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An Examination of Changes in Program Offerings and Program Enrollments in Selected Nebraska High Schools During the Era of Standards-Based Reform

By

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Presented to the Faculty of the

Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

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Under the Supervision of Professor Donald F. Uerling

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An Examination of Changes in Program Offerings and Program Enrollments in Selected Nebraska High Schools During the Era of Standards-Based Reform

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University of Nebraska, 2010

Adviser: Donald F. Uerling

The purpose of this study was to examine whether or not there were changes in certain characteristics of educational programs in grades 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by testing for changes between the 1993-94 school year and the 2007-08 school year in the courses high schools offered and in the courses students took. The total program and each of ten designated subject areas that comprise the program were examined. Those ten designated subject areas were language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, personal fitness, and other subjects.

Data were collected from curriculum reports submitted annually by every Nebraska school district to the Nebraska Department of Education. Data were collected from a stratified random sample of 48 school districts. For each school district, instructional units and enrollment units were calculated for each of ten subject areas for the total grades 9-12 program and for each of ten subject areas for 1993-94 and 2007-08. Forty-two hypotheses were then tested to find whether or not there were statistically significant changes between the two school years both in courses offered, as measured by instructional units, and courses taken, as measured by enrollment units.

The results of this study did indicate that there had been certain changes in program offerings and program enrollments from 1993-1994 to 2007-2008. Instructional units increased in foreign language, mathematics, and physical fitness. Enrollment units increased in foreign language mathematics, and social studies. Both instructional units and enrollment units decreased in vocational education.

When these changes were examined in relation to school size, the results showed no consistent correlation. The most pronounced pattern found in this study was that medium-enrollment school districts had more statistically significant changes in their curricular offerings and curricular enrollments than did small-enrollment school districts and large-enrollment school districts.

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Chapter 1

Introduction

Problem Statement

Educational reform initiatives have been commonplace in the world of educational policy since the early 1950's. Sputnik era funding mandates attempted to bolster Mathematics and Science achievement to provide the United States students with a competitive edge over their Soviet counterparts during the space race. Since then, policy makers have continued to influence the instructional process through legislation. In the 15-year period from 1993-2008, reform has manifested itself in the form of "standards-based reform."

According to Anderson (2007), in April of 1993 President Clinton introduced Goals 2000, which called for the systemic reform of education in the United States. This legislation would begin to implement the policy of standards-based reform. Standards-based reform is reform founded on the belief that clearly defined academic standards, assessments to measure those standards, and accountability measures to ensure schools help students meet those standards will lead to positive educational change.

Anderson (2007) and Hayes (2004) concurred that systemic, standards-based reform began in the United States in the year 1994 with the passage of *Goals 2000*. Since the states began to receive federal monetary incentives for practicing standards-based reform in 1994, researchers have monitored the instructional impact of its implementation. Some educational researchers (Bracey, 2006; Hardy, 2006a; Hirsch, 2006; Jennings & Renter, 2006; Mathis, 2006a; Mathis, 2006b; Meyer, 2004; Phelps,

1999; Popham, 2001; Von Zastrow & Janc, 2004) have reported changes occurring during the standards-based reform movement.

The No Child Left Behind Act (2002) had strong accountability and reporting measures for schools, particularly in the areas of reading and Mathematics achievement. Reporting the dropout rate was also one of the requirements of the law. In order to continue to receive federal funding, states must have a plan in place to comply with the provisions of the No Child Left Behind Act, which are designed to help students meet the Adequate Yearly Progress (AYP) indicators outlined in the act.

Nebraska educators and policymakers implemented standards-based reform through the Nebraska STARS System. The STARS System included standards-based assessment and reporting that allowed classroom educators the opportunity to develop criterion-referenced tests and to use those tests in a formative manner to measure students' attainment of AYP goals (Nebraska Department of Education, 2006).

In states where high stakes testing was mandated, a component that the Nebraska STARS System did not include, researchers (Firestone et al., 2000; Gallagher, 2004; Sloan, 2006) reported a significant degradation of the curriculum. McNeil & Valenzuela (2001) indicated that some high school courses became nothing more than test-prep courses designed to prepare secondary students for success on state-mandated, high stakes tests that were ushered in by the standards-based reform movement. Given the standards-based reforms, such as NCLB and STARS, implemented in Nebraska within in the last decade, this researcher questioned whether or not quantifiable changes in Nebraska's high school curricula had occurred.

Purpose of the Study

The purpose of this study was to examine whether or not there were quantifiable changes in characteristics of the educational programs in selected grades 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by determining whether there were certain quantifiable changes between the 1993-94 school year and the 2007-08 school year in the courses high schools offered, as measured by instructional units, and in the courses students took, as measured by enrollment units. To make this determination, the total program and each of ten designated subject areas that comprise the program were examined. Those ten designated subject areas were language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, personal fitness, and other subjects.

Numerous educational researchers (Bracey, 2006; Hardy, 2006a; Hirsch, 2006; Jennings & Renter, 2006; Mathis, 2006a; Mathis, 2006b; Meyer, 2004; Phelps, 1999; Popham, 2001; Von Zastrow & Janc, 2004) stated that in order to meet the accountability requirements created by standards-based reform, schools cut back on the amount of time allocated in select subject areas to increase the amount of time allocated on instruction in Mathematics and reading; however, this theory had not been tested in any uniform, systematic way in the state of Nebraska. These studies and the additional research regarding curricular changes as a result of standards-based reform such as studies by Swanson (2006) and Puma, Raphael, Olson, & Hannaway (2000) had been generalized to changes at the K-12 level, without specific research on how standards-based reform may have changed course offerings and course enrollments in specific grade level groupings,

such as elementary school (K-5), middle school (6-8), or high school (9-12). Therefore, it was difficult for educational researchers or for the public to measure and gauge the change standards-based reform had on course offerings or course enrollments at either the elementary school, middle school, or high school level with a high degree of certainty. For this reason, the researcher chose to target a specific grade level grouping, namely high school grades 9-12.

Understanding the potential changes standards-based reform may have had on the instructional program at the grade 9-12 level across the state of Nebraska will provide insight to policymakers at the state and federal level. Jennings and Renter (2006) suggested that curricular changes occurred in Nebraska's schools as a result of standards-based reform; however, little specific, quantifiable information regarding the impact of standards-based reform in Nebraska at the high school level grades 9-12 was available. This study sought to provide that information relevant to the instructional programming changes that occurred in the state of Nebraska using a method developed by Uerling (1984) to measure the depth and breadth of course offerings and the extent of student participation in the ten designated subject areas that are reported on the *Nebraska Annual Curriculum Report*. The secondary purpose of this study was to develop a data base that would provide a quantitative measure of course offerings and course enrollments in three selected enrollment ranges for the 1993-94 and 2007-08 school years. Based on the model created by Uerling and Dlugosh (1999), a summary analysis of the 1993-94 and the 2007-08 data pertaining to the total program and to the ten designated subject areas that made up that program--Language Arts, Science, Social Science, Mathematics,

Foreign Language, Vocational Education, Visual and Performing Arts, Personal Health, Personal Fitness, and Other--was developed.

Research Questions and Hypotheses

Research Questions

To determine whether certain quantifiable changes in the grade 9-12 programs of selected Class II and Class III school districts have occurred during the era of standards-based reform, four research questions were addressed:

1. What were the mean numbers of instructional units offered in the total grades 9-12 program and in each of the ten designated subject areas programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?
2. What percentage of the total instructional program did each of the ten designated subject areas represent in the grades 9-12 program in (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?
3. What were the mean number of enrollment units taken in the total grades 9-12 program and in each of the ten designated subject area programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?
4. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in (a) small-enrollment school districts,

(b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?

Hypotheses

The purpose for conducting this study was to examine whether there were changes in certain quantifiable characteristics of the educational programming offered in selected 9-12 Nebraska public high schools during the era of standards-based reform. To accomplish this purpose, 42 research hypotheses were tested. Furthermore, for any research hypotheses that was rejected, the amount of change was estimated.

The research hypotheses, presented in summary form, follow:

1. For each of the ten designated subject areas and in the total program, there was a statistically significant difference between the number of instructional units offered in 1993-94 and the number of instructional units offered in 2007-08.
2. For each of the ten designated subject areas stated as a percentage of the total program, there was a statistically significant difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.
3. For each of the ten subject areas and in the total program, there was a statistically significant difference between the number of enrollment units taken in 1993-94 and the number of enrollment units taken in 2007-08.
4. For each of the ten subject areas stated as a percentage of the total program, there was a statistically significant difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

Summary of Research Procedures

Population and Sample

The population for this study was the 246 Nebraska Class II and Class III school districts that were in existence during both the 1993-94 school year and during the 2007-08 school year. The State of Nebraska had six different classes of schools. A Class I school was defined by the Nebraska State Department of Education as a district that maintains only elementary grades under the direction of a single school board. A Class II school was defined by the Nebraska State Department of Education as a district embracing territory having a population of 1,000 inhabitants or less that maintains both elementary and high school grades under one school board. A Class III school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory with a population of more than 1,000 and less that 150,000 inhabitants that maintained both elementary and high school grades under one school board. A Class IV school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a population of one hundred thousand or more inhabitants with a city of the primary class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board. A Class V school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a population of two hundred thousand or more inhabitants with a city of the metropolitan class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board. A Class VI school district was defined by the Nebraska State Department of Education as any school district that maintains only a high

school, or a high school and grades seven and eight or six through eight, under the direction of a single school board.

The subjects for this study consisted of a stratified sample of 48 of the Class II and Class III districts. To provide a representative sample, and to ameliorate the effects of extraneous variables, the population was stratified successively by enrollment, by assessed valuation per fall enrollee, and by geography. The final sample for the study was selected from these groups using a computerized random digit generator.

Data Collection

The data were collected from the curriculum reports submitted on an annual basis by every Nebraska School district. The researcher obtained these data from the Nebraska Department of Education. The instructional units and enrollment units for each section were calculated by the researcher.

Data Analysis

For each tested hypotheses, the independent variable was the "treatment" of the standards-based reform movement that has occurred during the 15-year period from 1993-2008. The predominant standards-based reform measures, namely The No Child Left Behind Act and STARS, were not fully executed at this point given the fact that performance and reporting requirements within each respective standards-based reform had not reached the maximum levels. However, it is important to keep in mind that the purpose of the study was to measure whether and to what degree standards-based reform may have had upon course offerings and course enrollments up to a given point in time. The dependent variable was defined in terms of either instructional units or enrollment units, with the underlying quantifier being the amount of instructional time designated for

each of the different subject areas. The data were analyzed using the repeated measures t-test.

The research questions were addressed by providing tabulations of data summarized for small-enrollment schools, medium-enrollment schools, and large-enrollment schools. For each of the ten designated subject areas, the mean number of instructional units and enrollment units and the percentage of the total program that each of these means represented was calculated. The t statistic was used to compute an estimate of each of these four program measures for each of the population subsets.

Definitions

Certain terms were defined for the purpose of this study.

Class I School District—A Class I school was defined by the Nebraska State Department of Education as a district that maintains only elementary grades under the direction of a single school board.

Class II School District—A Class II school was defined by the Nebraska State Department of Education as a district embracing territory having a population of 1,000 inhabitants or less that maintains both elementary and high school grades under one school board.

Class III School District—A Class III school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory with a population of more than 1,000 and less that 150,000 inhabitants that maintained both elementary and high school grades under one school board.

Class IV School District—A Class IV school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a

population of one hundred thousand or more inhabitants with a city of the primary class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board.

Class V School District—A Class V school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a population of two hundred thousand or more inhabitants with a city of the metropolitan class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board.

Class VI School District—A Class VI school district was defined by the Nebraska State Department of Education as any school district that maintains only a high school, or a high school and grades seven and eight or six through eight, under the direction of a single school board.

Instructional Unit—An instructional unit is a measure of instructional offerings. One instructional unit is defined as 15 clock hours of class time.

Enrollment Unit—An enrollment unit is a measure of student participation in a course offering. One enrollment unit is defined as one student enrolled for one instructional unit.

No Child Left Behind Act—The *No Child Left Behind Act* is a law created by the federal government to increase the amount of accountability state education systems have for providing instruction in the academic areas of reading and Mathematics.

Change—Change is the statistically significant variance between the mean course offerings or the mean course enrollments in the ten designated subject areas--Language Arts, Science, Social Science, Mathematics, Vocational Education, Foreign Language,

Visual and Performing Arts, Personal Health, Personal Fitness, and Other--between the years of 1993-94 and 2007-08.

Selected Subject Area—For purposes of this study, ten subject areas were examined: Language Arts, Science, Social Science, Mathematics, Vocational Education, Foreign Language, Visual and Performing Arts, Personal Health, Personal Fitness, and Other.

Subject Area—Subject area is a reference to all the courses within a given general area.

Core Curriculum—Core Curriculum as defined by the Nebraska Department of Education included Language Arts, Science, Social Science, Mathematics, Vocational Education, Foreign Language, Visual and Performing Arts, Personal Health, Personal Fitness, and Other course offerings.

Enrollment Classifications—Enrollment classifications were classifications representing the enrollment size of a K-12 school district; a small-enrollment school district was one with an enrollment of up to 325 students; a medium-enrollment school district was one with an enrollment of 326 to 975 students; and a large-enrollment school district was one with an enrollment over 975 students.

Profiles—Profiles were tables of data that show the total number of instructional units and enrollment units for each subject area expressed as a percentage of the total program.

STARS—School-based Teacher-led Assessment and Reporting System. Nebraska's unique standards-based reform implementation that was created through Nebraska Legislative Bill 812 in the year 2000.

Standards-based reform—Educational reform movement that resulted from a collaborative effort from corporate America, the states' governors, policymakers, educational leaders, and laws such as Goals 2000, No Child Left Behind, and STARS. Standards-based reform was founded on the belief that clearly defined academic standards, assessments to measure those standards, and accountability measures to ensure schools help students meet standards will lead to positive educational change.

Assumptions

For the purpose of this study the following assumptions were made:

1. The data supplied by the Nebraska schools in the fall curriculum reports are correct.
2. The data collected in the study provided an accurate quantitative measure of the courses offered and the courses taken in Nebraska high schools.
3. The selection of the sample and the statistical analysis of the measures offered and courses taken insured that any real changes in grade 9-12 programs offered and taken would be identified.
4. Instructional time is a valid measure of educational programs offered and taken. This belief is supported by the fact that instructional time is the major underlying quantifier used to measure compliance by the Nebraska State Department of Education.
5. The amount of instructional time allocated for various subjects was a valid measure of both the scope of programs and the various subjects within the programs.

Delimitations

The following delimitations could potentially narrow the scope of this study:

1. The population studied consisted of only Class II and Class III Nebraska school districts.
2. The data collected was for the 1993-94 and 2007-08 school years.
3. The curriculum offered and the curriculum taken was defined in terms of subject titles and clock-hours of classroom instruction.
4. The design of the study was a systematic collection and analysis of ex post facto data.

Limitations

The following limitations were potential weaknesses of this study:

1. The results are valid only for Nebraska Class II and Class III school districts.
2. The findings of this study relate only to Nebraska secondary schools and cannot be generalized beyond the state.
3. The results reflect only that which will exist at two specific points in time, namely the data from the 1993-94 and the 2007-08 annual curriculum reports.
4. The results reflect only programs measured objectively in terms of time and do not reflect any measure of the quality of instruction or of the content presented in the individual courses considered.
5. The results only reflect what existed and made no implications for what should be.

Significance of the Study

Standards-based reform has occurred within the state of Nebraska in the last decade primarily in the form of the No Child Left Behind Act (2002) and Nebraska's STARS System (2000). The impact of standards-based reform on Nebraska high schools' instructional programs had not yet been determined. Additionally, researchers (Bracey, 2006; Hardy, 2006a; Hirsch, 2006; Jennings & Renter, 2006; Mathis, 2006a; Mathis, 2006b; Meyer, 2004; Phelps, 1999; Popham, 2001; Von Zastrow & Janc, 2004) suggested that standards-based reform had an effect on the course offerings and student enrollment in courses in high schools across the nation. However, there was a lack of clear quantifiable evidence that could be used to substantiate these claims at the grade 9-12 high school level in the state of Nebraska. This study of Nebraska high schools examined whether and to what extent certain quantifiable changes occurred in course offerings and course enrollments during the era of standards-based reform in Nebraska.

The literature relevant to standards-based reform indicated standards-based reform was causing schools to change their course offerings for the purpose of offering more courses in the content areas covered by high stakes, standards-based tests. The way curricular offerings may have changed in the last decade is one aspect of the possible changes caused by standards-based reform. This study attempted to quantify that change. It is important to understand that the purpose of this study was not to evaluate the quality of the instructional program, but only to measure in quantifiable terms any change that had occurred. The quantifier of instructional units were used for this purpose since that is the quantifier used by the Nebraska Department of Education for accreditation purposes. The nature of this study was to provide a measurement of the change of instructional time

from year to year. The changes measured took into account both programs offered and programs taken.

Standards-based reform was designed to improve the educational experience of all learners. This study provides one aspect of the change standards-based reform had on the educational experience of Nebraska high school students. This study attempts to provide a sound, quantifiable understanding of that change.

Chapter 2

Review of Literature

Introduction

The Roots of Reform

According to Puma et al. (2000), following the publication of *A Nation at Risk* in 1983, the states' governors and business leaders began to increase their involvement in the formation of educational policy that would ultimately become the standards-based reform movement. Warren (1983) reported that Governor Bob Kerrey created the Governor's Task Force in Nebraska as a response to the findings in *A Nation At Risk*. This task force worked to reform education in the state of Nebraska and implement educational standards. Farrell (1988) investigated the impact the educational reform movement and state standards had on secondary course offerings in Nebraska. She found few statistically significant changes in the courses being offered and in the courses being taken in Nebraska High Schools. In 1989, President Bush participated in the first of a series of educational summits where corporate America, the states' governors, and policymakers converged for the purpose of setting rigorous academic standards. As a direct result of his 1989 summit with the governors, Bush proposed the "America 2000 Act," which called for mandated national testing. The measure ultimately failed to pass through Congress. However, the proposition introduced the nation to the concepts of standards-based reform.

Miller (2000) reported that bipartisan support was strong enough in 1993 to allow President Clinton to usher *Goals 2000* through the halls of Congress. *Goals 2000* took the important step of requiring states to have educational standards in order to receive

Title I funds. He also reported that in 1996, a second educational summit hosted by IBM was held by the states' education commissioners and the states' governors. These groups agreed to develop internationally competitive learning standards, assessments to measure those standards, and accountability systems in an attempt to ensure an educated citizenry that would be competitive in a global market. McClure (2003) indicated that falling National Assessment of Educational Progress (NAEP) scores and a proposed solution from the National Council of the Teacher of Mathematics (NCTM) led to the development of the first nationally recognized set of content standards in mathematics.

Miller (2000) and McClure (2003) reported that the intent of policymakers was to ensure all students received educational instruction allowing them to meet minimum competency requirements in core subject areas through standards-based reform. However, policy makers may not have considered the impact their decision would have on course offerings and course enrollments across the nation.

Standards-Based Reform Begins to Grow

Pipho (1984) reported that 40 of the 50 states had some form of competency testing in place by the early 1980's. Goertz (2001) reported that by the year 2001, 49 states had developed content standards in the areas of reading and mathematics and 48 of those 49 states had statewide assessments in the subject areas of reading and mathematics. According to Roschewski et al. (2001), Nebraska was the 49th state to adopt an assessment system. By the year 2001, Smith and O'Day's (1990) model of competency-based testing had been adopted by federal lawmakers and was fueling the standards-based assessment movement that dominated the educational scene. Linn (2005) indicated the second Bush administration married Smith and O'Day's (1990)

concept of test-driven accountability with the emerging research on reading by the National Reading Panel to promote the enactment of the No Child Left Behind Act in 2001.

Reading 'Crisis' Ushers in Standards-Based Reform

Lyon, Shaywitz, Shaywitz, and Chabra (2005) provided a brief synopsis of how policy leaders' understanding of the reading dilemma influenced standards-based reform. Lyons et al. (2005) noted that the trend toward mandated federal educational accountability began with the first Bush administration in 1989. Leading the states' governors, Bush proposed that "by the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and to exercise the rights and responsibilities of citizenship" (pp. 214-215). President Bush and the governors were offering this proposal because of NAEP trend data that showed a decline in reading skills of public school students throughout the early 1990's.

Lyon et al. (2005) reported that following the first Bush administration, the emphasis on reading continued to grow through President Bill Clinton's two consecutive terms. Clinton even went so far as to declare in his 1996 State of the Union Address that America had a "reading crisis." When the second Bush administration came into being, George W. Bush was careful to learn from the success and failures of his predecessors. He continued the work started through the Reading Excellence Act (REA) and formed the National Reading Panel for the purpose of scientifically studying the reading crisis facing America. The research of the National Reading Panel was used by Bush and his cabinet to help form the foundation of much of the No Child Left Behind Act (2002, p. 220).

Rule 10 and College Entrance Requirements in Nebraska

As President Bush and policymakers wrestled with the nation's reading issue and planned to address it through the standards-based reform movement, several states had increased their high school accreditation requirements in an attempt to promote academic rigor in their high schools. Nebraska school accreditation requirements were mandated by the Nebraska Department of Education. The accreditation requirements were contained in *Nebraska Administrative Code Title 92, Chapter 10: Regulations and Procedures for the Legal Operation of Schools*. During the period of 1993-2008 the accreditation requirements for secondary instructional programs in the state of Nebraska did not change. The 1993 version of *Rule 10* and the 2008 version of *Rule 10* required the high school instructional program to consist of a total of 400 instructional units. Of those 400 instructional units, they are distributed as follows: 60 language arts units, 40 social science units, 40 mathematics units, 40 science units, 20 foreign language units, 80 career and technical units, 20 personal health and fitness units, 40 visual and performing arts units, and 60 local choice units.

Although there was no drastic change reported in the school accreditation requirements from 1993-2008, there was substantial change reported in the state's colleges entrance requirements. Fuerst (personal communication, April 9, 2008) reported that entrance requirements for freshman entering the University of Nebraska and the three Nebraska State Colleges were sharply increased in 1997. The University and the Nebraska State College Systems measured instructional units in Carnegie units, which is the equivalent of one year of high school instruction or one semester of college course work. Prior to 1997, the University of Nebraska and the three Nebraska State Colleges

required incoming freshman to have taken four units of language arts, two units of mathematics, two units of natural science, and two units of social science. After the reform of their admissions requirements in 1997, incoming college freshman were required to have taken four units of language arts, four units of mathematics, three units of social science, three units of natural science, and two years of foreign language. This increased the number of Carnegie units required of incoming freshman by two units in mathematics, one unit in social sciences, one unit in natural sciences, and two units in foreign language.

Nebraska School Finance Law during the Time of Standards-Based Reform

Dulaney (2007) reported that between the implementation of LB 1059 in 1990 and the year 2007, Nebraska's lawmakers modified the Nebraska school finance formula, known as the Tax Equity and Educational Opportunities Support Act (TEEOSA), 73 times through 73 separate legislative measures. Some of those measures were simply to make small modifications in the language of the bill, while others were far more substantial. Tysver (1998) stated that in 1996, the Unicameral began to question the efficiency of the public schools in operation in the state and began to make adjustments to the state's school finance formula in order to offer greater property tax relief to its citizens. The remedy proposed by the Nebraska Unicameral in 1998 was LB 1114, which imposed property tax lids and substantially limited the amount of taxes each Nebraska school district could levy. As the bill was debated in the Unicameral, superintendents braced for the impact. According to Ken Rippe, then Superintendent of Ralston Public Schools, LB 1114 held the potential to significantly change the curricular offerings in his

school. In regards to LB 1114, he indicated, “we're not simply cutting the arts or foreign languages or athletics, but it won't be like it was” (quoted in Mogul, 1996, p. 1)

O’Connor (1996) reported that superintendents from around the state of Nebraska would be forced to “gut” their educational programs as a result of the reductions imposed by LB 1114. He also reported that state lawmakers were beginning to explore the concept of a protected core curriculum, which would be funded through state aid dollars with local districts paying the expense of noncore classes, in order to minimize the impact the levy limitations would have on the educational experience of Nebraska’s youth. After a decade of levy lids and adjustments to the state aid formula, some school district superintendents would find creative ways to finance their educational programs, while others would be offered no escape and be forced to make tough curricular programming decisions.

Ferak (2007) reported that Conestoga Public Schools was one of the schools substantially impacted by the constant change in the state aid formula. Due to fluctuating and inconsistent state aid, Conestoga Public Schools borrowed in excess of $1 million dollars in 2003 to cover their operating costs. As of 2007, Conestoga Public Schools were still trying to pay back the money. As a result, they were forced to reduce educational programming.

Distance Learning in Nebraska during the Era of Standards-Based Reform

Foster (1991) and her colleagues identified teacher shortages in Nebraska in the areas of bilingual, special education, speech pathology, physics, mathematics, computer science, Spanish, chemistry, and counseling. They reported that in an effort to curtail the impact the impending teacher shortage might have on the curricular offerings in

Nebraska's school districts and in an effort to be progressive in their educational methods, Nebraska educators and Nebraska lawmakers worked together to incorporate the use of distance learning across the state of Nebraska beginning in 1990 through the four network satellite distance learning system known as NEB*SAT.

Tenopir and Sostad (1996) reported that in 1995 the appropriations committee of the Nebraska Legislature had committed $70,280 for distance learning over the 1995-1997 biennial budget cycle. They also reported that in 1994 approximately 47% of all K-12 schools across the state of Nebraska regularly used the NEB*SAT Network as part of their curriculum.

Rockwell (1999) reported that while distance learning was becoming a part of many of the curriculums across the state of Nebraska during the 1990's, there were several factors that would need to be addressed in order to increase its use and effectiveness including cooperation and collaboration between learning institutions in Nebraska, teacher knowledge of educational design in the distance learning classroom, teacher preparation to teach in the distance learning classroom, and measuring educational outcomes in the distance learning classroom. Rockwell also suggested that offering some form of incentive for teachers to teach on the statewide distance learning network might also promote use of the distance learning network.

The Coordinating Commission for Postsecondary Education 2005-06 Biennial Report (2005) reported that in the fall of 2004 the Nebraska Legislature began to examine the future of distance learning in the State of Nebraska as telecommunication contracts ended and as technological upgrades were becoming necessary across the state. According to the Coordinating Commission, during the 2002-2003 academic year 2,679

courses were taken on the statewide distance learning network by 29,991 students. Senator Stuhr and Senator Raikes co-sponsored LB 689, which sought to enhance the use of distance education across Nebraska through a variety of means. LB 689 gave the Chief Information Officer the autonomy to work within budgetary guidelines to purchase equipment and services related to distance learning at the statewide level. Additionally, LB 689 provided financial incentives for voluntary interlocal agreements between political subdivisions utilizing the distance learning network and monetary incentives, provided through Nebraska Lottery Funds, for school districts to make greater utilization of the statewide distance learning network. The Distance Education Enhancement Task Force incorporated the suggestions from Rockwell's study and provided incentives for teacher training, increased collaboration between educational institutions, and developing a financial plan for the equipment and service costs related to the improvement of the distance learning network.

Shortly after the passage of LB 689, the Nebraska Legislature revisited the issue of distance education and created LB 1208. LB 1208 (2006) set the course for distance learning in Nebraska through the year 2012. The legislation provided three major provisions that allowed for ESU's and local school districts to make decisions relevant to their participation in distance learning that offered incentives to encourage collaboration on distance learning transmissions between schools, and that created a new entity, known as the Distance Education Council, to govern distance learning in the state of Nebraska.

Roethemeyer (2008) reported on the progress being made under LB 1208. He indicated that during the 2007-2008 school year, 17 dual credit courses that counted for both high school credit and college credit were being offered in 25 different Nebraska

schools. Unfortunately, Roethemeyer did not report the total number of students enrolled in those class. He indicated that those dual credit courses were being offered in the subject areas of English, mathematics, business education, and history.

During the era of standards-based reform, the support of Nebraska educators and Nebraska lawmakers led to the development of a statewide distance learning network, which according to Tenopir and Sostad (1996) was being utilized by approximately 23% of all secondary schools in the state of Nebraska five short years after its creation. As Nebraska schools dealt with budgetary shortfalls and teacher shortages during the era of standards-based reform, distance learning provided a viable, budding option to produce curricular opportunities in Nebraska's secondary schools and to help Nebraska high schools satisfy *Rule 10* accreditation requirements.

Teacher Shortage in Nebraska during the Era of Standards-Based Reform

Sultana (2002) reported that the teacher shortage began as early as the 1975, when the *Education of All Handicapped Children Act* was signed into law. The passage of this law led to an increased demand for special education teachers that teacher preparation programs were not able to fulfill. In his analysis of the teacher shortage facing rural America, Harmon (2001) cited several causes for the teacher shortage that Nebraska and other states with high rural populations were facing during the era of standards-based reform. Among the factors contributing to the teacher shortage in rural America Harmon cited,

> social and cultural isolation, poor pay and salary differentials, limited teacher mobility, lack of personal privacy, rigid lockstep salary schedules and monetary practices, luring of teachers away by private businesses and industries, strict teacher certifications practices and tests, lack of reciprocal certification to enable teaching in another state, recruitment cost, and high teacher turnover. (pp. 65-78)

Murphy and DeArmond (2003) noted that the teacher shortage wasn't evenly distributed across the nation during the era of standards-based reform. One of the indicators they employed to measure the teacher shortage across the 50 states was the number of teachers who were hired after the start of the school year. They found that the 1999-2000 school year, there were 149 teachers hired after the start of the school year in Nebraska.

The U.S. Department of Education (2008) monitored teacher shortage areas during the era of standards-based reform. In the Department's publication entitled, "Teacher Shortage Areas Nationwide Listing 1990-1991 through 2007-2008," Nebraska schools consistently reported a shortage of special education teachers through the 1990's. Beginning with the 2000-2001 school year, Nebraska began to regularly report teacher shortages in the areas of agriculture, art, business, ESL, foreign language, industrial technology, mathematics, music, and science. Reported teacher shortages in those areas clearly indicated that Nebraska was suffering from an inadequate supply of teachers in several subject areas specifically required by *Rule 10* accreditation requirements.

Hull (2003) identified strategies being used by several states to attempt to hire and retain teachers ranging from loan forgiveness to bringing retirees back into teaching to recruiting middle school and high school students to become teachers through a teacher "cadet" program. The website www.nebraskateachereducation.org (2008) reported the State of Nebraska offered loan forgiveness to teachers for the 2008-2009 school year if the teachers taught in the identified teacher shortage subject areas of English, foreign language, industrial technology, mathematics, music, science, special education, or speech pathology. During the era of standards-based reform, the teacher shortage in

Nebraska had the potential to affect the curricular offerings in Nebraska's 9-12 high schools. Several of the teacher shortage areas identified by Nebraska schools and by the United States Department of Education were within the nine designated subject areas of language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, and personal fitness, all of which are required by Rule 10 accreditation requirements.

Nebraska's Standard-Based Reform

Amidst the change that was occurring in Nebraska with the state's school finance formula, the beginning of distance learning, and the teacher shortage, the federal government was gathering momentum to embark on its standards-based reform embodied in the No Child Left Behind Act. Gallagher (2004) reported Nebraska was approaching implementation of standards-base reform. However, he noted that Nebraska's model would be substantially different from other states. He indicated that Nebraska educators would use funding opportunities from the U.S. Department of Education through the Educate America Act (Goals 2000) to create a unique type of standard-based accountability system.

In his article titled "A Seat at the Table," Gallagher (2000) described how Nebraska's standard-based reform measures would be developed by classroom teachers through extensive training designed to develop teacher expertise in assessment production. This process described by Gallagher would eventually become known as School-based Teacher-led Assessment and Reporting System (STARS). Roschewski et al. (2001) indicated that STARS would be deliberately different from other states' assessment systems. Specifically, Roschewski et al. wrote that STARS would be

different for three primary reasons: (1) inadequate coverage of Nebraska content standards by traditionally used normative reference measures, as indicated by an alignment study conducted by the Burros Institute; (2) concern that teachers were typically penalized by students doing well on traditional norm-referenced tests; and (3) a concern that the items that traditionally appear on standardized assessments were a better predictor of the students' socio-economic status than the students' academic achievement level. In short, Roschewski et al. believed that an externally imposed system of testing and assessment practices would be detrimental to Nebraska's students.

In 2000, Nebraska Legislative Bill 812 formalized the adoption of the STARS assessment system in Nebraska. Four years after the implementation of LB 812, Gallagher (2004) reported that Nebraska educators and policymakers were living up to their desire to have a standards-based accountability system that was different from those in other states. He celebrated the rating of an 'F' by the writers of the annual *Quality Counts* publication, which ranked states based on their ability to create a standards-based environment of accountability. Because of its reliance on teacher developed assessments, its lack of high stakes testing components, and its commitment to maintaining teacher autonomy, the researchers who published *Quality Counts* did not deem the Nebraska STARS system to be of high quality. However, after six years of development and implementation by Nebraska's educators and policymakers, Isernhagen (2007) reported that the STARS system had made a positive impact in Nebraska in the areas of teachers' assessment literacy, students' academic growth, and educational leaders' use of data to make instructional and programming decisions. Although Isernhagen provided substantive evidence that STARS created positive educational change in the state of

Nebraska, she did not investigate whether or not educators were prioritizing specific academic content areas, and in turn creating a shifting curricular focus on specific content areas as a result of STARS.

National Standards-Based Reform

Although no national curriculum was proposed through the inception of the No Child Left Behind Act (2002), there was now a national system of standards-based accountability imposed with the understanding that every school would be held accountable for ensuring every child, regardless of race, color, or creed, would read well and do well in mathematics. Because of the moral imperative embodied in the act, it easily passed through the halls of Congress. However, four years after its implementation, many school districts found difficulty in carrying out the mission embodied in the bill. What appeared to be developing was a discontent with standards-based reform as the result of the unintended and perhaps unavoidable consequences of standards-based reform.

The 37th Annual Phi Delta Kappa/Gallup Poll of the Public's Attitude Toward the Public Schools (Rose & Gallup, 2005) revealed that between the years 2003 to 2005 survey respondents found growing disfavor with the standards-based reform. In 2003, when survey respondents were asked the question, "What is your opinion of the NCLB?" 6% of them replied that it was "Very Unfavorable." By the year 2005, the number of survey respondents replying that their impression of the law was "Very Unfavorable" had doubled to 12%. *The 38th Annual Phi Delta Kappa/Gallup Poll of the Public's Attitude Toward the Public Schools* (Rose & Gallup, 2006) indicated that 6 in 10 Americans who consider themselves knowledgeable of the law believe it has had no effect on schools or

may have even harmed them. In addition to a negative light being shined on standards-based reform in professional teaching journals, popular journalists such as Sollisch (2006) reported that the trend of curriculum narrowing was occurring in the states of Colorado, Texas, Vermont, California, and Nebraska. A number of newspaper columnists from across the country (Bell, 2005; Boyce, 2005; Dillon, 2006; Fellow, 2005; Fisher, 2004; Lebo, 2004; Mathews, 2005; Palmer, 2005; San Nicolas, 2005; Walsh Nufer, 2004) attested to the trend of curriculum narrowing in nearly every state in the union.

Problems with Standards Based Reform

Unrealistic Achievement Expectations

As an atmosphere of distrust and doubt towards standards-based reform permeated the public and professional media, the academic press reflected dissatisfaction with the effects of standards-based reform and disagreement about whether or not standards-based reform was having its intended effects. On one side of the argument, politicians such as Secretary of Education Margaret Spellings suggested standards-based reform was producing the desired effects. On the other side of the argument, educational researchers such as Jennings (2002), Tucker and Toch (2004), Linn (2005), and Bracey (2006) were suggesting that not only was standards-based reform not creating the desired result of educational achievement for all students, but it was actually having a damaging and deteriorating effect on education by imposing lofty goals that could never be attained.

Linn (2005) reported that in addition to the lack of funding available to carry out standard-based reform, many states' governors and educational leaders viewed the achievement mandated as unattainable: "the law [NCLB] requires unrealistically rapid

rates of improvement when compared to incremental improvements on earlier National Assessment of Educational Progress (NAEP) Assessments" (p. 1). To illustrate the problem, Linn offered a quantifiable example. His projections indicated that to meet NCLB's mandates for eight-grade mathematics scores, NAEP scores, which are used as a benchmark for the state tests, would have to rise 7.5 times faster than the rate of increase between 1996 and 2003. According to Hardy (2006b) "Such a rapid acceleration of mathematics achievement is unrealistic" (p. 17).

Bracey (2006) reported that Secretary Spellings was being very selective in choosing which pieces of data to use to validate that NCLB was having a positive affect on student achievement as measured by the NAEP. Tucker and Toch (2004) referred to the accountability mandates outlined in the No Child Left Behind Act as a "man-to-the-Moon kind of challenge."

Limited Time and Increased Accountability

Hess and Petrelli (2006) defined universal proficiency as the standard in NCLB demanding all students be proficient in reading and mathematics by the year 2013-14. Additionally, they noted that the law had incremental benchmarks for student achievement for all years preceding 2013-2014 that schools must meet. School districts had to disaggregate their student achievement data for the purpose of identifying racial and ethnic subgroup's achievement levels. Each school's student subgroups had to meet the AYP defined by the law. If one of those academic subgroup's achievement level did not meet the AYP outlined in the law for two consecutive years, the school could be labeled as a failing school and the federal government could impose sanctions.

Curriculum Narrowing

Given this ambitious timeframe for improvement, many school leaders began to shift curricular priorities in order to attain demanding achievement benchmarks. Hardy (2006b) noted, "Nearly three quarters of the nation's school districts are narrowing their curricula because of No Child Left Behind." Jennings and Renter (2006) reported schools were spending more time on reading and mathematics at the expense of subjects not tested. Hardy was referring to what was commonly known in the research literature as "curriculum narrowing." Curriculum narrowing is when more instructional time is devoted to areas covered by mandated standards-based tests at the expense of time devoted to other curricular areas.

From the Capitol to the Classroom: *Year 4 of the No Child Left Behind Act* by Jennings and Renter (2006) provided the longest and most detailed study of the impacts of the No Child Left Behind Legislation. Beginning in 2002, the year the No Child Left Behind Act was signed into law, Jennings and Renter began studying the implementation of the law at the local, state, and federal level as lead researchers for the Center on Education Policy. The policy brief created by the researchers was based on a survey of all 50 states, a nationally representative survey of 299 school districts, case studies of 38 geographically diverse districts and 42 schools, six special analyses of critical NCLB issues, and three national forums.

Jennings and Renter's (2006) findings clearly pointed to a narrowing of the curriculum. Seventy-one percent of the 299 districts participating in the survey reported a reduction in the amount of time spent on other subjects such as art, music, physical education, science, and social studies in elementary schools-at least to some degree

(p. vii). The subject most affected was social studies, while physical education was least affected. In addition, 60% of districts required a specific amount of time for reading in elementary schools. Fifty percent had policies requiring a certain amount of time for mathematics instruction in elementary schools. To increase the amount of time spent on these two subject areas, 33% of survey respondents reported reduced time spent on social studies instruction, 29% of respondents reported reduced time spent on science instruction, and 22% of respondents indicated reduced instructional time spent on art and music (p. xi). It was not surprising, then, that one of the panel's key findings clearly pointed to the narrowing of the curriculum among the surveyed schools,

> NCLB is also producing some negative effects. Officials we surveyed or interviewed in several districts said that NCLB has had an . . . effect on curriculum and instruction such as a narrower emphasis on tested content and skills, less time for some subjects, and diminished creativity in the classroom. (p. 1)

According to those districts participating in the case studies conducted by Jennings and Renter (2006), the results of increasing instructional time in the content areas of reading and mathematics was meeting with mixed reviews:

> [District officials] expressed mixed views of the effectiveness of increasing time for reading and mathematics at the expense of other subjects . . . reported that [increased instructional time] helped low-achieving students catch up in reading and mathematics, but others reported that students were shortchanged in important subjects like social studies and science. (p. 89)

Many schools participating as case study districts in Jennings and Renter's (2006) study reported an increase time spent in reading and mathematics instruction time to the detriment of time spent on other subjects. They cited the example of a school district in Orleans, Vermont. Officials from that district chose to place so much instructional focus on reading that every other subject, including mathematics, was being squeezed for

instructional time. Also, they cited the example of North Tahoe Middle School where students who were behind in reading and mathematics took up to three periods of reading and up to two periods of mathematics to help them meet AYP standards. Jennings and Renter reported that this trend was taking place in some form in nearly every state in their study, for example California schools such as Grant Joint Union High School where students who were below grade level in reading and/or mathematics were required to take "block" classes of reading and mathematics to raise AYP achievement scores. Only after attaining the minimum performance requirements outlined by AYP were those students "mainstreamed" back into regular class schedules.

One of the schools participating in Jenning and Renter's (2006) study was Heartland Community Schools in Nebraska. School officials from Heartland Community Schools indicated they too were experiencing a narrowing of the curriculum due to the accountability requirements of NCLB. As a result of their curriculum narrowing, a primary concern was that an

> increase in instructional time for reading and mathematics leaves less time for non-tested subjects like music . . . which according to the district's curriculum coordinator . . . motivates many students, especially high school students, to attend school and perform well. But the Heartland superintendent fears that NCLB's focus on core subjects could lead to the music program being cut from the curriculum altogether. (p. 98)

Hirsch (2006) cautioned against curriculum narrowing and noted its negative impact on reading instruction. He argued the skills that are essential to reading comprehension cannot be gained through reading practice alone, especially the skills of vocabulary acquisition and building background knowledge. Hirsch argued that a narrowing of the curriculum has a damaging effect on the amount of total knowledge a student can gather, which in turn limits the student's academic perspective and reading

comprehension abilities. As a result of diminished background knowledge, the student is less equipped to construct new meaning when encountering thoughts in the text the learner is unfamiliar with as a result of not having the opportunity to learn about the thought, concept, or object in another class such as science, art, social studies, or physical education. In his view, narrowing the curriculum only detracts from the learner's ability to have a breadth of knowledge that forms a base for learning new concepts through reading.

Standards-Based Reform Changes the Curriculum

Jennings (2002) predicted the daunting task embodied in the law and the substantial impact that the No Child Left Behind Act would have on the world of education. He suggested the standards-based reform would have four major impacts on education: (a) a more pronounced role of the federal government in state educational programs; (b) a required performance achievement indicator tied to monetary incentives; (c) an increased demand for improvement in teacher quality; and (d) an increased amount of responsibility allocated to state and local education agencies for the educational process.

What Jennings (2002) could not predict was what the combination of no formally recommended national reading curriculum and the rigorous reading and mathematics achievement requirements mandated by standard-based reform would have on curriculums across the nation. A Maryland elementary student described her "post-NCLB" curricular experience: "In the morning we read. Then we go to Mrs. Witthaus and read. Then after lunch we read. Then we read some more" (Warning NCLB Side Effects, 2006, p. 1).

Several recent studies (From the Capitol to the Classroom, 2005; Jennings, 2006; Mathis, 2006b; Meyer, 2004; Von Zastrow & Janc, 2004) have supported the idea that standards-based reform is causing classrooms across the country to substantially narrow curricular focus to the content areas of reading and mathematics. Popham (2001) warned against the improper use of educational testing and he warned that eventually teachers and administrators would begin to subscribe to a simple motto as a result of the emphasis placed on a constricting number of content areas: "Teach what is tested; avoid what isn't."

Teachers Report Changes in the Curriculum

A survey by the National Board on Educational Testing and Public Policy (2003) revealed that 79% of teachers in states with standards-based testing reported an increase in amount of instructional time devoted to those curricular areas tested by the accountability systems in their states. Additionally, teachers surveyed indicated a noticeable discrepancy in the amount of instructional time devoted to subject areas tested versus subject areas not tested by the standards. Teachers surveyed openly reported they "drill and kill" test items in an attempt to ensure students do well on the accountability tests mandated by standards-based reform.

Superintendents Report Changes in the Curriculum

Mathis (2006a) conducted an extensive survey of superintendents in New Hampshire and Vermont to gauge the impact that the No Child Left Behind Act (2002) was having on the curricula in their districts. The findings of that study indicated 70% of superintendents in New Hampshire and 83% of superintendents in Vermont allotted more instructional time to subjects tested on their standards-based accountability programs at

the expense of time allotted to other subject areas such as social studies, art, and science since (after the inception of standards-based reform).

Hunt (2006) surveyed more than 240 Illinois public school superintendents whose schools had failed to make AYP for two consecutive years according to the guidelines outlined in NCLB (2002). Superintendents participating in the study were asked to respond to 30 on-line survey items pertaining to the manner in which they were attempting to deal with that designation and bring the academic achievement levels of their students into compliance with the No Child Left Behind Act. Nearly 37% of the survey respondents categorized their schools as "rural."

Fifty-six percent of the superintendents surveyed indicated that they had attempted to work with their staffs to create a more focused or "narrowed" instructional program that would hopefully help students master base level mathematics and reading competencies required by the No Child Left Behind Act. These superintendents' intent to narrow the curricula in their schools in order to meet AYP and shed themselves of the "failing school district" classification seems logical to many educational researchers Mathis (2006b) noted:

> faced with ever increasing demands to avoid the "failing school" label, [schools] will logically focus on the curriculum content that is most likely to improve test scores. Leaving aside the fact that these tests provide little educational feedback, the inevitable result will be that the nation's curriculum will be narrowed and the level of expectations will be leveled. (p. 12)

Phelps (1999) indicated that Lori Shepard of the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) concurred with Mathis:

> Although critics may originally have feared testing would take instructional time away from 'frills,' such as art and citizenship, the evidence now shows that social studies and science are neglected because of the importance of raising test scores in the basic skills. (p. 13)

Fine Arts and Foreign Language Curriculum Changes

Von Zastrow and Janc (2004) indicated that the arts, foreign language, and elementary social studies were being sidestepped to allow for more instructional time on reading and mathematics. Von Zastrow and Janc, in cooperation with the National Association of Elementary School Principals, The National Association of Secondary School Principals, and the American Federation of School Administrators, administered 956 surveys to elementary and secondary principals in rural, urban, and suburban settings across the United States. They did so for the purpose of measuring the impact the No Child Left Behind Act had on the liberal arts curriculum being offered in public schools.

Their findings indicated standards-based reform was substantially impacting the liberal arts curriculum across the nation, essentially causing the curriculum to narrow for the purpose of focusing on the content areas of reading and mathematics. Their research indicated approximately 75% of all the principals surveyed reported an increase in instructional time for reading, writing, and mathematics. Roughly half of the survey respondents reported an increase in the amount of instructional time for science and predicted even larger increases for instructional time in science within the next two years. Conversely, 25% of all principals surveyed reported their schools had decreased the amount of time for the arts; 33% anticipated a future decrease in instructional time for the arts.

Meyer (2004) reported that instruction in foreign language and the arts was being marginalized as a result of the narrowing of curriculum being caused by the shift in curricular emphasis, “Arts and Foreign Language Instruction has been marginalized and is increasingly at risk of being completely eliminated as part of the public schools’ core

curriculum" (p. 1). Meyer encapsulated the curricular trend being observed across the United States as a result of standards-based reform:

> As standards-based reform efforts continue to sweep through the education system, proponents of many so called, "peripheral" subjects such as the arts, have to fight for their place in the school day. Accountability has been at the cornerstone of these reforms over the past two decades, mostly in the form of standardized assessments. Unfortunately, Congress' decision in writing NCLB to focus on assessing only a few key subject areas, coupled with reluctance from state legislatures to assess beyond a few core areas, has contributed to the marginalization of the arts in the curriculum. Many in the education field are concerned that local school districts are emphasizing those few subjects being tested at the expense of other important components of a comprehensive education, such as the arts. While it can certainly be argued that assessment is only one component of accountability, the unfortunate reality is that in many schools, what is assessed is taught. (p. 14)

Science Curriculum Changes

Cavanagh (2005) suggested that science is the most squeezed out subject area as a result of this curriculum narrowing.

> Over the past three years, much of that science subject matter has been pushed aside, many state and local officials acknowledge. States and schools during that time have been consumed with the federal law's demand that they improve annual test scores in reading and mathematics in grades 3-8 or face such penalties as offering students a choice of schools to attend, or the restructuring of their own school. (p. 14)

He found that teachers in grades 4-6 only devoted an average of 31 minutes a day to science. That is approximately half the time devoted to other core subject areas. This study was conducted prior to the inception of the No Child Left Behind Act in the year 2000, which leads many educators to think the "post-NCLB" amount of science instruction time has likely been greatly diminished.

Conclusion

Policymakers at the federal and state levels intended to use standards-based reform to improve the educational experience of all students in the United States,

including those in Nebraska. However, standard-based reform may have generated some unintended consequences such as seemingly unattainable achievement standards, loss of teacher autonomy, high stakes testing, and curriculum changes. Although Nebraska's STARS is unique in that it did not contain the features typically found in other states' assessment system, such as commercially produced measures, high stakes testing, and a loss of teacher autonomy, the question remained about whether or not these differences insulated Nebraska high schools against curricular change.

During the era of standards-based reform in Nebraska, several other factors including increased state college entrance requirements, distance learning, a teacher shortage, and a continually changing school finance formula may have helped change high school curriculum. Although these factors must be considered when examining changes in the curricular landscape in Nebraska's schools over the 15 years from 1993-94 to 2007-08, it is important to keep in mind that Rule 10 accreditation guidelines did not change over that time. Course enrollments and course offerings may have been impacted over those 15 years as a result of increased state college entrance requirements, distance learning, a teacher shortage, and a continually changing school finance formula; however, basic curricular programming requirements as mandated by the Nebraska State Department of Education have remained consistent.

The research literature contained several studies indicating that curriculum was changing as a result of standards-based reform; however, these studies were generalized to the K-12 grade level without specific focus on the 9-12 grade level and without specific focus on Nebraska high schools. This researcher attempted to quantifiably determine whether or not change in curricular offerings and curricular enrollment had

taken place in the state of Nebraska at the grade 9-12 level in selected Nebraska high schools since the implementation of standard-based reform in the mid 1990's, specifically during the 15-year time period from 1993-2008.

Chapter 3

Methodology

Introduction

The purpose of this study was to examine whether or not there were quantifiable changes in characteristics of the educational programs in selected grades 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by determining whether there were certain quantifiable changes between the 1993-94 school year and the 2007-08 school year in the courses high schools offered, as measured by instructional units, and in the courses students took, as measured by enrollment units. To make this determination, the total program and each of ten designated subject areas that comprise the program were examined. Those ten designated subject areas were language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, personal fitness, and other subjects.

Research Questions and Hypotheses

Research Questions

To determine whether certain quantifiable changes in the grade 9-12 programs of selected Class II and Class III school districts may have occurred during standards-based reform, the following research questions were addressed:

1. What were the mean numbers of instructional units offered in the total grades 9-12 program and in each of the ten designated subject areas programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, and

(c) large-enrollment school districts for the 1993-94 and 2007-08 school years?

2. What percentage of the total instructional program did each of the ten designated subject areas represent in the grades 9-12 program in (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?
3. What were the mean number of enrollment units taken in the total grades 9-12 program and in each of the ten designated subject area programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?
4. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts for the 1993-94 and 2007-08 school years?

Hypotheses

The purpose of conducting this study was to examine changes in high school program offerings and in high school program enrollments that may have occurred during the era of standards-based reform in selected Class II and Class III Nebraska public high schools. To accomplish this purpose, 42 null hypotheses were tested. For any null hypothesis that was rejected, the amount of change was estimated. The null hypotheses, in summary form, were:

1. In each of the ten designated subject areas and in the total program, there was no difference between the number of instructional units offered in 1993-94 and the number of instructional units offered in 2007-08.
2. For each of the ten designated subject areas stated as a percentage of the total program, there was no difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.
3. In each of the ten subject areas and in the total program, there was no difference between the number of enrollment units taken in 1993-94 and the number of enrollments units taken in 2007-08.
4. For each of ten subject areas stated as a percentage of the total program, there was no difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

Population and Sample

At the time of this study, Nebraska had six legislatively created classes of school districts. The State of Nebraska had six different classes of schools. A Class I school was defined by the Nebraska State Department of Education as a district that maintains only elementary grades under the direction of a single school board. A Class II school was defined by the Nebraska State Department of Education as a district embracing territory having a population of 1,000 inhabitants or less that maintains both elementary and high school grades under one school board. A Class III school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory with a population of more than 1,000 and less that 150,000 inhabitants that maintained both elementary and high school grades under one school board. A Class IV

school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a population of one hundred thousand or more inhabitants with a city of the primary class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board. A Class V school was defined by the Nebraska State Department of Education as a Nebraska school district embracing territory having a population of two hundred thousand or more inhabitants with a city of the metropolitan class within the territory of the district that maintains both elementary grades and high school grades under the direction of a school board. A Class VI school district was defined by the Nebraska State Department of Education as any school district that maintains only a high school, or a high school and grades seven and eight or six through eight, under the direction of a single school board.

Class II and Class III school districts comprised the population for this study. School districts that offer only elementary programming (Class I), secondary programming only (Class VI), Lincoln Public Schools (Class IV), Omaha Public Schools (Class V), and Millard Public Schools were not included in this study. The rationale for excluding those schools from the study is that the student enrollments and course offerings in those schools were substantially different from the Class II and Class III schools included in this study. Therefore, their inclusion in the study data would create a potential to significantly skew the results of the study.

Each of these district classifications had instructional programming for grades preK-12. For the 2007-08 school year, Class II and Class III districts reported a total enrollment of approximately 187, 656 total pupils.

For this study, a sample stratified according to total enrollment of 246 Class II and Class III school districts that were operational during both the 1993-94 school year and the 2007-08 school year were used. The final sample was selected randomly from the stratified groups consisting of 48 school districts, with 24 schools in the small-enrollment group, 16 schools in the medium-enrollment group, and 8 schools in the large-enrollment group.

The selection of a representative sample from Nebraska Class II and Class III school districts presented some challenges. Varied geography and regional differences in the state created substantial differences in economic and population bases from one region to the next. These variables had the potential to affect the type of programs a school could offer and the type of program the students chose to take. In order to ensure an accurate representation across the state's population, the following procedures were be utilized in conjunction with data obtained by the researcher from the *Statistics and Facts About Nebraska Schools 2007-08* and the *2007-08 Nebraska Education Directory*.

First, the population was divided according to total PreK-12 school district enrollments. Small-enrollment school districts were those with fewer than 325 students; Medium-enrollment schools districts were those with enrollments of 325-975 students; and large-enrollment school districts were schools that had enrollments in excess of 975 students. The division of population of Class II and Class III school districts according to these parameters yielded groups with the following characteristics: (1) 115 small-enrollment school districts, which represented 46.7% of the districts and 13% of the students; (2) 95 medium-enrollment school districts, which represented 38.6% of the districts and 28.2% of the students; and (3) 36 large-enrollment school districts, which

represented 14.6% of the districts and 57.4% of the students. Using these parameters provided for symmetry in the representation of small, medium, and large districts as illustrated in the Table 1.

Table 1

2007-08 Enrollment Data

Enrollment Range	# of Schools	% of Schools	# of Students	% of Students
0-325 (Small)	115	46.7	24,401	13
326-975 (Medium)	95	38.6	52,879	28.2
975+ (Large)	36	14.6	107,731	57.4

The second consideration was the relative wealth of the school district, which was defined in terms of assessed property valuation per fall enrollee. Within each of the three enrollment-based groupings, the median valuation per fall enrollee was determined. Each of the three subgroups was further subdivided according to those above and below the median property valuation per fall enrollee for each of the three enrollment-based groupings.

The final factor that was taken into consideration was geography. To insure representation of school districts from different regions in the state, no two districts from the same county were selected from any of the subgroups identified according to the first two selection parameters.

After the population had been divided into three groups according to student enrollment and each group had been subdivided according to property valuation per fall enrollee, there were six subgroups of school districts. Within each subgroup, each district

was assigned a number, and the sample districts were selected using a table of random numbers; if a second district was selected from the same county, then another district was chosen.

Design and Measurement

The design of this study was ex post facto. Data that were readily available was collected and analyzed to determine past trends and current status. The source of the data for this study was the annual curriculum report that each school district in the state of Nebraska is required to submit to the Nebraska Department of Education. The Nebraska Department of Education uses this information for accreditation and approval purposes. This data is retained by the Nebraska Department of Education in a database, which was accessed to provide the data for this study.

For each school district in the sample, the necessary data was collected for both the 1993-94 and the 2007-08 school years. The school systems in the sample had a variety of grade configurations; however, the only data that were analyzed were from grades 9-12. The data for each high school for each subject was organized according to ten designated subject areas: language arts, science, social science, mathematics, vocational education, foreign language, visual and performing arts, personal health, personal fitness, and other. The program offerings in each subject area were measured in terms of total instructional units for all subjects in that area. Fifteen clock hours of class time equated to one instructional unit. For example, a course that met for 180 sessions of 50 minutes comprised 10 instructional units. Only separate courses were included in the computations due to the fact that the comprehensiveness of a school's program offerings

is related to the number of distinct subjects rather than the total number of classes created through multiple sections of the same course.

To determine the relative emphasis of program offerings among the different subject areas, the total number of instructional units for each subject area were calculated as a percentage of the total number of instructional units in the entire program.

The degree of program participation in each subject area was measured by calculating the total enrollment units for all subjects in that area. One enrollment unit was equal to one student enrolled for one instructional unit. For example, a course that measured 10 instructional units and had 25 students enrolled accounted for 250 enrollment units.

In order to determine the degree of emphasis of program participation among the different subject areas, the total number of enrollment units for each subject area was calculated as a percentage of the total enrollment units in the total program.

Data Analysis

The purpose for conducting this study was to examine whether there were changes in certain quantifiable characteristics of the educational program offered in selected 9-12 Nebraska public high schools during the years of standards-based reform. To achieve this purpose, the aforementioned null hypotheses was tested. In each instance, the independent variable was the “treatment” of standards-based reform. The dependent variable was obtained from the specific hypothesis statement.

The measure of the dependent variable was defined in terms of either instructional units or enrollment units, with the underlying quantifier being the amount of instructional time designated for each of the different subjects. The mean numbers of instructional

units and enrollment units were compared across time during the application of the independent variable of standards-based reform.

Group means for each of the ten designated subject areas for both program offerings and for student enrollment was evaluated for possible statistically significant variance over time. Therefore, the data was analyzed using the repeated measured t statistic, with $p < .05$. Stevens (1996) reported that the main benefit of a repeated measures design is its ability to increase statistical power relative to sample size through the use of constant subjects. A repeated measures design was used to reduce the amount of error variability in the analysis. To determine if statistically significant variances in group means exist, the variance ratio for the group means was determined using the t test. For those subject areas where a statistically significant variance was found, an estimate of the range of change was calculated.

The results for the 1993-94 and for the 2007-08 school year were tabulated and summarized for small-enrollment schools, medium-enrollment schools, and large-enrollment schools. For each of the ten subject areas of language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, personal fitness, and other, the mean number of instructional units and enrollment units and the percentage of the total program that each of these figures represented was calculated with the underlying quantifier being class time. In each instance, the t statistic, with $p < .05$ was used to compute an estimate of each of the four measures.

Chapter 4

Research Findings

Introduction

The purpose of this study was to examine whether or not there were quantifiable changes in characteristics of the educational programs in selected grades 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by determining whether there were certain quantifiable changes between the 1993-94 school year and the 2007-08 school year in the courses high schools offered, as measured by instructional units, and in the courses students took, as measured by enrollment units. To make this determination, the total program and each of ten designated subject areas that comprise the program were examined. Those ten designated subject areas were language arts, science, social science, mathematics, foreign language, vocational education, visual and performing arts, personal health, personal fitness, and other subjects. The measurement of the data was structured by four research questions.

1. What were the mean numbers of instructional units offered in the total grades 9-12 program and in each of the ten designated subject areas programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?
2. What percentage of the total instructional program did each of the ten designated subject areas represent in the grades 9-12 program in (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-

enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?

3. What were the mean number of enrollment units taken in the total grades 9-12 program and in each of the ten designated subject area programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?
4. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?

Each of the ten subject areas were then analyzed in four ways to determine whether specific quantitative changes occurred in the 15-year period from 1993-2008. To measure the courses offered during these two points in time, the instructional units were analyzed in two ways. First, the instructional units were measured as the total number of instructional units offered. Next, the instructional units were measured as a percentage of the total instructional program. To measure the courses taken during these two points in time, the enrollments units were analyzed in two ways. First, the total enrollment units per subject area were measured. Second, the total enrollment units per subject area as a percentage of the total program were measured.

The underlying quantifier was the amount of class time designated for each of the ten subject areas. Program offerings were measured in terms of instructional units, with one instructional unit equal to 15 clock hours of class time. Program participation was

measured by enrollment units. One enrollment unit equaled one student taking one instructional unit.

The population for this study was the 246 Nebraska Class II and Class III school districts that were in existence during both the 1993-94 school year and during the 2007-08 school year. The data for this study was collected from the 1993-94 and 2007-08 curriculum reports from the Nebraska State Department of Education. Enrollment reports from the Nebraska State Department of Education were also referenced by the researcher for necessary student enrollment data. To determine whether changes in the instructional program had occurred, the repeated measures t statistic was used to analyze the data for the 1993-94 and 2007-08 school years.

To determine whether changes in the program offerings or program participation had occurred, forty-two null hypotheses were tested. These hypotheses were organized according to four summary statements. Each null hypothesis was tested by using the repeated measures t statistic, with $df = 47$ and $p < .05$. In each instance where a statistically significant difference was found, the t statistic was used to make an interval estimate of the mean change in the population. The null hypotheses, in summary form, were:

1. In each of the ten designated subject areas and in the total program, there was no difference between the number of instructional units offered in 1993-94 and the number of instructional units offered in 2007-08.
2. For each of the ten designated subject areas stated as a percentage of the total program, there was no difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.

3. In each of the ten subject areas and in the total program, there was no difference between the number of enrollment units taken in 1993-94 and the number of enrollments units taken in 2007-08.
4. For each of ten subject areas stated as a percentage of the total program, there was no difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

Mean Number of Instructional Units Offered

To determine the mean number of instructional units offered in the total grades 9-12 program and in each of the ten designated subject area programs of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts for the 1993-94 and 2007-08 school years, the researcher addressed the following question:

> What were the mean numbers of instructional units offered in the total grades 9-12 program and in each of the ten designated subject areas programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?

The results are shown in Tables 2 through 12. Table 2 contains the mean number of grades 9-12 instructional units for the total program by small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts. Tables 3 through 12 contain the mean number of grades 9-12 instructional units for each of the 10 subject areas by the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

Table 2

Mean Number of Instructional Units Offered in Grades 9-12 Program during 1993-94 and 2007-08, by School Size

	Total Instructional Units Offered in 1993-94	Total Instructional Units Offered in 2007-08
All School Districts	913.19	1029.99
Small School Districts	506.05	540.17
Medium School Districts	829.98	958.37
Large School Districts	2274.73	2543.70

Table 3

Mean Number of Instructional Units Offered in English during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in English during 1993-94	Mean Number of Instructional Units Offered in English during 2007-08
All School Districts	139.29	156.45
Small School Districts	76.01	79.49
Medium School Districts	124.29	145.21
Large School Districts	359.14	409.82

Table 4

Mean Number of Instructional Units Offered in Foreign Language during 1993-94 and 2007-08 by School Size

	Mean Number of Instructional Units Offered in Foreign Language during 1993-94	Mean Number of Instructional Units Offered in Foreign Language during 2007-08
All School Districts	52.20	66.95
Small School Districts	26.99	27.32
Medium School Districts	45.50	60.84
Large School Districts	141.19	198.06

Table 5

Mean Number of Instructional Units Offered in Mathematics during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Mathematics during 1993-94	Mean Number of Instructional Units Offered in Mathematics during 2007-08
All School Districts	107.03	130.65
Small School Districts	54.23	64.70
Medium School Districts	96.00	127.09
Large School Districts	287.46	335.64

Table 6

Mean Number of Instructional Units Offered in Natural Sciences during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Natural Science during 1993-94	Mean Number of Instructional Units Offered in Natural Science during 2007-08
All School Districts	107.71	109.13
Small School Districts	51.24	55.17
Medium School Districts	100.66	117.48
Large School Districts	291.21	254.29

Table 7

Mean Number of Instructional Units Offered in Social Studies during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Social Studies during 1993-94	Mean Number of Instructional Units Offered in Social Studies during 2007-08
All School Districts	101.77	109.73
Small School Districts	52.35	52.29
Medium School Districts	97.02	105.55
Large School Districts	259.52	290.39

Table 8

Mean Number of Instructional Units Offered in Vocational Technical during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Vocational Technical during 1993-94	Mean Number of Instructional Units Offered in Vocational Technical during 2007-08
All School Districts	234.79	219.22
Small School Districts	148.66	135.33
Medium School Districts	224.44	215.45
Large School Districts	513.89	478.42

Table 9

Mean Number of Instructional Units Offered in Visual and Performing Arts during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Performing Arts during 1993-94	Mean Number of Instructional Units Offered in Performing Arts during 2007-08
All School Districts	85.55	93.19
Small School Districts	53.42	62.95
Medium School Districts	76.02	84.63
Large School Districts	201.02	201.00

Table 10

Mean Number of Instructional Units Offered in Health during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Health during 1993-94	Mean Number of Instructional Units Offered in Health during 2007-08
All School Districts	60.94	60.10
Small School Districts	29.83	33.93
Medium School Districts	57.57	57.23
Large School Districts	161.04	144.33

Table 11

Mean Number of Instructional Units Offered in Physical Fitness during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Physical Fitness during 1993-94	Mean Number of Instructional Units Offered in Physical Fitness during 2007-08
All School Districts	15.79	67.75
Small School Districts	5.76	23.39
Medium School Districts	3.47	37.30
Large School Districts	44.99	166.80

Table 12

Mean Number of Instructional Units Offered in Other Subjects during 1993-94 and 2007-08, by School Size

	Mean Number of Instructional Units Offered in Other Subjects during 1993-94	Mean Number of Instructional Units Offered in Other Subjects during 2007-08
All School Districts	8.12	16.83
Small School Districts	7.56	5.60
Medium School Districts	5.02	7.58
Large School Districts	15.27	64.95

Percentage of Total Instructional Program

To determine what percentage of the total instructional program each of the ten designated subject areas represented for the 1993-94 and 2007-08 school years, the researcher answered the following question:

> What percentage of the total instructional program did each of the ten designated subject areas represent in the grades 9-12 program in (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?

The results are shown in Tables 13 through 23. Table 13 contains the percentage of the total 9-12 instructional program each subject area comprised in the grades 9-12 instructional program for the 1993-94 school year and for the 2007-08 school year. Tables 14 through 23 contain the percentage of the total 9-12 instructional program each of the 10 subject areas represented in each of the three enrollment classifications of

small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts for the 1993-94 and 2007-08 school years

Table 13

Percentage of Grades 9-12 Instructional Units Offered by Subject Area during 1993-94 and 2007-08

	Percentage of Instructional Units Offered by Subject Area during 1993-94	Percentage of Instructional Units Offered by Subject Area during 2007-08
English	15.16%	15.21%
Foreign Language	5.55%	5.97%
Mathematics	11.47%	12.85%
Natural Sciences	11.23%	11.13%
Social Sciences	11.15%	10.63%
Vocational Technical	27.87%	24.27%
Visual & Performing Arts	9.89%	10.42%
Health	6.43%	6.06%
Physical Fitness	1.09%	4.60%
Other Subjects	1.03%	1.18%

Table 14

Percentage of Grades 9-12 Instructional Units Offered in English during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in English during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in English during 2007-08
All School Districts	15.16%	15.21%
Small School Districts	15.23%	15.10%
Medium School Districts	14.75%	15.30%
Large School Districts	15.77%	15.37%

Table 15

Percentage of Grades 9-12 Instructional Units Offered in Foreign Language during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Foreign Language during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Foreign Language during 2007-08
All School Districts	5.55%	5.97%
Small School Districts	5.4%	5.02%
Medium School Districts	5.50%	6.39%
Large School Districts	6.10%	7.94%

Table 16

Percentage of Grades 9-12 Instructional Units Offered in Mathematics during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Mathematics during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Mathematics during 2007-08
All School Districts	11.47%	12.85%
Small School Districts	10.89%	12.40%
Medium School Districts	11.76%	13.47%
Large School Districts	12.63%	12.98%

Table 17

Percentage of Grades 9-12 Instructional Units Offered in Natural Science during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Natural Science during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Natural Science during 2007-08
All School Districts	11.23%	11.13%
Small School Districts	10.21%	10.52%
Medium School Districts	12.23%	12.27%
Large School Districts	12.31%	10.67%

Table 18

Percentage of Grades 9-12 Instructional Units Offered in Social Studies during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Social Studies during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Social Studies during 2007-08
All School Districts	11.15%	10.63%
Small School Districts	10.48%	10.01%
Medium School Districts	11.75%	11.23%
Large School Districts	11.94%	11.26%

Table 19

Percentage of Grades 9-12 Instructional Units Offered in Vocational Technical during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Vocational Technical during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Vocational Technical during 2007-08
All School Districts	27.87%	24.27%
Small School Districts	29.75%	26.06%
Medium School Districts	27.18%	23.38%
Large School Districts	23.60%	20.66%

Table 20

Percentage of Grades 9-12 Instructional Units Offered in Visual and Performing Arts during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Visual and Performing Arts during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Visual and Performing Arts during 2007-08
All School Districts	9.89%	10.42%
Small School Districts	10.72%	11.95%
Medium School Districts	9.41%	9.11%
Large School Districts	8.33%	8.45%

Table 21

Percentage of Grades 9-12 Instructional Units Offered in Health during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Health during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Health during 2007-08
All School Districts	6.43%	6.06%
Small School Districts	5.88%	6.38%
Medium School Districts	6.88%	5.98%
Large School Districts	7.14%	5.3%

Table 22

Percentage of Grades 9-12 Instructional Units Offered in Physical Fitness during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Physical Fitness during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Physical Fitness during 2007-08
All School Districts	1.09%	4.60%
Small School Districts	1.16%	4.17%
Medium School Districts	.037%	3.82%
Large School Districts	1.89%	6.17%

Table 23

Percentage of Grades 9-12 Instructional Units Offered in Other Subjects during 1993-94 and 2007-08, by School Size

	Percentage of Grades 9-12 Instructional Units Offered in Other Subjects during 1993-94	Percentage of Grades 9-12 Instructional Units Offered in Other Subjects during 2007-08
All School Districts	1.03%	1.18%
Small School Districts	1.56%	1.12%
Medium School Districts	.52%	.85%
Large School Districts	.47%	1.92%

Mean Number of Enrollment Units Taken

To determine the mean number of enrollment units taken in the total grades 9-12 program and in each of the ten designated subject area programs of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts

for the 1993-94 and 2007-08 school years, the researcher answered the following question:

> What were the mean number of enrollment units taken in the total grades 9-12 program and in each of the ten designated subject area programs of (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts for the 1993-94 and 2007-08 school years?

The results are shown in Tables 24 through 34. Table 24 contains the mean number of grades 9-12 enrollment units for the total program by small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts. Tables 25 through 34 contain the mean number of grades 9-12 enrollment units for each of the 10 subject areas by the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

Table 24

Mean Number of Enrollment Units Taken in Grades 9-12 Program during 1993-94 and in 2007-08, by School Size

	Enrollment Units Taken in Grades 9-12 during 1993-94	Enrollment Units Taken in Grades 9-12 during 2007-08
All School Districts	14534.24	16018.57
Small School Districts	5634.92	5356.64
Medium School Districts	12344.48	13426.16
Large School Districts	45360.97	52416.33

Table 25

Mean Number of Enrollment Units Taken in English during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in English in 1993-94	Mean Number of Enrollment Units Taken in English in 2007-08
All School Districts	2459.97	2654.52
Small School Districts	983.24	888.96
Medium School Districts	1987.94	2225.36
Large School Districts	7834.19	8809.50

Table 26

Mean Number of Enrollment Units Taken in Foreign Language during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Foreign Language in 1993-94	Mean Number of Enrollment Units Taken in Foreign Language in 2007-08
All School Districts	813.06	1053.85
Small School Districts	204.72	255.16
Medium School Districts	586.73	844.73
Large School Districts	3090.75	3868.18

Table 27

Mean Number of Enrollment Units Taken in Mathematics during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Mathematics in 1993-94	Mean Number of Enrollment Units Taken in Mathematics in 2007-08
All School Districts	1785.14	2043.56
Small School Districts	594.81	634.11
Medium School Districts	1524.06	1668.83
Large School Districts	5878.30	7021.37

Table 28

Mean Number of Enrollment Units Taken in Natural Sciences during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Natural Sciences in 1993-94	Mean Number of Enrollment Units Taken in Natural Sciences in 2007-08
All School Districts	1744.32	2042.28
Small School Districts	617.77	653.09
Medium School Districts	1521.33	1694.58
Large School Districts	5569.92	6905.26

Table 29

Mean Number of Enrollment Units Taken in Social Studies during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Social Studies in 1993-94	Mean Number of Enrollment Units Taken in Social Studies in 2007-08
All School Districts	1933.42	2105.99
Small School Districts	746.12	709.65
Medium School Districts	1596.62	1791.57
Large School Districts	6768.91	6923.83

Table 30

Mean Number of Enrollment Units Taken in Vocational Technical during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Vocational Technical in 1993-94	Mean Number of Enrollment Units Taken in Vocational Technical in 2007-08
All School Districts	2707.23	2458.06
Small School Districts	1168.13	971.65
Medium School Districts	2427.56	2247.63
Large School Districts	7883.83	7338.16

Table 31

Mean Number of Enrollment Units Taken in Visual and Performance Arts during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Visual and Performance Arts in 1993-94	Mean Number of Enrollment Units Taken in Visual and Performing Arts in 2007-08
All School Districts	1657.21	1834.36
Small School Districts	778.49	686.04
Medium School Districts	1625.38	1673.38
Large School Districts	4357.04	5601.27

Table 32

Mean Number of Enrollment Units Taken in Health during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Health in 1993-94	Mean Number of Enrollment Units Taken in Health in 2007-08
All School Districts	1180.01	1237.01
Small School Districts	404.64	448.21
Medium School Districts	978.69	1080.73
Large School Districts	3908.73	3916.00

Table 33

Mean Number of Enrollment Units Taken in Physical Fitness during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Physical Fitness in 1993-94	Mean Number of Enrollment Units Taken in Physical Fitness in 2007-08
All School Districts	120.74	375.41
Small School Districts	16.42	49.67
Medium School Districts	34.96	130.06
Large School Districts	371.41	1129.99

Table 34

Mean Number of Enrollment Units Taken in Other Subjects during 1993-94 and 2007-08, by School Size

	Mean Number of Enrollment Units Taken in Other Subjects in 1993-94	Mean Number of Enrollment Units Taken in Other Subjects in 2007-08
All School Districts	133.15	213.53
Small School Districts	120.57	60.10
Medium School Districts	61.21	69.28
Large School Districts	297.90	902.76

Percentage of Enrollment Units Taken

To determine the percentage of enrollment units taken by students in each of the ten designated subject area programs of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts for the 1993-94 and 2007-08 school years, the researcher answered the following question:

What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts, (d) and all school districts for the 1993-94 and 2007-08 school years?

The results are shown in Tables 35 through 45. Table 35 contains the percentage of the enrollment units taken for all school districts by subject area for the 1993-94 school year and for the 2007-08 school year. Tables 36 through 45 contain the percentage of the total enrollment units taken by students for each of the 10 subject areas represented in each of the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts for the 1993-94 and 2007-08 school years.

Table 35

Percentage of Grades 9-12 Enrollment Units Taken by Subject Area during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken by Subject Area during 1993-94	Percentage of Enrollment Units Taken by Subject Area during 2007-08
English	17.10%	16.77%
Foreign Language	4.53%	5.66%
Mathematics	11.64%	12.34%
Natural Sciences	11.72%	12.51%
Social Sciences	13.37%	13.56%
Vocational Technical	20.12%	17.44%
Visual & Performing Arts	12.72%	12.39%
Health	7.76%	8.10%
Physical Fitness	0.41%	1.14%
Other Subjects	1.33%	0.91%

Table 36

Percentage of Grades 9-12 Enrollment Units Taken in English by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in English during 1993-94	Percentage of Enrollment Units Taken in English during 2007-08
All School Districts	17.10%	16.77%
Small School Districts	17.82%	16.97%
Medium School Districts	16.08%	16.64%
Large School Districts	17.01%	16.43%

Table 37

Percentage of Grades 9-12 Enrollment Units Taken in Foreign Language by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Foreign Language during 1993-94	Percentage of Enrollment Units Taken in Foreign Language during 2007-08
All School Districts	4.53%	5.66%
Small School Districts	3.75%	4.6%
Medium School Districts	4.82%	6.32%
Large School Districts	6.33%	7.54%

Table 38

Percentage of Grades 9-12 Enrollment Units Taken in Mathematics by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Mathematics during 1993-94	Percentage of Enrollment Units Taken in Mathematics during 2007-08
All School Districts	11.64%	12.34%
Small School Districts	10.83%	11.89%
Medium School Districts	12.34%	12.41%
Large School Districts	12.66%	13.57%

Table 39

Percentage of Grades 9-12 Enrollment Units Taken in Science by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Science during 1993-94	Percentage of Enrollment Units Taken in Science during 2007-08
All School Districts	11.72%	12.51%
Small School Districts	11.08%	12.26%
Medium School Districts	12.48%	12.56%
Large School Districts	12.10%	13.18%

Table 40

Percentage of Grades 9-12 Enrollment Units Taken in Social Studies by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Social Studies during 1993-94	Percentage of Enrollment Units Taken in Social Studies during 2007-08
All School Districts	13.37%	13.56%
Small School Districts	13.53%	13.38%
Medium School Districts	12.89%	13.39%
Large School Districts	13.89%	14.41%

Table 41

Percentage of Grades 9-12 Enrollment Units Taken in Vocational Technical by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Vocational Technical during 1993-94	Percentage of Enrollment Units Taken in Vocational Technical during 2007-08
All School Districts	20.12%	17.44%
Small School Districts	21.21%	18.33%
Medium School Districts	19.47%	17.54%
Large School Districts	18.15%	14.56%

Table 42

Percentage of Grades 9-12 Enrollment Units Taken in Visual and Performing Arts by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Visual and Performing Arts during 1993-94	Percentage of Enrollment Units Taken in Visual and Performing Arts during 2007-08
All School Districts	12.72%	12.39%
Small School Districts	13.06%	13.19%
Medium School Districts	13.63%	12.15%
Large School Districts	9.89%	10.48%

Table 43

Percentage of Grades 9-12 Enrollment Units Taken in Health by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Health during 1993-94	Percentage of Enrollment Units Taken in Health during 2007-08
All School Districts	7.76%	8.10%
Small School Districts	7.27%	8.26%
Medium School Districts	7.94%	8.08%
Large School Districts	8.87%	7.66%

Table 44

Percentage of Grades 9-12 Enrollment Units Taken in Physical Fitness by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Physical Fitness during 1993-94	Percentage of Enrollment Units Taken in Physical Fitness during 2007-08
All School Districts	.041%	1.14%
Small School Districts	0.29%	0.98%
Medium School Districts	.021%	0.94%
Large School Districts	.084%	1.62%

Table 45

Percentage of Grades 9-12 Enrollment Units Taken in Other Subjects by School Size during 1993-94 and 2007-08

	Percentage of Enrollment Units Taken in Other Subjects during 1993-94	Percentage of Enrollment Units Taken in Other Subjects during 2007-08
All School Districts	1.33%	0.91%
Small School Districts	2.25%	1.13%
Medium School Districts	0.39%	0.58%
Large School Districts	0.44%	0.90%

Analysis of Change by Mean Number of Instructional Units Offered

To determine whether changes in the program offerings had occurred, eleven null hypothesis were tested using the repeated measures t statistic, with df = 47 and $p < .05$. The t statistic was used to make an interval estimate of the mean change in the population. In instances where the amount of change showed a statistically significant increase in program offerings, an 'Increase' appears in the table column entitled 'Statistically Significant Change.' In instances where no statistically significant amount of change in program offerings occurred, a 'None' appears in the table column entitled 'Statistically Significant Change.' In instances where the amount of change showed a statistically significant decrease in program offerings, a 'Decrease' appears in the table column entitled 'Statistically Significant Change.' The following null hypothesis, in summary form, was tested to determine whether changes in program offerings had occurred in the 15-year period from 1993-2008:

1. In each of the ten designated subject areas and in the total program, there is no difference between the number of instructional units offered in 1993-94 and the number of instructional units offered in 2007-08.

The results of this hypothesis testing are shown in Table 46. Table 46 contains the mean number of grades 9-12 instructional units for each of the ten subject areas, the difference in means for the 1993-94 and 2007-08 school years, and an indicator of whether there was a statistically significant increase, no statistically significant change, or a statistically significant decrease in the mean number of instructional units in the 15-year period from 1993-2008. These data are arranged by subject area for the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

Table 46

Analysis of Changes in Number of Grades 9-12 Instructional Units Offered, by Subject Area and by School Size, from 1993-94 to 2007-08, in Selected Nebraska Class II and Class III School Districts

	1993-94 Mean Number of Instructional Units	2007-08 Mean Number of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
English				
Small (N = 24)	76.01	79.49	+3.47	None
Medium (N = 16)	124.29	145.21	+20.93	None
Large (N = 8)	359.14	409.82	+50.68	None
All School Districts (N = 48)	139.29	156.45	+17.16	None

Table 46 continues

	1993-94 Mean Number of Instructional Units	2007-08 Mean Number of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
Foreign Language				
Small (N = 24)	26.99	27.32	+0.33	None
Medium (N = 16)	45.50	60.84	+15.34	Increase
Large (N = 8)	141.19	198.06	+56.87	None
All School Districts (N = 48)	52.20	66.95	+14.76	Increase
Mathematics				
Small (N = 24)	54.23	64.70	+10.47	Increase
Medium (N = 16)	96.00	127.09	+31.09	Increase
Large (N = 8)	287.46	335.64	+48.18	None
All School Districts (N = 48)	107.03	130.65	+23.62	Increase
Natural Sciences				
Small (N = 24)	51.24	55.17	+3.93	None
Medium (N = 16)	100.66	117.48	+16.82	None
Large (N = 8)	291.21	254.29	-36.91	None
All School Districts (N = 48)	107.71	109.13	+1.42	None
Social Studies				
Small (N = 24)	52.35	52.29	-0.06	None
Medium (N = 16)	97.02	105.55	+8.53	None
Large (N = 8)	259.52	290.39	+30.86	None
All School Districts (N = 48)	101.77	109.73	+7.96	None
Vocational Technical				
Small (N = 24)	148.66	135.33	-13.33	None
Medium (N = 16)	224.44	215.45	-9.00	None
Large (N = 8)	513.89	478.42	-35.47	None
All School Districts (N = 48)	234.79	219.22	-15.57	Decrease
Visual & Performing Arts				
Small (N = 24)	53.42	62.95	+9.53	None
Medium (N = 16)	76.02	84.63	+8.60	None
Large (N = 8)	201.02	201.00	-0.02	None
All School Districts (N = 48)	85.55	93.19	+7.63	None

Table 46 continues

	1993-94 Mean Number of Instructional Units	2007-08 Mean Number of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
Health				
Small (N = 24)	29.83	33.93	+4.10	None
Medium (N = 16)	57.57	57.23	-0.33	None
Large (N = 8)	161.04	144.33	-16.71	None
All School Districts (N = 48)	60.94	60.10	-0.85	None
Physical Fitness				
Small (N = 24)	5.76	23.39	+17.63	None
Medium (N = 16)	3.47	37.30	+33.84	Increase
Large (N = 8)	44.99	166.80	+121.81	None
All School Districts (N = 48)	15.79	67.75	+51.96	Increase
Other Subjects				
Small (N = 24)	7.56	5.60	-1.96	None
Medium (N = 16)	5.02	7.58	+2.56	None
Large (N = 8)	15.27	64.95	+49.68	None
All School Districts (N = 48)	8.12	16.83	+8.71	None
Total Programs				
Small (N = 24)	506.05	540.17	+34.12	None
Medium (N = 16)	829.98	958.37	+128.39	None
Large (N = 8)	2274.73	2543.70	+268.97	None
All School Districts (N = 48)	913.19	1029.99	+116.80	None

The results in Table 46 indicate that there were statistically significant increases in the number of grades 9-12 instructional units in the subject areas of Foreign Language, Mathematics, and Physical Fitness. The statistically significant increases in the number of grades 9-12 instructional units in the subject of foreign language occurred in the medium-enrollment school districts and in all school districts. The statistically significant increases in the number of grades 9-12 instructional units in the subject area of mathematics occurred in the small-enrollment school districts, the medium-enrollment

school districts, and in all school districts. The statistically significant increases in the number of grades 9-12 instructional units in the subject area of Physical Fitness occurred in the medium-enrollment school districts and in all school districts.

The results in Table 46 indicate that there was no statistically significant change in the number of grades 9-12 instructional units in the subject areas of English, Natural Sciences, Social Studies, Visual and Performing Arts, Health, and Other Subjects. Additionally, the results in Table 46 indicate that there was no statistically significant change in the number of grades 9-12 instructional units for the total program in the small-enrollment school districts, medium-enrollment school districts, large-enrollment school district, or all school districts.

The results in Table 46 indicate that there was a statistically significant decrease in the number of grades 9-12 instructional units in the subject area of Vocational Technical. The statistically significant decrease occurred in all school districts.

Analysis of Changes in the Percentage of Instructional Units Offered

To determine whether changes in the program offerings had occurred when each of the 10 subject areas were stated as a percentage of the total grades 9-12 instructional program being offered, 10 null hypothesis were tested using the repeated measures t statistic, with $df = 47$ and $p < .05$. The t statistic was used to make an interval estimate of the mean change in the population. In instances where the amount of change showed a statistically significant increase in program offerings, an ‘Increase’ appears in the table column titled ‘Statistically Significant Change.’ In instances where no statistically significant amount of change in program offerings occurred, a ‘None‘ appears in the table column titled ‘Statistically Significant Change.’ In instances where the amount of change

showed a statistically significant decrease in program offerings, a ‘Decrease’ appears in the table column entitled ‘Statistically Significant Change.’ The following null hypothesis, in summary form, was tested to determine whether changes in instructional units, when stated as a percentage of the total program, had occurred in the 15-year period from 1993-94 to 2007-08:

2. For each of the ten designated subject areas stated as a percentage of the total program, there is no difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.

The results of this hypothesis testing are shown in Table 47. Table 47 contains an analysis of instructional units offered in 1993-94 and 2007-08 for each of the ten designated subject areas stated as a percentage of the total program. This data is arranged by subject area for the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

Table 47

Analysis of Statistically Significant Changes in the Percentage of Grades 9-12 Instructional Units Offered, by Subject Area and by School Size, from 1993-94 to 2007-08, in Selected Nebraska Class II and Class III School Districts

	1993-94 Mean Percentage of Instructional Units	2007-08 Mean Percentage of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
English				
Small (N = 24)	15.23	15.10	0.12	None
Medium (N = 16)	14.75	15.30	+0.54	None
Large (N = 8)	15.77	15.37	-0.40	None
All School Districts (N = 48)	15.16	15.21	+0.05	None

Table 47 continues

	1993-94 Mean Percentage of Instructional Units	2007-08 Mean Percentage of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
Foreign Language				
Small (N = 24)	5.40	5.02	-0.37	None
Medium (N = 16)	5.50	6.39	+0.89	None
Large (N = 8)	6.10	7.94	+1.83	Increase
All School Districts (N = 48)	5.55	5.97	+0.41	None
Mathematics				
Small (N = 24)	10.89	12.40	+1.50	Increase
Medium (N = 16)	11.76	13.47	+1.71	Increase
Large (N = 8)	12.63	12.98	+0.36	None
All School Districts (N = 48)	11.47	12.85	+1.38	Increase
Natural Sciences				
Small (N = 24)	10.21	10.52	+0.31	None
Medium (N = 16)	12.23	12.27	+0.04	None
Large (N = 8)	12.31	10.67	-1.64	None
All School Districts (N = 48)	11.23	11.13	-0.10	None
Social Studies				
Small (N = 24)	10.48	10.01	-0.48	None
Medium (N = 16)	11.75	11.23	-0.51	None
Large (N = 8)	11.94	11.26	-0.68	None
All School Districts (N = 48)	11.15	10.63	-0.52	None
Vocational Technical				
Small (N = 24)	29.75	26.06	-3.69	Decrease
Medium (N = 16)	27.18	23.38	-3.80	Decrease
Large (N = 8)	23.60	20.66	-2.94	None
All School Districts (N = 48)	27.87	24.27	-3.60	Decrease
Visual & Performing Arts				
Small (N = 24)	10.72	11.95	+1.23	None
Medium (N = 16)	9.41	9.11	-0.30	None
Large (N = 8)	8.33	8.45	+0.12	None
All School Districts (N = 48)	9.89	10.42	+0.53	None

Table 47 continues

	1993-94 Mean Percentage of Instructional Units	2007-08 Mean Percentage of Instructional Units	Mean Difference of Instructional Units	Statistically Significant Change
Health				
Small (N = 24)	5.88	6.38	+0.49	None
Medium (N = 16)	6.88	5.98	-0.91	Decrease
Large (N = 8)	7.14	5.30	-1.84	Decrease
All School Districts (N = 48)	6.43	6.06	-0.36	None
Physical Fitness				
Small (N = 24)	1.16	4.17	+3.01	None
Medium (N = 16)	0.37	3.82	+3.45	Increase
Large (N = 8)	1.89	6.17	+4.28	None
All School Districts (N = 48)	1.09	4.60	+3.51	Increase
Other Subjects				
Small (N = 24)	1.56	1.12	-0.44	None
Medium (N = 16)	0.52	0.85	+0.33	None
Large (N = 8)	0.47	1.92	+1.45	None
All School Districts (N = 48)	1.03	1.18	+0.15	None

The results in Table 47 indicate that there was a statistically significant increase in the percentage of instructional units in the subject areas of Foreign Language, Mathematics, and Physical Fitness. The statistically significant increases in the percentage of instructional units in the subject of Foreign Language occurred in the large-enrollment school districts. The statistically significant increases in the percentage of instructional units in the subject area of Mathematics occurred in the small-enrollment school districts, the medium-enrollment school districts, and in all school districts. The statistically significant increases in the number of grades 9-12 instructional units in the subject area of Physical Fitness occurred in the medium-enrollment school district and in all school districts.

The results in Table 47 indicate that there was no statistically significant change in the percentage of instructional units in the subject areas of English, Natural Sciences, Social Studies, Visual and Performing Arts, and Other Subjects.

The results in Table 47 indicate that there was a statistically significant decrease in the percentage of instructional units in the subject areas of Vocational Technical and Health. The statistically significant decreases in the subject are of Vocational Technical occurred in the small-enrollment school districts, the medium-enrollment school districts, and in all school districts. Statistically significant decreases in the subject area of Health occurred in the medium-enrollment school districts and in the large-enrollment school districts.

Analysis of Change by Mean Number of Enrollment Units Taken

To determine whether changes in the program enrollment had occurred, eleven null hypothesis were tested using the repeated measures t statistic, with df = 47 and $p < .05$. The t statistic was used to make an interval estimate of the mean change in the population. In instances where the amount of change showed a statistically significant increase in program enrollment, a 'Increase' appears in the table column entitled 'Statistically Significant Change.' In instances where no statistically significant amount of change in program enrollment occurred, a 'None' appears in the table column entitled 'Statistically Significant Change.' In instances where the amount of change showed a statistically significant decrease in program enrollment, a 'Decrease' appears in the table column entitled 'Statistically Significant Change.' The following null hypothesis, in summary form, was tested to determine whether changes in program enrollment had occurred in the 15-year period from 1993-94 to 2007-08:

3. In each of the ten subject areas and in the total program, there is no difference between the number of enrollment units taken in 1993-94 and the number of enrollments units taken in 2007-08.

The results of this hypothesis testing are shown in Table 48. Table 48 contains the mean number of grades 9-12 enrollment units taken by students for each of the ten subject areas, the difference in means for the 1993-94 and 2007-08 school years, and an indicator of whether there was a statistically significant increase, no statistically significant change, or a statistically significant decrease in the mean number of enrollment units taken by students in the 15-year period from 1993-94 to 2007-08. This data is arranged by subject area for the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

Table 48

Analysis of Statistically Significant Changes in Number of Grades 9-12 Enrollment Units Taken, by Subject Area and by School Size, from 1993-94 to 2007-08

	1993-94 Mean of Enrollment Units	2007-08 Mean of Enrollment Units	Mean Difference Enrollment Units	Statistically Significant Change
English				
Small (N = 24)	983.24	888.96	-94.29	None
Medium (N = 16)	1987.94	2225.36	+237.43	None
Large (N = 8)	7834.19	8809.50	+975.32	None
All School Districts (N = 48)	2459.97	2654.52	+194.55	None

Table 48 continues

	1993-94 Mean of Enrollment Units	2007-08 Mean of Enrollment Units	Mean Difference Enrollment Units	Statistically Significant Change
Foreign Language				
Small (N = 24)	204.72	255.16	+50.45	None
Medium (N = 16)	586.73	844.73	+258.00	Increase
Large (N = 8)	3090.75	3868.18	+777.43	Increase
All School Districts (N = 48)	813.06	1053.85	+240.80	Increase
Mathematics				
Small (N = 24)	594.81	634.11	+39.29	None
Medium (N = 16)	1524.06	1668.83	+144.78	None
Large (N = 8)	5878.30	7021.37	+1143.07	None
All School Districts (N = 48)	1785.14	2043.56	+258.42	Increase
Natural Sciences				
Small (N = 24)	617.77	653.09	+35.32	None
Medium (N = 16)	1521.33	1694.58	+173.24	None
Large (N = 8)	5569.92	6905.26	+1335.34	None
All School Districts (N = 48)	1744.32	2042.28	+297.96	None
Social Studies				
Small (N = 24)	746.12	709.65	-36.48	None
Medium (N = 16)	1596.62	1791.57	+194.95	None
Large (N = 8)	6168.91	6923.83	+754.92	None
All School Districts (N = 48)	1933.42	2105.99	+172.57	Increase
Vocational Technical				
Small (N = 24)	1168.13	971.65	-196.49	Decrease
Medium (N = 16)	2427.56	2247.63	-179.93	None
Large (N = 8)	7883.83	7338.16	-545.67	None
All School Districts (N = 48)	2707.23	2458.06	-249.17	Decrease
Visual & Performing Arts				
Small (N = 24)	778.49	686.04	-92.45	None
Medium (N = 16)	1625.38	1673.38	+48.00	None
Large (N = 8)	4357.04	5601.27	+1244.24	None
All School Districts (N = 48)	1657.21	1834.36	+177.15	None

Table 48 continues

	1993-94 Mean of Enrollment Units	2007-08 Mean of Enrollment Units	Mean Difference Enrollment Units	Statistically Significant Change
Health				
Small (N = 24)	404.64	448.21	+43.56	None
Medium (N = 16)	978.69	1080.73	+102.04	None
Large (N = 8)	3908.73	3916.00	+7.27	None
All School Districts (N = 48)	1180.01	1237.01	+57.01	None
Physical Fitness				
Small (N = 24)	16.42	49.67	+33.26	None
Medium (N = 16)	34.96	130.06	+95.10	None
Large (N = 8)	371.41	1129.99	+758.58	None
All School Districts (N = 48)	120.74	375.41	+254.67	None
Other Subjects				
Small (N = 24)	120.57	60.10	-60.46	Decrease
Medium (N = 16)	61.21	69.28	+8.07	None
Large (N = 8)	297.90	902.76	+604.86	None
All School Districts (N = 48)	133.15	213.53	+80.37	None
Total Programs				
Small (N = 24)	5634.92	5356.64	-278.28	None
Medium (N = 16)	12344.48	13426.16	+1081.68	None
Large (N = 8)	45360.97	52416.33	+7055.36	None
All School Districts (N = 48)	145334.24	16018.57	+1484.33	None

The results in Table 48 indicate that there was a statistically significant increase in the percentage of enrollment units in the subject areas of foreign language, mathematics, and social studies. The statistically significant increases in the percentage of enrollment units in the subject area of Foreign Language occurred in the medium-enrollment school districts, large-enrollment school districts, and all school districts. The statistically significant increases in enrollment units in the subject area of Mathematics occurred in all

school districts. The statistically significant increases in enrollment units in the subject area of Social Studies occurred in all school districts.

The results in Table 48 indicate that there was no statistically significant change in enrollment units in the subject areas of English, Natural Sciences, Visual and Performing Arts, Health, and Physical Fitness. Additionally, the results in Table 48 indicate that there was no statistically significant change in the number of grades 9-12 enrollment units for the total program in the small-enrollment school districts, medium-enrollment school districts, large-enrollment school district, or all school districts.

The results in Table 48 indicate that there was a statistically significant decrease in the percentage of enrollment units in the subject areas of Vocational Technical and Other Subjects. The statistically significant decreases in the subject area of Vocational Technical occurred in the small-enrollment school districts and in the all school district sample. A statistically significant decrease in the subject area of Other Subjects occurred in the small-enrollment school districts.

Analysis of Changes in the Percentage of Instructional Units Offered

To determine whether changes in the program enrollments taken by students had occurred when each of the 10 subject areas were stated as a percentage of the total grades 9-12 instructional program, 10 null hypothesis were tested using the repeated measures t statistic, with $df = 47$ and $p < .05$. The t statistic was used to make an interval estimate of the mean change in the population. In instances where the amount of change showed a statistically significant increase in enrollment units taken by students, a ‘Increase’ appears in the table column entitled ‘Change.’ In instances where no statistically significant amount of change in enrollment units occurred, a ‘None‘ appears in the table

column entitled ‘Change.’ In instances where the amount of change showed a statistically significant decrease in enrollments units, a ‘Decrease’ appears in the table column entitled ‘Change.’ The following null hypothesis, in summary form, was tested to determine whether changes in the enrollment units taken by students, when stated as a percentage of the total program, had occurred in the 15-year period from 1993-94 to 2007-08:

4. For each of ten subject areas stated as a percentage of the total program, there is no difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

The results of this hypothesis testing are shown in Table 49. Table 49 contains an analysis of enrollment units taken in 1993-94 and 2007-08 for each of the ten designated subject areas stated as a percentage of the total program. This data is arranged by subject area for the three enrollment classifications of small-enrollment school districts, medium-enrollment school districts, and large-enrollment school districts.

The results in Table 49 indicate that there was a statistically significant increase in the percentage of enrollment units in the subject areas of Foreign Language, Mathematics, Natural Sciences, and Physical Fitness. The statistically significant increases in the percentage of enrollment units in the subject of Foreign Language occurred in the medium-enrollment school districts and in all school districts. The statistically significant increases in the percentage of enrollment units in the subject area of Mathematics occurred in all school districts. The statistically significant increases in the percentage of enrollment units in the subject area of Natural Sciences occurred in the

Table 49

Analysis of Changes in Percentage of Grades 9-12 Enrollment Units Taken, by Subject Area and by School Size, from 1993-94 to 2007-08 in Selected Nebraska Class II and Class III School Districts

	1993-94 Mean Percentage of Enrollment Units	2007-08 Mean Percentage of Enrollment Units	Mean Difference of Percentage of Enrollment Units	Statistically Significant Change
English				
Small (N = 24)	17.82	16.97	-0.85	None
Medium (N = 16)	16.08	16.64	+0.56	None
Large (N = 8)	17.01	16.43	-0.58	None
All School Districts (N = 48)	17.10	16.77	-0.33	None
Foreign Language				
Small (N = 24)	3.75	4.60	+0.85	None
Medium (N = 16)	4.82	6.32	+1.50	Increase
Large (N = 8)	6.33	7.54	+1.21	None
All School Districts (N = 48)	4.53	5.66	+1.13	Increase
Mathematics				
Small (N = 24)	10.83	11.89	+1.06	None
Medium (N = 16)	12.34	12.41	+0.07	None
Large (N = 8)	12.66	13.57	+0.91	None
All School Districts (N = 48)	11.64	12.34	+0.71	Increase
Natural Sciences				
Small (N = 24)	11.08	12.26	+1.18	Increase
Medium (N = 16)	12.48	12.56	+0.08	None
Large (N = 8)	12.10	13.18	+1.08	None
All School Districts (N = 48)	11.72	12.51	+0.79	Increase

Table 49 continues

	1993-94 Mean Percentage of Enrollment Units	2007-08 Mean Percentage of Enrollment Units	Mean Difference of Percentage of Enrollment Units	Statistically Significant Change
Social Studies				
Small (N = 24)	13.53	13.38	-0.15	None
Medium (N = 16)	12.89	13.39	+0.50	None
Large (N = 8)	13.89	14.41	+0.52	None
All School Districts (N = 48)	13.37	13.56	+0.18	None
Vocational Technical				
Small (N = 24)	21.21	18.33	-2.88	Decrease
Medium (N = 16)	19.47	17.54	-1.93	None
Large (N = 8)	18.15	14.56	-3.60	Decrease
All School Districts (N = 48)	20.12	17.44	-2.68	Decrease
Visual & Performing Arts				
Small (N = 24)	13.06	13.19	+0.13	None
Medium (N = 16)	13.63	12.15	-1.48	None
Large (N = 8)	9.89	10.48	+0.59	None
All School Districts (N = 48)	12.72	12.39	-0.33	None
Health				
Small (N = 24)	7.27	8.26	+0.99	None
Medium (N = 16)	7.94	8.08	+0.13	None
Large (N = 8)	8.87	7.66	-1.20	None
All School Districts (N = 48)	7.76	8.10	+0.34	None
Physical Fitness				
Small (N = 24)	0.29	0.98	+0.69	None
Medium (N = 16)	0.21	0.94	+0.73	None
Large (N = 8)	0.84	1.62	+0.78	None
All School Districts (N = 48)	0.41	1.14	+0.73	Increase
Other Subjects				
Small (N = 24)	2.25	1.13	-1.12	Decrease
Medium (N = 16)	0.39	0.58	+0.19	None
Large (N = 8)	0.44	0.90	+0.46	None
All School Districts (N = 48)	1.33	0.91	-0.41	None

small-enrollment school districts and in all school districts. Finally, the statistically significant increases in the percentage of enrollment units in the subject area of Physical Fitness occurred in all school districts.

The results in Table 49 indicate that there was no statistically significant change in the percentage of enrollment units in the subject areas of English, Social Studies, Visual and Performing Arts, and Health.

The results in Table 49 indicate that there was a statistically significant decrease in the percentage of enrollment units in the subject areas of Vocational Technical and Other Subjects. The statistically significant decreases in the subject area of Vocational Technical occurred in the small-enrollment school districts, the large-enrollment school districts, and in all school districts. Statistically significant decreases in the subject area of Other Subjects occurred in the small-enrollment school districts.

Summary of Analysis of Hypothesis Testing

The purpose for conducting this study was to examine whether there were changes in certain quantifiable characteristics of the educational programming offered in selected 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by determining whether specific quantitative changes occurred in the 15-year period from 1993-94 to 2007-08 in the courses offered and in the courses taken in the total program in each of the ten designated subject areas that constitute that program.

To determine whether changes in the program offerings or program participation had occurred in the 15-year period from 1993-94 to 2007-08, four null hypotheses were tested. The null hypotheses, in summary form, were:

1. In each of the ten designated subject areas and in the total program, there is no difference between the number of instructional units offered in 1993-94 and the number of instructional units offered in 2007-08.
2. For each of the ten designated subject areas stated as a percentage of the total program, there is no difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.
3. In each of the ten subject areas and in the total program, there is no difference between the number of enrollment units taken in 1993-94 and the number of enrollments units taken in 2007-08.
4. For each of ten subject areas stated as a percentage of the total program, there is no difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

Table 50 summarizes the results for the testing of the four null hypotheses in respect to each subject area, and in respect to each school size. In instances where the amount of change showed a statistically significant increase in instructional units, percentage of instructional units, enrollment units taken by students, or percentage of enrollment units taken by students, an ‘Increase’ appears in the table. In instances where no statistically significant amount of change occurred in instructional units, percentage of instructional units, enrollment units taken by students, or percentage of enrollment units taken by students, a ‘None‘ appears in the table. In instances where the amount of change showed a statistically significant decrease in instructional units, percentage of instructional units, enrollment units taken by students, or percentage of enrollment units taken by students, a ‘Decrease’ appears in the table.

Table 50

Summary of Hypotheses Testing for Four Null Hypotheses, by Subject Area and by School Size

	Statistically Significant Changes in Number of Instructional Units by Subject Area	Statistically Significant Changes in Percentage of Instructional Units by Subject Area	Statistically Significant Changes in Number of Enrollment Units by Subject Area	Statistically Significant Changes in Percentage of Enrollment Units
English				
Small (N=24)	None	None	None	None
Medium (N=16)	None	None	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	None	None	None	None
Foreign Language				
Small (N=24)	None	None	None	None
Medium (N=16)	Increase	None	Increase	Increase
Large (N=8)	None	Increase	Increase	None
All School Districts (N=48)	Increase	None	Increase	Increase
Mathematics				
Small (N=24)	Increase	Increase	None	None
Medium (N=16)	Increase	Increase	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	Increase	Increase	Increase	Increase
Natural Sciences				
Small (N=24)	None	None	None	Increase
Medium (N=16)	None	None	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	None	None	None	Increase
Social Studies				
Small (N=24)	None	None	None	None
Medium (N=16)	None	None	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	None	None	Increase	None

Table 50 continues

	Statistically Significant Changes in Number of Instructional Units by Subject Area	Statistically Significant Changes in Percentage of Instructional Units by Subject Area	Statistically Significant Changes in Number of Enrollment Units by Subject Area	Statistically Significant Changes in Percentage of Enrollment Units
Vocational Technical				
Small (N=24)	None	Decrease	Decrease	Decrease
Medium (N=16)	None	Decrease	None	None
Large (N=8)	None	None	None	Decrease
All School Districts (N=48)	Decrease	Decrease	Decrease	Decrease
Visual & Performing Arts				
Small (N=24)	None	None	None	None
Medium (N=16)	None	None	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	None	None	None	None
Health				
Small (N=24)	None	None	None	None
Medium (N=16)	None	Decrease	None	None
Large (N=8)	None	Decrease	None	None
All School Districts (N=48)	None	None	None	None
Physical Fitness				
Small (N=24)	None	None	None	None
Medium (N=16)	Increase	Increase	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	Increase	Increase	None	Increase
Other Subjects				
Small (N=24)	None	None	Decrease	Decrease
Medium (N=16)	None	None	None	None
Large (N=8)	None	None	None	None
All School Districts (N=48)	None	None	None	None
Total Program				
Small	None	None	None	None
Medium	None	None	None	None
Large	None	None	None	None
All School Districts	None	None	None	None

Table 50 indicates that statistically significant increases in the mean number of instructional units offered for all school districts occurred in the subject areas of Foreign Language, Mathematics, and Physical Fitness. Statistically significant decreases in the mean number of instructional units offered for all school districts occurred in the subject area of Vocational Technical. No statistically significant changes in the mean number of instructional units offered for all school district occurred in the subject areas of English, Natural Sciences, Social Studies, Visual and Performing Arts, Health, or Other Subjects.

Table 50 indicates that statistically significant increases in the percentage of instructional units offered for all school districts occurred in the subject areas of Mathematics and Physical Fitness. Statistically significant decreases in the percentage of instructional units offered for all school districts occurred in the subject area of Vocational Technical. No statistically significant changes in the percentage of instructional units offered for all school districts occurred in the subject areas of English, Foreign Language, Natural Sciences, Social Studies, Visual and Performing Arts, Health, or Other Subjects.

Table 50 indicates that statistically significant increases in the mean number of enrollment units taken for all school districts occurred in the subject areas of Foreign Language, Mathematics, and Social Studies. Statistically significant decreases in the mean number of enrollment units taken for all school districts occurred in the subject area of Vocational Technical. No statistically significant changes in the mean number of enrollment units taken for all school districts occurred in the subject areas of English, Natural Sciences, Visual and Performing Arts, Health, Physical Fitness, or Other Subjects.

Table 50 indicates that statistically significant increases in the percentage of enrollment units taken for all school districts occurred in the subject areas of Foreign Language, Mathematics, Natural Sciences, and Physical Fitness. Statistically significant decreases in the percentage of enrollment units taken for all school districts occurred in the subject area of Vocational Technical. No statistically significant changes in the percentage of enrollment units taken for all school districts occurred in the subject areas of English, Social Studies, Visual and Performing Arts, Health, or Other Subjects.

In summary, the four subject areas that showed the most statistically significant change were the subject areas of Foreign Language, Mathematics, Vocational Technical, and Physical Fitness. Statistically significant increases in four of the four key measurements including the mean number of instructional units offered, the percentage of instructional units offered, the mean number of enrollment units taken, and the percentage of enrollments units taken for all school districts occurred in the subject area of Mathematics from 1993-94 to 2007-08.

Statistically significant increases in three of the four key measurements including the mean number of instructional units offered, the mean number of enrollment units taken, and the percentage of enrollments units taken for all school districts occurred in the subject area of Foreign Language from 1993-94 to 2007-08.

Statistically significant increases in three of the four key measurements including the mean number of instructional units offered, the percentage of instructional units offered, and the percentage of enrollments units taken for all school districts occurred in the subject area of Physical Fitness from 1993-94 to 2007-08.

Statistically significant decreases in four of the four key measurements including the mean number of instructional units offered, the percentage of instructional units offered, the mean number of enrollment units taken, and the percentage of enrollments units taken for all school districts occurred in the subject area of Vocational Technical from 1993-94 to 2007-08.

The four key measurements of the mean number of instructional units offered, the percentage of instructional units offered, the mean number of enrollment units taken, and the percentage of enrollments units taken for all school districts indicate that statistically significant increases have occurred in the subject areas of Mathematics, Foreign Language, and Physical Fitness. The four key measurements of the mean number of instructional units offered, the percentage of instructional units offered, the mean number of enrollment units taken, and the percentage of enrollments units taken for all school districts indicate that statistically significant decreases have occurred in the subject area of Vocational Technical.

Chapter 5

Summary, Conclusion, and Recommendations

Introduction

Educational reform initiatives have been common place in the world of educational policy since the early 1950's. Sputnik era funding mandates attempted to bolster mathematics and science achievement to provide United States students with a competitive edge over their Soviet counterparts during the space race. Since then, policy makers have continued to influence the instructional process through legislation.

In the 15 years from 1993-94 to 2007-08, reform has manifested itself in the form of "standards-based reform." Standards-based reform is reform founded on the belief that clearly defined academic standards, assessments to measure those standards, and accountability measures to ensure schools help students meet those standards will lead to positive educational change. Some educational researchers (Bracey, 2006; Hardy, 2006a; Hirsch, 2006; Jennings & Renter, 2006; Mathis, 2006a; Mathis, 2006b; Meyer, 2004; Phelps, 1999; Popham, 2001; Von Zastrow & Janc, 2004) have reported the potential for changes in curricular program offerings and in enrollment changes during the standards-based reform movement.

Nebraska educators and policymakers implemented standards-based reform through the Nebraska STARS System. The STARS System is a system of standards-based assessment and reporting that allows classroom educators the opportunity to develop criterion-referenced tests and to use those tests in a formative manner to measure students' attainment of AYP goals (Nebraska Department of Education, 2006).

In states where high stakes testing is mandated, a component that the Nebraska STARS System did not include, researchers (Firestone et al., 2000; Gallagher, 2004; Sloan, 2006) reported a significant degradation of the curriculum. McNeil & Valenzuela (2001) indicated that some high school courses became nothing more than test-prep courses designed to prepare secondary students for success on state-mandated, high stakes tests that were ushered in by the standards-based reform movement. Given the standards-based reforms, such as NCLB and STARS, implemented in Nebraska within in the last decade, this researcher questioned whether or not quantifiable changes in Nebraska's high schools curricular offerings and curricular enrollments have occurred.

Purpose and Procedures

The purpose of this study was to examine whether or not there were quantifiable changes in characteristics of the educational programs in selected grades 9-12 Nebraska public high schools during the era of standards-based reform. This purpose was accomplished by determining whether there were certain quantifiable changes between the 1993-94 school year and the 2007-08 school year in the courses high schools offered, as measured by instructional units, and in the courses students took, as measured by enrollment units. To determine whether certain quantifiable changes in the grades 9-12 programs of selected Class II and Class III school districts had occurred during the era of standards-based reform, the following research questions were answered:

1. What were the mean numbers of instructional units offered in each of the ten designated subject areas and in the total program in 1993-94 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

2. What were the mean numbers of instructional units offered in each of the ten designated subject areas and in the total programs in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
3. What percentage of the total instructional program did each of the ten designated subject areas represent in 1993-94 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
4. What percentage of the total instructional program did each of the ten designated subject areas represent in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
5. What were the mean numbers of enrollment taken in each of the ten designated subject areas and in the total programs in 1993-94 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
6. What were the mean numbers of enrollment units taken in each of the ten designated subject areas and in the total programs in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
7. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in 1993-94 by (a) small-enrollment

school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

8. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

To determine whether there were changes in certain quantifiable characteristics of the educational programming offered in selected grades 9-12 Nebraska public high schools during the era of standards-based reform, 42 research hypotheses were tested. The research hypotheses, presented in summary form, follow:

1. For each of the ten designated subject areas stated as a percentage of the total program, there is a statistically significant difference between the instructional units offered in 1993-94 and the instructional units offered in 2007-08.
2. In each of the ten subject areas and in the total program, there is a statistically significant difference between the number of enrollment units per student taken in 1993-94 and the number of enrollment units per student taken in 2007-08.
3. For each of the ten subject areas stated as a percentage of the total program, there is a statistically significant difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.
4. For each of ten subject areas stated as a percentage of the total program, there was no difference between the enrollment units taken in 1993-94 and the enrollment units taken in 2007-08.

One of the major issues addressed in the research literature regarding the standards-based reform movement was the potential for an emphasis on certain subjects areas to change the amount of instructional units offered and the amount of instructional units enrolled in particular subject areas. In the state of Nebraska, the amount of class time allocated to each of the various courses composing a school's curricular offerings is the underlying quantifier used to determine whether a school's grades 9-12 program of offerings meets state accreditation standards and whether a student has earned enough credits for graduation. For the purpose of this study, that same underlying quantifier was used. Program offerings were measured in terms of instructional units, with one instructional unit equal to 15 clock hours of classroom instruction. Program participation was measured in terms of enrollment units, with one enrollment unit equal to one student taking one instructional unit.

The program data were organized into ten designated subject areas: Language arts, Science, Social Science, Mathematics, Foreign Language, Vocational Education, Visual and Performing Arts, Personal Health, Personal Fitness and Other Subjects. For each subject area, the program data was measured in four different ways. The two measures of courses offered were instructional units and instructional units as a percentage of the total program offered. The two measures of courses taken were enrollment units and enrollment units as a percentage of the total program taken.

The population for this study was the 246 Nebraska Class II and Class III school districts that were in existence during both the 1993-94 school year and during the 2007-08 school year. The subjects consisted of a stratified sample of 48 of those districts. To provide a representative sample, and to ameliorate the effects of extraneous variables, the

population was stratified successively by enrollment, by assessed valuation per fall enrollee, and by geography. The final sample for the study was selected from these groups using a computerized random digit generator. The stratified sample of 48 schools included 24 small-enrollment school districts, with K-12 enrollments of less than 325; 16 medium-enrollment school districts, with K-12 enrollments between 325 to 975 students; and 8 large-enrollment school districts, with K-12 enrollments of over 975 students.

The data were collected from the curriculum reports submitted on an annual basis by every Nebraska school district. The researcher obtained these data from the Nebraska Department of Education. The instructional units and enrollment units for each section was calculated by the researcher. To determine whether certain quantifiable changes had occurred between the 1993-94 and 2007-08 school years, the repeated measures t statistic, with $p < .05$, was used. To develop a profile for the purpose of analyzing whether significant quantifiable changes had occurred in the emphasis of instructional units offered and enrollment units taken in the ten specific subject areas, the t statistic, with $p < .05$, was used to compare means for the 1993-94 and the 2007-08 school years for each of the three population subsets.

Major Findings

The summary and discussion of the major finding are presented in two parts. The program changes that occurred in all 48 schools included in this study from 1993-94 to 2007-08 are discussed in the first part. The program changes that occurred according the classification as small-enrollment, medium-enrollment and large-enrollment school districts between 1993-94 and 2007-08 are discussed in the second part.

Program Changes in Class II and Class III Nebraska Schools

To investigate the program changes that may have occurred in the grades 9-12 programs from 1993-94 to 2007-08, four hypotheses were tested. The first hypothesis was tested to determine, for each of the ten subject areas and for the total grades 9-12 program, if there was a difference between the number of instructional units offered in the 1993-94 school year and the number of instructional units offered in the 2007-08 school year. To make this determination, eleven null hypotheses were tested.

The results supported a finding that some changes had occurred in the number of instructional units offered in 2007-08 compared to the instructional units offered in 1993-94. No statistically significant differences were found in the six subject areas of English, Natural Sciences, Social Studies, Visual and Performing Arts, Health, and Other Subjects. Statistically significant differences were found in four subject areas. More instructional units were being offered in the subject areas of Foreign Language, Mathematics, and Physical Fitness during the 2007-08 school year compared to the 1993-94 school year. During that same year, fewer instructional units were being offered in the subject area of Vocational Technical. Also, a statistically significant difference was not found in the number of instructional units offered in the total program when comparing the number of instructional units offered in 1993-94 compared to 2007-08. In 1993-94, the mean number of instructional units was 138.51, and in 2007-08 the mean number of instructional units was 155.17. An interval estimate indicated that the total number of instructional units had increased by an amount in the range of -37.38 to 4.073.

The literature reviewed suggested that there was likely to be an increase in the number of course units offered in the subjects areas of English and Mathematics and a

decrease in the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences. Some of the results of this study were consistent with the information in the research literature, but others were not. These schools were offering more instructional units in the subject area of Mathematics and offering fewer instructional units in the subject area of Vocational Technical, which is consistent with the suggestions offered in the research literature. However, they were also offering more instructional units in the subject areas of Foreign Language and Physical Fitness, which is inconsistent with the suggestion offered in the research literature.

The second hypothesis was tested to determine, for each of the ten subject areas stated as a percentage of the total program, if there was a difference between the instructional units offered in the 1993-94 school year and the instructional units offered in the 2007-08 school year. To make this determination, eleven null hypotheses were tested.

The results supported a finding that some changes in instructional emphasis occurred. (No statistically significant changes were found in the seven subject areas of English, Foreign Language, Natural Sciences, Social Studies, Visual and Performing Arts, Health, and Other Subjects.) Statistically significant changes were found in three subject areas of Mathematics, Vocational Technical, and Physical Fitness. During the 2007-08 school year, a larger percentage of the total instructional program was being offered in the subject areas of Mathematics and Physical Fitness. During that same year school year, a smaller percentage of the total program was being offered in the subject area of Vocational Technical.

The literature suggested that the subject areas of English and Mathematics would show an increased percentage of the total instructional program, while the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences would show a decreased percentage of the total instructional program. The results of this study were consistent with some of the suggestions of the research literature and inconsistent with others. There was an increase in the percentage of Mathematics instructional units offered, which is consistent with the research literature; however, there was also an increase in the percentage of Physical Fitness instructional units offered, which is not consistent with the research literature. Additionally, a smaller percentage of the total program was being offered in the subject area of Vocational Technical, which is consistent with the research literature.

The third hypothesis was tested to determine, for each of the ten subject areas and for the total grades 9-12 program, if there was a difference between the number of enrollment units taken in 1993-94 and the number of enrollment units taken in 2007-08. To make this determination, eleven null hypotheses were tested.

The results supported a finding that some changes had occurred. (No statistically significant difference were found in the six subject areas of English, Natural Sciences, Visual and Performing Arts, Health, Physical Fitness, and Other Subjects.) Statistically significant differences were found in the other four subject areas. During the 2007-08 school year, there were more enrollment units being taken in Foreign Language, Mathematics, and Social Studies and fewer enrolment units being taken in Vocational Technical. Also, a statistically significant difference was not found in the number of enrollment units taken in the total program when comparing the number of enrollment

units taken in 1993-94 to 2007-08. In 1993-94, the mean number of enrollment units was 2454.57, and in 2007-08 the mean number of enrollment units was 2656.62. An interval estimate indicated that the total number of enrollment units had increased by an amount in the range of -572.2 to 168.13.

The literature suggested that more students would be enrolled in the subject areas of English and Mathematics, while the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences would show decreased enrollment. The results of this study were consistent with some of the suggestions of the research literature and inconsistent with others. There was an increase in the percentage of Mathematics enrollment units, which is consistent with the research literature; however, there was also an increase in the percentage of Foreign Language, Social Studies enrollment units, which is not consistent with the research literature. Additionally, a smaller number of students were enrolled in the Vocational Technical subject area, which is consistent with the research literature.

The fourth hypothesis was tested to determine, for each of the ten subject areas stated as a percentage of the total grades 9-12 program, if there was a difference between the enrollment units taken in 1993-94 and the number of enrollment units taken in 2007-08 for each of the ten subject areas. To make this determination, ten null hypotheses were tested.

The results support a finding that some changes had occurred. No statistically significant difference were found in the five subject areas of English, Social Studies, Visual and Performing Arts, Health, and Other Subjects. Statistically significant differences were found in the subject areas of Foreign Language, Mathematics, Natural

Sciences, Vocational Technical, and Physical Fitness. During the 2007-08 school year, a larger percentage of the total program was being taken in the subject areas of Foreign Language, Mathematics, and Natural Sciences. During that same year, a smaller percentage of the total program was being taken in the subject areas of Vocational Technical and Physical Fitness.

The literature reported that a higher percentage of the instructional program would be taken in the subject areas of English and Mathematics, while the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences would show a lower percentage. The results of this study were consistent with some of the findings reported in the research literature and inconsistent with others. There was an increase in the percentage of Mathematics enrollment units, which is consistent with the research literature; however, there was also an increase in the percentage of Foreign Language and Natural Science enrollment units, which is not consistent with the research literature. Additionally, a smaller percentage of students were enrolled in the Vocational Technical and Physical Education subject areas, which is consistent with the research literature.

The results of this study were generally consistent with those reported in the research literature regarding the increase in the program offerings and the increase in student enrollment in Mathematics. The results of the study were also generally consistent with the reports from the research literature regarding the decrease in the program offerings and the decrease in student enrollment in Vocational Technical. However, the results of the study were generally inconsistent with the reports from the

literature regarding the increase in program offerings and the increase in student participation in English.

Program Changes by Enrollment Category

To compare whether or not the size of a school contributed to change in the school's curricular offerings and student enrollment in the ten subject areas, eight research questions were used to examine the course offerings and course enrollments for four enrollment categories of Nebraska Class II and Class III school districts in this study. The four enrollment categories were small-enrollment school districts, which were schools with 325 or fewer students; medium-enrollment school districts, which were schools with 325-975 students; large-enrollment school districts, which were schools with 975 or more students, and all 48 selected Class II and Class III schools in this study. The eight research questions were answered by using the t statistic to make an interval estimate of the population means for each of the three enrollment categories for each of the ten subject areas for both the 1993-94 and the 2007-08 school year.

Extent of Programs Offered by School Size

To investigate the program changes that may have occurred in grades 9-12 programs between 1993-94 and 2007-08 in the mean number of instructional units offered in small-enrollment school districts, medium-enrollment school districts, large-enrollment school districts, and all school districts, two research questions were answered:

1. What were the mean numbers of instructional units offered in each of the ten designated subject areas and in the total program in 1993-94 by (a) small-

enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

2. What were the mean numbers of instructional units offered in each of the ten designated subject areas and in the total programs in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts, and (d) all school districts?

The results supported a finding that large-enrollment school districts offered more instructional units than did small-enrollment or medium-enrollment school districts. No statistically significant differences were found for the seven subject areas of English, Natural Sciences, Social Science, Vocational Technical, Visual and Performing Arts, Health, and Other Subjects in any school size category. Statistically significant differences were found most often in medium-enrollment sized schools. Foreign Language, Mathematics, and Physical Fitness instructional units all increased in medium-enrollment school districts between 1993-94 and 2007-08. Mathematics instructional units had also significantly increased in small-enrollment school districts during this same time frame.

The literature reviewed indicated that there should be an increase in the number of course units offered in the subjects areas of English and Mathematics and a decrease in the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences in all school sizes. Some of the results of this study were consistent with the suggestions in the research literature, but others are not. Although the results indicate that Mathematics instructional units increased at the small and medium-enrollment school districts, the research results do not suggest that

instructional units in Mathematics increased at the large-enrollment school districts, which is contrary to the suggestions in the research literature. Additionally, the research literature suggests that the subject areas of Physical Fitness and Foreign Language are being curtailed for the purpose of increasing Mathematics and English instructional units, which is not the case in the medium-enrollment school districts in this study. It should also be noted that neither the small-enrollment nor the large-enrollment school districts had a statistically significant decrease in the number of instructional units being offered in either Foreign Language or Physical Education.

Profile of Programs Offered by School Size

To investigate the program changes that may have occurred in grades 9-12 programs between 1993-94 and 2007-08 in the total instructional program each of the ten designated subject areas represented in small-enrollment school districts, medium-enrollment school districts, large-enrollment school districts, and all school districts, two research questions were answered:

1. What percentage of the total instructional program did each of the ten designated subject areas represent in 1993-94 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
2. What percentage of the total instructional program did each of the ten designated subject areas represent in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, and (c) large-enrollment school districts, and (d) all school districts?

No statistically significant differences were found for the five subject areas of English, Natural Sciences, Social Science, Visual and Performing Arts, and Other Subjects in any school size category. Statistically significant difference occurred most often in medium-enrollment sized schools. The percentage of instructional units in Mathematics, Vocational Technical, Health, and Physical Fitness all made significant changes in medium-enrollment sized schools, with math and Physical Fitness increasing and Vocational Technical and Health decreasing. The percentage of instructional units significantly increased in large-enrollment school districts in Foreign Language, while decreasing in Health. In small-enrollment school districts, the percentage of instructional units significantly increased in Mathematics, but decreased in Vocational Technical programs.

The literature reviewed suggested that there should be an increase in the number of course units offered in the subjects areas of English and Mathematics and a decrease in the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences in all school sizes. Some of the results of this study were consistent with the suggestions in the research literature, but others were not. Although the results indicated that Mathematics instructional units increased at the small and medium-enrollment school districts, the research results do not suggest that instructional units in Mathematics increased at the large-enrollment school districts, which is contrary to the suggestions in the research literature. Additionally, the research literature suggests that the subject areas of Physical Fitness and Foreign Language are being curtailed for the purpose of increasing Mathematics and English instructional units, which is not the case in the medium-enrollment school districts for Physical Fitness or for

Foreign Language in large-enrollment school districts in this study. The research literature did suggest that percentage of instructional units offered in Vocational Technical classes were decreasing, which is consistent with the results of this study in small-enrollment school districts and medium-enrollment school districts. Large-enrollment school districts in this study also showed a decreased percentage of instructional units in Health. Although there are changes in the percentages of several subject areas, those changes don't seem to be consistently influenced by school size or predictable.

Extent of Programs Taken by School Size

To investigate the program changes that may have occurred in grades 9-12 programs between 1993-94 and 2007-08 in the mean number of enrollment units taken in small-enrollment school districts, medium-enrollment school districts, large-enrollment school districts, and all school districts, two research questions were answered:

1. What were the mean numbers of enrollment taken in each of the ten designated subject areas and in the total programs in 1993-94 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?
2. What were the mean numbers of enrollment units taken in each of the ten designated subject areas and in the total programs in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

No statistically significant differences were found for the seven subject areas of English, Mathematics, Natural Sciences, Social Science, Visual and Performing Arts,

Health, and Physical Fitness in any school size category. Foreign Language enrollment units increased in both medium-enrollment and large-enrollment school districts. Vocational Technical and Other Subjects enrollment units both significantly decreased in small-enrollment school districts.

The literature reviewed suggested that there should be an increase in the number of course units offered in the subjects areas of English and Mathematics and a decrease in the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences in all school districts. Some of the results of this study were consistent with the research literature, but others are not. This study suggests that Foreign Language credits actually increased at both the large and medium-enrollment school districts, which is inconsistent with the suggestions in the research literature. The research literature also suggests that Vocational Technical course enrollment units and Other Subjects course enrollment units would decrease, which is consistent with the results of this study.

Profile of Programs Taken by School Size

To investigate the program changes that may have occurred in grades 9-12 programs between 1993-94 and 2007-08 in the percentage of total enrollment units taken in each of the designated ten subject areas in small-enrollment school districts, medium-enrollment school districts, large-enrollment school districts, and all school districts, two research questions were answered:

1. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in 1993-94 by (a) small-enrollment

school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

2. What were the percentages of total enrollment units taken in each of the ten designated subject areas by students in 2007-08 by (a) small-enrollment school districts, (b) medium-enrollment school districts, (c) large-enrollment school districts, and (d) all school districts?

No statistically significant differences were found for the seven subject areas of English, Mathematics, Natural Sciences, Social Studies, Visual and Performing Arts, Health, and Physical Fitness in any school size category. The percentage of enrollment units taken in Foreign Language increased in both large-enrollment and medium-enrollment school districts. Small-enrollment school districts saw a decrease in the percentage of enrollment units in the subject areas of Vocational Technical and Other Subjects.

The literature reviewed suggested that there should be an increase in the number of course units offered in the subjects areas of English and Mathematics and a decrease in the subject areas of Technical Vocational, Visual and Performing Arts, Foreign Language, and the Natural Sciences in all school districts. Some of the results of this study were consistent with the suggestions in the research literature, but others are not. The percentage of enrollment units in the subject area of Foreign Language increased in both large-enrollment and medium enrollment size schools, which is inconsistent with the research literature. The enrollment unit percentage of both Vocational Technical and Other Subjects significantly decreased in small-enrollment school districts, which is consistent with the research literature. Although there are changes in the percentages of

several subject areas, those changes are not consistently influenced by school size or predictable.

Summary of Hypotheses Testing

Table 50 presents a summary of the hypotheses testing for the four null hypotheses, by subject area and by school size. It shows the amount of statistically significant change that occurred in each of the subject areas both by instructional units offered and by enrollment units taken for each of the four school sizes.

Conclusion

The purpose of this study was to examine whether or not there were quantifiable changes in characteristics of the educational programs in selected grades 9-12 Nebraska public high schools during the era of standards-based reform. The research literature suggest that curricular changes in course offerings and in course enrollments have occurred between the school years of 1993-94 and 2007-08 as a result of the standards-based reform movement.

The research literature suggests that standards-based reform is causing schools to shift their curricular emphasis towards those subject areas that are mandated by state and federal government. The literature suggests that this is causing substantial change in the courses offered and the courses taken in high schools across the United States and in the state of Nebraska.

The results of this study indicated that there had been certain changes in program offerings and program enrollments in the 48 selected school districts in the 15-year period from 1993-1994 to 2007-2008. Foreign language, mathematics, and physical education instructional units increased in all school districts. Foreign language,

mathematics, and social studies enrollment units increased in all school districts. Vocational technical instructional units and vocational technical enrollment units decreased in all school districts. When these changes are examined in respect to school size, the research results suggest no consistent correlation between the curricular changes that are occurring and the size of the school district. The most pronounced pattern suggested by this research study is the fact that medium-enrollment school districts appear to have the most statistically significant change occurring in their curricular offerings and curricular enrollments when compared to small-enrollment and large-enrollment sized schools.

Recommendations

Based on the results of this study, three recommendations are offered. (1) Policymakers and legislators in Nebraska should be advised that standards-based reform does not appear to be having any consistent or predictable effect on the curricular offerings and curricular enrollment in the state of Nebraska. They should review the results of this study to see the nature and extent of the changes in course enrollments and in course offerings standards-based reform has brought about in the curricular offerings and curricular enrollments in the state of Nebraska. (2) School districts in the state of Nebraska could use the model presented in this study to compare curricular course offerings and course enrollments in Nebraska schools to gain insight into curricular changes for the purpose of evaluating changes they might want to consider implementing. If an agreed upon measure was uniformly used by educational leaders and policymakers to evaluated course offerings and course enrollments, it could help advance the conversation regarding instruction to the next and most important phase, evaluating and

improving the quality of instruction across the state. (3) The model presented in this study could be used by the Nebraska State Department of Education to provide factual, quantifiable data to educators, politicians, and the public. The data from the curriculum reports is already digitized. With some very minor adjustments in the formatting of the data that the Nebraska Department of Education already collects in the form of the curriculum reports, the Nebraska Department of Education could easily replicate the methodology of this study and include all grades 9-12 programs in the state of Nebraska rather than a sample, which would provide citizens, educators, and politicians a more clear and accurate view of how curricular offerings and curricular enrollments may have been affected by standards-based reform.

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