were most likely to do research with faculty where nursing and education students were involved in more service-learning projects. Similarly, the majority

of education faculty (68%) reported that at least half of their students frequently asked questions in class or contributed to class discussions, compared with 41% of nursing and only 15% of engineering faculty. Students reported approximately half of nursing faculty discussed grades or assignments with at least 50% of their students, while 42% of English and only 23% of engineering faculty did likewise (NSSE, 2013). These NSSE findings reveal important information about what educators and institutions do well or where there is room for improvement, such as involving students in research and service-learning projects and communicating closely with students regarding grades and assignments.

At most schools, the NSSE is being completed by a random sample of students, but at selected schools, all first-year and senior students are surveyed. This includes online students who may be taking classes from a distance and not in a classroom setting.

Summary

Several studies have identified the benefits of engagement in college learners. Overall, when students report higher levels of engagement during college, they also report gains in intellectual and personal development. In particular, engagement has been linked to higher grades, higher levels of critical thinking, greater satisfaction with the learning institution, and higher levels of academic achievement as well as retention of students past the first year of college.

In the review of the literature on measuring engagement and the benefits of engagement in college students, a suggestion for future research includes focusing on specific majors. Findings from such studies could reveal important insights into barriers to engagement in active and collaborative learning within specific groups of students. This information could help educators create more significant learning experiences to produce successful graduates. As

increasing numbers of diverse learners enter the college setting in upcoming years, a more comprehensive understanding of student engagement is critical in order to meet the learning needs of more students.

Other than the Popkess and McDaniel (2011) study conducted on data collected in 2003, there is a gap in the literature related to undergraduate nursing students' level of engagement as measured by the NSSE. Other studies on engagement have been done on nursing students using instruments such as the Engaged Learning Index (Schreiner & Louis, 2006), Student Course Engagement Questionnaire (Handelsman, Briggs, Sullivan & Towler, 2005), and the Classroom Survey of Student Engagement (CLASSE) (Smallwood & Ouimet, 2009); however, these measures have only been used in the classroom setting and not at the institutional level like the NSSE. These measures are helpful in identifying perceived engagement and learning in the classroom, but they do not bring in institutional and faculty influences on engagement. The NSSE has been used since the year 2000 in over 1,500 institutions on approximately 4 million students (NSSE, 2014) and its reliability and validity are well established.

A thorough assessment of nursing students' levels of engagement could reveal areas for improvement in nursing education. Higher levels of engagement are linked to improved student outcomes, suggesting that teaching strategies should support student engagement in education. Nurse educators are challenged to create significant learning experiences that are interactive, engaging, student-centered, and conducive to creating strong critical thinkers who become lifelong learners and safe members of the healthcare team. Keeping current regarding what engages undergraduate nursing students is important in creating these significant learning experiences.

The current study adds to the literature by examining levels of engagement as measured by the NSSE in nursing students in the years 2003 and 2010. Additionally, this study examined whether nursing students in KS/MO and nursing students from other states had similar scores on three of the NSSE subscales (*Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction*) in 2003 and in 2010.

Chapter 3

Methods

Purpose

The purpose of this study was to describe and compare levels of engagement in senior year nursing students in the years 2003 and 2010 as well as to compare levels of engagement of senior nursing students in KS/MO to senior nursing students from other states in the years 2003 and 2010.

In an effort to better understand how nursing students spend their time, responses to the following question asked on the NSSE were analyzed: "About how many hours do you spend in a typical 7-day week doing each of the following?" Respondents then indicated the number of hours per week spent on the following activities: (a) Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities); (b) working for pay on campus; (c) working for pay off campus; (d) participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.); (e) relaxing and socializing; (f) providing care for dependents living with you (parents, children, spouse, etc.); and (g) commuting to class (driving, walking, etc.). Results were compared from 2003 and 2010 respondents to determine if differences exist between the cohorts with respect to each of the activity variables. Results also were compared from the KS/MO cohort and all other states' cohort to determine if differences exist with respect to each of the activity variables.

Comparing levels of engagement between the two years, comparing KS/MO to the rest of the nation, and obtaining detailed information about how nursing students spend their time, can inform the development of teaching interventions to improve nursing student learning outcomes.

Research Design

This study was guided by a comparative descriptive research design to describe and compare levels of engagement in undergraduate nursing students as measured by the NSSE (Shadish, Cook, & Campbell, 2002). Astin's student involvement theory was selected for this research study as a guiding framework to examine how nursing students engage in the learning process, what educational resources nursing students use to become involved in the learning process, and if student demographics have an effect on levels of engagement. The current study focused on the input element (student demographics) and the environment element (experiences during college and levels of engagement) in nursing students in KS/MO and other states.

Sample and Data Collection

The data source for this study was the NSSE, an annual survey of first-year and senior college students. For the purposes of this study, only senior nursing students (those in their last semester) were included in the sample to measure engagement during the time students were actually in the nursing program. NSSE provided a database of all senior nursing students in the United States in the years 2003 and 2010. Dichotomous variables were included for whether the student was attending an institution from the states of KS/MO or not.

The years 2003 and 2010 were chosen for this study to be able to examine levels of engagement before and after high-impact practices in higher education were identified by LEAP (AAC&U, 2007) in 2007. Since NSSE data are made available no sooner than three years after institutional reports are mailed to participating institutions, the most recent report available when the current study was proposed was from 2010. Another reason the 2003 NSSE dataset was chosen as a year to study is it is based on a pilot study by Popkess and McDaniel (2011). In that study, the authors used the NSSE 2003 dataset to describe differences in student engagement as

measured by the NSSE between nursing students and other pre-professional groups. The current study is similar to the Popkess and McDaniel study as it uses the same theoretical framework, the same year (2003) the dataset came from, and some of the same statistical analyses. This study differs from the Popkess and McDaniel (2003) study as it compared levels of engagement in three of the five benchmarks in nursing students in two different years and in two different regions in the US and the Popkess and McDaniel (2003) study examined levels of engagement of all five benchmarks in three groups of college students in one year. Some of the results of each study are compared to one another in Chapter 5.

Permission was obtained from the Indiana University Center for Postsecondary Research, the owner and administrators of the NSSE, to conduct secondary data analysis from the NSSE. This permission was sought after approval of the research proposal had been granted by the University of Kansas Medical Center Research Institute. The NSSE Data Sharing Proposal Form (Appendix C) was completed and submitted to the Indiana University Center for Postsecondary Research. A Data Sharing Agreement (Appendix D) was approved and signed by the University of Kansas Medical Center Research Institute, Indiana University Center for Postsecondary Research, the Director of NSSE, as well as the student researcher and members of the dissertation committee who had access to the data. All policies regarding the use of NSSE data were followed according to the Data Sharing Agreement, including payment of a fair price for the time and effort the NSSE staff put into collecting and managing the database, and for preparing the data set for purchase. The dataset received from NSSE was in an Excel file and the software Statistical Package for the Social Sciences (SPSS®) 22.0 and Statistical Analysis System (SAS) were used to run the statistical analyses.

Secondary data analysis was chosen for this study because of access to a large national data set using an instrument with strong psychometric properties. Advantages of doing secondary analysis with existing data are economics (can save time and money), efficiency (data collection can be the most time consuming and expensive component of the research process), accessibility of a more diverse sample, and the possibility of combining data from more than one study for comparisons (Rew, Koniak-Griffin, Lewis, Miles, & O'Sullivan, 2000). Limitations of secondary analysis include data availability (difficulty getting access to the data set), the data reflect the perspectives and questions asked by the original investigators and may not reflect the questions of another investigator, the data are bound by time and history (may pose a threat to internal validity), and errors in coding or data entry may have occurred (Rew et al., 2000). These limitations were considered during interpretation of the findings.

Data Analysis Plan

Data were first screened for missing data, normality, and outliers. American College Testing (ACT) scores were found to be missing for 73.6% of participants, therefore, this variable was not used. Other than the ACT variable, missing data comprised less than 5% of the dataset and occurred completely at random. The data were normally distributed other than some outliers were noted within the age variable; therefore, the median and interquartile ranges were reported for age. Other descriptive information was reported by way of frequencies and percentages.

With a large total sample size of 10,959, power set at 80%, and an alpha of .05, a difference in means would be detected at 0.017 standard deviations. That indicates that very small differences in means were able to be detected but these differences are so small, they are not necessarily meaningful or practical. In order to measure the practical significance between the mean scores, an effect size measure was calculated using Cohen's *d* statistic. Effect sizes

based on Cohen's *d* statistic provided information on the relative magnitude of the difference between NSSE benchmark means, rather than the statistical difference. Using effect sizes with Cohen's *d* statistic is beneficial because they are independent of sample size. An issue with applying small-sample inference to large samples such as the one in this study is that even minuscule effects can be statistically significant (Shmueli et al., 2013). If one were only to interpret the *p*-values in this study without considering the confidence intervals and effects sizes, it could be concluded that significant differences exist between the 2003 and 2010 groups in the *Level of Academic Challenge* and *Student-Faculty Interaction* mean scores.

NSSE's interpretation of effect sizes should be used to compare benchmark scores, as their reference values are grounded in actual NSSE findings and allow for refined interpretations of NSSE results (Indiana University Center for Postsecondary Research, n.d.). NSSE comparison reports use Cohen's *d* to examine benchmark comparisons and recommend using the following values for interpretation: "small, *d*= .1," "medium, *d* = .3," "large, *d* = .5," and "very large, *d* = .7." As noted in Table 4, there were trivial differences found between the 2003 and 2010 groups on all three benchmarks. These reference values were used for interpretation of all effect sizes in this study. Interpreting effect sizes and confidence intervals are recommended when analyzing data from large sample sets such as this one to avoid reporting only statistical significance, when there may not be practical or meaningful significance of the findings (Shmueli, Lin, & Lucas, 2013).

Data analysis was conducted in five steps and all analyses were performed at the .05 level of significance. First, demographic characteristics of the 2003 nationwide cohort and the 2010 nationwide cohort were compared. In addition, demographic characteristics of the KS/MO cohort were compare to those of the cohort of all other states. Chi-square tests were performed

for each of the categorical variables to compare the 2003 and 2010 cohorts of nationwide senior nursing students as well as the KS/MO cohort and the cohort of all other states. If statistically significant differences were found between the groups on a demographic characteristic, the *Phi* coefficient was calculated to examine the strength of the association between the nominal variables. The *Phi* coefficient is used to estimate the magnitude of association in 2 x 2 contingency tables (Kotrlik et al., 2011). Its interpretation is similar to the Pearson product-moment coefficient: < .10 for negligible effect, .10 - .20 for weak effect, .20 - .40 for moderate effect, .4 - .6 for relatively strong effect, .6 - .8 for strong effect, and .8 – 1.0 for very strong effect (Kotrlik et al., 2011).

The categorical variables examined were gender; whether or not the student was an international student, a student athlete, or a member of a sorority or fraternity; full-time or less than full-time enrollment; and whether or not the student started college at the current institution or elsewhere. The race variables were not used because in 2005, the student-reported race variable switched format to students being able to select only one ethnicity instead of multiple ethnicities. It is the standard of NSSE to not include the race variable when comparing cohorts before and after 2005.

Since the age variable was positively skewed, thus violating one of the assumptions of the *t*-test, a Wilcoxon-Mann-Whitney test was used to compare the 2003 and 2010 cohorts of nationwide senior nursing students as well as the KS/MO cohort and the cohort of all other states on the age variable. The demographic characteristics were summarized using frequencies and percentages for categorical variables and median and interquartile ranges reported for the continuous variable of age.

Second, in order to answer the hypotheses, benchmark scores for *Level of Academic Challenge* (adjusted for enrollment), *Active and Collaborative Learning*, and *Student-Faculty Interaction* were computed using SPSS syntax files provided by NSSE. Each benchmark score was computed by transforming all subject responses to a 0 – 100 scale and then averaging all items within each benchmark. Statistical analysis indicates that schools with more part-time students will tend to score lower on the four items and thus have lower *Level of Academic Challenge* scores. To compensate, NSSE adjusted part-time students' scores on four *Level of Academic Challenge* items to resemble those of full-time students on each of these four items. On these four items, students indicate the number of written papers/reports of five to 19 pages, the number of written papers/reports fewer than five pages, number of assigned books read, and time spent preparing for class. For each item, a ratio was calculated by dividing the mean score of all full-time students by the mean score of all part-time students. Each part-time student's score on an item was multiplied by the corresponding ratio to get their adjusted score. These adjusted scores were limited so as not to exceed 100 (NSSE, 2014).

Third, to address the first hypothesis, statistical differences between mean benchmark scores from 2003 and 2010 were tested using two-way ANOVA. In addition to reporting mean scores for each of the subscales by year, effect sizes (Cohen's *d*) (Cohen, 1988) also were calculated to assess whether or not the magnitude of the changes was meaningful, and 95% confidence intervals of Cohen's *d* were computed.

Fourth, to address the second hypothesis, statistical differences between mean benchmark scores from KS/MO students and other states' students were tested using two-way ANOVA. In addition to reporting mean scores for each of the subscales by state (KS/MO and other states), effect sizes (Cohen's *d*) (Cohen, 1988) also were calculated to assess whether or not the

magnitude of the changes was meaningful, and 95% confidence intervals of Cohen's *d* were computed.

Next, to address the third hypothesis, a two-way ANOVA was used determine if an interaction effect was present between Year (2003/2010) and State (KS/MO and other states).

Finally, to answer the secondary research questions, responses to the question: "About how many hours do you spend in a typical 7-day week doing each of the following?" were examined and reported by frequencies and percentages. In the 2003 and 2010 versions of the NSSE, students were able to choose one of the following choices: 0, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, or more than 30 hours. In order to provide meaningful interpretations, student responses were combined into the following categories: 0-10 hours, 11-20 hours, 21-30 hours, and over 30 hours according to each individual question. The response item "Relaxing and socializing" was not included for data analysis as NSSE changed the item in 2005 and NSSE deemed that responses could not be merged for multiyear comparison. The rest of the item responses were compared between the years 2003 and 2010 as well as KS/MO students compared to the rest of the nation. Chi-square tests were performed to statistically test differences in question items between groups. If statistically significant differences were found between the groups, the *Phi* coefficient was calculated to examine the strength of the association between the variables.

Chapter 4

Findings

The purpose of this study was to examine levels of engagement in senior year nursing students as measured by the NSSE. Three hypotheses were tested:

1. The mean scores for the NSSE benchmarks *Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will be higher for the 2010 nationwide cohort of senior nursing students as compared to the 2003 nationwide cohort of senior nursing students.

2. The mean scores for the NSSE benchmarks *Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will not differ between senior nursing students in KS/MO schools and senior nursing students in non-KS/MO schools.

3. Changes from 2003 to 2010 in the mean scores for the NSSE benchmarks *of Level of Academic Challenge, Active and Collaborative Learning*, and *Student-Faculty Interaction* will not differ between senior nursing students in KS/MO schools and senior nursing students enrolled in non-KS/MO schools.

To determine how senior nursing students in KS/MO and other states spent their time in 2003 and 2010, responses to this NSSE question were analyzed: "About how many hours do you spend in a typical 7-day week doing each of the following?" Respondents could choose between 0 to more than 30 hours per week spent on these activities: preparing for class, working for pay on campus, working for pay off campus, participating in co-curricular activities, providing care for dependents living in the same household, and commuting to class. The responses provided data to answer these secondary research questions:

1. In a typical 7-day week, how did senior nursing students in 2003 spend their time?

2. In a typical 7-day week, how did senior nursing students in 2010 spend their time?

3. Are there differences between the 2003 and 2010 cohorts with respect to each of the activity variables?

Participants

Data from 10,959 senior nursing students were available for this study. There were 1,886 participants in the 2003 group and 9,073 participants in the 2010 group. The increase in the number of participants from 2003 to 2010 corresponded with the increase in the total number of NSSE respondents from 145,000 in 2003 to 362,000 in 2010.

Table 2
Demographic Characteristics of Participants, 2003 and 2010 Cohorts

Demographic variable	2003 cohort[a]		2010 cohort[b]	
	n	%	*n*	%
Gender *				
Male	154	8.2	1,011	11.2
Female	1,727	91.8	8,033	88.8
International student				
Yes	69	3.7	453	5.0
No	1,806	96.3	8,572	95.0
Student athlete				
Yes	34	1.8	219	2.4
No	1,843	98.2	8,826	97.6
Member of a sorority/fraternity				
Yes	150	8.0	652	7.2
No	1,730	92.0	8,412	92.8
Full-time enrollment *				
Yes	1,349	72.1	6,957	76.8
No	522	27.9	2,097	23.2
Started at this institution				
Yes	736	39.2	3,662	40.5
No	1,143	60.8	5,387	59.5
Age (years) Median	26		26	
Interquartile range (Q_1, Q_3)	23, 37		23, 36	

[a]*n*= 1,886. [b]*n*=9,073 Q, quartile * p < .05
Chi-squared test was used to examine differences in demographic characteristics between 2003 and 2010, except age. *t*-test was used to test mean age differences.

Table 3
Demographic Characteristics of Participants, KS/MO Cohort and Other States Cohort

Demographic variable	KS/MO cohort[a]		All other states cohort[b]	
	n	%	*n*	%
Gender				
Male	31	7.2	1,134	10.8
Female	398	92.8	9,362	89.2
International student				
Yes	19	4.4	503	4.8
No	409	95.6	9,969	95.2
Student athlete				
Yes	15	3.5	238	2.3
No	413	96.5	10,256	97.7
Member of a sorority/fraternity				
Yes	46	10.7	756	7.2
No	383	89.3	9,759	92.8
Full-time enrollment				
Yes	379	88.6	7,927	75.5
No	49	11.4	2,570	24.5
Started at this institution				
Yes	166	38.9	4,232	40.3
No	261	61.1	6,269	59.7
Age (years)				
Median	26		26	
Interquartile range (Q_1, Q_3)	23, 37		23, 36	

[a]*n*= 429. [b]*n*=10,530 Q, quartile * p < .05
Chi-squared test was used to examine differences in demographic characteristics between 2003 and 2010, except age. *t*-test was used to test mean age differences.

Demographic Data

The descriptive summary of demographic characteristics for the 2003 and 2010 cohorts and those for the KS/MO and other states cohorts are included in Table 2 and Table 3. NSSE collects demographic data from its study participants. For this study, the following demographic variables were provided to the researcher for analysis: age; gender; whether or not the student was a student athlete, an international student, or a member of sorority or fraternity; full-time or less than full-time enrollment; and whether or not the student started college at the current institution or elsewhere. Data on race were not provided to the researcher since the variable

changed in 2005 and it is the standard of NSSE to not include this variable when comparing cohorts before and after 2005.

The demographic characteristics of the 2003 nationwide cohort and the 2010 nationwide cohort were compared (see Table 2). Chi-square tests were performed for each of the categorical variables and statistically significant differences were found between the groups on the "enrollment" variable ($x^2 = 19.10$, $p < .001$) and the "gender" variable ($x^2 = 14.63$, $p < .001$. Upon examination of the *Phi* coefficient, it was determined that the relationship between "year" (2003=0 and 2010=1) and "enrollment" (less than full-time = 0 and full-time = 1) was negligible $\Phi = .042$ (Kotrlik, Williams, & Jabor, 2011). The relationship between "year" (2003=0 and 2010=1) and "gender" (male = 0 and female = 1) was also determined to be negligible $\Phi = -.037$ (Kotrlik et al., 2011). There were no other statistically significant differences found between the 2003 and 2010 groups on the rest of the demographic characteristics, indicating that even though there was a difference in the size of the groups, they were similar in age; whether or not the student was a student athlete, an international student, or a member of sorority or fraternity; and whether or not the student started college at the current institution or elsewhere.

The demographic characteristics of the KS/MO cohort and the cohort of all other states were compared (see Table 3). Chi-square tests were performed for each of the categorical variables and statistically significant differences were found between the groups on the "enrollment" variable ($x^2 = 38.34$, $p < .001$) and the "gender" variable ($x^2 = 5.54$, $p = .02$). Upon examination of the *Phi* coefficient, it was determined that the relationship between "state" (all other states = 0 and KS/MO = 1) and "enrollment" (less than full-time = 0 and full-time = 1) was negligible $\Phi = .059$ (Kotrlik et al., 2011). The relationship between "state" (all other states = 0 and KS/MO = 1) and "gender" (male = 0 and female = 1) was also determined to be negligible

Φ = .029 (Kotrlik et al., 2011). There were no other statistically significant differences found between the KS/MO cohort and all other states cohort on the remainder of the demographic characteristics, indicating the groups were similar in age; whether or not the student was a student athlete, an international student, or a member of sorority or fraternity; and whether or not the student started college at the current institution or elsewhere.

NSSE Benchmark Comparison between 2003 and 2010 Cohorts

This study tested whether the mean scores for the NSSE benchmarks *Level of Academic Challenge*, *Active and Collaborative Learning*, and *Student-Faculty Interaction* were higher for the 2010 nationwide cohort of senior nursing students as compared to the 2003 nationwide cohort of senior nursing students.

According to two-way ANOVA (see Table 6), there was a statistically significant difference between the two groups on the mean *Level of Academic Challenge* scores (p = .037). As shown in Table 4, the mean score for this benchmark was slightly higher in 2010 compared to 2003. However, the effect size of *Level of Academic Challenge* showed that the mean difference was trivial (d= .053, 95% CI [0.02, 0.09]).

The difference between the two groups on the mean *Active and Collaborative Learning* scores was not statistically significant p= .957, d = - .001, 95% CI [-0.04, 0.04]). The mean score for this benchmark was slightly lower in 2010 compared to 2003 (Table 4). Using the criterion of statistical significance, the first hypothesis was not supported for this benchmark.

There was a statistically significant difference between the two groups on the mean *Student-Faculty Interaction* scores (p = .008). As shown in Table 4, the mean score for this benchmark was slightly higher in 2010 compared to 2003; however, the effect size of *Student-Faculty Interaction* showed that the mean difference was trivial (d= .069, 95% CI [0.03, 0.105]).

Table 4
Effect Sizes and Summary Statistics For Benchmarks, 2003 and 2010

Benchmark	2003[a]		2010[b]			
	M	*SD*	*M*	*SD*	Cohen's *d*	95% CI
Level of Academic Challenge	63.49	13.14	64.17	12.77	0.053	[0.02, 0.09]
Active and Collaborative Learning	55.32	16.6	55.29	17.73	-0.001	[-0.04, 0.04]
Student-Faculty Interaction	48.39	19.91	49.80	21.3	0.069	[0.03, 0.11]

[a]*n*= 1,886. [b]*n*=9,073

NSSE Benchmark Comparison between KS/MO and Other States Cohorts

This study tested whether the mean scores for the NSSE benchmarks *Level of Academic Challenge*, *Active and Collaborative Learning*, and *Student-Faculty Interaction* would not differ between senior nursing students in KS/MO schools and senior nursing students in non-KS/MO schools. To address the second hypothesis, mean benchmark scores, 95% confidence intervals, and effect sizes on each of the three subscales were calculated by state (see Table 5). Two-way ANOVA was also used to test statistical mean differences between the two groups (see Table 6).

The difference between the two groups (KS/MO vs. other states) on the mean *Level of Academic Challenge* scores was not found to be statistically significant (p= .913, d = .005, 95% CI [-0.32, 0.043]). The difference between the two groups on the mean *Active and Collaborative Learning* scores was not found to be statistically significant (p= .119, d=.077, 95% CI [0.039, 0.114]). There was a statistically significant difference between the two groups on the mean *Student-Faculty Interaction* scores (p=.023). Based on Cohen's d statistic the mean difference for *Student-Faculty Interaction* was small (d=.112, 95% CI [0.074, 0.149] (see Table 5).

Table 5

Effect Sizes and Summary Statistics For Benchmarks, Students in KS/MO and Other States

Benchmark	KS/MO		Other states			
	M	*SD*	*M*	*SD*	Cohen's *d*	95% CI
Level of Academic Challenge	64.12	11.83	64.05	12.88	0.005	[-0.03, 0.04]
Active and Collaborative Learning	56.59	16.88	55.25	17.57	0.077	[0.04, 0.11]
Student-Faculty Interaction	51.82	20.08	49.47	21.11	0.112	[0.07, 0.14]

Interaction Effects between the Year and State Cohorts

This study examined whether changes from 2003 to 2010 in the mean scores for the NSSE benchmarks of *Level of Academic Challenge*, *Active and Collaborative Learning*, and *Student-Faculty Interaction* would differ between senior nursing students in KS/MO schools and senior nursing students in non-KS/MO schools.

Assumptions of two-way ANOVA were checked by examining Q-Q plots and scatterplots for normal distribution and equal variance between groups. After it was determined that the data were normally distributed and the assumptions for two-way ANOVA were met, two-way ANOVA was used to test the interaction effect between Year (2003/2010) and State (KS/MO and other states) along with the fixed main effects of Year and State. Table 6 displays results from this two-way ANOVA analysis. There was no significant main effect of State for any of the three benchmarks. Also, there was no significant interaction effect between State and Year for any of the three benchmarks (Table 6). These results support the third hypothesis by demonstrating that there were no significant differences in the three benchmarks mean scores

from 2003 to 2010 in KS/MO students as compared to senior nursing students from all other states. The students from KS/MO were similar to students from all other states at both points in time.

Table 6

Two-Way Analysis of Variance for Year and State on All Benchmarks

Variable	MS	*F*	*p*
Level of Academic Challenge			
Year	704.14	4.27	.039
State (KS/MO)	8.78	0.05	.827
Year x State	2.75	0.02	.897
Active and Collaborative Learning			
Year	1.17	0	.951
State (KS/MO)	66.45	0.22	.642
Year x State	51.76	0.17	.682
Student-Faculty Interaction			
Year	2707.34	6.10	.014
State (KS/MO)	77.49	0.17	.676
Year x State	440.66	0.99	.319

df = 1, 10935.

Secondary Research Questions

The secondary research questions were:

1. In a typical 7-day week, how did senior nursing students in 2003 spend their time?
2. In a typical 7-day week, how did senior nursing students in 2010 spend their time?
3. Are there differences between the 2003 and 2010 cohorts with respect to each of the activity variables?

Question 9 of the NSSE survey asks "About how many hours do you spend in a typical 7-day week doing each of the following?" Respondents then indicate the number of hours per week spent on the following activities:

(a) Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities);

(b) working for pay on campus;

(c) working for pay off campus;

(d) participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.);

(e) relaxing and socializing;

(f) providing care for dependents living with you (parents, children, spouse, etc.); and

(g) commuting to class (driving, walking, etc.).

The response item 9e "relaxing and socializing" was not included in the dataset as NSSE changed the item in 2005 and NSSE deemed that responses could not be merged for multiyear comparison.

Respondents indicate the number of hours they spend in a typical week on each activity by selecting one of these options: 0, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, and more than 30 hours. For each question, student responses were combined into the following categories: 0-10 hours, 11-20 hours, 21-30 hours, and over 30 hours. Since the data were collected in a range of hours, frequencies and percentages were calculated and presented in table format. To answer the secondary research questions, responses from 2003 and 2010 were examined and chi-square tests were used to statistically test differences in question items between groups.

Comparison between 2003 and 2010 cohorts. In response to how many hours per week spent preparing for class, most students in the 2003 cohort spent between one and ten hours a week, while nearly one-third of respondents in 2003 spent between 11 and 20 hours a week preparing for class. In 2010, over a third of students spent between 11 and 20 hours a week on this activity and another 22.6% spent between 21 and 30 hours a week preparing for class (Table 7). Using chi-square test, statistically significant differences were found between the 2003 and 2010 cohorts on this variable ($x^2 = 211.23$, $p < .001$). Upon examination of the *Phi* coefficient, it was determined that the relationship between "year" (2003/2010) and "preparing for class" variables was weak $\Phi = .139$ (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in 2003 and 2010 spent their time preparing for class, the magnitude of this difference was weak.

Table 7
Hours Per Week Spent Preparing for Class

Hours	2003 group (*n*=1,873)		2010 group (*n*=9,025)	
	n	%	*n*	%
0	2	0.1	10	0.1
1-10	794	42.5	2,522	28.0
11-20	609	32.5	3,276	36.3
21-30	329	17.6	2,036	22.6
More than 30	137	7.3	1,181	13.0

The majority of students in 2003 and 2010 indicated they did not work on campus. Only 10.8% of students in 2003 and 12.5% of students in 2010 reported working any hours on campus (Table 8). Using chi-square test, statistically significant differences were not found between the 2003 and 2010 cohorts on this variable ($x^2 = 5.09$, $p = .649$). This indicates that students in 2003 and 2010 spent similar amounts of time working for pay on campus.

Table 8

Hours Per Week Spent Working For Pay On Campus

Hours	2003 group (*n*=1,871)		2010 group (*n*=8,997)	
	n	%	*n*	%
0	1668	89.2	7,871	87.5
1-10	108	5.8	641	7.1
11-20	73	4.0	378	4.2
21-30	12	0.6	56	0.6
More than 30	8	0.4	51	0.6

In response to number of hours per week spent working for pay off campus, 74% of students in 2003 reported working hours off campus and 24.7% of students worked more than 30 hours per week off campus. In 2010, 67.6% of students reported working hours off campus and 25.2% of students worked more than 30 hours per week off campus (Table 9). Using chi-square test, statistically significant differences were found between the 2003 and 2010 cohorts on this variable ($x^2 = 58.25$, $p < .001$). Upon examination of the *Phi* coefficient, it was determined that the relationship between "year" (2003/2010) and "working off campus" variables was negligible $\Phi = .073$ (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in 2003 and 2010 spent their time working off campus, the magnitude of this difference was negligible.

Table 9

Hours Per Week Spent Working For Pay Off Campus

Hours	2003 group (*n*=1,874)		2010 group (*n*=9,032)	
	n	%	*n*	%
0	488	26.0	2,923	32.4
1-10	222	11.8	1,138	12.6
11-20	398	21.2	1,614	17.8
21-30	301	16.1	1,082	12
More than 30	137	24.7	2,275	25.2

With respect to participation in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.), the majority of students in 2003 and 2010 responded that they spent zero hours in a typical week on these activities. In addition, about a third of students in each cohort reported spending between one and 10 hours a week on co-curricular activities (Table 10). Using chi-square test, statistically significant differences were found between the 2003 and 2010 cohorts on this variable ($x^2 = 26.81$, $p < .001$). Upon examination of the *Phi* coefficient, it was determined that the relationship between "year" (2003/2010) and "participating in co-curricular activities" variables was negligible $\Phi = .05$ (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in 2003 and 2010 spent their time participating in co-curricular activities, the magnitude of this difference was negligible.

Table 10
Hours Per Week Spent Participating in Co-Curricular Activities

Hours	2003 group (n=1,871)		2010 group (n=9,024)	
	n	%	*n*	%
0	1164	62.2	5,675	62.9
1-10	622	33.2	2,730	30.3
11-20	59	3.2	430	4.7
21-30	13	0.7	115	1.3
More than 30	13	0.7	74	0.8

The majority of students in 2003 and 2010 spent at least an hour or more a week caring for dependent in the students' home. In addition, nearly 20% of students in both cohorts reported spending more than 30 hours a week on this activity (Table 11). Using chi-square test, statistically significant differences were not found between the 2003 and 2010 cohorts on this variable ($x^2 = 13.74$, $p = .056$). This indicates that students in 2003 and 2010 spent similar amounts of time caring for dependents in the students' home.

Table 11
Hours Spent Providing Care for Dependents Living With You

Hours	2003 group (*n*=1,873)		2010 group (*n*=9,004)	
	n	%	*n*	%
0	785	41.9	3,559	39.5
1-10	403	21.5	2,184	24.3
11-20	195	10.4	959	10.7
21-30	118	6.3	464	5.1
More than 30	372	19.9	1,838	20.4

A large majority of students in 2003 spent between one and 10 hours a week commuting to class (83%) while only 2% of students spent more than 21 hours a week commuting. In 2010, over 75% of students spent between one and 10 hours a week commuting while only 2.9% of students spend more than 21 hours a week commuting to class (Table 12). A larger percentage of students did not commute to class in 2010 as compared to 2003. Using chi-square test, statistically significant differences were found between the 2003 and 2010 cohorts on this variable ($x^2 = 88.76$, $p < .001$). Upon examination of the *Phi* coefficient, it was determined that the relationship between "year" (2003/2010) and "commuting to class" variables was negligible $\Phi = .09$ (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in 2003 and 2010 spent their time commuting to class, the magnitude of this difference was negligible.

Table 12
Hours Spent Commuting to Class

Hours	2003 group (*n*=1,868)		2010 group (*n*=9,038)	
	n	%	*n*	%
0	110	5.9	1,180	13.1
1-10	1,550	83.0	6,830	75.6
11-20	170	9.1	772	8.5
21-30	19	1.0	144	1.6
More than 30	19	1.0	112	1.3

In summary, students in 2003 spent their time in a similar manner as students in 2010. Statistically significant differences were found between the cohorts and the variables "preparing for class" ($x^2 = 211.23$, $p < .001$), "working off campus" ($x^2 = 58.25$, $p < .001$), "participating in co-curricular activities" ($x^2 = 26.81$, $p < .001$), and "commuting to class" ($x^2 = 88.76$, $p < .001$). Using the *Phi* coefficient, the magnitude of the difference between the 2003 and the 2010 cohorts in relation to how many hours students spent preparing for class was determined to be weak ($\Phi = .139$). The magnitude of the difference between the 2003 and the 2010 cohorts in relation to how many hours students spent working off campus, participating in co-curricular activities, and commuting to class was determined to be negligible.

Responses of KS/MO students compared to students from all other states. The 2003 and 2010 responses were combined and responses from students in KS/MO were compared to responses from students from other states. Chi-square tests were used to statistically test differences in question items between groups and if statistically significant differences were found, then *Phi* coefficient was used to measure the magnitude of the differences.

In response to how many hours per week students spent preparing for class, the majority of students from both cohorts reported spending between one and 20 hours a week preparing for class. A higher percentage of students from other states spent more than 30 hours a week preparing for class as compared to students from KS/MO (Table 13). Using chi-square test, statistically significant differences were not found between the cohorts on this variable ($x^2 = 12.06$, $p = .098$). This indicates that students in KS/MO and other states spent similar amounts of time preparing for class.

Table 13
Hours Per Week Spent Preparing for Class

Hours	KS/MO (*n*=425)		All other states (*n*=10,473)	
	n	%	*n*	%
0	0	0	12	0.1
1-10	135	31.8	3,183	30.4
11-20	160	37.6	3,725	35.6
21-30	94	22.1	2,271	21.7
More than 30	36	8.5	1,282	12.2

The responses from KS/MO students were very similar to those of students from other states when asked about number of hours per week spent working for pay on campus. The majority of students indicated that they did not work on campus: 88% of KS/MO students and 87.8% of students from other states (Table 14). Using chi-square test, statistically significant differences were not found between the cohorts on this variable (x^2= 5.30, p = .623). This indicates that students in KS/MO and other states spent similar amounts of time per week working for pay on campus.

Table 14
Hours Per Week Spent Working For Pay On Campus

Hours	KS/MO (*n*=425)		All other states (*n*=10,443)	
	n	%	*n*	%
0	374	88.0	9,165	87.8
1-10	30	7.1	721	6.9
11-20	18	4.2	433	4.1
21-30	3	0.7	65	0.6
More than 30	0	0	59	0.6

In addition, the responses to the question regarding number of hours spent per week working for pay off campus were similar from KS/MO students and students from other states. The majority of students in both groups worked at least one hour a week off campus. There was

a larger percentage of students from other states that worked more than 30 hours per week off campus as compared to students from KS/MO. (Table 15). Using chi-square test, statistically significant differences were found between the cohorts on this variable (x^2= 31.74, p < .001). Upon examination of the *Phi* coefficient, it was determined that the relationship between "state" and "working off campus" variables was negligible Φ= .054 (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in KS/MO and all other states spent their time working off campus, the magnitude of this difference was negligible.

Table 15
Hours Per Week Spent Working For Pay Off Campus

Hours	KS/MO (n=428)		All other states (n=10,478)	
	n	%	*n*	%
0	133	31.1	3,278	31.3
1-10	59	13.8	1,303	12.4
11-20	102	23.8	1,910	18.2
21-30	70	16.4	1,313	12.5
More than 30	64	14.9	2,674	25.6

When asked about number of hours per week spent participating in co-curricular activities, a larger percentage of students from KS/MO spent more than an hour a week on these activities compared to students from all other states. Using chi-square test, statistically significant differences were found between the cohorts on this variable (x^2= 30.24, p < .001). Upon examination of the *Phi* coefficient, it was determined that the relationship between "state" and "number of hours per week spent participating in co-curricular activities" variables was negligible Φ= .053 (Kotrlik et al., 2011). This indicates that even though there was a statistically significant difference in how students in KS/MO and all other states spent their time participating in co-curricular activities, the magnitude of this difference was negligible.

Table 16
Hours Per Week Spent Participating in Co-Curricular Activities

Hours	KS/MO (*n*=427)		All other states (*n*=10,468)	
	n	%	*n*	%
0	219	51.3	6,620	63.2
1-10	171	40.0	3,181	30.4
11-20	28	6.6	461	4.4
21-30	6	1.4	122	1.2
More than 30	3	0.7	84	0.8

The responses from KS/MO students were similar to those of students from other states when asked about number of hours per week spent caring for dependents living in the same home as the student. In both cohorts, more than half of the students spent more than an hour a week caring for dependents in their home (Table 17). Using chi-square test, statistically significant differences were not found between the cohorts on this variable (x^2= 11.17, p =.131). This indicates that students in KS/MO and other states spent similar amounts of time per week caring for dependent living in the same home as the student.

Table 17
Hours Spent Providing Care for Dependents Living With You

Hours	KS/MO (*n*=427)		All other states (*n*=10,450)	
	n	%	*n*	%
0	197	46.1	4,147	39.7
1-10	96	22.5	2,491	23.8
11-20	39	9.1	1,115	10.7
21-30	17	4.0	565	5.4
More than 30	78	18.3	2,132	20.4

When asked about number of hours per week spent commuting to class, the majority of students in both cohorts spent between one and 10 hours a week on this activity (Table 18). Using chi-square test, statistically significant differences were not found between the cohorts on

this variable (x^2= 12.96, p = .073). This indicates that students in KS/MO and other states spent similar amounts of time per week commuting to class.

Table 18
Question 9g: Hours Spent Commuting to Class

Hours	KS/MO (*n*=427)		All other states (*n*=10,479)	
	n	%	*n*	%
0	36	8.4	1,254	12.0
1-10	345	80.8	8,038	76.7
11-20	39	9.1	903	8.6
21-30	4	0.9	159	1.5
More than 30	3	0.7	128	1.2

Summary

There were statistically significant differences between the 2003 cohort and the 2010 cohort on the mean scores for *Level of Academic Challenge* and *Student-Faculty Interaction*; however, using Cohen's *d* as an effect size measure, the increases over time in these scores were both found to be trivial. In contrast, there was no significant difference between the groups on the mean scores for *Active and Collaborative Learning*. Overall, the findings do not support Hypothesis 1.

For Hypothesis 2, there was a statistically significant difference between the KS/MO cohort and the other states cohort on the mean scores for *Student-Faculty Interaction*; however, using Cohen's *d* as an effect size measure, the increase in these scores was found to be trivial. In contrast, there was no significant difference between the groups on the mean scores for *Level of Academic Challenge* and *Active and Collaborative Learning*.

For Hypothesis 3, there was no significant interaction effect of State and Year for any of the three benchmarks. These results support Hypothesis 3 by demonstrating that the changes from 2003 to 2010 in the mean scores for *Level of Academic Challenge*, *Active and*

Collaborative Learning, and *Student-Faculty Interaction* did not significantly differ between the KS/MO cohort and the other states cohort.

Examination of how senior nursing students spent their time in 2003 and 2010 reveals that for both cohorts, more students worked off campus than on campus; most students did not participate in co-curricular activities; and the majority commuted less than 11 hours per week. The percentage of students who reported no commute time to campus increased in 2010 compared to 2003, and a higher percentage of students reported spending more than 30 hours per week preparing for class in 2010 compared to 2003. In summary, the differences between the two groups are minor, indicating that over time, students did not drastically change the way they spent their time while in college.

When comparing senior nursing students from KS/MO to senior nursing students from all other states, statistically significant differences were noted between the groups on how they spent their time working off campus and participating in co-curricular activities; however, these differences were determined to be negligible. In summary, senior nursing students from KS/MO spent their time in a similar manner compared to senior nursing students from all other states.

Chapter 5

Discussion

The purpose of this study was to describe and compare levels of engagement in senior year nursing students in the years 2003 and 2010 as well as to compare levels of engagement of senior nursing students in KS/MO to senior nursing students from other states. Information about how nursing students spend their time in a typical 7-day week also was examined in an effort to better understand how senior nursing students prioritize their time and activities. Discussion follows regarding the study findings as well as implications for research and nursing education. Issues related to the implementation of this study also will be discussed, along with suggestions for future research.

Mean scores for the three benchmarks for this current study are presented as well as mean scores provided by NSSE annual reports from 2003 and 2010. The 2003 Annual Report scores were based on the combined results from 2001, 2002, and 2003. The mean scores from the 2010 Annual Report were from a random sample of respondents to the survey for that year. This information is presented to compare scores from senior nursing students to senior students, regardless of their major. The information is also presented to demonstrate stability in scores over time for the NSSE.

Comparison of 2003 Students to 2010 Students

Level of academic challenge. There was a statistically significant, though trivial, increase in the mean scores of the 2010 nationwide cohort of senior nursing students on the *Level of Academic Challenge* benchmark as compared to the 2003 nationwide cohort of senior nursing students. Using the criterion of statistical significance, the first hypothesis was supported for this benchmark.

Examination of the effect size of this increase over time shows that this increase was trivial in nature when considering practical significance. Examination of data provided in 2003 and 2010 NSSE Annual Reports also revealed an increase in mean scores on this benchmark from 2003 to 2010 for the entire United States NSSE cohort of colleges and universities (NSSE, 2010; NSSE, 2010).

For the United States NSSE cohort of colleges and universities, the average score of this benchmark was 57 for senior students in the combined results from 2001-2003 and 58 for senior students in the year 2010 (NSSE, 2010). Comparatively, senior nursing students nationwide in this study had an average score of 63 in 2003 and 64 in 2010. This supports findings in Popkess and McDaniel's (2011) study in which nursing students perceived themselves as significantly more challenged and engaged in more rigorous curricula than students in the comparison groups. In Popkess and McDaniel's study, the mean scores for nursing students were significantly higher than education students and other health professional students on nine of 11 component scale items in the *Level of Academic Challenge* benchmark.

The central theme for this benchmark is to assess how much institutions are emphasizing the importance of academic efforts and setting high expectations for student success. Within this benchmark, students report the amount of time they spent preparing for class; the amount of reading and writing they have done; and how often they reviewed notes after class, identified key information from reading assignments, and summarized what was learned from class (NSSE, 2012b). "Preparing for class" is an item within the *Level of Academic Challenge* benchmark, as well as part of a question examined separately in this study. In the 2010 nationwide cohort of senior nursing students, there was a 5.7% increase in the numbers of students who reported

spending 30 hours or more a week preparing for class as compared to the 2003 nationwide cohort of senior nursing students.

The findings of this study showed that senior nursing students in 2010 perceived themselves to be slightly more academically challenged as compared to senior nursing students in 2003. Students in 2010 reported spending more time on activities such as preparing for class, completing reading and writing assignments, and reviewing notes after class as students in 2003. This indicates that over time, nursing faculty continue to set high expectations for nursing students' success and students are aware of these high expectations.

Active and collaborative learning. The results of this study revealed a non-significant decrease in mean scores on the *Active and Collaborative Learning* benchmark in the 2010 nationwide cohort of senior nursing students as compared to the 2003 cohort of senior nursing students. Using the criterion of statistical significance, the first hypothesis was not supported for this benchmark. The findings of the current study suggest that active and collaborative learning opportunities for senior nursing students were about the same in 2010 as they were in 2003. This decrease is in contrast to the increase in mean scores on this benchmark from 50 in the combined years of 2001-2003 to 52 in the year 2010 for the United States NSSE cohort of colleges and universities (NSSE, 2003; NSSE, 2010).

This benchmark contains seven items on the extent of students' class participation, the degree to which they have worked together with other students both in and out of the classroom, and the amount of tutoring and community-based projects they have been involved with (Pascarella et al., 2010). In the study by Popkess and McDaniel (2011), nursing students scored lower than education students in the *Active and Collaborative Learning* benchmark, therefore viewing themselves to be less engaged in student-centered and interactive pedagogies.

Nursing students scored significantly higher on only one out of the seven items within this benchmark than education and other health majors (Popkess & McDaniel, 2011). When comparing the findings from Popkess and McDaniel (2011) to the findings of the current study, it appears that nursing education could make improvements to create more interactive, collaborative learning opportunities in which students learn from and which each other. As Popkess and McDaniel (2011) suggested, an area for further research is to explore the potential barriers surrounding the implementation of active and collaborative learning strategies.

Student-faculty interaction. The results of this study revealed statistically significant, though trivial, increases in the mean scores of the 2010 nationwide cohort of senior nursing students on the *Student-Faculty Interaction* benchmark as compared to the 2003 nationwide cohort of senior nursing students. Using the criterion of statistical significance, the first hypothesis was supported for this benchmark.

It is important to note that the effect size of this increase is trivial in nature when considering the practical significance of this finding. Senior nursing students nationwide had an average score of 48.4 on this benchmark in 2003 and an average score of 49.8 on this benchmark in 2010. Examination of data provided in 2003 and 2010 NSSE Annual Reports revealed a decrease in mean scores on this benchmark from 43 for the combined years of 2001-2003 to 39 in 2010 for the United States NSSE cohort of colleges and universities (NSSE, 2010; NSSE, 2010).

One possible reason for the overall higher mean scores for nursing students in this benchmark is the small faculty to student ratio required by many state boards of nursing for clinical and laboratory experiences. These small group clinical practice assignments provide

powerful learning experiences between students and faculty, especially when educators integrate clinical and classroom teaching (Benner et al., 2009).

This benchmark focuses on the quality and quantity of student-faculty interactions. It contains items on the discussions of ideas with faculty outside of class, the extent of prompt feedback on academic performance, as well as the extent of students working with faculty on research projects (Pascarella et al., 2010). The importance of student-faculty interaction is reflected in a longitudinal study by Astin (1993) that focused primarily on student outcomes and how they were affected by college environments. In the study in which 25,000 students were followed and surveyed for four years, student-faculty interaction had a significant positive correlation with every academic attainment outcome: college grade point average, degree attainment, graduating with honors, and enrollment in graduate or professional school. Student-faculty interaction is also an integral piece of the seven principles for good practice in undergraduate education (Chickering & Gamson, 1987). These principles were based on 50 years of educational research that supported student-faculty interaction in college being related to positive student outcomes and satisfaction with educational experience.

The overall decrease in mean scores of this benchmark in the United States may be discouraging. However, nursing students showed a significant increase in mean scores in 2010 compared to 2003. These results indicate that nursing students are increasingly viewing their nursing faculty as role models, mentors, and guides for continuous learning. Interacting with faculty inside and outside of the classroom can help students learn firsthand how experts think about and solve practical problems (NSSE, 2003).

Comparison of KS/MO Students to Students from All Other States

The results of the ANOVA showed there were no significant differences in the *Level of Academic Challenge* and *Active and Collaborative Learning* benchmark mean scores in KS/MO students as compared to senior nursing students from all other states. Using the criterion of statistical significance, the second hypothesis was supported for these benchmarks.

The results of the ANOVA also revealed statistically significant, though trivial, increases in the mean scores of the KS/MO nursing students on the *Student-Faculty Interaction* benchmark as compared to senior nursing students from all other states. It is important to note that the effect size of this increase is trivial in nature when considering the practical significance of this finding. Using the criterion of statistical significance, the second hypothesis was not supported for this benchmark.

Interaction Effects between the Year and State Cohorts

The results of the ANOVA showed that there was no significant interaction effect between Year (2003/2010) and State (KS/MO and other states) for any of the three benchmarks. These results support the third hypothesis by demonstrating that there were no significant differences in the three benchmarks mean scores from 2003 to 2010 in KS/MO students as compared to senior nursing students from all other states. The students from KS/MO were similar to students from all other states at both points in time.

The similarity between KS/MO nursing students and all other US nursing students suggests that educational practices for baccalaureate nursing programs in KS/MO are similar to baccalaureate nursing programs in other states in early 2000 to 2010. Nursing programs are held to similar standards in terms of preparing graduates to pass the National Council Licensing Exam (NCLEX) as well as meeting accreditation standards. Baccalaureate nursing programs in the

United States may be accredited by state, regional, and national nursing organizations. Currently, there are two organizations in accrediting nursing education programs: the National League for Nursing Accrediting Commission and the Commission on Collegiate Nursing Education. Nursing programs are required to meet the standards of the accrediting body in terms of program mission, goals, curriculum, and outcomes and this similarity in requirements may result in similar experiences by nursing students nationwide.

How Nursing Students Spent Their Time in 2003 and 2010

Students from the 2003 cohort responded in a similar manner to the students from the 2010 cohort on questions regarding how their time was spent in a typical week with a few exceptions. The majority of senior nursing students in 2003 and 2010 did not work on campus, did not participate in co-curricular activities, spent less than ten hours a week caring for dependents in their home, and spent less than 11 hours a week commuting to campus. More students in the 2010 cohort reported spending no time commuting to campus as compared to the 2003 cohort. There were more students in the 2010 cohort who reported spending over 30 hours a week preparing for class compared to the 2003 cohort and even though this difference was statistically significant, the difference was determined to be negligible.

Responses to the question "About how many hours do you spend in a typical 7-day week doing each of the following? (preparing for class, working for pay on campus, working for pay off campus, participating in co-curricular activities, providing care dependents living with you, and commuting to class) were examined and comparisons were made between the 2003 and 2010 group. In 2010, 71.9% of nursing students spent more than 10 hours a week preparing for class as compared to 57.4% of nursing students in 2003. Comparison groups for spending more than

10 hours a week preparing for class in 2010 include biology students (71%), accounting students (62%), and marketing and management students (50%) (NSSE, 2010).

In higher education, a rule of thumb for study time holds that for every credit hour, a student should devote two hours of study time (McCormick, 2011). For example, for a full-time load of 15 credit hours, a student adhering to this standard should spend 30 hours a week studying. In the 2003 cohort of all nursing students, only 7.3% of students reported spending more than 30 hours per week preparing for class as compared to 13% in 2010. Even though there was an increase between the two years, nursing students still appear to be falling short of recommended study time per week.

While examining work habits, a decrease was noted in the percentage of nursing students who spent more than 10 hours a week working off campus in 2010 (55%) as compared to 2003 (62%). Comparison groups for working more than 10 hours a week off campus in 2010 include business students (54%), education students (44%), social sciences (41%), arts and humanities (35%), and engineering (25%) (NSSE, 2010). In addition, there was only a minor increase in the percentage of senior nursing students who worked more than 10 hours a week on campus from 2003 (5%) to 2010 (5.4%). This supports data collected by the United States Census Bureau on all college students for the same two years. In 2003, 59.8% of all college students reported working and in 2010, the percentage dropped to 52.1%. In this study, 74% of senior nursing students in 2003 reported working while in college compared to 67.6% of nursing students in 2010. These facts suggest that overall, all college students (including senior nursing students) worked fewer hours per week in 2010 than in 2003.

When comparing senior nursing students from KS/MO to senior nursing students from all other states, the differences were either non-significant, or the differences were negligible. This

indicates that senior nursing students from KS/MO spent their time in a similar manner compared to senior nursing students from all other states in the years 2003 and in 2010.

Student Involvement Theory

Astin's (1984) student involvement theory was selected for this research study as a guiding framework to examine how nursing students engage in the learning process, what educational resources nursing students use to become involved in the learning process, and if student demographics have an effect on levels of engagement. The primary focus of Astin's theory is on student behaviors in which students typically engage, such as preparing for and attending classes, working, volunteering, and interacting with faculty and peers.

The current study focused on the input element (student demographics) and the environment element (engagement levels) in nursing students in KS/MO and nursing students across the nation. The results of this study indicate that the input element (attended a nursing school in KS/MO or in another state) did not have a statistically significant effect on the mean scores of *Level of Academic Challenge* and *Active and Collaborative Learning* benchmarks (environment elements). The input element of state did have a statistically significant effect on the mean scores of the *Student-Faculty Interaction* benchmark. Another input element in the current study was year: 2003 and 2010. This input element had a statistically significant, though trivial, effect on the mean scores of the 2010 nationwide cohort of senior nursing students on the *Level of Academic Challenge* and *Student-Faculty Interaction* benchmarks as compared to the 2003 nationwide cohort of senior nursing students. These findings indicate that nursing students in KS/MO were as engaged as nursing students in other states in the years 2003 and 2010. Also, senior nursing students across the nation were equally as engaged in 2010 as they were in 2003.

Other student experiences (environment elements) during college in the current study were addressed in question 9 of the NSSE: "About how many hours do you spend in a typical 7-day week doing each of the following? (preparing for class, working for pay on campus, working for pay off campus, participating in co-curricular activities, providing care dependents living with you, and commuting to class)". Results of this current study found that in essence, senior nursing students in 2010 spent their time in a similar manner as they did in 2003 and senior nursing students from KS/MO spent their time in a similar manner as students from other states. This includes the amount of time spent preparing for class, working on and off campus, participating in co-curricular activities, providing care for dependents living with the student, and commuting to class, in a typical 7-day week. This indicates that these input elements of state and year had minimal effect on how students spent their time in a typical 7-day week.

Astin's theory provided the framework for this study. The theory focuses on student involvement at the institutional level and fit the intent for this descriptive study. The output element of Astin's theory was not examined in this current study and is a suggestion for future research. Outputs such as grade point average, NCLEX-RN results, student persistence, and standardized test scores are examples of output elements that could be studied with Astin's theory as a guiding framework. The theory was helpful in this study in identifying the relationships between the inputs, environments, and outputs elements and how students develop in college using these elements. No modifications to the theory are suggested at this time.

Strengths and Limitations of the Study

A strength of this study is the strong psychometric qualities of the NSSE instrument. Most of the items on the NSSE have been used for years in established college student assessment programs. After the first five administrations of the NSSE, a psychometric

evaluation was conducted to establish reliability and validity. The result of this analysis was that the psychometric properties of the NSSE were found to be very good, with the vast majority of the items meeting or exceeding recommended measurement levels and strong face and construct validity (Kuh, 2001b). The instrument has been widely used in the United States and Canada in over 1,500 baccalaureate-granting colleges and universities since its inception in 2000 (NSSE, 2014).

One limitation of the study concerns the interpretation of the results, given the large sample size of 10,959 participants. An issue with applying small-sample inference to large samples such as the one in this study is that even minuscule effects can be statistically significant (Shmueli et al., 2013). If one were only to interpret the *p*-values in this study without considering the confidence intervals and effects sizes, it could be concluded that differences exist between the 2003 and 2010 groups in the *Level of Academic Challenge* and *Student-Faculty Interaction* mean scores. The interpretation of the effect sizes indicate that these differences are considered to be trivial in size. Therefore, the results of this study cannot be considered by interpreting *p*-values alone. NSSE's interpretation of effect sizes should be used to compare benchmark scores, as their reference values are grounded in actual NSSE findings (Indiana University Center for Postsecondary Research, n.d.)

Another limitation of this study is that the NSSE relies primarily on self-reporting. There is evidence that shows that students are credible, accurate reporters of their collegiate activities and experiences (Kuh, 2001b). However, this accuracy depends on the clarity of the survey items and whether or not the students have sufficient information to answer the questions with accuracy. If students did not have a clear understanding of the items, it could affect their responses, which could affect the validity of the findings.

Another limitation involves the nonprobability nature of the sample of institutions on which the NSSE is based. Institutions opt-in to participate in the NSSE, and it is possible that these institutions and their student population are different from institutions and their students that do not participate in the NSSE. This could also affect the generalizability of the findings.

Implications for Nursing Education

The overall implication of this study as it applies to nursing education is that while there has been consistency and stability of levels of engagement in nursing education over time, there may be room for improvement in engaging baccalaureate nursing students, particularly in the active and collaborative learning area. The findings suggest that active and collaborative learning opportunities for senior nursing students were about the same in 2010 as they were in 2003. This pedagogical method engages learners with their peers around common intellectual work and is positively and significantly related to all areas of student engagement (Kuh, Laird, & Umbach, 2004). Active learning strategies include socratic questioning, case studies, concept maps, role play/simulation, student generated test questions, gaming, and reflection activities such as one-minute papers. The use of technology could be incorporated into these activities with the use of cell phones or "clickers" to answer instructor-posed questions before, during or after class via the use of social media. These activities shift the focus from sitting and passively listening to lecture to giving students more "doing" and "observing" experiences related to the course subject. They encourage students to engage with the material presented as well as with their peers. Kuh et al. (2004) suggest that when faculty members use a variety of active and collaborative learning activities, students are more likely to report greater gains associated with these experiences (integrative learning, gains in general education, gains in practical competence and personal/social gains). There is room for improvement in nursing education and by making

concerted efforts to increase active and collaborative learning, there is the potential for higher levels of student performance than traditional classroom experiences.

There is a national emphasis on interprofessional collaboration among healthcare professionals. Interprofessional collaborative practice has been recognized as a key component to safe, high-quality, accessible, patient-centered healthcare (Interprofessional Education Collaborative Expert Panel, 2011). A critical piece of nursing education is teaching students to collaborate with their nursing peers as well as other healthcare professionals such as physicians, pharmacists, physical therapists, occupational therapists, respiratory therapists, and dieticians, to name a few. It is essential for students to be able to work effectively as members of a clinical team while still in school to foster relationships and collegiality that will carry over into the registered nurse role. This is an example of an area for improvement for collaborative learning in nursing education.

The innovative, high-impact practices identified by LEAP in 2007 are another area to consider when contemplating changes in higher education. There are strong positive effects of participating in high-impact practices, specifically greater gains in learning and personal development (Kuh, 2008). In a review of the literature by Brownell and Swaner (2009), substantial support was found specifically for five of the high-impact practices: first-year seminars, learning communities, service learning, undergraduate research, and capstone experiences. The authors found support especially applied to underserved students (underrepresented minority, low-income, and first-generation students). Out of these five practices, the least has been written about capstone experiences. The most common outcomes studied across the other four practices are student persistence in a given institution and academic performance (grade point average) with positive results for both measures (Brownell & Swaner,

2009). Other outcomes associated with the practices include higher rates of faculty and peer interaction, increases in critical thinking and writing skills, greater appreciation of diversity and diverse viewpoints, and higher levels of engagement in and out of the classroom (Brownell & Swaner, 2009). Kuh (2008) recommends that every college student should participate in at least two high-impact activities, one in their first-year and one in their major. Furthermore, these practices should be designed and implemented carefully with the campus's student culture and goals in mind (Gonyea, Kinzie, Kuh, & Laird, 2008). The institution's NSSE results can help guide the implementation and evaluation of these high-impact practices over time.

Considering the findings of trivial increases in mean scores of *Level of Academic Challenge* and *Student-Faculty Interaction* benchmarks and a non-significant decrease in the mean scores on the *Active and Collaborative Learning* benchmark, the LEAP high-impact practices should be incorporated more widely into baccalaureate nursing education. One suggestion for implementation early in the college experience is to design learning communities with nursing students and other science students taking two or more general education courses as a group, working closely with one another and with their professors. This can allow students to integrate knowledge across classes and build collaboration with peers. One of these courses could include the first-year seminar or freshman experience as it is called in some schools. These first-year seminars should be tailored to the unique needs of each school and could take the form of an extended orientation seminar to assist students with their transition to college, a basic study skills seminar to target underprepared students, or more of a pre-professional seminar to introduce students to the demands of a chosen profession, such as nursing (Brownell & Swaner, 2009). Swing (2002) found that different seminar types led to different learning outcomes and

the number of credit hours for the seminars could vary according to the student's major and learning goals.

Another suggestion is the implementation of service learning projects in nursing education. These experiences should be directly linked to course objectives in order to differentiate from volunteerism and to enable students to apply classroom learning in an out-of-classroom setting (Brownwell & Swaner, 2009). Service learning projects can take many forms in nursing education. Some examples include assisting with health screenings and parental education in a Head Start center during the pediatrics rotation, assisting the Meals on Wheels organization during a gerontology rotation, tutoring pre-nursing or nursing students as part of a leadership class, or doing wellness checks at a homeless shelter during a community nursing rotation. Service learning programs model the idea that it is important to give back to the community in which one lives and works and that working with community partners can prepare nurses to be good citizens in professional and in their personal life (Kuh, 2008). Another key piece of service learning cited in the literature is to have structured reflection opportunities to make connections between theory and practice (Brownwell & Swaner, 2009). In addition, these projects would need to be designed carefully so that they weren't the same as clinical experiences, but were more service oriented in nature and focused on making a difference in the community.

A third suggestion is to provide opportunities for research experiences for all students in an upper division nursing course. While most baccalaureate nursing programs require a nursing research course, not all programs require that actual research is conducted. Along with conducting research, students could be mentored through the process of presenting the research either at a conference or through publication. The overall goals could be to actively involve

students in the research process and to assist with the dissemination of the research findings. This can lead students to feeling actively engaged with their profession, their faculty, as well as with their institution while hopefully generating a sense of excitement about the research process.

Recommendations for Future Research

The results from this study show that there were statistically significant, yet trivial differences between the 2003 and 2010 nationwide cohorts of nursing students in the *Level of Academic Challenge* and *Student-Faculty Interaction* benchmarks. A suggestion for future research in this area is to examine levels of engagement over time by conducting a longitudinal study at one institution. NSSE has called attention to the importance of "looking within" institutional results on the survey as student experiences and outcomes vary more within institutions than between them (NSSE, 2010). A study could be done on senior nursing students from one institution with multiple years of NSSE administrations to examine patterns of change over time in student engagement results. This information could be used to evaluate the implementation of campus initiatives such as first-year programs, student-faculty research initiatives in upper division courses, or classroom teaching strategies aimed to increase active and collaborative learning. The results could also be used to evaluate whether the national recommendations by LEAP in 2007 to increase implementation of high-impact educational practices had a positive effect on engagement scores of nursing students over time at that particular school. Multi-year analyses such as these could provide evidence of whether or not institutional and national efforts to increase levels of engagement as measured by the NSSE in nursing students have had a significant effect.

Another suggestion for future research using the NSSE is to examine variation in student experiences within an institution. Using NSSE results, it is possible to identify who these students are by looking at the top and bottom quarters of the distribution within an institution. The mean benchmark scores for these two cohorts of students for a particular year could be compared to one another in an effort to identify key differences between the groups. These data could then be used to suggest institutional changes to improve the college experience for the least engaged students in an effort to narrow the gap between them and the most engaged students.

In addition, another suggestion for further research using NSSE data is to examine whether relationships exist between levels of engagement as measured by the NSSE in senior nursing students at the same school and variables such as grade point average, standardized test scores, student persistence, and first-time pass rate on the NCLEX-RN. This could provide valuable data on whether or not students' levels of engagement while a senior in a nursing program has a significant effect on course performance, graduation, and/or on a standardized tests such as the NCLEX-RN.

A final recommendation for future research using the NSSE is to repeat this study in senior nursing students across the nation using the years 2006 and 2012 as comparison groups. The 2006 cohort would be used as the base year since it was a year before the LEAP recommendations for high-impact educational practices were published. The 2012 cohort would be used because five years would have elapsed from the time the LEAP recommendations were published and this could allow more time to see if they had a significant effect on levels of engagement. Another rationale for using 2012 data is that the NSSE had several revisions to

items in 2013, making it more difficult to compare cohorts before and after the changes were made.

Conclusion

Student engagement has been linked to increased positive outcomes in higher education: increased student knowledge and greater student satisfaction with educational experience (Carini, Kuh, & Klein, 2006), as well as increased student retention and persistence (Tinto, 2012). The NSSE has been used since 2000 to measure levels of student engagement in higher education. In the AAC&U 2007 report, *College Learning for a New Global Century*, the National Leadership Council for Liberal Education and America's Promise (LEAP) identified ten innovative high-impact practices in higher education. Since then, these practices have been implemented across the nation and have been associated with gains in student learning and personal development (Kuh, 2008). The NSSE has been used to evaluate the effects of participating in these high-impact activities. The ten practices include first-year seminars, common intellectual experiences, learning communities, service learning, undergraduate research, study abroad, and other experiences with diversity, internships, and capstone courses and projects. Results from the NSSE have been used to make institutional changes as well as changes in teaching strategies in efforts to improve student outcomes. Even though the survey doesn't directly measure student learning, it does identify areas that universities may need to improve upon to better engage students, which can contribute to better student outcomes.

In this study, there were statistically significant differences between the 2003 cohort of senior nursing students and the 2010 cohort of senior nursing students on the mean scores for *Level of Academic Challenge* and *Student-Faculty Interaction*; however, using Cohen's *d* as an effect size measure, the increases in these scores were both found to be trivial. In addition, there

was no significant difference between the groups on the mean scores of the *Active and Collaborative Learning* benchmark. In essence, senior nursing students in 2010 were similar to senior nursing students in 2003 on levels of engagement, indicating consistency and stability in nursing education over time.

There was no significant difference between the KS/MO cohort of senior nursing students and the cohort of senior nursing students from other states on the mean scores for *Level of Academic Challenge* and *Active and Collaborative Learning.* There was a significant difference in the mean scores for *Student-Faculty Interaction* between the KS/MO cohort of senior nursing students and the cohort of senior nursing students from other states; however, using Cohen's *d* as an effect size measure, the increase in the scores was found to be trivial.

In addition, there was no significant interaction effect of State (KS/MO) and Year (2003 and 2010) for any of the three benchmarks. In summary, senior nursing students in KS/MO were similar to senior nursing students from all other states in regards to levels of engagement, leading to the conclusion that nursing education in KS/MO is consistent over time with nursing education in the rest of the US.

In addition, examination of how senior nursing students spent their time in 2003 and 2010 reveal several similarities: for both cohorts, more students work off campus than on campus; the majority do not participate in co-curricular activities; and the majority commute less than 11 hours per week. The percentage of students who reported no commute time to campus increased in 2010 compared to 2003 and a higher percentage of students reported spending more than 30 hours per week preparing for class in 2010 compared to 2003; however, these differences were determined to be negligible. Otherwise, senior nursing students in 2010 spent their time in a very similar manner compared to senior nursing students in 2003.

In general, the findings from this study indicate that senior nursing students in 2010 were as engaged in their education as they were in 2003, reflecting stability in nursing education during this same time period. The findings also indicate that senior nursing students from KS/MO were as engaged and spent their time in a similar manner as senior nursing students from all other states. This indicates that nursing students from these Midwest states have similar characteristics to nursing students from other states and nursing education in the Midwest is consistent with the rest of the country. These findings of stability and consistency over time and across regions of the US are encouraging for nursing education. Nurse educators and higher-education administrators can build upon this strong foundation and make concerted efforts to further increase student engagement in nursing students. The findings of this study relate to the LEAP high-impact practices. These practices use engaging pedagogies, student-faculty interaction, faculty mentoring, and collaborative learning and are associated with gains in student learning and personal development (Kuh, 2008). Considering the findings of this study and the potential to improve student outcomes, the LEAP high-impact practices should be incorporated more widely and thoughtfully into baccalaureate nursing education.

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Appendix A

The College Student Report 2003

National Survey of Student Engagement

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

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

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

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

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

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

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

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

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

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

6 **In a *typical week*, how many homework *problems* take you more than 15 minutes each to complete?**

None ☐ 1-3 ☐ 4-6 ☐ 7-10 ☐ More than 10 ☐

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

	Yes	No	Undecided
a. Practicum, internship, field experience, co-op experience, or clinical assignment	☐	☐	☐
b. Community service or volunteer work	☐	☐	☐
c. Participate in a learning community or some other formal program where groups of students take two or more classes together	☐	☐	☐
d. Work on a research project with a faculty member outside of course or program requirements	☐	☐	☐
e. Foreign language coursework	☐	☐	☐
f. Study abroad	☐	☐	☐
g. Independent study or self-designed major	☐	☐	☐
h. Culminating senior experience (comprehensive exam, capstone course, thesis, project, etc.)	☐	☐	☐

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

Relationships with:

	a. Other Students	b. Faculty Members	c. Administrative Personnel and Offices
	Friendly, Supportive, Sense of Belonging	**Available, Helpful, Sympathetic**	**Helpful, Considerate, Flexible**
7	☐	☐	☐
6	☐	☐	☐
5	☐	☐	☐
4	☐	☐	☐
3	☐	☐	☐
2	☐	☐	☐
1	☐	☐	☐
	Unfriendly, Unsupportive, Sense of Alienation	**Unavailable, Unhelpful, Unsympathetic**	**Unhelpful, Inconsiderate, Rigid**

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

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

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

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

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

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

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

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor

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

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Poor

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

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

15 Write in your year of birth: 1 9 _ _

16 Your sex
- ☐ Male
- ☐ Female

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

18 Are you of Hispanic, Latino, or Spanish origin?
- ☐ Yes
- ☐ No

19 What is your racial or ethnic identification? (Mark all that apply.)
- ☐ American Indian or other Native American
- ☐ Asian American or Pacific Islander
- ☐ Black or African American
- ☐ White
- ☐ Other: Specify

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

21 Did you begin college at your current institution or elsewhere?
- ☐ Started here
- ☐ Started elsewhere

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

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

24 Are you a member of a social fraternity or sorority?
- ☐ Yes
- ☐ No

25 Are you a student-athlete on a team sponsored by your institution's athletics department?
- ☐ Yes
- ☐ No

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

27 Which of the following best describes where you are living now while attending college?
- ☐ Dormitory or other campus housing (not fraternity/sorority house)
- ☐ Residence (house, apartment, etc.) within **walking distance** of the institution
- ☐ Residence (house, apartment, etc.) within **driving distance**
- ☐ Fraternity or sorority house

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

Father	Mother	
☐	☐	Did not finish high school
☐	☐	Graduated from high school
☐	☐	Attended college but did not complete degree
☐	☐	Completed an Associate's degree (A.A., A.S., etc.)
☐	☐	Completed a Bachelor's degree (B.A., B.S., etc.)
☐	☐	Completed a Master's degree (M.A., M.S., etc.)
☐	☐	Completed a Doctoral degree (Ph.D., J.D., M.D., etc.)

29 Please print your primary major, or your expected primary major.

30 If applicable, please print your second major or your expected second major (*not* minor, concentration, etc.).

THANKS FOR SHARING YOUR VIEWS!

After completing The Report, please put it in the enclosed postage-paid envelope and deposit it in any U.S. Postal Service mailbox. Questions or comments? Contact the National Survey of Student Engagement, Indiana University, Ashton Aley Hall, 1913 East Seventh Street, Bloomington IN 47405 or nsse@indiana.edu or www.iub.edu/~nsse.

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Appendix B

National Survey of Student Engagement 2010

The College Student Report

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

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

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

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

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

a. Number of assigned textbooks, books, or book-length packs of course readings

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

b. Number of books read on your own (not assigned) for personal enjoyment or academic enrichment

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

c. Number of written papers or reports of **20 pages or more**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

d. Number of written papers or reports **between 5 and 19 pages**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

e. Number of written papers or reports of **fewer than 5 pages**

☐ None ☐ 1-4 ☐ 5-10 ☐ 11-20 ☐ More than 20

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

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

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

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

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

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

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

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

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

a. Relationships with **other students**

Unfriendly, Unsupportive, Sense of alienation ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Friendly, Supportive, Sense of belonging

b. Relationships with **faculty members**

Unavailable, Unhelpful, Unsympathetic ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Available, Helpful, Sympathetic

c. Relationships with **administrative personnel and offices**

Unhelpful, Inconsiderate, Rigid ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 Helpful, Considerate, Flexible

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

a. Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

b. Working for pay **on campus**

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

c. Working for pay **off campus**

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

d. Participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

e. Relaxing and socializing (watching TV, partying, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

f. Providing care for dependents living with you (parents, children, spouse, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

g. Commuting to class (driving, walking, etc.)

☐ 0 ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30 ☐ More than 30

Hours per week

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

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

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

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

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

☐ Excellent
☐ Good
☐ Fair
☐ Poor

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

☐ Excellent
☐ Good
☐ Fair
☐ Poor

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

☐ Definitely yes
☐ Probably yes
☐ Probably no
☐ Definitely no

15 **Write in your year of birth:** 19 ☐☐

16 **Your sex:**
☐ Male ☐ Female

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

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

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

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

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

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

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

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

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

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

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

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

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

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

a. Primary major (Print only one.):

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

THANKS FOR SHARING YOUR RESPONSES!

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

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Appendix C

NSSE
national survey of
student engagement

NSSE Data Sharing Proposal Form

Principal investigator contact information:

Teel		Cynthia	
Last Name		First Name	
Professor, Associate Dean, Graduate Programs			
Title			
University of Kansas School of Nursing			
Institution			
Mailstop 4043			
Office			
3901 Rainbow Blvd.			
Address			
Kansas City	KS	66160	United States
City	State/Province	Zip or Postal Code	Country
(913)588-1697			
Phone		Fax	
cteel@kumc.edu		7/8/14	
Email		Date	

Please provide the following information in as much detail as possible. Feel free to attach additional documents in support of the proposal.

1. The purpose and research questions that guide your study.

This comparative descriptive study will examine issues related to undergraduate nursing students' engagement during college by conducting a secondary analysis of NSSE data. The purpose of this study is to describe and compare levels of engagement in senior year nursing students in the years 2003 and 2010 as well as to compare levels of engagement of senior nursing students in Kansas and Missouri to senior nursing students from other states.

The following hypotheses will be tested:

1. There is no significant difference between mean scores of the NSSE Benchmarks of Effective Educational Practice, i.e., Level of Academic Challenge, Active and Collaborative Learning, and Student Faculty Interaction of a 2003 nationwide cohort and a 2010 nationwide cohort of senior nursing students.

NSSE
national survey of
student engagement

2. There is no significant difference between mean scores of the NSSE Benchmarks of Effective Educational Practice, i.e., Level of Academic Challenge, Active and Collaborative Learning, and Student Faculty Interaction of senior nursing students in Kansas and Missouri institutions and senior nursing students in institutions of other states in 2003 and in 2010.

In order to more fully understand how senior nursing students spent their time in 2003 and 2010, responses to this NSSE question will be analyzed: "About how many hours do you spend in a typical 7-day week doing each of the following?" The responses can provide data to answer these research questions:

1. In a typical 7-day week, how did senior nursing students in 2003 spend their time?
2. In a typical 7-day week, how did senior nursing students in 2010 spend their time?
3. Are there differences between the cohorts with respect to each of the activity variables?

2. Description of the data file you propose to borrow (items, cases, years, etc.)

1) Senior year nursing students from the states of Kansas and Missouri in the years 2003 and 2010
2) Senior year nursing students from non-Kansas and non-Missouri states in the years 2003 and 2010
3) Senior year nursing students across the nation in the years 2003 and 2010

3. Other data that you propose to merge or match with the NSSE data.

None

4. Expected start and end dates for the analysis.

July-September 2014

5. The name, title, organization, email, and phone numbers of all researchers that you propose to have access to the data.

Karen Johnson, MSN, APRN (Co-Investigator and Primary Contact)
University of Kansas School of Nursing, PhD in Nursing Student
kjohnson2@kumc.edu (620)704-1585

NSSE
national survey of
student engagement

REQUESTS FOR NSSE DATA

While the National Survey of Student Engagement is available on a limited basis as a source of data for researchers, we hold a primary obligation to protect our participation agreements with NSSE users. Under these agreements, NSSE may:

> *"... make data, in which individual institutions or students cannot be identified, available to researchers interested in studying the undergraduate experience... NSSE results specific to each institution and identified as such will not be made public except by mutual agreement between NSSE and the institution."*

This means taking strict measures to protect the identities of the students and institutions that participate in the program. We have a duty to make certain schools do not have their data used in ways they did not intend.

In addition, as a non-subsidized, cost-recovery project, the NSSE program may ask researchers who wish to purchase slices of the data to pay a fair price for the time and effort the NSSE staff put into collecting and managing the database, and for preparing the data set for purchase.

Policies Regarding the Sharing of NSSE Data

1. NSSE data are made available no sooner than three years after institutional reports are mailed to participating institutions, typically the first week of August each year. This means that August of 2009 is the earliest date data from the NSSE 2006 administration will be released.

2. To protect the integrity of the database and the confidentiality of our users, we strip all student and institutional identifiers from any data set that we share externally.

3. We can include institution-level information (e.g. Carnegie types) but not in a way that individual schools can be identified directly or indirectly. This includes data provided by the researchers to be matched with NSSE data before removal of school identifiers. Continuous variables (e.g., enrollment sizes) must be collapsed into categories so that specific values cannot be linked back to school names.

4. Data sets provided will be random samples, in a portion not to exceed 1/5 of the existing data set. Under no circumstance is the entire data set provided to researchers, nor entire sets of specified subsections of the data (e.g., HBCU's or selective liberal arts institutions).

5. Researchers are required to acknowledge that NSSE data were used by permission of the Indiana University Center for Postsecondary Research, and to provide a copy of all papers and publications utilizing NSSE data to the Center.

Indiana University Center for Postsecondary Research
1900 East Tenth Street • Eigenmann Hall, Suite 419 • Bloomington, IN 47406
Phone: (812) 856-5824 • Fax: (812) 856-5150 • E-mail: nsse@indiana.edu • Web Address: www.nsse.iub.edu
Last revised June 2006

Appendix D

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student engagement

Indiana University Center for Postsecondary Research
Data Sharing Agreement

This Indiana University Center for Postsecondary Research Data Sharing Agreement ("Agreement") defines the parameters for data sharing from the National Survey of Student Engagement ("NSSE") between the Research Institution and its Authorized Researchers named below and the Trustees of Indiana University on behalf of the Indiana University Center for Postsecondary Research ("IUCPR"). The terms below are intended to reflect and comply with the existing agreements between NSSE and the institutions that participate in the survey program. Under these participation agreements, NSSE may:

> *"...make data, in which individual institutions or students cannot be identified, available to researchers interested in studying the undergraduate experience... NSSE results specific to each institution and identified as such will not be made public except by mutual agreement between NSSE and the institution."*

RESEARCHERS

The following researchers ("Authorized Researchers") of **University of Kansas** ("Research Institution") may make use of NSSE data pursuant to the terms of this Agreement:

Karen Johnson	**University of Kansas**
Cynthia Teel, PhD, RN, FAAN	**University of Kansas**
Jo Wick, Ph.D.	**University of Kansas**
Shin Hye Park, PhD, RN	**University of Kansas**

DATA DESCRIPTION

Under this Agreement, IUCPR will provide the researchers a data file delimited in the following ways ("NSSE Data File"):

- Data Source: **NSSE 2003 & NSSE 2010**
- Variables: **All survey items. In addition, four institutional characteristics (Carnegie classification, size, control, and a dichotomous variable for whether someone is attend an institution from the states of Kansas and Missouri or NOT) will be included. These institutional characteristics will be in categories that include at least 5 institutions. All student and institutional identifying information will be removed. Finally, a fabricated institutional number will be added so that the researcher can tell which students are from the same institution.**
- Cases: **All seniors majoring in nursing and attending U.S. institutions.**

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PARAMETERS FOR DATA SHARING:

1. IUCPR will provide a single copy of the NSSE Data File solely for non-commercial research by the Authorized Researchers.

2. The NSSE Data File will exclude the Unit ID code from Integrated Postsecondary Educational Data System (IPEDS), any other unique school or student identifiers, and any variables that IUCPR determines reasonably may permit the identification of a participating school or student.

3. The Authorized Researchers will not make any attempt, privately or publicly, to associate elements of the NSSE Data File with the individual institutions or individual students participating in the NSSE, nor will they share the data with anyone else who might do so.

4. In all publications or presentations of data obtained through this agreement, the Authorized Researchers agree to include the following citation: "NSSE data were used with permission from The Indiana University Center for Postsecondary Research."

5. The Authorized Researchers agree to provide to IUCPR a copy of all reports, presentations, analyses, or other materials in which the data given under this Agreement are presented, discussed, or analyzed.

6. **The data should be encrypted when not in use by the above researcher and should be destroyed once this particular research project (dissertation) has been completed. If the researcher needs the data for any longer period than that which is necessary for completing the dissertation, the researcher is required to ask for an extension. Using the data for other purposes besides completing the designated project (dissertation) must be approved by the Director for the Center for Postsecondary Research at Indiana University at Bloomington.**

7. The IUCPR of Indiana University may, by written notification to the Authorized Researchers and the Research Institution, terminate this Agreement if it determines, in its sole discretion, that either the Authorized Researchers or the Research Institution have breached the terms of this Agreement. In the event that this Agreement is terminated, the Authorized Researchers and Research Institution shall return the originals and all copies of the NSSE Data File to the IUCPR, and securely destroy all NSSE Data File elements contained in any analyses or other materials created or maintained by Authorized Researchers, within ten (10) days of the receipt of the termination notice.

8. IU will not be liable to the Research Institution for any direct, consequential, or other damages, related to the use of the NSSE Data File or any other information delivered by Indiana University or IUCPR in accordance with this Agreement. To the extent permitted by law, the Research Institution shall defend, indemnify, and hold harmless The Trustees of Indiana University, their officers, employees, and agents, with respect to any and all

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claims, causes of action, losses, and liabilities, of any kind whatsoever, arising directly or indirectly from the Authorized Researchers' use of the NSSE Data File.

9. FEES

In exchange for access to and use of the NSSE Data File, Karen Johnson agrees to pay Indiana University the sum of $525, by check upon execution of this Agreement;

SIGNATURES
The undersigned hereby consent to the terms of this Agreement and confirm that they have all necessary authority to enter into this Agreement.

For The Trustees of Indiana University:

Amy O'Hair — 8/15/14
Name: Amy O'Hair
Title: Contract Officer
Office of Research Administration
Indiana University
Date

Alexander C. McCormick — 8/14/2014
Alexander C. McCormick
Director,
National Survey of Student Engagement
Date

For the Research Institution:

8/11/14
Name, Title, and Organization
Authorized Institutional Official of Research Institution
Richard J. Barohn, M.D.
Vice Chancellor for Research
Date

Acknowledgment of Authorized Researchers:

Karen Johnson — 8/11/14
Karen Johnson
Doctoral Student
Date

NSSE
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University of Kansas

Cynthia Teel, PhD, RN, FAAN
Professor, School of Nursing
University of Kansas

8/5/2014
Date

Jo Wick, Ph.D.
Assistant Professor, Department of Biostatistics
University of Kansas

3/11/14
Date

Shin Hye Park, PhD, RN
Assistant Professor, School of Nursing
University of Kansas

8/5/2014
Date