ECONOMICS WITHIN SOCIAL STUDIES: A COMPARATIVE ANALYSIS OF STUDENT PERFORMANCE ON THE 2012 KANSAS HISTORY-GOVERNMENT ASSESSMENT

By

Svetlana P. Deplazes

Submitted to the graduate degree program in the Department of Curriculum and Teaching and the Graduate Faculty of the University of Kansas in partial fulfillment of the requirements for the degree of Doctor of Philosophy

_____
Chairperson Barbara Phipps, Ph.D.

_____
Paul Comolli, Ph.D.

_____
Phil McKnight, Ph.D.

_____
Joseph O'Brien, Ph.D.

_____
John Poggio, Ph.D.

Date Defended: April 11, 2014

The Dissertation Committee for Svetlana P. Deplazes

certifies that this is the approved version of the following dissertation:

ECONOMICS WITHIN SOCIAL STUDIES: A COMPARATIVE ANALYSIS OF STUDENT PERFORMANCE ON THE 2012 KANSAS HISTORY - GOVERNMENT ASSESSMENT

_____

Chairperson: Barbara Phipps, Ph.D.

Date approved: April 22, 2014

ABSTRACT

The purpose of this study was to examine the overall level of student achievement on the 2012 Kansas History - Government Assessment in Grades 6, 8, and high school, with major emphasis on the subject area of economics. It explored four specific research questions in order to: (1) determine the level of student knowledge of assessed economic indicators and concepts; (2) investigate how student demographics relate to economic understanding; (3) compare test results in economics with those in other social studies sub-disciplines; and (4) analyze the test questions from the non-economics subject-areas of social studies and compare student performance on the items that required economics knowledge to be answered correctly with those that did not require it, within non-economics sub-disciplines and across the entire test in comparison to the designated economics items.

This study analyzed the test results of the whole population of Kansas students with no special education needs in the assessed grades, who participated in the History-Government assessment. The analysis addressing the research questions included multiple regression analysis, tests of mean difference, item analysis, and descriptive statistics.

The analysis of the outcomes revealed that average economics scores achieved by students in sixth and eighth grades, ranging from 66 to 70 percent, were higher than those achieved at the high school level, with scores in the World Focus and U.S. Focus tests being 43 and 58 percent, respectively. High school students demonstrated a low achievement level on the World Focus test, with about half of them performing at less than or equal to 50 percent. Tenth-graders performed significantly worse than twelfth-graders on the U.S.-related economics questions.

Through the detailed analysis of the test items, the specific economic concepts were identified, and their difficulty levels were measured by comparing student performance on the economic concept areas with the mean test difficulties. Better performance was indicated on the microeconomic concept areas of supply and demand and on the fundamental concept areas of opportunity costs, decision-making, and incentives. Students had greater difficulty with the fundamental concept areas of scarcity, consequences, and choice, and with the concepts from the international economics category, as well as with the economics test questions presented in an historical context.

Students in the sixth and eighth grades demonstrated higher scores on the economics and geography subtests and lower scores on the history and civics subtests. In high school, conversely, economics scores were the lowest of the sub-disciplines.

The analyses also revealed the existence of gender, racial/ethnic, and socio-economic status achievement gaps. Male students outperformed female students; higher SES students performed better than those with lower SES; and White students demonstrated higher scores than Black and Hispanic students across social studies sub-disciplines and assessed grade levels. Asian students performed similar to White students, except for the high school U.S. Focus test.

Analysis of test items in the non-economics social studies strands revealed a broad list of economic concepts required for understanding history, civics/government, and geography items. Kansas students tended to perform better on the social studies items that did not require economic understanding. They generally performed better on the designated economics items than on the group of non-designated economics items from other sub-disciplines.

This study provides insight into the areas of economics teaching that require further emphasis in instruction.

ACKNOWLEDGMENTS

To Dr. Barbara Phipps, thank you for bringing me to the University of Kansas and believing that I was capable of achieving my goals. I would also like to thank her for all the time she has spent helping me with my dissertation and providing a wealth of comments and suggestions that have helped to make it what it is today. Barbara has been truly one of the most influential people in my life, and I can gratefully call her my "Academic Mother".

I also would like to thank my committee members Paul Comolli, Phil McKnight, Joe O'Brien, and John Poggio. The guidance, wisdom, support and understanding that they have provided throughout this process are greatly appreciated. I have so much respect for all the work that they have done and the impact that they have had on their students.

Special thanks to Dr. Julia Shaftel, Dr. Marianne Perie, and Dr. Neil Kingston at the KU CETE who were very instrumental in providing the data for this research and for allowing the access to the test items. This dissertation would not have been possible without these.

I also would like to thank my "academic sister" Nadia Kardash and her husband Nick for their support, encouragement, and help. They went beyond the scope of friendship and will always be considered family. Also, I would be remiss if I did not thank some of my former professors. Alexander Kovzik and his family were there for me throughout the process and I depended on their guidance and support during it. I am also grateful to Sergey Borodich for the advice he has given to me throughout this time.

I would like to thank all of the teachers from my former schools, BSU and UDel, as they also were an influence on who I am all today. To all my other friends in the field of economic education, including Shala London and Sherie Surbaugh, I am also thankful for investing their knowledge, time, and talent in me.

I also want to thank my friends Alefiya Deards and Errin Roney for supporting me during the difficult minutes and entertaining Sebastean so that I could finish my quest.

To my mom, I am grateful for giving me everything you had raising me and for all your hard work to make sure I got the best education possible and for letting me go to pursue my dream. It was probably one of the most difficult times for her to see me leave Minsk. Throughout that entire time, you have supported me in every step as I moved through my life. To Oleg, my brother, I am also thankful because without his help, I don't know if I could have started on my path. To my other mom, whom I acquired through marriage, I thank you for all your help and support, as well.

My little boy Sebastean, thank you for our play time you sacrificed to let me work. I know you tried your very best to help me in any way you could, though you may not have entirely understood what was going on. To my dearest husband, my best friend and supporter, I am grateful for your love and encouragement along the way.

TABLE OF CONTENTS

ABSTRACT……...iii

ACKNOWLEDGEMENTS……v

TABLE OF CONTENTS……..vii

LIST OF TABLES……..…x

CHAPTER

I. INTRODUCTION ……..1

II. REVIEW OF RELATED LITERATURE ……..8

Economic Education……....9

Why Economic Education? ……9

Current Status of Economic Education and Reform Movements……..12

Economics in Other Social Studies Sub-disciplines ……18

Research in Economic Education……..20

Student Aptitudes ……..21

Teacher Preparation in Economics……22

Course Type……...24

Research on the Impact of Student Level Demographic Characteristics on Economic Learning……..…..26

Student SES ……..…26

Student Race/Ethnicity……..……..…28

Student Gender……...29

Interactions among Demographic Characteristics…….33

Student Concept Understanding……35

Assessment as Part of an Accountability System…….....39

State Assessment of Economic Knowledge in Kansas……..39

III. METHODOLOGY……47

Population ……48

Data……48

Theoretical Framework……..…50

Research Design…….53

Data Analysis……..…....53
Research Question One……..53
Research Question Two ……....54
Research Question Three……...54
Research Question Four……55
IV. DATA ANALYSIS AND FINDINGS……..58
Research Question One……..62
Part A. Student Performance in Economics ……..62
Grade 6…….....62
Grade 8……...65
High School……...67
Part B. The Level of Understanding of the Specific Economic Concepts……...71
Grade 6……...73
Grade 8……...76
High School……...78
Research Question Two…….81
Part A. Student Performance on the Overall Social Studies Test and in Sub-discipline Subtests ……81
Part B. Student Performance on the Overall Social Studies Test and in Sub-disciplines Separated by Gender, Race/ethnicity, and SES……84
Grade 6……...84
Grade 8……...86
High School……...87
Research Question Three……...90
Main Effects ……..94
Interaction Terms……...98
Research Question Four…….....102
Part A. Student Performance on Questions in History, Civics/government, and Geography Subtests that Require Economic Knowledge as Compared to the Non-economics Items……107
Grade 6……108
Grade 8……109
High School……111

Part B. Student Comparative Performance on Other Social Studies Items Requiring Economic Knowledge as Compared to the Economics Subtest……114

Grade 6……..…..114

Grade 8……115

High School……115

V. CONCLUSION AND DISCUSSION……119

Summary and Interpretation……119

Limitations……...124

Implications of the Study……125

Conclusions……..128

REFERENCES……..……..130

APPENDICES……155

Appendix A: Cronbach's Alpha Coefficients ……155

Appendix B: Score Distribution Histograms by Grade Level and Test Set……156

Appendix C: Assessed Economics Indicators and Economic Concepts……..159

Appendix D: Mean Scores (%) by Race/Ethnicity, Gender, and SES……162

LIST OF TABLES

TABLE		PAGE
1	Sample Descriptive Statistics by Grade Level	60
2	Grade 6: Means, Modes, Medians, Standard Deviations, and Skewness for Economics Sub-test (Percent Correct)	62
3	Grade 6: Frequency Distribution of Economics Scores (Percent-Correct)	63
4	Grade 8: Means, Modes, Medians, and Standard Deviations for Economics sub-test (Percent Correct)	65
5	Grade 8: Frequency Distribution of Economics Scores (Percent-Correct)	66
6	High School: Means, Modes, Medians, and Standard Deviations for Economics sub-test (Percent Correct)	69
7	High School: Means, Modes, Medians, and Standard Deviations for the Economics Test (Percent Correct), by Test Type and Grade Level	71
8	High School: Frequency Distribution of Economics Scores, by Grade Level and Test Part	71
9	Grade 6: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty	74
10	Grade 8: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty	76
11	High School World Focus: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty	78
12	High School U.S. Focus: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty	80
13	Descriptive Statistics for Social Studies Areas by Grade Level and Test Form	82
14	Grade 6: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES	85
15	Grade 8: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES	86
16	High School: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES	88
17	Regression Model Summaries by Test Set	93
18	Main Effects Statistics for Gender, Race/Ethnicity, and SES by Grades	95
19	Statistics Summary for Significant Interaction	99
20	*B*-weights and β Coefficients for Significant Interaction Effects	100
21	Mean Scores and Differences in Means for SES x Race/Ethnicity Interactions	101
22	Number of Items With and Without Economics in Non-economics Subtests Items	103
23	Grade 6: Results of *t*-Tests and Descriptive Statistics, by Sub-discipline	107
24	Grade 8: Results of *t*-Tests and Descriptive Statistics, by Sub-discipline	108
25	World Focus: Means and Standard Deviations for Two Questions, With and Without Economics, by Sub-discipline and Grade Level	110
26	U.S. Focus: Means and Standard Deviations for Two Questions, With and Without Economics, by Sub-discipline and Grade Level	111
27	Results of *t*-Tests and Descriptive Statistics for Two-group Comparison	114
28	Grade 8**:** Results of *t*-Tests and Descriptive Statistics for Two-group Comparison	115
29	High School: Results of *t*-Tests and Descriptive Statistics for Two-group Comparison, by Focus Test and Grade Level	116

CHAPTER I

INTRODUCTION

Economics as a social science offers useful analytical tools and content knowledge that empower people to make more reasoned choices about their own lives and the world around them (Miller, 1988). Economic literacy as a goal of economic education is particularly imperative in democratic societies where the citizen electorate plays an active role in the decision-making process by voting on propositions and candidates' election platforms (Miller, 1988; Miller & VanFossen, 2008). The recent (public) debates and surveys show that the majority of the citizens have little understanding of how our economic and financial systems work, what and who contributed to the creation of economic difficulties that the U.S. has been facing for years, and how these problems can be addressed (Harris Interactive, 2005; Neumann, 2010).

Walstad (1998) contends that one of the reasons for such limited comprehension of the problems faced by society is an inadequate emphasis on economic and financial education in the school curriculum. Since the founding of the nation, the major goal of public education has been to nurture responsible citizens who would be able to make informed decisions in dealing with economic and social problems that arise in the society and personal lives (Miller, 1988; Martinez & Snider, 2001). For these reasons, economic educators share the belief that teaching economic concepts and ideas to students at a young age will help create more competent and confident workers, consumers, investors, and citizens of tomorrow (Banaszak, 1987; CEE, 2011).

The role of economics in forming reasoning and effective citizenship skills has been emphasized by many distinguished economists who argued for the case of economic literacy at the pre-college level (Baumol, 1994; Samuelson, 1987; Stigler, 1970; Tobin, 1986). One of the

strong reasons for the inclusion of economics instruction at the K-12 level is research that shows that students are able to learn its fundamentals even at a very young age (Schug & Armento, 1985; Walstad, 1992; Schug, 1994; VanFossen, 2003). In addition, early exposure to economics ideas creates building blocks for grasping more complicated economic principles in later grades (VanFossen, 2010). Further, since people have "chosen to speak and vote on economic problems" (Stigler, 1970, p.82), they would need to have economic knowledge to critically judge economic misinformation (Tobin, 1986). Finally, for the majority of high school graduates, taking a high school economics course is the only chance to learn about this important subject (Buckles, 1991; Walstad, 2001; Roberts & McCloskey, 2012).

The fact that many researchers, economists, and educators emphasize the significance of economic education in the K-12 schools does not mean much unless this agreement is supported by the state educational officials and school districts and is translated into changes in curriculum (Buckles, Schug, & Watts, 2001). Kansas State Department of Education has recognized the importance of citizenship education and economic literacy among school children by, first, including economics as a separate sub-discipline in the state social studies standards documents and, second, by administering statewide assessments that contain economics-related questions.

These pivotal steps happened after Kansas State Board of Education accepted the Quality Performance Accreditation (QPA) system in 1991 as a result of the national movement towards the outcome-based approach to education, which followed the publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) (O'Brien, 1997; Martinez & Snider, 2001). The outcome of QPA was the development and adoption of curricular standards and creation of accountability measures to evaluate student attainment of those standards. The first version of social studies standards was developed in 1994 (Kardash, 2007) and, with helpful

feedback from different groups of educators and scholars, these standards have undergone two major revisions prior to 2012. The second version of the social studies standards that included economics as a separate strand, along with civics/government, history, and geography, was issued in 1999. The 1999 *Kansas Curricular Standards for Civics-Government, Economics, Geography, and History* was an outcome of extensive work of the writing committee appointed by the Kansas State Board of Education (KSBE). Work of the committee included analyses of national sets of standards in respective disciplines and input received from teachers and the public (KSBE, 1999). As the result of another revision, also based on research and feedback, the KSBE adopted the succeeding set of *Kansas Standards for History and Government; Economics and Geography* in 2004. State standards provide a guide to local school districts and teachers on the scope and sequence for the social studies disciplines, and, consequently, they serve as a framework for curriculum, assessment, and teacher preparation (KSBE, 2004).

In order to determine how well students meet these standards, state-wide assessments have been given periodically. State assessment provides important information about the extent to which the concepts included in the assessed standards are being taught or learned (Buckles et al., 2001). After an unsuccessful attempt to adopt performance assessment in the early stages of accountability movement (O'Brien, 1997; Martinez & Snider, 2001), the first Kansas standardized state assessment in social studies was administered in the Spring of 2001 (Glasnapp & Poggio, 2001). The intent of this assessment was to measure student achievement on targeted benchmarks and indicators from the 1999 version of *Kansas Curricular Standards for Civics-Government, Economics, Geography, and History*. The test forms developed for this assessment cycle were also used in 2003 and 2005 in grades six, eight, and eleven. The next round of statewide testing based on the 2004 updated curricular standards, assessment targets, and newly

constructed test forms, started in 2008. The newer social studies assessment was offered twice, in 2008 and 2012.

Even though an economics course is not required for high school graduation in most school districts in the state of Kansas, the presence of economics items in the state assessment provides an incentive for educators to integrate economics into teaching about other social studies disciplines and dedicate time for covering concepts and topics from the subject matter that otherwise would have been ignored (VanFossen, 2005). According to the Council for Economic Education (CEE, 2011), Kansas is among the five states that, although they do not require economics for high school graduation, do include economics in their state assessment programs. The assessment of economics provides incentives for integrating this subject into other social studies disciplines statewide. The Kansas History-Government Assessments result in a large data set to analyze the level of understanding of the specific economics indicators as identified by the *Kansas Standards for History and Government; Economics and Geography*.

The assessment data serves as a valuable analytical tool as it contains information on the student performance that can be examined by gender, race, socio-economic status (SES), disability, and migrant status (KSDE, 2012). Unlike other social studies areas, the field of economic education is extensively researched quantitatively (Miller & VanFossen, 2008). A great number of research papers have focused on examining the relationship between students' performance in economics and various student-level characteristics (Watts, 2006; Schug, Harrison & Clark, 2012). Becker (1983a) noted that student demographic characteristics, such as student gender, race/ethnicity, and socio-economic status, are significant determinants of economic learning at the pre-college level. This has been verified by continued economic education research, which is reviewed in Chapter 2.

According to Glasnapp & Poggio (2001), analysis of the Kansas state assessment data provides reliable information on student progress in meeting state curricular standards, and Cawelti & Protheroe (2001) state that detailed analyses help to identify direction for appropriate educational modifications. The in-depth interpretation of the past outcomes of the assessment based on clearly defined academic standards may provide the essential data and evidence that could be helpful in the development of new state assessment strategies and policies in light of adoption of the Common Core State Standards.

Purpose of the this study

The purpose of this research was two-fold. First, this study determined the level of student knowledge of assessed economic indicators by concept areas and by student characteristics and compared student performance in economics with performance in history, geography, and civics/government.

Second, because understanding of social studies in general may assume a certain level of economic knowledge (Buckles & Watts, 1997; Walstad & Watts, 2011), this research determined the items that required economic understanding to perform well on the non-economics portion of the social studies assessment and provided a comparative analysis of student performance.

Using the *2012 Kansas History-Government Assessment* test forms and assessment results, the following research questions were examined:

1. How well do students in Grades 6, 8, and high school perform on the economics subtest of the 2012 Kansas History-Government Assessment? What is their level of understanding of the specific economic concepts?

2. How well do students perform on the economics subtest items as compared to the overall social studies score and the sub-tests items in civics/government, history, and geography?

3. How is student performance in economics related to student gender, race/ethnicity, and socio-economic status?

4. What is the student comparative performance on other social studies items requiring economics knowledge within each sub-discipline as compared to the non-economics test items and the economics subtest?

Newly developed test items, which measure student knowledge and understanding of the revised indicators and benchmarks for the *Kansas Curricular Standards for History-Government, Economics, and Geography* (KSBE, 2004) and assessment data allowed the evaluation of statewide outcomes of student knowledge of economic concepts among students in grades 6, 8, and high school.

The analysis addressing the research questions included multiple regression analysis, tests of mean differences, item analysis, and descriptive statistics.

The results of this study may be useful in several ways. First, the outcomes of student performance on economics test items helped reveal strong and weak areas of student concept understanding, thus assisting Kansas social studies and economics teachers in identifying which concepts or themes need more detailed explanation and instruction. Second, this study attempted to denote economic concept areas that require deeper emphasis during the study of history, civics/government, and geography. The third area of importance is related to teacher professional development. The findings of this study should help economic educators in designing

professional development programs for social studies teachers to provide the knowledge base for the integration of economics into other sub-disciplines.

Although the state assessment provides a unique opportunity to use readily available data to analyze student performance, it also has limitations. In previous research, teachers' qualification and content knowledge are key factors of influence on student learning (Watts, 2006; Walstad & Watts, 2011). This study focused only on student demographic data collected within the state assessment. The restriction of that data use did not permit control for such important factors often included in the educational production functions as teacher quality, and individual school and district characteristics. Thus, the relationship between students' performance and factors available through the existing data set did not uncover variability in test scores that might be caused by these factors.

Even in light of these limitations, it is this researcher's hope that the results will provide useful information to Kansas social studies teachers and curriculum specialists, as they go beyond the state-issued report of student performance in the content area as a whole.

Chapter II of this dissertation reviews the literature in the field of economic education. It provides a brief history of the field and details the existing status of pre-college economic education as well as the rationale for it. It also emphasizes the standards movement, state assessment practices, and research conducted in the field of economics education. Chapter III describes the research methods, design, population, and data. Findings based on the analysis of state assessment results are reported in Chapter IV. The final chapter discusses the implications and conclusions of the dissertation findings as well as suggestions for further research and data collection.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this study was to analyze the level of student understanding of economic concepts tested in the 2012 Kansas History-Government Assessment. The following research questions were investigated:

1. How well do students in Grades 6, 8, and high school perform on the economics subtest of the 2012 Kansas History-Government Assessment? What is their level of understanding of the specific economic concepts?
2. How well do students perform on the economics subtest items as compared to the overall social studies score and the sub-tests items in civics/government, history, and geography?
3. How is student performance in economics related to student gender, race/ethnicity, and socio-economic status?
4. What is the student comparative performance on other social studies items requiring economics knowledge within each sub-discipline as compared to the non-economics test items and the economics subtest?

The goal of this chapter is to provide an overview of research literature related to this study. The chapter is divided into three main parts. The first part provides an overview of the current status of economic education at the pre-college level and the developments that led to advancing its role in the K-12 curriculum. The second part reviews past research on factors related to economics learning. Because the data for this study comes from the state assessment in social studies, the third section provides a brief overview of the Kansas assessment program in this field.

Economic Education

The presence of economic education in K-12 curriculum today is the greatest it has been in its history. All states include economics in their standards' documents (CEE, 2014). Twenty four states mandate some type of economics course to be offered at the high school level and twenty two states, including the five most populated, require an economics course for high school graduation (CEE, 2014). Nearly sixty percent of American students take a separate economics course at the high school level, and most students are exposed to economics ideas and principles through infusion into other disciplines (Walstad & Rebeck, 2012). Economics, which was once reserved for study only by college-level students, has been established as an important school subject and is now an "equal partner" of history, civics/government, and geography in the K-12 social studies curriculum (Grimes, 2012; Jenness, 1990). However, despite the efforts in promoting the importance of economics knowledge, the level of economic literacy among young people remains low and thus there is still room for improvement in the area of economics teaching (Walstad & Rebeck, 2001a).

Why Economic Education?

National debt, low savings rates, trade deficit, crumbling infrastructure, lost jobs, and poverty are among the economic problems that the U. S. has been facing in recent years. These issues cannot be ignored, but recent public debates and surveys show that the majority of citizens have little understanding of the causes of economic difficulties or how they can be addressed (Harris Interactive, 2005; Neumann, 2010). According to Walstad (1998), one of the reasons for such limited comprehension of the problems faced by society is an inadequate emphasis on economic and financial education in the school curriculum. Economic literacy is particularly important in democratic societies where citizens play an active role in the decision-making

process by voting on propositions, platforms, and candidates that offer a variety of solutions to important economic, foreign policy, and social issues (Miller & VanFossen, 2008).

As a social science, economics offers citizens useful analytical tools, context, and content knowledge to make informed decisions. As John Maynard Keynes wrote, "… the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else" (Keynes, 1936, p. 383). Since economics touches almost all aspects of societal life, economic educators believe that teaching economic concepts and ideas to students at a young age will create more competent and responsible citizens of tomorrow (Banaszak, 1991; CEE, 2011). In the school curriculum, social studies is the "umbrella" content area that provides school children with the necessary knowledge and reasoning skills to fulfill these roles (Hamot, 2000; NCSS, 1994).

Social studies is the "interdisciplinary integration of social science and humanities concepts for the purpose of practicing problem solving and decision making for developing citizenship skills on critical social issues" (Barth in Dalgaard, 1994, p.37). Traditionally, history has been viewed as the spine of the social studies structure; geography and civics/government have shared dominant positions in social studies as well (Hertzberg, 1981; Hamot, 2000). Over the course of development of social studies as a school subject area, the content and concepts from different sub-disciplines integrated, which led to the use of interdisciplinary approaches in the individual subjects that comprise it (Jenness, 1990). The education reform movement of the 1960s caused substantial changes in the social studies structure and curriculum. Due to the variety of efforts that created educational programs and projects led by notable economists and curriculum specialists and supported by national educational agencies and professional organizations, economics became institutionalized in the school curriculum,

especially at the high school level (Jenness, 1990). As such, economics has become an important and integral strand of the new "big four" of social studies (Watts & Walstad, 2010). That step was quite "organic" because fundamental ideas of economics help learners to better understand other social sciences (Blanchard, Senesh, & Patterson-Black, 1999; Miller, 1988; Watts & Walstad, 2010). Among economics scholars and educators, the question has shifted from *whether* to teach economics at the pre-college level to *what* economics principles and concepts should be taught and *how* to do that (Warmke, 1970). As a result of the reform efforts, economics, once considered appropriate for study only at the college level, has been taught to several generations of school children (Jenness, 1990; Walstad, 1998).

The role of economics in forming reasoning and effective citizenship skills has been emphasized by many distinguished economists such as Stigler (1970), Tobin (1986), Samuelson (1987), Baumol (1994) who argued for the case of economic literacy at the pre-college level (Walstad, 2005). The following reasons are often listed: students are able to learn the fundamentals of economics even at a very young age (Schug & Armento, 1985; Walstad, 1992; Schug, 1994); early exposure to economic ideas creates building blocks for grasping more complicated economics principles in later grades (VanFossen, 2010); young people start making economic decisions at an early age, and, as powerful consumers, they influence many spending decisions of their parents and thus influence a country's economic development (VanFossen, 2010). James Tobin, often quoted by economic educators, summarized the rationale for economic education very clearly:

> High school graduates will be making economics choices all their lives, as breadwinner and consumers, as citizens and voters. A wide range of people will bombard them with economic information and misinformation for their entire lives. They will need

some capacity for critical judgment, they need it whether they go to college or not. (Tobin, 1986, p.22).

According to Walstad (2001), if only 40 percent of undergraduate students take economics in college, which translates into only 25 percent of high school graduates, for the remaining 75 percent of high school graduates, taking an economics course in high school is the only way to learn about this subject; a subject that is vital for teaching young adults to interpret information about our economy and to make decisions. Whereas economists had made a strong case for economic education at the pre-college level in the post-Sputnik era, the changes that led toward a greater role of economics in the school curriculum happened relatively recently, in the last three decades (Walstad, 2005).

Current Status of Economic Education and Recent Reform Movements

The reform efforts that influenced the No Child Left Behind education policy resulted from several developments that connected economic troubles of the 1980s with an inadequate system of public education and mediocre outcomes achieved by the U.S. students on international tests as compared to their international counterparts (Martinez & Snider, 2001; Vinovskis, 1999). Not only did these developments influence the direction of the reform movement, but also led to increased emphasis on economic education in the school curriculum. The important documents that signified a greater role of economics at the pre-college level were *A Nation at Risk: The Imperative for Educational Reform* report issued in 1983 and *Goals 2000: Educate America Act* that passed in 1994 (Branson, 2003; Buckles et al., 2001)

A Nation at Risk (National Commission on Excellence in Education, 1983) was prepared by the members of the National Commission on Excellence in Education formed during the Reagan administration. The report was a broad acknowledgement that American students were

not adequately prepared to succeed in the modern global economy. This document, often cited as the beginning of the contemporary school reform movement, signified a new era of standards and accountability (Adams, 2003; Education Week, 2004; U.S. Department of Education, 2008). It called for improved teaching and re-establishing rigorous subjects-based instruction in the new core disciplines, among which were history, geography, and economics (National Commission on Excellence in Education, 1983). As a result of the standards and accountability movements at the national level, many U.S. states started adopting this system and developed content standards and assessment programs. In many cases, the first sets of state standards went under further revision process (Rutherford & Boehm, 2004).

The subsequent legislation that also reflected a commitment to educational improvement at the federal level led to the development of educational goals for the year 2000, which determined a new stage of the standard-based school reform movement (U.S. Department of Education, 2008). In 1994, two legislative documents, *The Improving America's Schools Act* and *Goals 2000: Educate America Act,* defined a new role for the federal government in education: to support efforts by local and state educational agencies to increase student academic achievement level through state standards and testing (Shepard, Hannaway, & Baker, 2009). The significance of *Goals 2000* for social studies and economic education is often emphasized for recognizing economics along with history, geography, and civics/government as core academic subjects and thus highlighting the importance of economic literacy and citizenship skills among young people (Manzo, 2005; Grant & Salinas, 2008).

In response to the increased emphasis on core social studies disciplines underlined in *Goals 2000,* national sets of standards were almost concurrently developed by the leading professional organizations, including "umbrella" standards in social studies (Buckles, Schug, &

Watts, 2001). For instance, *Expectations of Excellence: National Curriculum Standards for Social Studies* was published by the National Council for the Social Studies (1994). Also, the Center for Civic Education issued *National Standards for Civics and Government* (1994) and Geography Education Standards Project published *Geography for Life: National Geography Standards* (1994). In addition, National Center for History in the Schools published *National Standards for History: Basic Education* (1996). In 1997, *Voluntary National Content Standards in Economics* was published by the National Council on Economic Education (now Council for Economic Education). Publication of the national standards played an important role in providing a framework, scope and sequence for teaching economics, as well as other social studies sub-disciplines at the pre-college level (Clark, Schug, & Harrison, 2009).

Among the first sets of national standards developed as a result of *Goals 2000*, the history standards were the most debated within the profession (Oberg, 1996). National standards in other core social studies sub-disciplines received general approval by academic scholars and teachers in the respective areas. Even though there is not always consensus among economists about economic policies (Fuller & Geide-Stevenson, 2003), economic concepts and principles included in national standards in economics are generally agreed upon among scholars and educators and reflect the "neoclassical" approach of the economic analysis (Hansen, 1998; Miller & VanFossen, 2008; CEE, 2010).

The *Goals 2000* at the national level and subsequent legislation in the states resulted in the development of state standards in the core content areas. National standards have been referenced as framework models by many U.S. states in the process of creation of their own standards (Gagnon, 2003). *Voluntary National Content Standards in Economics* (CEE, 1997) provided the basic structure and content for economics standards in many state curricular

mandates (Buckles & Watts, 1998). Without clearly written national standards, there was a risk of leaving out economics as a content area in state standards documents (Siegfried & Meszaros, 1998).

State standards in economics based on the national standards are the product of continuing efforts which signify a broader acceptance of economics in the school curriculum along with providing a basis for the appropriate content, as well as integration into interdisciplinary social studies (Buckles, Schug, & Watts, 2001). Currently, the District of Columbia and all 50 states include economics in the state standards (CEE, 2014). National standards are also used as a framework for standardized test design (Buckles & Walstad, 2008; Grimes, 2008; Schug et al., 2012). Thus, publication of *National Content Standards* and inclusion of economics in state standards was another development that signified progress towards a greater role of economics in K-12 curriculum (Walstad, 2005).

Even though many states had adopted assessment systems long before the *No Child Left Behind Act* (NCLB) of 2001, this legislation took the standards accountability and movement to the new level (U.S. Department of Education, 2008; Redalevige, 2005), which significantly changed the scope and stakes of testing practices in the states. NCLB established goals for the national education system, demanding that states receiving targeted federal funds strive to raise academic achievement levels, which were measured by the state standardized testing, for all students regardless of their race, socioeconomic status, English proficiency or special-needs, by 2014 and also to meet adequate yearly progress (AYP) (Archibald & Ford, 2012). Although states were allowed to create their own assessment programs and establish proficiency levels to measure AYP within their states, NCLB mandated that tests be given in certain grades and

subjects in order to track student achievement in schools and districts. Federal funding was tied to student performance, but only in certain subjects.

Unfortunately, efforts to improve the economic understanding have not been always adequately supported by this powerful legislation that has shaped the educational system in recent decades (Howard, 2003). NCLB and its implementation caused shifts in the priorities by putting pressure on only two subject areas, math and reading, thus de-emphasizing the role of social studies (Grant & Salinas, 2008; Duncan, 2011). These new emphases especially affected social studies at the elementary level (VanFossen, 2005; Pace, 2007). Despite these unintended consequences, 23 states recognized the importance of social studies in the school curriculum by administering state assessments aligned with curriculum standards in this integrated discipline (Grant & Salinas, 2008). In ten of those states, the outcomes had consequences for students by determining their ability to graduate based on their test performance (Grant & Horn, 2006; Grant & Salinas, 2008).

As Buckles, Schug and Watts (2001) noted, the fact that many researchers, economists and educators recognize the importance of economic education in the K-12 level, does not mean much unless this agreement is supported by the state educational officials and school districts and is translated into changes in curriculum. In 2011, school districts in twenty-five states required economics to be offered at the high school level; twenty-two states, including some of the most populated states, mandated that high school students complete a course in economics as a requirement for graduation (CEE, 2011). Even though it is less than half of the states, the number almost doubled since 1998 when the first Survey of the States was conducted by the CEE and tripled since 1982, when only seven states required taking economics course at the high school level (Walstad, 1992). In addition, sixteen states included economics in the state

assessment programs (CEE, 2011). Due to the increased attention to economic education from the states and efforts of organizations that promote economic education at the pre-college level, the number of students that receive instruction in economics has also increased. Bach and Saunders (1965) reported that, in the 1960s, only about 20 percent of high school students were exposed to economics. The most recent studies report that almost 60 percent of students take a high school economics course (Walstad & Rebeck, 2012; Walstad & Watts, 2011).

The inclusion of economics in the regular National Assessment of Educational Progress (NAEP) was another important step that reflected increased role of economics as a subject at the pre-college level (Buckles & Walstad, 2008; Schug et al., 2012). The NAEP, or National Report Card, administered by the U.S. Department of Education, is the major continuous assessment of student knowledge and progress in ten subject areas that are universally taught in the U.S. schools, including civics/government, geography, U.S. history, and since 2006, economics. It uses a representative sample of students from all states (Buckles & Walstad, 2008).

NAEP test administration reflects the scope and sequence of teaching economics in the social studies in K-12 curricular (Walstad & Watts, 2011). National assessment in history, civics/government, and geography, the areas that are taught throughout the entire school career, are administered in fourth, eighth, and twelfth grade. Economics, which is usually taught as a separate subject only at the high school level, is tested only among twelfth-graders (Walstad & Watts, 2011).

Though the study of economics is comparatively less emphasized than other social studies areas throughout the school career, some researchers, although cautiously, point out that test results in economics on 2006 NAEP among twelfth-graders were better than the results in history, civics/government, and geography demonstrated by their colleagues in 2010 (Grimes,

2012; Clark et al., 2009), although the authors warn that reasons for this phenomenon have not been investigated (Schug et al., 2012).

Economics in Other Social Studies Sub-disciplines

Along with making decisions about *what* should be learned by students at the pre-college level, economists were committed to finding a generally approved plan of incorporating economics in school curricula and fitting its content into broad social studies and other related disciplines. Economic educators state two ways of teaching economics at the pre-college level: as a separate economics course or through infusion in other subjects, usually taught within social studies (Miller, 1988; Walstad, 2001; Walstad & Rebeck, 2001a; Watts, 2006). Typically, elementary social studies is taught as one integrated discipline, incorporating two or more of the sub-disciplines. As students become older, social studies disciplines are offered as separate courses. Even though economic educators believe that a separate course in economics is the best way of improving student knowledge in the subject (Miller, 1988; Walstad & Rebeck, 2001a; Watts, 2006; Clark et al., 2009), the infusion of economics into other subject areas is the most common way of teaching it (Walstad, 2001), especially in the states that do not include an economics course in graduation requirements.

As a social science that provides a framework for analysis of human behavior in light of allocating scarce resources and as a systematic way of thinking, economics can be integrated into many disciplines studied at the K-12 level, for example, literature, math, social studies (Miller, 1988; Walstad & Watts, 2011). Many state legislatures have passed regulation to mandate teaching of economics in schools, and since only about half require a separate economics course for graduation (CEE, 2011), economics is often intended to be integrated into other disciplines, typically into history, civics/government, and geography.

Among social studies sub-disciplines, history is a dominating subject that is commonly offered in elementary, middle, and high school, whereas other sub-disciplines are taught at single points in time (Jenness, 1990), usually at the secondary level. The role of history is often regarded as a means of incorporating knowledge from different social studies strands (Hertzberg, 1981). Integration of economics into the study of history helps students make important connections between past and current events and understand the choices that people and societies made in the past and evaluate consequences of them for the future (Ellington, 2010).

The essential connection between economics and another sub-discipline, civics-government, is supported in some states by pairing the two disciplines into one course. As Dick, Blais, & Moore (1996) noted in the CEE publication *Civics and Government: Focus on Economics,* the U.S. constitution is equally a political and an economic document. The link between economics and civics is very obvious in such traditional civics-government topics as elections, the role of government, and taxation.

In order to succeed in this competitive and interdependent world environment, students need to acquire a significant level of proficiency in another core strand of social studies, geography. When analyzing geographic factors and learning about the environment, students need to take into account economic factors, as well. Knowledge of both of these subjects and their instruments of analysis facilitates the study of world regions and people's choices about the use and allocation of scarce resources (Anderson, Meszaros & Reiser, 2004).

Economic concepts and ideas undoubtedly blend with the study of history, civics/government, and geography (Walstad & Watts, 2011). Consequently, if core social studies sub-disciplines are taught without analyzing economic forces and incentives behind the events or

people's choices, a significant portion of knowledge about forces and motivation behind these actions will be missing (Anderson, Meszaros & Reiser, 2004; Schug & Wood, 2010).

Research in Economic Education

Investigation of the factors contributing to learning of economics at the pre-college and college levels began in the early 1970s. Research in economic education is more prevalent than in the other social studies areas, partially because economists developed standardized tests for assessing the level of economic knowledge and understanding at all educational levels (Miller & VanFossen, 2008). The research in this field is typically conducted by economists who have substantial training in quantitative research methods, and who are also involved in professional development programs for K-12 teachers (Watts, 1987b; Walstad, 1992; Miller & VanFossen, 2008; VanFossen & McGrew, 2011).

Most studies on economic education measure student achievement in terms of the stock or flow of economic knowledge (Siegfried, 1979; Watts, 1987a; Walstad, 1990). The level of "economic understanding" (stock of economic knowledge) measures absolute knowledge at a specific point in time. The "flow of economic knowledge" measures the improvement in understanding or "learning of economics" over a period of time or as a result of an economics course or training. In the "flow models" the researchers use two measures, the "change score" (pre-test score minus post-test score as the dependent variable) and the "value added", where pre-test score is a regressor and post-test is a dependent variable (Siegfried, 1979).

Although there are no perfect models that allow measuring all dimensions of learning (Becker & Walstad, 1987), the production function model has proved to be a useful means for conducting research. Educational production functions, based on the production function framework, have been used in many fields of research. Hanushek (1986) described the

conventional production function model where student achievement (or educational output) is a function of major groups of "cumulative inputs" such as family background, which includes demographic and socio-economic characteristics that influence learning beyond school opportunities, and school characteristics, which reflect learning resources grouped into vectors of teachers, school, and school system inputs affecting educational process.

To assess knowledge (cognitive domain) of economics and attitudes (affective domain) toward economics and market economy, different standardized normed measurement instruments were developed by economics scholars and have gone through several editions (Watts, 2006; Watts, 2012). The majority of studies conducted in the area of economic education base their findings on these measurement instruments. Regression analysis based on the production function model is the most common method of estimating the relationship between student achievement and educational inputs (Becker & Walstad, 1987).

Several factors have been found to be related significantly to economics learning across a majority of studies. Among the most important factors related to economics learning at the high school level were student human capital, teacher preparation in the subject matter, and the course type (Watts, 2006) and, hence, the review of the studies on them along with the important demographic factors included in the data will be presented in the section below.

Student Aptitudes

Student scores on tests such as Quick Word Test, IQ (Walstad & Soper, 1989) or California Aptitude Test (CAT) (Lawson & O'Donnell, 1986) that measure student aptitude and intelligence were found to be significant predictors of student learning. Lawson and O'Donnell (1986) maintained that the student intelligence as measured by CAT score was one of the most important contributors learning of economics in their model. Lawson and O'Donnell (1986)

stated in their concluding remark: "*Where* the learner is in his overall intellectual development will affect most his knowledge, comprehension, and understanding of basic economic concepts" (p.184). Watts (2006) suggested that positive correlation between student intelligence level and economics learning is a "universal finding".

Teacher Preparation in Economics

Teacher knowledge has been found in many studies to significantly influence student economics learning outcomes at the pre-college level. Bach and Saunders (1965) stated that there was no difference in knowledge among teachers with no college economics course or only one or two courses. Social studies teachers who took no courses in economics gave correct answers to only three more questions on the Test of Economic Understanding than the seniors who took a one-semester economics course in high school (32 and 29 questions out of 50, respectively). The authors also reported that about 40 percent of social studies teachers took less than three college level economics courses; however, completing one or two college level economics courses did not significantly improve understanding of economics among social studies teachers. Taking more than five economics courses by social studies teachers resulted in the same score gain as demonstrated by high school students who recently took an economics course as compared those of students with no economics.

Several studies conducted by Lynch (1990), Bosshardt and Watts (1990), and Allgood and Walstad, (1999) investigated the relationship between teacher's knowledge of economics and student performance. Students of teachers who had taken more economics classes demonstrated better performance on the Test of Economic Literacy (TEL). Significant improvements in student learning of economics appear only if they are instructed by a teacher who took more than five (Lynch, 1990) or six (Allgood & Walstad, 1999; Bosshardt & Watts,

1990) courses in this particular field, suggesting that the relationship is "not linear". Butters, Asarta, and Fischer (2011) found similar positive relationship between teacher coursework in economics and student learning with the test and survey data from their study stating that "… investing in teachers' human capital has significant returns in the classroom" (p.47). They also suggested that in-service teacher training does not compensate for formal college coursework in economics, hence maintaining that teachers who are assigned to teach or integrate economics should have a strong academic background in the discipline that could be complemented by the professional development (Butters, Asarta, & Fischer, 2011).

Despite the proven importance of teacher's content knowledge, Miller and VanFossen (2008) in their recent review of the research on economic education indicated that certified social studies teachers, the main group of those who teach economics, lack substantial background in this particular field. Schug and Wood (2010, p.1) suggested the following reasons: (1) teachers generally have weaker preparation in economics as compared to more traditionally taught sub-disciplines, (2) presentation of economics as a "dismal science" by many college professors without emphasizing the most fundamental concepts and thus (3) omitting the behavioral and decision-making aspects of it. Other authors also believe that social studies teachers are less prepared to teach economics than any other core social studies disciplines (Dumas, Evans, & Wieble, 1997; Eisenhauer & Zaporowski, 1994; Lynch, 1994; Walstad & Watts, 1985; Walstad & Kourilsky, 1999).

A reason for weaker economics content knowledge among social studies educators is preparation requirements, which translates into a low number of courses taken. Walstad and Watts (1985) reported that over a half of elementary teachers never took an economics course and 25 percent took only one course. Bosshardt and Watts (2005), looking at the college

transcripts of certified social studies teachers, found that, on average, they took only one college economics course. Based on the above mentioned findings, one course did not seem enough to form a solid background that would translate into a deep knowledge base in the subject among teachers and their students (Meszaros & Suiter, 1998).

Watts (2006) suggested that even though economics is a part of social studies and thus is typically taught by the teachers from this field, business or vocational education teachers tend to have a better background in economics and thus their students also perform better on the tests that measure economics knowledge. Based on this finding, Clark et al. (2009) suggested that social studies teachers should not be the only instructors assigned to teach economics in high schools. Since teachers' knowledge base in the subject matter has an important effect on student achievement, it is important to have high standards for deeper content knowledge in teacher education programs, and this should be addressed at the state and local levels.

Course Type

Walstad and Watts (1985) cited the results from national survey findings that indicated that economics is taught in more than 30 different K-12 courses. In general, economics educators indicate two ways of teaching economics at the pre-college level: as a separate course or through infusion into other subjects, usually taught within social studies (Miller, 1988).

Although there are many proponents for the integrated approach, only a limited number of research results indicate that economic concepts can be successfully learned if they are integrated into various subjects (Walstad, 1992). A majority of economic education research studies show that the largest gains in economic understanding happen among students who take a separate semester-long course in high school as compared to learning economics when it is

infused in other disciplines, but the gain is rather small if compared to a one-year course (Walstad & Rebeck, 2001a).

Advantages of separate economics course have been verified by other researchers (Walstad & Soper, 1988a; Walstad & Soper,1989; Becker, Greene, & Rosen, 1990; Lopus, 1997; Walstad, 2001; Walstad & Rebeck, 2001a).Walstad and Soper (1988a) observed no change between economics pre- and post-test scores among students who completed the course in U.S. history or government, with and without integrated economics, or consumer economics courses, whereas a mean gain of seven-percent occurred in the group of students who took a separate economics course. Walstad and Rebeck (2001a) reported that students who took a separate course in economics performed 20 percent better on the TEL than students who studied only some economics within social studies.

Despite modest changes in the flow of economics knowledge when it is learned from the context of other disciplines, the infusion approach can serve as an alternative to a separate course of introducing economics to young people (Walstad, 2001), and especially to high school dropouts who leave high school before eleventh or twelves grade when economics is usually taken (Brenneke & Soper, 1987). For example, Schug and Neirderjohn (2008) assessed the level of economics knowledge as a result of the course of study where teachers used carefully designed economics lesson plans within a U.S. history course. Students from the experimental group who were taught by the teachers who used the discrete integrated units demonstrated a significant gain in the level of economics and U.S. history learning and whereas control group did not show any gain. These results suggest that comprehensive and well-planned treatment of economics in teaching other social studies disciplines may lead to improved knowledge of economics and non-economics disciplines (Clark et al., 2009).

Brenneke and Soper (1987), among possible approaches, suggested that the most efficient way of including economics in the school curriculum would be a "blended" approach where infusion of economics into other social studies disciplines complements a designated economics course. These recommendations can also be taken into consideration when making decisions about curriculum and state mandates.

Although research shows that a separate economics course is the preferred option, the reality of a crowded school curriculum often demands for infusion of economics**.** Since economics is not required for graduation in most school districts in the state of Kansas, it is possible to assume that infusion is a common way of teaching economic concepts, however, it is unclear how much economic is covered this way in schools in Kansas. The analysis of state assessment results may help evaluate the level of economic knowledge required for understanding economics and non-economics social studies sub-disciplines and effectiveness of integrated instruction of economic concepts statewide.

Research on the Impact of Student Level Demographic Characteristics on Economics Learning

Student SES

Since the mid-1960s, after the influential "Coleman Report" was issued, family socioeconomic status has been viewed as one of the strongest factors of educational performance (Coleman et al., 1966; Reardon, 2011; Baker, 2012). In the research literature, student eligibility for the federal free or reduced-lunch programs is typically used as an indicator of family income level or student "socio-economic status" (SES) (NCES, 2011c; Butters et al., 2011).

One of the goals of the NCLB legislation was to narrow achievement gaps. Reardon (2011), using data from 12 nationally representative studies, reported that the income inequality

expressed by the gap between high- and low-income families has widened in the last 40 years, which lead to an increase in student achievement gap based on parent's income. Whereas the Black-White achievement gap has narrowed recently, the income gap (between the students from 90th and 10th percentile) has increased and is now almost two times more than the racial gap (Reardon, 2011).

In economic education research, Soper and Brenneke (1981) and Watts (1985) were among the first researchers who included the proportion of students eligible for free-lunch in the district as a determinant of student learning. A typical trend reported in the research literature is that students from higher income family backgrounds (not participating in National School Lunch Program, NSLP) tend to demonstrate higher test scores than students from lower income families. In the economic education research, this finding was supported in a number of studies, among which were Soper and Brenneke (1981), Watts (1985), Lawson & O'Donnell (1986), Walstad & Soper (1989), Soper & Walstad (1988a), Butters and Fischer (2008), etc.

The Nation's Report Card in Economics does not contain student SES in terms of their eligibility for NCLP; however, the report contains results separated by parents' education levels and the number of books at home. The level of educational attainment by parents is often related to the family's socio-economic status, which is, in turn, related to student's educational outcomes (Davis-Kean, 2005), and the number of books is used as an indirect measure of SES (Walstad, 2013). Students whose parents had higher level of educational attainment had higher average scores (Mead & Sandene, 2007; NCES, 2013). Higher number of books at home (more than 100) was associated with higher NAEP cores (Walstad, 2013).

Student SES data is collected within NAEP in other social studies sub-disciplines. The Nation's Report Card shows that on 2006 NAEP in Civics, there was a 30-point difference in

average scores between eighth-graders from higher income families and those receiving free lunches. The average score of the reduced-lunch group fell in the middle (Lutkus & Weiss, 2007). In grade four, the difference was 28 points. A similar trend was observed on the NAEP in U.S. History in the same year. The achievement gap between the student groups with higher SES and lower SES was 31 points in fourth grade and 28 points in eighth grade (Lee & Weiss, 2007). In 2010, the gaps narrowed by three points.

Student eligibility for NCLP is a strong predictor of their achievement level and, according to Bruce Baker (2012), it explains about 2/3 of the test performance viability in the state of New Jersey. Kansas state assessment data also contain this variable allowing for evaluating if student SES is a strong predictor in economics learning.

Student Race/Ethnicity

Student race/ethnicity is another demographic factor that is often included as an explanatory variable of student performance. Becker, Greene, and Rosen (1990) reported that student race is an important factor related to economics knowledge; it is often included in the educational production function models. Many authors found that non-white students perform worse in economics than their white counterparts. See, for example, Soper and Walstad (1988a), Walstad and Rebeck (2001a), Mead & Sandene (2007), Walstad & Buckles (2008), Butters & Asarta (2011). In a relatively recent study, Butters & Asarta (2011) used the data from the sample of "highly motivated" high school students who participated in the national EconChallenge competition. The results demonstrated by the students representing different races showed a similar pattern: white students' scores are noticeably higher than those of Hispanic and Black students. A similar pattern was found in Kansas on the economics portion of the 2005 social studies state assessment (Kardash, 2007).

The 2012 Nation's Report Card in Economics also demonstrates race/ethnicity-based achievement gaps. The mean scores of White and Asian/Pacific Islander students were higher than those of Black, Hispanic, and American Indian/Alaska Native students in both 2006 and 2012 (NCES, 2013). The results showed that zero percent of students from Hispanic or Black racial groups performed at the advanced level in 2006 and one percent on 2012 NAEP in Economics assessment (Mead & Sandene, 2007; NCES, 2013). In 2012, Hispanic students scored significantly higher than in 2006 and, therefore, reduced the White-Hispanic gap from 26 points to 22 (NCES, 2013). The achievement gaps between White and Black students (31 points in 2006, and 29 in 2012) and White and American Indian/Alaskan Native (21 and 24 respectively) remain high. There was no significant difference in student performance between White and Asian/Pacific Islander groups of students (NCES, 2013). Similar patterns in achievement gaps among different demographic groups are also found in other social studies areas, as reported in Nation's Report Cards (NCES, 2011a, NCES, 2011b; NCES, 2011c).

Viadero (2000) listed a number of factors commonly found in the research literature that might play a role in the race/ethnicity-related gaps, among which were poverty levels, family human capital, quality of coursework in less affluent schools, peer pressure, parents and teacher expectations, and limited access to the early childhood education programs.

Between student race/ethnicity and gender, the student gender, however, is a stronger determinant of economics performance measured by the multiple-choice test instruments (Watts, 2006).

Student Gender

An extensive body of research has focused attention on examining the relationship between student gender and learning and understanding of economics at different grade levels.

Studies that emphasize the gender factor at the pre-college level include Siegfried (1979), Buckles and Freeman (1983), Watts (1987), Lumsden and Scott (1987), Heath (1989), Walstad and Soper (1989), Walstad and Robson (1997), Asarta and Butters (2011), etc. Some studies found no gender difference among younger school children (Buckles & Freeman, 1983), high school students (Wetzel, O'Toole, & Millner, 1991), and college students (Borg & Stranahan, 2002; Swope and Schmitt, 2006). Watts (1987) and Heath (1989) found that gender difference in performance appears and exists among high school students. Walstad (1990) summarized that the most common findings related to the gender gap is that males demonstrate better understanding of economic concepts on pretests than female, but male and female students learn economics at the same rate. Although gender performance gaps have been studied extensively, there is no consensus on the influence of this factor on student learning.

Siegfried (1979) was among the first economists who looked at gender differences in economics performance. He summarized possible reasons for gender differences and stated that a gender gap occurs as a result of varieties of factors, among which are different interests and career aspirations; different perceptions of the female role in the society and expectations for success in this "predominantly male" professions; different levels of maturity among boys and girls that might influence the development of verbal and spatial skills (Siegfried, 1979). It should be noted that many reasons listed over 30 years ago are no longer relevant due to the changes that occurred in schools and society (Johnson, Robson, & Taengnoi, 2011). Becker (2004) partially explained the disagreement about the role of gender by the applied research methods, the sample selection bias, and by differences in formulating research questions.

Most studies that look at differences in gender-related performance used multiple-choice tests as a measurement instrument with scores reported separately for male and female students.

Researchers found that male students demonstrate a higher level of economic understanding or "a stock of economic knowledge" (Siegfried, 1979; Ferber, Bimbaum, & Green, 1983; Lumsden & Scott, 1987; Heath, 1989; Walstad & Robson, 1997). Ferber et al. (1983), as well as Lumsden and Scott (1987), argued that the male-female difference in performance may exist due to the application of the testing instruments. Two former studies used essay questions and found that female students perform better on exam questions that involve demonstration of writing skills. Findings by Williams, Waldauer, and Duggal (1992) and Greene (1997) contradicted these results. Female students did not demonstrate advantages when they were asked to read economics statements and recognize those that are correct or on the essay type of exams. Walstad and Robson (1997) looked into the factors that cause gender differences in performance, as well. They identified and removed the questions that were difficult for female students to comprehend and analyzed the scores of the modified test. The resulting gender performance gap decrease suggested the existence of gender test bias (Walstad & Robson, 1997). The importance of that study was that female students might experience difficulties with particular test items or concepts due to content or cultural aspects of the questions. Asarta, Butters, and Thompson (2013), however, did not find evidence that the male-female performance gap is attributed to the test bias.

Butters and Asarta (2011) re-visited the question of gender differences in economics learning. The authors noted that their study was stimulated by more recent findings of Ziegert (2000) and Swope and Schmitt (2006) who suggested that male-female performance gap in economics had been eliminated. Butters and Asarta (2011) found that male students scored significantly higher than female students; the difference persisted in each content category of the Test of Economic Literacy (Walstad & Rebeck, 2001b) that was used as an instrument. Butters

and Asarta (2011) concluded that the gender gap in economic understanding has not been eliminated yet and suggested that further research was needed to shed more light on the gender gap topic.

The outcomes of 2006 NAEP in Economics contain information about performance of twelfth grade male and female students stating that, on average, there was a four-point significant difference in scores (Mead & Sandene, 2007; Grimes, 2012). The analysis also revealed that statistically significant gender difference in student performance is especially apparent at the "At or Above Proficient" level. On the scale that ranges between zero and 300, the mean test score of male students was 152 whereas it was 148 for female counterparts; the difference was significant (Mead & Sandene, 2007). The results of the latest NAEP in Economics also demonstrate the gender achievement gap has not narrowed yet. In 2012, male students outperformed female students with the six-point difference in the mean score (NCES, 2013).

The outcomes of 2010 NAEP in U.S. history demonstrated that the average score of boys was higher than that of girls (NCES, 2011c). In geography, as demonstrated in 1994, 2001, and 2010, male students performed better, on average, than female students in all assessed grade levels (NCES, 2011b). On NAEP in civics in 1998 and 2006, however, gender difference was in favor of girls (NCES, 2011a).

Kardash (2007) reported that on the economics portion of 2005 KS Social Studies Assessment, the gender male-female gap persisted across assessed grade levels and that effect of gender was stronger in high school as compared to grades 6 and 8. Analysis of gender performances in 2012 would show if the gender achievement gap in Economics has narrowed in the last years among Kansas students.

Grimes (2012) concluded that even though a majority of studies assessing student learning in economics use gender as a determinant, the issue associated with difference in performance has not been satisfactorily explained yet. It is always useful to replicate and extend the previous research to either support findings from early studies or find new aspects of teaching and learning. The researchers in the field of economic education agree that learning is domain specific (Watts, 2006), multidimensional and that the multiple choice testing instruments cannot grasp all aspects of economics learning (Becker, 2001; Walstad & Rebeck, 2001a). Development of measurement instruments that would allow looking at different aspects of learning could help understand the difference in gender-related learning. Consequently, male-female dissimilarities should be taken into account in designing assessment instruments, teaching materials and educational policies that would help eliminate the gap. This is an important problem as gender related achievement differences can affect such important issues like career choice, income inequality, equal pay, and a country's overall economic growth (Eurydice, 2010).

Interactions among Demographic Characteristics

Although researchers report distinct socio-economic, racial, and gender patterns in student achievement gaps, these variables alone cannot explain variability in student performance. It is not common, however, to find studies that address specific attention to interplay between student-level characteristics such as differences in educational attainment between female and male students within various income or racial groups in the economic education research.

Researchers have tried to pinpoint why interaction race/ethnicity and socio-economic status serve as important determinants of student achievement scores. Viadero (2000) noted that Hispanic and African-American students, who generally receive lower score on standardized

tests, frequently come from lower-income families as well. According to College Board data from 1990, Hispanic students were two times more likely, and Black students were almost three times more likely than White or Asian students to come from families with low socio-economic status (Viadero, 2000). This finding might suggest that there is a correlation between the parental income levels, race/ethnicity and student performance level.

Viadero (2000) listed the combination factors that might play a role in the achievement level differences within some racial groups. For example, according to a study from two states cited by Viadero (2000), parental expectations about children's academic success, which influence student performance at schools, and parental educational backgrounds vary among different racial groups. Asian-American parents with no high school diplomas had higher expectations of their children's success at schools than parents with college degrees from three other major racial groups. African-American parents had the lowest expectations, regardless of their educational level (Viadero, 2000).

Borg and Stranahan (2002), while controlling for personality type, took a closer look at the role of student race and gender in the student achievement level in an upper-economics course by including interaction terms. Even though student gender was an insignificant predictor in the model without interaction terms and that introverts performed better than extroverts, the authors found that only female introverts outperformed extroverted students of both genders (Borg & Stranahan, 2002). Similarly, the researchers found that in the model without interaction terms, the group of Black students was outperformed by Whites. By controlling for personality type, they found, however, that Black students perform similar to the students from other races; they are just not the highest achievers in those courses. The outcomes of the study conducted by Swope and Schmitt (2006) also suggested that race and personality types are important

predictors of performance in economics, especially among male students. Borg and Stranahan (2002) emphasized the importance of inclusion of interaction terms in the research models and concluded that "…certain personality types combine with certain race and gender effects to produce students who outperformed other students in upper-level economics" (p.13).

The comprehensive report of gender equality in education by European Commission states that male-female achievement gap is related to other demographic characteristics. For example, in the most European Union countries, the general trend is that female students representing ethnic minorities perform better than male students, but not horn females representing ethnic majorities (Eurydice, 2010). Since it is difficult to single out cause and effect in a gender related achievement gap issue, the European Commission concluded that there were very limited numbers of policy initiatives that address it. Therefore, since only a limited number of studies included interaction terms and provided little explanation behind achievement gaps within various gender, SES, or racial sub-groups, further investigation of the phenomenon is needed in order to get closer to finding solutions to close it.

Student Concept Understanding

Several studies conducted by Walstad and Soper (1988b), Soper and Walstad (1988a), Walstad and Rebeck (2001a), Butters and Asarta (2011) focused on concept understanding as measured by nationally normed test instruments. These studies looked at the differences in student performance separated by four concept areas as identified in the *Framework for Teaching Basic Economic Concepts* (Saunders & Gilliard, 1995), fundamental economics, microeconomics, macroeconomics, and international economics, and analyzed student performance on specific concept categories by determining the mean score for each category and comparing that it with the overall test mean.

Among four content categories, students usually showed better understanding of fundamental and microeconomics concepts than macroeconomics and international economics concepts (Walstad & Soper, 1988b; Soper & Walstad, 1988a; Walstad & Rebeck, 2001a). For example, in 2001, the percent correct on fundamental concepts as demonstrated by students in regular economics was 67% and 53% on the international concepts; percent correct on microeconomics and macroeconomics questions were 62% and 57%, respectively, among students taking a high school economics course. The performance patterns by content categories were similar for the students who did not take a designated economics course; however, their mean scores by content category were lower and ranged from 38% to 45%. Butters and Asarta (2011) reported that participants of the national EconChallenge completion, who took regular economics classes, demonstrated higher scores on fundamental concept category (62.6%) and lower proficiency levels the macroeconomics (53.4%), microeconomics (54.5%) and international economics categories (53.6%). Advanced students, or those who took AP or honors courses, performed significantly better than regular students on each concept category. Their highest scores where on macroeconomic (81.7%) and lowest on international economic concepts (76.8%)

Student understanding of specific economic concepts within each content category varies, as well. Walstad and Rebeck (2001a) and Butters and Asarta (2011) found that opportunity cost, money, and exchange are usually the most difficult concepts to grasp within the fundamental category, while the concepts of scarcity and economic systems are typically less difficult. In the microeconomics topics, regular students, who took a one-semester course, scored poorly on the concept clusters that are not commonly included in those courses: income distribution, market failure, and the role of government (Butters & Asarta, 2011; Walstad &

Rebeck, 2001a; Soper & Walstad, 1988a). In macroeconomics, monetary policy and inflation are among the most difficult concepts. Specifically, the score on the monetary policy was the lowest as reported by Walstad and Rebeck (2001a) and Butters and Asarta (2011). Students also have difficulty recognizing the definition of Gross Domestic Product (GDP), whereas the unemployment and fiscal policy question clusters present less difficulty (Butters & Asarta, 2011; Walstad & Rebeck, 2001a). Within the international economics group of questions, students tend to perform poorly on the items that test knowledge of comparative advantage, exchange rates, balance of payment, and balance of trade (Walstad & Rebeck, 2001a; Butters & Asarta, 2011), as well as on questions related to growth and stability (Walstad & Rebeck, 2001a).

Kardash (2007), who analyzed student achievement level in economics based on the 2005 Kansas social studies assessment data, replicated the approach of Soper and Walstad (1988a) in her unpublished dissertation study. Contrary to some national studies reported above, Kardash (2007) found that Kansas high school students had difficulty with such fundamental concept as economic systems and opportunity costs. Less than half of Kansas high school students could correctly identify differences in economic systems or the characteristics of a market economy whereas the mean score for this concept is usually among the highest, at 72 percent, as demonstrated by the nationally-normed sample of students (Walstad & Rebeck, 2001a). This is particularly remarkable since economic systems are mentioned often in the media. Other fundamental concepts, opportunity costs and cost-benefit analysis, were not very clear to the Kansas sixth-graders either. Eighth-graders demonstrated a low level of understanding of economic concepts from the international trade category. Overall, Kansas students had difficulties with the international economics concepts; half of the high school students could not

correctly identify GDP and factors of economic growth, which are the macroeconomic concepts (Kardash, 2007).

Walstad and Rebeck (2001a) suggested that topic sequence and their complexity could play a role in differences in student understanding. Whereas fundamental and microeconomic concepts are usually presented earlier in the course of study and probably integrated in other social studies subjects throughout different grade levels, macroeconomics and international economic concepts are usually taught towards the end of the course, and teachers often run out of time to cover the last area in details (Walstad & Rebeck, 2001a). Another possible reason behind the differences in student understanding is teachers' ranking of concept importance as suggested by teacher survey results. Khayum, Valentine, and Friesner (2004) analyzed questionnaire responses of Indiana high school economics teachers and determined that the largest share of the instruction time is devoted to microeconomics (43%) and the least amount of time (9%) is devoted to the international economics topics. Indiana social studies teachers spend, on average, 28% of classroom time teaching about macroeconomics. The rest of the allotted time (20%) is spent on teaching the personal finance topics, which is twice the amount of time mandated by the state. Indiana teachers, therefore, spend less time than prescribed by the state on teaching microeconomics and international economics to teach more about personal finance. Clark et al. (2009) found that the high school social studies teachers from the surveyed national sample tended to rate the importance of the content from microeconomics and personal finance much higher than of the topics from macroeconomics and international trade. Only six percent of teachers from that sample replied that it was very important for their students to learn about other countries and only 13 percent placed very high importance on learning about international trade and institutions within the course (Clark et al., 2009).

A detailed analysis of concept understanding is typically not a part of the state assessment reports (Buckles et al., 2001), yet it may contain practical information for educators. The approaches used in the research above are replicated in the current study. One of the important implications of the analysis of the standards-based assessment outcomes is examination of how Kansas students perform on the test questions that measure their knowledge of particular indicators and associated concepts. The analysis could help identify the concepts that need more focus.

Assessment as Part of an Accountability System

American school reform is an ongoing process. The standards-based education and accountability reform movement has thirty-year history. The accountability system of the modern education world helps provide information about student learning. Proponents of this movement argue that assessments could be instrumental in improving student academic performance by making educators and schools accountable for learning outcomes (Duran, 2005). They based their belief on the idea that testing will create incentives for both teachers and students to perform at their best, especially if there are consequences for inadequate performance.

Assessment is an essential part of the educational process and an important component of accountability. Assessment of learning and teaching includes a variety of options, from self-assessment to standardized tests. Educational assessment can be grouped in different categories: formative and summative assessments (Marzano, 2006; Grant & Salinas, 2008); norm-referenced (NRT) and criterion-referenced tests (CRT) (Stiggins, 1994**).**

Scriven (1967) described the difference between formative and summative evaluations regarding the goals of gathering and using information. *Formative assessment* implies ongoing

reviews and observations of learning processes accompanied by interactive feedback that allows students to monitor their progress and teachers to improve their instruction. *Summative assessment* is carried out at a certain point of time, after instruction is finished, to evaluate the level of student knowledge. It is usually referred to as an accountability measure that can also be used to determine student knowledge relative to content standards (Pahl, 2003). Social studies statewide assessment practices administered by the educational authorities within NCLB are considered summative rather than formative as they frequently do not provide direct feedback about learning to students and teachers (Pahl, 2003). Results of summative assessments conducted by the states allow making comparisons of student achievement at school or district levels. State assessments are also criterion-referenced tests. Unlike norm-referenced tests that are used to rank students, criterion-referenced tests are used to determine how students perform on targeted goals or how well they have mastered particular skills or standards (Bond, 1996).

State Assessment of Economic Knowledge in Kansas

Large scale assessment practices in social studies are a relatively new phenomenon. Attention to the level of student knowledge in this area was given after the social studies were pronounced as one of the core subject areas of school curriculum (Grant & Salinas, 2008). In 2011, Kansas was among five states that did not require an economics course for high school graduation, but included it in their state assessment programs (CEE, 2011), and thus ensured that this subject is taught in schools. For that reason, it is apparent that the Kansas State Department of Education has recognized the importance of economic literacy among school children.

Since most school districts in Kansas do not require economics for high school graduation, some schools do not offer separate classes in economics. If schools do offer economics, students usually take it in twelfth grade in the form of a one-semester elective course

to fulfill social studies requirements. At the same time, to meet the Kansas standards in social studies, students, especially those in middle school, are required to have a knowledge base in economics without taking a designated course and thus they are expected to learn this subject matter in other disciplines. As seen by many Kansas school districts and educators, the most suitable way of fitting economics into school curriculum is by its integration into history courses (Bruner, 2008).

State assessments have a potential of providing important information about the extent to which the concepts included in assessed standards are being taught or learned (Buckles et al., 2001). In Kansas, within NCLB, students have been tested in different subject areas at different points during their academic careers by the Kansas State Assessment system. Assessments in social studies occur at three points: in grades six, eight, and high school. Kansas assessments in social studies are low-stakes tests with no direct consequences for students, however, the test outcomes are used as a partial factor in determination of the school's Quality Performance Accreditation (QPA) (KSDE, n.d.; Martinez & Snider, 2001). Even when stakes associated with the statewide assessments are low, the presence of an assessment still affects instructional decisions that educators make and thus influences teaching and learning (Grant & Salinas, 2008; Glasnapp & Poggio, 2001).

Development of the Kansas social studies assessment program took several steps. After the Kansas State Board of Education accepted the QPA system in 1991, the subsequent steps were the development and adoption of curricular standards and creation of accountability measures to evaluate student attainment of those standards. In the area of social studies, the first attempt to evaluate student social studies knowledge was the creation of project-based performance assessments in order to link together curriculum, standards, and instruction

(O'Brien, 1997). Even though performance standards seemed to represent a suitable way to assess the multidisciplinary field of social studies, the accountability instruments did not meet some requirements needed for large scale assessment as they were not generalizable and not cost-effective in terms of grading (O'Brien, 1997). As a result, KSDE stopped using project-based assessment in 1998 and created standardized tests to evaluate student knowledge and skills in the four core social studies areas specified by Kansas curricular standards (Martinez & Snider, 2001).

The first standardized state assessment in the social studies area was intended to measure student achievement only on targeted benchmarks and indicators from the 1999 version of *Kansas Curricular Standards for Civics-Government, Economics, Geography, and History*. It was administered in the spring of 2001, which served as a baseline year (Glasnapp & Poggio, 2001). There were two parallel forms in the multiple-choice test format for each tested grade level. Student test scores were statistically equated across forms to allow for comparability of the results. Assessments in 2003 and 2005 were based on the 2001 assessments.

After the first five-year assessment cycle ended, the next program was developed. The newly developed *Kansas History-Government Assessment* was first administered in the Spring of 2008. It was based on *The Kansas Curricular Standards for History and Government; Economics and Geography* (KSBE, 2004), approved in 2004 and revised in 2005. The second administration of these assessments took place in the 2011-2012 academic year and provided the data for the present study.

As a criterion-referenced test, *2012 Kansas History-Government Assessment* was aligned with 2004 social studies curricular standards. The assessments were based on a set of indicators defined by the Kansas State Board of Education. Each assessed indicator in each of the four

social studies disciplines was measured by two test questions. The number of indicators varied by the sub-discipline and grade level. In grade six, there were 48 multiple-choice test items that addressed indicators for Grades 5 and 6. In Grade 8, there were 60 test items that were aligned with indicators for Grades 7 and 8. Assessment in high school, which consisted of 60 questions aligned with high school standards, was divided equally between two parts, World Focus and U.S. Focus.

Following the advice of the assessment experts to reduce the intervals between relevant coursework and testing, KSBE split the high school assessment into two parts in order to accommodate course sequence (Bruner, 2008). Since in Kansas, a one-year World History course that also includes topics related to world geography and economics is typically taken in grades 9 or 10, and U.S. history and civics/U.S. government in grades 11 and 12, the composition and the plan for administration of high school social studies tests reflected those trends (Bruner, 2008). According to the KSDE assessment worksheet, World Focus consisted of the questions testing student knowledge of world history, international economics, and world geography. U.S. Focus included civics-government, U.S.-related economics, and U.S. and state history. In the 2011-2012 academic year, students in Grades 10 and 12 were the targeted cohorts for History-Government Assessment, but individual school districts or schools could decide in which of these grades the students could take the test, and whether they would take either or both of the focus tests.

To interpret the assessment outcomes, the KSDE established cut-points for student achievement based on actual test score distribution (Bruner, 2008). In the 2001 baseline year, achievement on the test was categorized as: Advanced, Proficient, Satisfactory, Basic, and Unsatisfactory. Beginning in the 2008 round of assessments, the performance levels were retitled

as: Exemplary, Exceeds Standard, Meets Standard, Approaches Standard, Academic Warning (Bruner, 2008; Irwin et al., 2009).

Unlike state assessments in reading and math, the Kansas Assessment in Social Studies was not a part of the federal accountability system and thus the results were not used for calculation of AYP (Glasnapp & Poggio, 2001). Within the accountability system, state assessment programs were established and intended to provide input about teaching and learning specified by the state curricular standards (Glasnapp & Poggio, 2001). Therefore, the major goal of assessment in Kansas was to identify if students achieved the targeted content standards in the tested subject areas at a particular grade level.

Every year KSDE (available at www.ksde.org) issues its Assessment reports as part of the Accountability Report (or Kansas Report Card) that contains information about student performance levels on the state assessments. Even though it covers statewide student performance levels separated by gender, race, SES, disability, and migrant status, it only presents assessment information in the social studies subject areas as a whole (KSDE.org, n.d.). The overall social studies performance-level results are also reported on the building and district levels. Implementation of Kanas Computerized Assessment allowed giving immediate student-level percent-correct results upon the completion of the test (Bruner, 2008). Students in sixth and eighth grades received their percent-correct score and performance levels immediately after completing the test in 2012. Since high school students could complete World Focus and U.S. Focus tests in different years, they were supposed to receive their performance level only after completing both parts (D. Gruman, personal communication, February 3, 2014).

Assessment results in social studies reported by the KSDE on its website are not disaggregated by the sub-discipline within this integrated content area; however, by-indicator

performance summary is available at the district and school level. This study analyzes student performance in each tested social studies content area allowing for comparison of the performance results across social studies sub-disciplines and, for the economics part of the test, differences in student performance disaggregated by gender, race/ethnicity, and SES, and it serves to complement the traditional reports of the Kansas social studies assessment outcomes. Previously, a detailed state level analysis was put out in 2007 (Kardash, 2007), the new data outcomes detailed in the following study could shed some light on the achievement level of economics indicators by another cohort of students in Kansas.

The standards-based reform movement received widespread support from different groups interested in educational improvement; however, it has not been free of controversy. One criticism has been that the implementation of the accountability system created an environment where administrators and teachers adjust content and skill development to the test requirements and may de-emphasize such important skills as critical-thinking and originality (Buckles et al., 2001). Another criticism has been that it caused shifts in priorities in the accountability system. For example, it has diminished the role of social studies (Grant & Salinas 2008), including economics, especially at the elementary level (VanFossen, 2005). According to VanFossen (2010), limiting the opportunities to learn economics at the elementary level further diminishes understanding in later grades. Despite "marginalization" of social studies during the NCLB era of school reforms, inclusion of economics in the social studies standards and state assessments demonstrated the commitment to the economics subject area learning in the state of Kansas.

In summary, this chapter provided an overview of the current status of economic education, standards and accountability movement that led to the change towards a greater role of economic education at the national and state levels. This overview of the development of the

standards and assessment instruments, together with a review of research on factors related to economics knowledge, provided the theoretical background for the present study and helped outline the research questions and methods.

CHAPTER III

METHODOLOGY

This study attempted to shed light on detailed aspects of student performance on the 2012 Kansas History-Government Assessment in the four core areas of social studies (history, civics/government, economics, and geography), with main emphasis on student knowledge of economics. The study specified the level of student knowledge of assessed economic indicators and concepts, investigated student-level factors related to economics understanding, and compared test results in economics with results in the history, geography, and civics/government sub-tests. Finally, this study analyzed the test items from the non-economics subject-areas of social studies, looking at those that did and did not require economics knowledge to answer correctly, and comparing student performance on those two categories of questions.

For the purpose of this study, four research questions were considered. They were:

1. How well do students in grades 6, 8, and high school perform on the economics subtest of the 2012 Kansas History-Government Assessment? What is their level of understanding of the specific economic concepts?
2. How well do students perform on the economics subtest items as compared to the overall social studies score and the sub-tests items in civics/government, history, and geography?
3. How is student performance in economics related to student gender, race/ethnicity, and socio-economic status?
4. What is the student comparative performance on other social studies items requiring economics knowledge within each sub-discipline as compared to the non-economics test items and the economics subtest.

This chapter addresses the population, data, theoretical framework, research design, and statistical methods utilized to answer the research questions.

Population

The nature of the state-wide assessment allows for analyzing the data drawn from the entire student population in certain grades in one particular state. The population of this study consisted of all students with no special education needs in grades six, eight, ten and twelve attending schools in the state of Kansas who completed the computerized 2012 Kansas History-Government state assessment. The numbers of students in sixth and eighth population groups were 31,702 and 31,570, respectively. The total number of high school students who took the World and U.S. Focus tests was 19,240.

Data

The data consists of the set of student scores on the *2012 Kansas History-Government Assessment.* Kansas assessment in social studies was offered in a multiple-choice format with each test item equally contributing to a total score. In 2012, four test forms were used in each assessed grade level. One form was "paper and pencil" and the other three were computer-based (called Kansas Computerized Assessment or KCA). In grades sixth and eight, there were two sets of questions on base forms with two shuffle forms. At the high school, there was one set of questions distributed among three forms, one base and two shuffle.

The *2012 Kansas History-Government Assessment* is a criterion-referenced test that measures the level of student attainment of the indicated standards, benchmarks, and indicators from four sets of standards in the social studies sub-disciplines of history, civics, economics, and geography. A subset of indicators within each sub-discipline was selected by the Kansas State Department of Education for assessment, and each assessed indicator was measured by two test

questions (KSDE, 2007). The total number of test items varied by grade level. In grade six, there were 48 test items; in grade eight, there were 60 test items; and in high school, there were 59 items, divided between two parts, U.S. Focus (29 items) and World Focus (30 items) (Irwin et al., 2009). The numbers of items that assessed knowledge in each sub-discipline by grade level are indicated in Figure 1.

Figure 1

Numbers of Test Items by Grade Level and Sub-discipline

Grade Level	Number of items by sub-discipline				Social Studies Total
	Civics	Economics	Geography	History	
Grade 6	8	8	8	24	48
Grade 8	10	10	10	30	60
High School					
World Focus	-	6	10	14	30
U.S. Focus	9	6	-	14	29

Source: Adapted from *KSDE Kansas Social Studies Test Specifications* (2007, revised in 2011).

The number of items in each sub-discipline varied by grade level. In grade six, among 48 test questions, 24 were in history and 8 items in each of civics/government, geography, and economics sub-disciplines. In eighth grade, 50 percent of 60 test items were in history, and the rest of the test was equally divided into 10 questions each in the remaining sub-disciplines. At the high school level, economics content was assessed by a total of six test items in each of the World Focus and U.S. Focus tests, civics/government by nine test items in the U.S. Focus test, geography by 10 items in the World Focus test, and history by 14 items in each test.

The responses to the test items were scored as correct (=1) or incorrect (=0). The overall and sub-discipline test results were calculated and reported as the percent-correct. The data set also contained student-level demographic and socio-economic characteristics: gender, race/ethnicity, and free- or reduced-lunch eligibility. These characteristics comprised the scope

of data accessible to the researcher. To ensure confidentiality of the subjects, the individual student identification data was coded by the Center for Educational Testing and Evaluation (CETE) at the University of Kansas prior to releasing the dataset to the researcher. No individual test score or demographic data could be linked to any particular student. Confidentiality of the test subjects and test items was maintained throughout the analysis of the assessment data and analysis of test forms.

The data and access to the test forms were provided by the KU Center for Educational Testing and Evaluation. The data was analyzed using IBM SPSS Statistics 16.0 software package.

Theoretical Framework

Economic education research has a long tradition of using quantitative research methods to analyze determinants of economics learning (Miller & VanFossen, 2008). Since the 1960s, researchers have used production-of-learning functions as models for analysis of "cognitive output" (Becker, 1983a). Educational production functions, based on a production function framework, are a mathematical relationship that reflects the process of transformation of inputs (educational resources) into outputs (outcomes of education) (Cohn & Geske, 1990). Conventional production functions where student achievement, usually measured by a multiple-choice test score, is a function of major groups (vectors) of inputs, typically student, teacher, course, school or district characteristics, are often used in the field of economic education (Becker, 1983a; Sosin et al., 1997; Watts, 1985; Walstad & Soper, 1989; Butters, Asarta & Thompson, 2013). The state assessment permitted the formulation of the following production function model to utilize in the current research:

Economics Score = *f* (student characteristics: Gender, Ethnicity, SES, Interaction Effects)

Multiple linear regression analysis based on the production function model is the most common method of estimating the relationship between student achievement and educational inputs (Becker & Walstad, 1987). In order to control for the student-level independent variables (individual student characteristics), multiple regression analysis was used to analyze the student scores on the economics part of the 2012 social studies state assessment. The following empirical model was estimated for generalizing the functional relationship between student test score, the dependent variable (Y), and a set of student-level independent variables and interaction terms (X_k):

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \beta_4 * X_1 * X_2 + \beta_5 * X_1 * X_3 + \beta_6 * X_2 * X_3 + \beta_7 * X_1 * X_2 * X_3 + u =$$

$$= \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \beta_4 * X_4 + \beta_5 * X_5 + \beta_6 * X_6 + \beta_7 * X_7 + u,$$

where

X_1 - student gender,

X_2 – student race/ethnicity,

X_3 - student socio-economic status (SES),

X_4 - two-way interaction, (student gender * student ethnicity),

X_5 - two-way interaction, (student gender * student SES),

X_6 - two-way interaction, (student ethnicity * student SES),

X_7 – three-way interaction, (student ethnicity * student ethnicity* student SES),

β_1, β_2, β_3 - regression coefficients for independent variables of student gender, race/ethnicity, and socio-economic status,

$\beta_4, \beta_5, \beta_6, \beta_7$ - regression coefficients for interaction terms between and among predictors of student gender, race/ethnicity, and socio-economic status,

u – independent residual or error term.

Figure 2

Variable Coding and Values

Name	Definition	Values
ID	Student (fake) identification number	Number; Coded by CETE
ScrEcon	Student test score on economics sub-test	Continuous, Number
ScrHistory	Student test score on History sub-test	Continuous, Number
ScrGeogr	Student test score on Geography sub-test	Continuous, Number
ScrCiv	Student test score on Civics sub-test	Continuous, Number
ScoreSS	Student overall test score	Continuous, Number
Gender	Student gender	0 = female; 1 = male
Race	Student race/ethnicity	0 =American Indian; 1 = Asian; 2 = Black; 3 = Hispanic; 4 = White; 5 = Multiracial; 6= Pacific Islander
SES	Student's Eligibility for Free- or Reduced-lunch program	0 = no assistance; 1 = reduced lunch; 2 = free lunch recipient
D_Race	Dummy variable for race	0 = White; other = 1
D_SES	Dummy variable for SES	0 = no free/reduced lunch; 1 = free/reduced lunch eligible

Student-level characteristics included in the multiple regression analysis are categorical variables and thus qualitative in nature. They were represented as dummy variables using numerical codes as shown in Figure 2. Previous research has indicated that certain student-level characteristics correlate between each other and their interactions can be reflected in the regression model to incorporate their joint effect on student scores in addition to their separate effects (Borg & Stranahan, 2002; Swope and Schmitt, 2006; Kardash, 2007; Vermont Department of Education, 2007; Miller & Rodgers, 2008). Therefore, dummy variables and interaction terms were included in the regression model as independent variables. The dependent

variable in the study was student performance in economics, as measured by percent correct score in each form.

Research Design

Due to the fact that the assessment data was obtained from the KU CETE, the research design of this study is non-experimental. It relied on statistical analysis of the existing data and did not imply any further intervention or assignment to different conditions.

Data Analysis

Kansas social studies assessment measured student understanding of the benchmarks and indicators in four core social studies sub-disciplines: history, civics/government, geography, and economics.

Due to a low and varying numbers of test items in each sub-discipline, the raw scores were transformed into percentage points in order to expand the range of student scores (dependent) variable's value from zero to a hundred. As a result, the independent variable coefficients measured the effect of changes in corresponding variables on the percentage of the total possible correct answers for the sub-discipline and to compare student scores across sub-disciplines (Ault & Rutman, 1978).

Research question one

To determine how well students performed on the economics subtest and their level of understanding of specific concepts, data analysis consisted of descriptive statistics, including mean, median, mode, and standard deviation and frequency distributions for each test set in each grade level.

To determine relative student understanding of specific concepts, items were evaluated for the concepts tested and measures of mean test difficulty for the economics portion and mean item and concept area difficulty were calculated (Soper & Walstad, 1988a; Butters & Asarta,

2011). Mean test difficulty is defined by Soper and Walstad (1988a) as the percent of correct answers across the test, in current case, the percent of correct answers on the economics sub-test. The item difficulty is defined as the percentage of students who answered the question correctly (Crowl, Kaminsky, & Podell, 1997). In other words, it demonstrates the relative difficulty of individual questions in contrast to other questions and to the overall test. Since two test items assessed student knowledge for each indicator, mean concept difficulty, used by Soper and Walstad (1988a) and Kardash (2007), was estimated for each concept area for the economics sub-test. Mean concept difficulty is an average value of the item difficulty indices for a concept or concept area. The higher the value, the higher the level of understanding students demonstrated in that particular concept area. The mean concept difficulty index was compared to the mean test difficulty across the questions on the economics part of the test. These comparisons allowed distinguishing between concept areas representing higher and lower levels of difficulty for students relative to the overall test difficulty.

Research question two

To determine how well students performed on economics subtest items as compared to the overall social studies score and the sub-tests items in civics/government, history, and geography, descriptive analyses were used, including means, medians, modes, and standard deviations for the four social studies subject sub-disciplines' tests and for the overall social studies assessment for tested grade levels. The measures were also calculated separately by gender, race/ethnicity, and socio-economic status, and mean differences were reported.

Research question three

To analyze the effects of demographic factors such as gender, race/ethnicity, socio-economic status, and their interaction terms on the achievement scores in economics, multiple

regression analysis was utilized. Multiple regression models have a number of advantages as methods of analysis, as they make explicit assumptions, provide estimates of effect sizes, and allow for the simultaneous control of several independent variables (Becker, 2001).

Research question four

Knowledge of economics helps better understand other social sciences. Kardash (2007) listed a number of economic concepts found in non-economics items in the test forms of the 2005 Kansas Social Studies assessment. Due to interdisciplinary nature of the social studies standards in the state of Kansas, it was assumed that economics-related terms and concepts were present in non-economics parts of the 2012 History-Government test, as well. To compare student performance on other social studies items requiring economics knowledge within each sub-discipline to the non-economics test items and the economics subtest, a qualitative analysis of test items to determine which non-economics items required economics knowledge was followed by quantitative analysis of the scores on the groups of test items. In order to obtain a reasonable indication of economics-related content across social studies assessment, each test form was analyzed to uncover questions that referred to economics or implied understanding of economic terms and principles in the non-economics sub-disciplines. The sub-discipline test items were studied by three economic education specialists to identify such questions. A list of economic concepts and related terms was used as a reference guide by the raters. The list was adapted from the 51 key economic concepts as specified by the Council for Economic Education (www.councilforeconed.org) and the materials from the website of the Liberty Fund[1] that combine the key concepts with related terms with the *Voluntary National Content Standards in Economics* (CEE, 2010).

[1] http://www.econlib.org/library/Topics/HighSchool/NationalStandards.html#standard2

Reliability across raters was determined using conditional percentage agreement, where at least 2/3 of the raters in agreement determined how the item was labeled (Hartmann, 1977; Frey, 2006). If at least two of the three raters agreed that a test item implied economics knowledge, the item was assigned a value of 1, otherwise it was assigned a value of 0, creating a grouping variable.

After history, geography, and civics/government test questions that referred to economics were identified, a comparative analysis of student performance on those questions and the non-economics questions was conducted. Two sample *t*-tests, as special cases of the one-way analysis of variance (ANOVA) for two-group means, generated answers to both parts of research question four.

In Part A, student scores on the subgroup of non-economics test items that required economics knowledge were compared to the group of items that did not require economics knowledge in each non-economics sub-discipline. For each test form, two new variables were computed for each sub-discipline. The first variable, "with_econ", was an average of the student answers to the questions within each non-economics sub-discipline that contained references to economics. The second variable, "no_econ", was an individual mean score for the group of questions that contained no references to economics. The "Econ_no_econ", which was created by merging cases of two new variables, served as a dependent variable in each sub-discipline; a grouping variable with two levels, "0" for economics and "1" for no-economics, distinguished between student scores on two groups of items.

In part B, the percent-correct scores for all economics-related items across the non-economics sub-disciplines were calculated and they were compared to the percent-correct scores for the economics sub-test. A grouping variable distinguished between student scores on the

group of non-economics items that required economics knowledge (=1) and the student score on economics items (=0).

The *t* test, *p*-value, confidence interval, and effect size were reported for each set of two groups**.** These comparisons allowed evaluating whether students performed better or worse on the designated economics questions versus non-designated economics items in other social studies sub-disciplines.

In summary, this chapter has provided an overview of the theoretical framework, the data and the methods utilized to generate answers to the research questions. Chapter 4 provides the outcomes and findings of the data analysis.

CHAPTER IV

DATA ANALYSIS AND FINDINGS

This study investigated the following research questions in order to estimate the level of student understanding of the economic concepts as demonstrated in the *2012 Kansas History-Government Assessment:*

1. How well do students in grades 6, 8, and high school perform on the economics subtest of the 2012 Kansas History-Government Assessment? What is their level of understanding of the specific economic concepts?
2. How well do students perform on the economics subtest items as compared to the overall social studies score and the sub-tests items in civics/government, history, and geography?
3. How is student performance in economics related to student gender, ethnicity, and socio-economic status?
4. What is the student comparative performance on other social studies items requiring economics knowledge within each sub-discipline as compared to the non-economics test items and the economics subtest?

The chapter is divided by the research questions, and the findings under each question are organized by tested grade levels and in turn by test sets.

The *2012 Kansas History-Government Assessment* was administered to students in grades six, eight and high school. The number of test forms and the total number of questions varied by the grade level. There were four parallel assessment forms administered to the students with no special education needs in grades six and eight. At each grade level, there were two base and two shuffle forms that contained the same set of questions as each of the

base forms presented in different orders. For the purposes of this analysis, the questions in the shuffle forms were re-organized so all questions in each form were in the same order, and then cases were merged into the respective base files to form two sets of data for the each of the grade levels. Student performance outcomes in Grades 6 and 8 are reported as percent-correct score separately as sets A and sets B. The economics subtests consisted of eight questions at the sixth grade and ten questions at the eighth grade levels, which represented 1/6 of the social studies tests at each of these grade levels. A total of 15,816 sixth-graders took set A, and 15,886 took set B. In eighth grade, 15,825 and 15,745 students took sets A and B respectively.

At the upper-grade level, high school *KS History-Government Assessment* consisted of two parts: World Focus and U.S Focus. Based on local curriculum and districts' decisions, students in targeted grades, which were Grades 10 and 12, were assigned to complete either one or both parts of the high school assessment. World Focus, or part A, of the high school test consisted of 30 questions, among which 6 were on international economics concepts. World Focus was designed to follow the world history course that is usually taught during freshman or sophomore years of high school. This test was taken by 10,171 tenth-graders and 3,554 twelfth-graders. U.S. Focus consisted of 29 questions, among which six were on U.S.-related economics. This part followed the U.S. history and U.S. government courses that are usually offered during the junior and senior years of high school in Kansas; it was taken by 496 tenth-graders and 5,019 twelfth-graders.

High school students who took the U.S. or World Focus tests took one of three forms. There were one base and two shuffle forms in each test. Before the data analyses, high school data sets were also separated by forms, then the test questions were reordered to be the same across all forms, and the files were merged into one for each focus set. As for the elementary

grade levels, the high school results are reported as percent-correct scores for U.S. Focus and World Focus. When appropriate, the results are disaggregated by the grade level.

Table 1

Sample Descriptive Statistics by Grade Level

Variable	Grade 6 (%)	Grade 8 (%)	High School U.S. Focus (%)	High School World Focus (%)	Total (%)
	n = 31,702	*n* =35,150	*n* = 5,515	*n* = 13,725	*N* = 86,093
Student Gender					
Female	49.5	49.9	49.8	50.2	50.0
Male	50.5	50.1	50.2	49.8	50.0
Total	100.0	100.0	100.0	100.0	100.0
Race/Ethnicity					
Native American	1.2	1.2	1.3	1.2	1.2
Asian	2.6	2.5	2.4	2.8	2.6
Black	5.2	5.4	5.6	4.8	5.3
Hispanic	15.3	14.7	12.9	12.5	13.9
White	71.1	71.9	73.8	74.6	72.9
Multi-Racial	4.4	4.2	3.8	4.1	4.1
Pacific Islander	0.1	0.2	0.2	0.1	0.2
Total	100.0	100.0	100.0	100.0	100.0
Student SES					
High SES	57.3	60.2	67.6	66.9	63.0
Low SES	42.7	39.8	32.4	33.1	37.0
Total	100.0	100.0	100.0	100.0	100.0

Table 1 provides the descriptive statistics for the population of Kansas students separated for each grade level by gender, race/ethnicity, and socio-economic status. The population consisted of a total of 86,093 students with no special education needs who took part in the 2012 *KS History-Government Assessment*.

At each grade level, there were nearly equal numbers of boys and girls assessed. According to new federal and state regulations[2], student race/ethnicity was separated into seven categories: Native American, Black, White, Multi-Racial, Pacific Islander, and Hispanic. Nearly 73% of all assessed students identified themselves as White. Hispanic students formed the second largest ethnic group (13.9%), followed by Black (5.3%), Multi-Racial (4.1%), and Asian (2.6%). Only 1.2% of students reported their race as Native Americans and 0.2% indicated they were Pacific Islanders. In terms of socioeconomic status, 63% of students came from higher income families (did not participate in the free and reduced lunch program) and 37% from lower income families (participated in the free and reduced lunch program). The percentage of students who participated in the lunch program was higher in lower grades (43% and 40% in Grades 6 and 8, respectively) and lower at the high school level (33%). It is possible that some high school students who are eligible are not signing up for the program, perhaps due to stigma among their peers.

Reliability statistics by grade level and test form for the economics test and the overall social studies (H-G) test are tabulated in Appendix A. Cronbach's Alpha ranged .36 in high school U.S. Focus test to .64 in eighth grade. Low reliability measure in the economics part of the test might be attributed to a small number of questions in the economics test.

The remainder of the chapter provides the outcomes of the data analyses and the finding related to each research question.

---

[2] The documents related to Race/Ethnicity Regulation Changes are available at http://www.ksde.org/DataReports/DataResources/RaceandEthnicityRegulations.aspx.

Research Question One

How well do students in Grades 6, 8 and high school perform on the economics subtests of the 2012 Kansas History-Government Assessment. What is the level of understanding of the specific economic concepts?

The findings addressing research question one are divided into two parts. The first part reports the average scores achieved by students on the economics portion of the *KS History-Government Assessment*. The second part is devoted to the analysis of the understanding of specific economic concepts assessed within the test. Mean concept and mean test difficulty indices were used in order to address this part of the question.

Part A. Student Performance in Economics

The results of the economics questions on the social studies state tests are reported as mean percentages correct in each grade-level section below.

Grade 6

Table 2 presents measures of central tendency and variability of the economics scores in Grade 6, by test set.

Table 2

Grade 6: Means, Modes, Medians, Standard Deviations, and Skewness for Economics Sub-test (Percent Correct)

Test forms set	*N*	Mean	Median	Mode	*SD*	Skewness
6A	15,816	69.41	75.00	87.50	22.51	-.488
6B	15,886	66.28	75.00	75.00	22.45	-.411

The mean scores on both forms (69% and 66%) are below the median and the mode, which means that the majority of scores in economics fall at the higher end of the score's scale. Negative skewness also suggests that scores tend to "pile up" in the higher score range,

possibly implying that the test questions were not too difficult for the majority of students. The 50th percentile, or the median, is 75% on both sets, while the most frequent scores, the mode, varied between the two sets. It was 87.5% percent on set A and 75.0% on set B. This also might suggest that questions on set A were easier for the students than from set B. A high standard deviation (22.5 percentage points) on both sets indicated that student individual scores were spread out over a large range of scores.

To present a richer picture of the score distribution, frequencies, divided into ten-percentage point intervals, are presented in Table 3 and supporting histograms in Appendix B.

Table 3

Grade 6: Frequency Distribution of Economics Scores (Percent-Correct)

Score intervals, %	Set 6A		Set 6B	
	n of students in intervals	% of students in intervals	*n* of students in intervals	% of students in intervals
0-10	45	.3	58	.4
11-20	219	1.4	313	2.0
21-30	708	4.5	878	5.5
31-40	1321	8.4	1496	9.4
41-50	2144	13.6	2273	14.3
51-60[3]	-	-	-	-
61-70	2688	17.0	2896	18.2
71-80	3046	19.3	3339	21.0
81-90	3229	20.4	2995	18.9
91-100	2416	15.3	1638	10.3
Total	*N* = 15,816	100	*N* = 15,886	100

As a large-scale test, the 2012 social studies assessment was intended to measure the level of students' mastery of the Kansas curricular standards and the results were reported as performance levels. These performance levels and the corresponding score ranges set up by the group of experts and educators and approved by the KSDE in 2008 are listed in Figure 3.

[3] No percent-correct economics score (0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5, and 100) fell in this interval.

Based on the performance levels cut scores approach, more than 80% of sixth-grade students performed in the top three performance levels, "meets standards", "exceeds standards", and "exemplary". Interpretation of the assessment outcomes using these performance levels should be taken with caution, however, because they were set up to use with the equated scores for the entire assessment, by grade level; the present study is concerned with the economics portion of the test and analyzes student performance level on each assessment form used in 2012.

Figure 3

Kansas History-Government Assessment Performance Levels and Cut Scores, By Grade Level

Grade	Academic Warning (%)	Approaches Standard (%)	Meets Standard (%)	Exceeds Standard (%)	Exemplary (%)
6	0-27	28-45	46-64	65-79	80-100
8	0-26	27-41	42-66	67-79	80-100
High school	0-27	28-43	44-66	67-80	81-100

Source: *CETE 2008 Kansas History/Government Technical Manual (p.51)*

Another common way of interpreting student performance frequently used in education is an assignment of letter grades, which can be easily understood by a variety of groups who are interested in learning about the assessment outcomes. Kardash (2007) used letter-grade criteria to interpret the 2005 Kansas social studies assessment outcomes and this approach is applied to interpret the results in the current study. This approach, however, must also be used with caution because the state assessment is a criterion-based test that is intended to evaluated student knowledge of specific indicators. After accounting for the issue associated with this approach, if the following grading system, where A represents a score of 90-100 percent, B of 80-89 percent, C of 70-79 percent, and D of 60-69 percent, was applied to interpret the frequency distribution (Kardash, 2007), 36 percent of the six-graders performed at the "A" and

"B" levels on set A and 29 percent on set 6B. Nearly one-fifth of students, or 19 percent (set 6A) and 21 percent (set 6B), performed at the "C" level. The remaining 17 percent (set6 A) and 18 percent (set 6B) of the students performed at the "D" level and approximately 30 percent of sixth-graders would "fail" this test, as they scored below 60 percent. Although a total of 4,054 (13%) sixth-grade students performed at the top ten percent, or at an "A" grade level, 635 (2%) sixth-graders scored in the bottom ten percent, answering zero or one economics-related question correctly.

Despite higher concentration of student scores at the higher end of the scale at the sixth grade level, the average student performance on the economics subtest in Grade 6 was at the "D" or "D+" level.

Grade 8

At Grade 8, a 60-item assessment was administered. The share of economics questions (1/6 of the test) was the same as for Grade 6, which, for Grade 8, amounted to ten questions. A total number of 15,825 students completed test set 8A, and 15,745 students completed set 8B.

Measures of central tendency and variability for the economics portion of the test in eighth grade, reported for the two test forms separately, are presented in Table 4.

Table 4

Grade 8: Means, Modes, Medians, and Standard Deviations for Economics sub-test (Percent Correct)

Test forms set	*N*	Mean	Median	Mode	*SD*	Skewness
8A	15,825	69.25	70.00	80.00	20.63	-.602
8B	15,745	69.75	70.00	80.00	21.02	-.678

As shown in Table 4, students performed similarly on both sets of economics questions at this grade level, with one-half-percent difference in the mean scores (69.75%, set A;

69.25%, set B). The median (70) and the mode (80) were the same on both sets, which implies that both forms were similar in terms of their difficulty for the students. The mean score is slightly lower than the median and about ten percentage points lower than the mode, which indicates negative skewness. It suggests, as for Grade 6, that scores tended to pile up at the higher end of the score scale, with the most common score at 80 percent on both sets. The scores, however, were spread out over a large range of values as indicated by the large standard deviations. Score distribution divided into ten-point intervals is presented in Table 5, and histograms are included in Appendix B. Based on the data presented in Table 5, approximately equal percentages of students fell into the same intervals on both sets of questions, with no more than one-point variation in percentage distribution by interval.

Table 5

Grade 8: Frequency Distribution of Economics Scores (Percent-Correct)

Score Interval, %	Set 8A		Set 8B	
	n of students in interval	% of students in interval	*n* of students in interval	% of students in interval
0-10	134	.8	166	1
11-20	350	2.2	340	2.2
21-30	618	3.9	675	4.3
31-40	1062	6.7	1040	6.6
41-50	1607	10.2	1456	9.2
51-60	2161	13.7	1983	12.6
61-70	2787	17.6	2651	16.8
71-80	3052	19.3	3152	20.0
81-90	2789	17.6	2975	18.9
91-100	1265	8.0	1310	8.3
Total	*N* = 15,825	100	*N* = 15,745	100

According to the performance-level criteria used by the state (Figure 3), nearly 14 percent of eighth-graders performed at the bottom two levels ("academic warning" and

"approached standards" or below 42 percent) and 86 percent at "meet standards" and above. However, if grades were assigned using letter-grade criteria, 26 percent (set 8A) and 27 percent (set 8B) of students demonstrated A-level achievement, 19 percent (set 8A) and 20 percent (set 8B) B-level achievement, and 18 percent (set 8A) and 17 percent (set 8B) C-level achievement on the economics portion of the social studies assessment. Approximately 14 percent of all eighth-graders performed at D-level. While the majority of students received a "passing grade", nearly one-quarter of eighth-graders "failed" the test by the letter grade criteria because as their scores were lower than 60 percent.

In comparison with the sixth-grade students, in terms of percentage scores central tendencies and distributions, eighth-grade students performed fairly well in economics. The total percentage of students who performed at the "Exemplary" level or would receive "A" or "B" on both sets was considerably higher at the eighth-grade level than in the sixth-grade level (46% versus 32%). Higher performance at this grade level might be attributed to more emphasis on economics in the curriculum, or to a more suitable level of difficulty of the test questions for the test-takers. However, while nearly half of the students performed well and the average economics score fell into the "Exceeds Standards" performance level, the average score would also indicate higher "D" or lower "C" level of achievement.

High School

There were six economics questions on each U.S. Focus and World Focus forms that together assessed student knowledge of six indicators. Table 6 shows the measures of central tendency and variability for the economics portion of the test.

The mean scores reported in Table 6 demonstrated a low performance level of high school students on the economics portion of the test, especially on the World Focus test, on

which the mean (53%) was the lowest of all test forms among all grade levels. Although the mean for the U.S. Focus test was eight percentage points higher (61%), it was still lower than mean scores achieved by the students in earlier grade levels assessed.

Table 6

High School: Means, Modes, Medians, and Standard Deviations for Economics sub-test (Percent Correct)

Test sets	*N*	Mean, %	Median	Mode	*SD*	Skewness
U.S. Focus	5,515	61.46	75.00	87.50	23.12	-.281
World Focus	13,725	53.15	50.00	50.00	23.16	-.080

The distribution of economics scores on the U.S. Focus part is negatively skewed with the median (75%) and the mode (87.5%) higher than the mean. The standard deviation was very high (23%), meaning that most scores fall approximately within the 40% to 85% range. The World Focus mean percentage correct (53%) was three percentage points higher than both the median (50%) and the mode (50%). This implies that about 50% of students answered only half of the questions correctly.

The high school test was offered to the students in both Grades 10 and 12. The descriptive statistics by grade level are presented in Table 7.

A higher number of tenth-graders than twelfth-graders took the World Focus test, whereas the U.S. focus part was taken by a significantly higher proportion of twelfth-graders, which corresponds to the course sequence requirements in the state of Kansas where world history is usually offered at tenth grade and U.S. history at eleventh grade (Bruner, 2008). In the student cohort who took the U.S. Focus test in 2012, nine percent of them were in tenth grade and 91% of test-takers were in twelfth grade. On the World Focus part, the percentage of

tenth-grade students was higher than that of twelfth-grade students (74% and 26%, respectively).

Table 7

High School: Means, Modes, Medians, and Standard Deviations for the Economics Test (Percent Correct), by Test Type and Grade Level

	U.S. Focus		World Focus	
	Grade 10 (n = 496)	Grade 12 (n = 5,019)	Grade 10 (n = 10,171)	Grade 12 (n = 3,554)
Mean	54.60	62.14	52.97	53.64
Median	50.00	66.67	50.00	50.00
Mode	50.00	66.67	50.00	50.00
SD	22.56	23.07	22.81	24.14
Skewness	-.016	-.311	-.078	-.093

The student performance on the World Focus part was similar between assessed grades, with the mean score equal to 52.93% in Grade 10 and 53.64% in Grade 12. It may be interpreted that students who recently finished studying world history performed at the same level as students who took that course one or two years prior to taking the test. The skewness statistics was negative, but it was very close to zero. The mean and the mode were just slightly below the mean score, equaling 50% in both tenth and twelfth grades.

In the U.S. Focus test, there was a significant difference[4] between mean scores of tenth- and twelfth-grade students. The mean score in twelfth grade (62.14%) was lower than the median and the mode (both equaled 66.67%), indicating a negative skewness of the score distribution. The mean score in tenth grade (54.60%) was slightly higher than the median and mode scores (both equaled 50%), indicating a low level of student performance.

[4] An independent sample t-test compared student economics scores in two grade-level groups that were unequal in sizes. In World Focus two-sample sample t-test by grade level was non-significant: $t(5913) = -1.43$, $p = .15$. In U.S. Focus, it was significant, $t(602) = -7.08$, $p < .001$. The effect size, as measured by d, was .032, which indicated a small effect. Tenth-grade students performed worse ($M = 54.6$, $SD = 22.56$) on the economics portion of the U.S. Focus test than twelfth-grade students ($M = 62.14$, $SD = 23.07$).
Independent sample t-test for World Focus by grade level was non-significant: $t(5913) = -1.43$, $p = .15$.

The difference between the score demonstrated by tenth-graders and twelfth-graders might be because the testing came before the instruction. In Kansas, most students take a U.S. history course in 11th grade and may take civics/government in 12th grade. These courses are where high school students are most likely taught about the U.S. economy. In order to reduce the intervals between teaching and testing, schools and districts could choose at which grade level to administer U.S. Focus or World Focus tests.

Table 8 shows the frequency distributions by the assessed high school grade level for the U.S. and World Focus test, and the histograms are presented in Appendix B. Due to a small number of questions in each test, the results were not grouped by the 10-point intervals increments.

Distribution of the U.S. Focus student scores differed by grade level, as shown in Table 8. Based on cut-score criteria (Figure 3), 28.2% of tenth-graders and 18.7% of twelfth-graders performed below 44 percent required to "meet standards". At the highest cut score level, 17.1% and 30.9% in Grades 10 and 12, respectively, demonstrated "exemplary" performance, which would also be an equivalent of grades "A" or "B" by the letter-grade approach.

On the other hand, based on the letter-grade criteria, more than half of tenth-graders would receive a "failing" grade with a percent-correct score of 50% or less. Among twelfth-graders, 42% percent of students would receive an "F" grade. As the U.S. history course is typically offered no earlier than eleventh grade in Kansas schools, it may be too early for tenth-graders to take this test.

In the World Focus test, student score distributions by grade level were similar. Using performance-level criteria, 32% of high school students performed below the "meets standard" level. Similar proportions of tenth-graders (42%) and twelfth-graders (43.6%) performed at

top two performance levels ("exceeds standard", and "exemplary"), or above 67%. Based on letter-grade criteria, 42% of tenth-graders and 44% of twelfth-graders received a "passing" grade or performed above 60%.

Table 8

High School: Frequency Distribution of Economics Scores, by Grade Level and Test Part

		U.S. Focus (Total *N*= 5,515)				World Focus (Total *N* = 13,726)			
		Grade 10		Grade 12		Grade 10		Grade 12	
# correct	% correct	*n* of students	% of students	*n* of students	% of students	*n* of students	% of students	*n* of students	% of students
0	0	7	1.4	62	1.2	223	2.2	106	3.0
1	16.7	43	8.7	261	5.2	951	9.4	329	9.3
2	33.3	90	18.1	616	12.3	2046	20.1	708	19.9
3	50.0	136	27.4	1146	22.8	2685	26.4	860	24.2
4	66.7	135	27.2	1384	27.6	2473	24.3	826	23.2
5	83.3	56	11.3	1055	21	1420	14.0	541	15.2
6	100.0	29	5.8	495	9.9	373	3.7	184	5.2
Total		*n* = 496	100	*n* = 5,019	100	*n* = 10,171	100	*n* = 3,554	100

Overall, the highest scores, on average, were achieved by the eighth-graders and the lowest scores were achieved by the high school students who took the World Focus test. Over 75% of students in grade six and eight "met standards". High school student performed better on the U.S. Focus test than in the World Focus, with about 32% of students not 'meeting standards' related to world-related economics. It should be restated here that performance level cut scores should be applied with caution as they were set for the equated overall social studies outcomes.

Part B. The Level of Understanding of the Specific Economic Concepts

A certain number of benchmarks and indicators from the Economics strand of the *Kansas Standards for History and Government; Economics and Geography* (2004) were selected by the KSDE to be assessed in 2012, and they were tied to specific test items in each test form. An analysis of the test items and student performance on them allowed for

determining the level of difficulty and ultimately the level of student knowledge of the specific economic concepts.

The analysis was done in two steps. First, the designated economics test items that were aligned by the test developers with the specific indicators were studied by the researcher. Particular economic concepts or concept areas were identified by analyzing the questions' content and corresponding indicators. The list of economic concepts/areas was created for each of six test sets and specific questions were aligned with the concept areas. Second, the analysis of mean test difficulty and mean concept or item difficulty used in previous studies (Butters & Asarta, 2011; Kardash, 2007; Soper & Walstad, 1988a) was applied to evaluate by-concept achievement differentials.

Mean test difficulty is the average of the percent-correct scores across the items on the economics portion. The item difficulty index, or the percentage of students who answered the question correctly, demonstrates the difficulty of the test question relative to the entire set of economics questions on a test. Since two items assessed student knowledge of each indicator, the mean concept difficulty, or the average value of the item difficulty indices assessing the same concept, was estimated for each economics concept or concept area. The mean concept difficulty index was then compared to the mean test difficulty, which allowed for distinguishing between concepts of higher (below the mean test difficulty) and lower (higher the mean test difficulty) levels of difficulty for the students.

The findings on the second part of research question two were separated by grade level and test sets and are presented below.

Grade 6

For the grade six assessment, four indicators from the economics strand of social studies standards were assessed with eight questions, two from each indicator. The indicators that were chosen by the KSDE from fifth and sixth grade economics indicators are listed in Appendix C.

In economics, the key concepts commonly studied at the pre-college level are divided into five broad content categories as suggested by Council for Economic Education: fundamental economics, microeconomics, macroeconomics, international economics, and personal finance economics. The concepts targeted for the 2012 social studies assessment were mostly from four concept categories, fundamental, micro, international, and personal finance economics. Macroeconomics concepts were not specifically targeted for the assessment, except for the factors of economic growth that are closely related to the fundamental concepts of productive resources, productivity, and the international economics concept of economic development.

In Grade 6, the following four economics concept areas were addressed: *determinants of supply, opportunity costs/cost-benefit analysis, scarcity and choice,* and *trade agreements and trade barriers*. Some assessed concepts were narrowly defined, such as "determinants of supply", while others, due to question structure and wording, were grouped into broader concept areas, such as "opportunity costs/cost-benefit analysis". In Grade 6, under microeconomics, the specific concept area tested was *determinants of supply;* under fundamental economics, *scarcity and choice* and *opportunity costs/cost-benefit analysis;* under international economics*, trade agreements and trade barriers.*

The economic concepts, the mean test difficulty, and mean concept difficulty scores for grade six are presented in Table 9.

Table 9

Grade 6: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty

Economic concept/area	Set 6A (*N*= 15,816)			Set 6B (*N* = 15,886)		
	Mean difficulty			Mean difficulty		
	concept (%)	test (%)	Δ	concept (%)	test (%)	Δ
Determinants of supply	70.5	69.4	1.1	75.5	66.3	9.2
Opportunity costs/ cost-benefit analysis	80.0	69.4	10.6	83.0	66.3	16.7
Scarcity and choice	62.5	69.4	-6.9	64.0	66.3	-2.3
Trade agreements/trade barriers	64.3	69.4	-4.9	43.0	66.3	-23.3

Note: "Δ" refers to the difference between the mean concept and mean test difficulties.

As shown in Table 9, the mean test difficulty scores (the average percent-correct for the economics portion of the entire test) were 69.4 percent on set 6A and 66.3 percent on set 6B in the sixth grade denoting that set 6A was slightly less difficult than the set 6B. The mean difficulties for specific economic concept areas ranged from 63 to 80 percent on set 6A, and from 43 to 83 percent on set 6B. In order to evaluate the concept difficulties compared to the overall test difficulty, the percentage-point difference (mean concept difficulty minus mean test difficulty) for each concept was calculated. If the difference was positive, it implies that the concept area was better understood among the concepts tested. If the difference was negative, the students who took the test demonstrated a lower level of understanding of that concept area than of the overall test. The data reported in Table 9 shows that whereas the direction of the differences was consistent between the two test sets, the size of the differences varied considerably.

The largest positive difference occurred in the concept area of *opportunity cost/cost-benefit analysis*. The differences were 10.6 and 16.7 percentage points on sets 6A and 6B, respectively, indicating relatively good performance on this concept area. The concept of

determinants of supply also had a positive difference from the overall test difficulty (1.1; 9.2), indicating that it was better understood by the sixth-graders.

The concepts scarcity and choice (-6.9; -2.3) were relatively more difficult for students as indicated by negative differences between the mean concept and the mean test indices. The negative differential on the concept area of scarcity and choice demonstrated by Kansas sixth-grader was consistent with the 2005 KS social studies assessment outcomes (Kardash, 2007). This negative difference is of special concern because economics is considered as the science of scarcity and choice. People need to make choices because resources are limited while wants are unlimited. Therefore, the starting point of economics knowledge is learning about the concept of scarcity. Its understanding is also important in the study of other core social studies disciplines, so economic educators would likely believe that this concept is one of the most important for students to learn. The most difficult concept area for sixth graders was related to international agreements and trade barriers (-4.9; -23.3). This finding is consistent with those found in research based on national samples of students (Butters & Asarta, 2011; Walstad & Rebeck, 2001a).

The 2004 curriculum standards, on which the 2012 assessments were based, presented the three non-history social studies strands in the context of history (Bruner, 2008). As a result, two out of four economics concept areas tested in sixth grade were interdisciplinary in nature. The concept of scarcity and choice was presented in the context of history, as was the concept area of trade agreements and trade barriers. The latter was also presented in the geography context. Sixth-graders performed worse on the designated economics items that were presented in the context of other social studies sub-disciplines than they did on those that did not have

references to history or other sub-disciplines. These outcomes might indicate a need for greater interdisciplinary connections in teaching.

Grade 8

In Grade 8, there were ten questions that were aligned with five economics indicators. Five specific concept areas were identified that assessed student knowledge of particular indicators. The list of indicators assessed in eighth grade can be found in Appendix C. Economic concepts and concept areas found in test items and aligned with assessed indicators are listed in Table 10.

Table 10

Grade 8: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty

Economics Concept	Set 8A (N = 15,825)			Set 8B (N = 15,745)		
	Mean difficulty			Mean difficulty		
	concept (%)	test (%)	Δ	concept (%)	test (%)	Δ
Determinants of net exports (exports/imports)	53.0	69.3	-16.3	64.0	69.8	-5.8
Cost-benefit analysis of spending decisions	68.5	69.3	-0.8	72.0	69.8	2.2
Determinants of supply	71.5	69.3	2.2	73.5	69.8	3.7
Productivity and economic growth	70.0	69.3	0.7	58.0	69.8	-11.8
Positive and negative incentives	84.0	69.3	14.7	83.5	69.8	13.7

Note: "Δ" refers to the difference between the mean concept and mean test difficulties.

In Grade 8, the two sets of test questions presented very similar levels of difficulty for the students, with the scores of 69.3 and 69.8 percent on sets 8A and 8B, respectively. Student knowledge of the following five economic concepts was assessed: *determinants of net exports* (international economics), *determinants of supply* (microeconomics), *incentives* (fundamental), *productivity and determinants of growth in standard of living* (macroeconomic and fundamental), and *cost-benefit analysis* (personal finance). Performance was best on the concept of *incentives*, with the difference between the mean concept difficulty and mean test difficulty at 14.7 percent for Set 8A and 13.7 percent for Set 8B. This was followed by

determinants of supply (2.2; 3.7). The concept area that tested student knowledge of the *factors affecting international trade* was the most difficult for the eighth-graders. The difficulty differences were -16.3 on set 8A and -5.8 on set 8B. The result was consistent with the reviewed literature that finds that students tend to achieve lower scores in the concepts related to international trade (Walstad & Rebeck, 2001a; Kardash, 2007). Low scores in this concept area might indicate insufficient focus on the study of international economics concepts at the state level or lack of time for these topics that are typically studied at the end of the course, as suggested by Walstad and Rebeck (2001a).

The direction of the differential was inconsistent between the two test sets for the concept areas of cost-benefit analysis (-0.8; 2.2) and *productivity growth* as a determinant of the growth in standards of living (0.7; -11.8) in eighth grade. The latter concept area was interdisciplinary and implied understanding *productivity* and its consequences in an historical context, which seemed to pose extra difficulty for students. In addition to the interdisciplinary context, the difference in student performance might also be attributable to wording of the items, but the analysis of questions and distractors was beyond the scope of this research and outside the limits of the dataset.

In summary, the analysis of the mean concept difficulties revealed that students in Grade 8 performed relatively well (14 points above average) on the concept of *incentives* and demonstrated good performance on the concept of determinants of supply. The students performed at and above the mean test difficulty on the concept area of *cost-benefit analysis.* Conversely, they had difficulty with the concept of *productivity growth* and its effects on standard of living. The most challenging concept area was, again, in the international economics category, in this case, factors that influence foreign exports and imports.

High School

As previously mentioned, the 2012 high school assessment was offered in two parts, World Focus and U.S. Focus. In each test, six questions were intended to assess student knowledge of three indicators from the high school economics strand of curricular standards in social studies. The list of indicators assessed in high school can be found in Appendix C. The results are reported separately for Grades 10 and 12 for each test. Table 11 contains the list of assessed concepts with the corresponding mean concept and test difficulties for the World Focus part.

Table 11

High School World Focus: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty, by Grade Level

Economics Concept	Grade 10 (n =10,171)			Grade 12 (n = 3,554)		
	Mean difficulty			Mean difficulty		
	concept (%)	test (%)	Δ	concept (%)	test (%)	Δ
Choice and consequences	46.0	53.0	-7.0	47.0	53.6	-6.6
Economic systems	58.0	53.0	5.0	57.5	53.6	3.9
Labor market demand	55.5	53.0	2.5	57.0	53.6	3.4

Note: "Δ" refers to the difference between the mean concept and mean test difficulties.

The World Focus test presented nearly the same level of difficulty to the samples of students in Grades 10 and 12, with the respective mean test difficulty scores of 53.0% and 53.6%. The low mean difficulty indices may indicate that test questions presented a challenge to the students overall.

Student knowledge of the following three economic concepts was assessed within the World Focus part: *economic choice and consequences*, *economic systems*, and *demand for labor*. The differences between the mean concept and mean test difficulties were positive for the concepts of *economic systems* (fundamental economics) and *labor market demand*

(microeconomics) and negative for the concept area *of economic choices and consequences* (fundamental economics), but it should be noted that indices were generally low.

The students in both grades performed somewhat better on the concepts of *economic systems* (5.0 in tenth grade; 3.9 in twelfth grade) and *labor market demand* (2.5; 3.4), however, the scores were low at less than 60%. These results are particularly remarkable because these concepts are often mentioned in the media. The most difficult concept area was the *economic choices and consequences* (-7.0; -6.6) that was presented in the context of history. *Choice and consequences* is one of the building blocks of the "economic way of thinking". Any choice has both intended and unintended consequences that lie in the future and, therefore, all should be considered in any decision-making, at the personal or state level. This economic concept area is also crucial in the study of history, geography, and civics/government. The students in both grade levels had difficulty with this concept, which indicates that they need more instruction in two subjects to make meaningful interdisciplinary connection.

The economic concepts assessed with the U.S. Focus test along with the difficulty indices are listed in Table 12. The mean test difficulty of the economics questions on the U.S. Focus test varied by the grade level. Based on the mean test indices, economics questions, on average, were more difficult for the tenth-graders (54.6%) than for the twelfth-graders (62.1%). The difference in test difficulty between tenth- and twelfth-graders is not surprising because U.S. history, economics or U.S. Government courses, where these concepts are most likely covered in Kansas school, are not offered until Grade 11. The concept difficulty indices and direction of the differences, however, were the same in both grade levels.

Among the items from the U.S. Focus subtest, the most difficult concept area was the *costs and benefits of stock market investment* from the personal finance category (-3.1

percentage point in Grade 10 and -2.6 percentage points in Grade 12). It is possible to assume that high school students were not exposed to the topics or that the instruction needs to be more thorough. The questions that addressed the microeconomics concept of *determinants of supply* (0.9; -0.6) were understood by the students slightly better as the mean concept difficulty was somewhat above the mean test difficulty. This concept was assessed in grades six and eight and presented lower difficulty level to students in those grades. In U.S. Focus, this concept was presented in a historical context, which possibly added to the difficulty of the concept.

Table 12

High School U.S. Focus: Assessed Economic Concepts, Mean Concept Difficulty, Mean Test Difficulty, by Grade Level

Economic Concepts	Grade 10 (n = 496)			Grade 12 (n = 5,019)		
	Mean difficulty			Mean difficulty		
	concept (%)	test (%)	Δ	concept (%)	test (%)	Δ
Determinants of supply and demand	55.5	54.6	0.9	61.5	62.1	-0.6
Role of government in market economy	57.0	54.6	2.4	65.5	62.1	3.4
Costs and benefits of stock market investment	51.5	54.6	-3.1	59.5	62.1	-2.6

Note: "Δ" refers to the difference between the mean concept and mean test difficulties.

Among the three economics concept areas assessed within the U.S. Focus test, the concept area from the microeconomics category, the *role of government in the market economy,* was less difficult to the students. The students in both grade levels performed above the mean test difficulty (2.4; 3.4).

The analysis showed that tenth-graders had more difficulty with U.S. Focus test items than twelfth-graders. This might imply that school and district administrators should take into account their local social studies course sequence when making decisions about state assessment administration.

Research Question Two

Part A. Student Performance on the Overall Social Studies Test and in Sub-discipline Subtests

The *2012 Kansas History-Government Assessment* also served as an evaluation instrument of student knowledge in other social studies sub-disciplines: history, civics/government, and geography and overall social studies score. Descriptive statistics for each subject area, including the total social studies scores, are reported in Table 13.

In Grade 6, the overall social studies mean scores were 60.06 (set 6A) and 59.46 (set 6B). The mean scores on the economics (69.41% on set A; 66.28 on set B) and geography (66.50%; 66.80%) sub-tests achieved by students were higher than those in history (55.51%; 55.57%) and civics (59.90%; 56.99%) and they were consistently above the overall social studies mean scores. The differences between overall social studies score and the geography and economics test scores ranged from 6.44 to 9.35 percentage points. The lowest scores were achieved on the history sub-test. Average student scores in history and civics were lower than the overall test means in corresponding test sets, with the differences in means ranging from 2.16 to nearly 4.55 percentage points.

In Grade 8, the overall social studies mean scores were 60.68 (set 8A) and 61.67 (set 8B). There was a comparable pattern in student performance on the social studies sub-disciplines, with students demonstrating higher average scores on the economics and geography sub-tests and lower in civics and history. The highest mean scores achieved in eighth grade were on economics, 69.25% (set 8A) and 69.75% (set 8B) followed by the mean geography scores (64.44%; 62.14%). The means in geography and economics were also above the overall social studies means. The mean scores on history (57.61%; 58.43%) and civics (57.58%; 58.18) were below the overall social studies score. The largest differences in means between the overall social studies score were with economics (-8.57; -8.69) and history (11.67; 10.57).

Table 13

Descriptive Statistics for Social Studies Areas by Grade Level and Test Form

Social Studies Area	Form 6A (*n* = 15,816)					Form 6B (*n* = 15,886)				
	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*
Overall	60.06	60.41	58.33	15.31	-.058	59.46	60.42	58.33	15.74	-.024
Civics	57.90	62.50	62.50	20.67	-.169	56.99	62.50	62.50	21.29	-.197
Economics	69.41	75.00	87.50	22.51	-.488	66.28	75.00	75.00	22.45	-.441
Geography	66.50	62.50	75.00	20.94	-.412	66.80	75.00	75.00	20.48	-.428
History	55.51	54.17	54.17	16.17	-.092	55.57	54.17	50.00	16.80	.153
Social Studies Area	Form 8A (*n* = 15,825)					Form 8B (*n* = 15,745)				
	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*
Overall	60.68	61.67	60.00	16.45	-.207	61.06	61.67	65.00	17.40	-.218
Civics	57.58	60.00	60.00	21.02	-.234	59.18	60.00	60.00	20.62	-.228
Economics	69.25	70.00	80.00	20.63	-.602	69.75	70.00	80.00	21.03	-.678
Geography	64.44	70.00	70.00	21.70	-.339	62.14	60.00	70.00	23.24	-.304
History	57.61	56.67	60.00	17.47	-.019	58.43	60.00	60.00	18.59	-.084
Social Studies Area	High School U.S. Focus (*n* = 5,515)					High School World Focus (*n* =13,726)				
	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*	Mean (%)	Median (%)	Mode (%)	*SD*	*SK*
Overall	62.57	65.52	65.52	17.42	-353	59.56	60.00	63.33	15.94	-.154
Civics	63.01	66.67	77.78	21.92	-.401	-	-	-	-	-
Economics	61.46	66.67	66.67	23.14	-.281	53.14	50.00	50.00	23.16	-.080
Geography	-	-	-	-	-	70.43	70.00	80.00	19.35	-.554
History	62.76	64.29	71.43	19.13	-.391	54.55	57.14	50.00	18.62	.007

Note: % = percent of correct answers

The social studies disciplines assessed at the high school level varied by the subtest focus. World Focus evaluated student knowledge of indicators from high school world history, world geography, and economics topics. U.S. Focus included questions related to U.S. and Kansas civics/government, history, and economics.

On the U.S. Focus test, the overall social studies score was 62.57%. The student performance pattern at the high school level differed from those in earlier assessed grades. On the U.S. Focus test, the difference between the mean scores in civics (63.01%) and history (62.76%) was 0.25 points. The mean score in economics (61.46%) was the lowest among three sub-disciplines tested within this high school test, but the difference was small (1.11%).

The overall social studies score on the World Focus test was 59.56%. The mean scores ranged from 53.14 percent in economics to 70.43 percent in geography, with the economics mean score being the lowest score achieved on this part of the high school test. The mean in world-related history (54.45%) was slightly higher than that in economics and it was five percentage points lower than the overall social studies score. The difference between the overall score and the economics score was points.

The mean geography score (70.43%) was the highest among the subject areas tested on the World Focus subtest. Similarly, the mean scores in geography were consistently among the highest in Grades 6 and 8. Relative to the overall score, the scores in economics, however, were in a different position at the high school level. For the World Focus tests, the mean economics score was lower than the mean overall score by 6.42 percentage points.

In 2012, high school students performed worse, on average, on global economics (53.14%) than on U.S.-related economics questions (61.46%), and on world history (54.55%) than on U.S. and state history (62.76%), which might imply that instruction of the social studies needs to focus more attention to teaching world-related topics.

Among the four social studies strands tested in high school, the highest score was achieved on geography, which was one of the three components of the World Focus test. At the same time, students demonstrated low average scores on two other parts of the World Focus test. A relatively high world geography score inflated the overall social studies score on the World part and therefore decreased the difference between the overall U.S. Focus and World Focus scores to three percentage points (62.57% versus 59.56%, respectively). Test item analysis might help shed more light on details related to discrepancy in student performance.

The analysis of descriptive statistics indicated that Kansas students showed relatively low performance in social studies overall and on its sub-disciplines. In comparison to other social studies sub-disciplines, students in Grades 6 and 8 achieved higher scores on the economics as compared to the rest of the sub-disciplines. Middle school students in Grades 6 and 8 also performed better on the designated economics portion of the test than the high school students. At the high school level, Kansas students demonstrated especially low achievement level on the on the global economics part.

Part B. Student Performance on the Overall Social Studies Test and in Sub-disciplines Separated by Gender, Race/ethnicity, and SES

The following part of research question two provides the descriptive analysis of student performance on the overall social studies test and in civics/government, history, and geography, separated by gender, race/ethnicity, and socioeconomic status, by grade level.

Grade 6

Table 14 provides mean scores of sixth-graders, separated by student characteristics, on both forms of the social studies state assessment.

Among six-graders, boys achieved higher average scores than girls in all social studies disciplines. The difference between male and female mean scores ranged from 2.6 to 8.4 percentage points across four sub-disciplines and the overall test. The lowest gender difference occurred in civics, 3.04 percentage points on set 6A and 2.6 on set 6B. The highest gender-related achievement gap was on the economics set 6A, or 8.42 points, with 4.94 point difference on set 6B. The performance gap based on student gender in geography was 5.18 and 3.67 points on sets 6A and 6B, respectively, and 3.31 and 4.28 in history. The difference in mean scores based on gender in the overall score was approximately four percentage points on

each of the test forms. Separated by race/ethnicity, the mean scores of White, Asian, and Pacific Islander students were consistently higher than those of Native American, Hispanic, and Black students.

Table 14

Grade 6: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES

Variable	Civics (%)		Economics (%)		Geography (%)		History (%)		Overall (%)	
	6A	6B	6A	6B	6A	6B	6A	6B	6A	6B
Student Gender										
Female	56.36	55.68	63.62	64.95	63.88	64.95	53.84	53.41	58.08	57.41
Male	59.40	58.28	72.04	69.89	69.06	68.62	57.15	57.69	62.00	61.48
Race/Ethnicity										
Native American	55.63	50.87	66.35	60.55	63.26	62.77	52.22	52.06	56.98	55.06
Asian	62.36	61.88	72.54	68.32	70.89	72.97	59.81	59.85	64.20	63.79
Black	49.46	47.57	56.98	50.73	55.14	55.38	46.37	45.87	50.11	48.55
Hispanic	49.73	50.00	58.43	55.22	58.58	60.00	48.48	47.80	52.03	51.43
White	60.28	59.33	72.74	70.03	69.05	69.16	57.70	58.09	62.53	62.13
Multi-Racial	54.56	54.47	66.00	64.39	63.38	64.55	52.60	52.85	56.95	56.99
Pacific Islander	63.59	62.50	68.48	70.83	66.0	69.17	60.69	62.22	63.41	64.86
Student SES										
High	62.94	61.87	75.45	72.70	71.87	72.15	60.16	60.59	65.12	64.75
Low	51.13	50.47	61.30	57.69	59.59	59.65	49.27	48.85	53.26	52.40

This difference was consistent across four social studies areas and on the overall test. The mean scores of Hispanic and Black students were consistently the lowest. The difference between White, the highest scoring racial group in Grade 6, and Black, the lowest performing group, ranged from 10.82 to 19.30 percentage points; the difference was the highest on the economics portion of the test, at 15.76 and 19.30 points on sets A and B, respectively.

The mean score difference between the group of students with higher SES and lower SES ranged from 11 to 15 percentage points. At this grade level, the SES-based achievement gaps were 11.81 and 11.4 percentage points in civics, 11.74 and 11.86 percentage points in

history, 14.13 and 15.01 percentage points in economics, and 12.28 and 12.5 percentage points in geography.

Grade 8

Table 15 presents mean scores disaggregated by student-level characteristics for each social studies sub-discipline and the overall test in Grade 8.

Table 15

Grade 8: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES

Variable	Civics (%)		Economics (%)		Geography (%)		History (%)		Overall (%)	
	8A	8B	8A	8B	8A	8B	8A	8B	8A	8B
Student Gender										
Female	56.18	57.75	67.76	68.18	61.50	59.80	55.56	55.97	58.69	58.94
Male	58.96	60.60	70.74	71.31	67.30	64.46	59.64	60.87	62.67	63.16
Race/Ethnicity										
Native American	52.70	54.52	62.81	63.49	58.11	58.71	53.17	54.35	55.52	56.63
Asian	62.33	61.71	71.81	71.35	68.59	64.90	62.00	59.77	64.79	62.88
Black	46.66	48.66	56.59	55.43	51.08	49.01	47.32	47.01	49.38	49.02
Hispanic	50.01	51.39	59.88	60.22	55.67	51.04	49.55	50.14	52.37	52.18
White	60.13	61.75	72.41	72.99	67.49	65.66	60.17	61.19	63.43	64.00
Multi-Racial	53.44	55.11	65.47	65.91	60.35	56.01	54.22	54.29	56.99	56.65
Pacific Islander	57.31	53.04	66.92	67.39	63.46	56.96	57.95	55.94	60.26	57.54
Student SES										
High	62.06	63.62	74.21	75.02	69.70	68.32	61.99	63.21	65.33	66.10
Low	50.79	52.46	61.77	61.79	56.49	52.79	50.97	51.19	53.66	53.44

As shown in Table 15, eighth-grade male students outperformed female students in each social studies sub-discipline, with the gap ranging from 2.78 to 5.80 percentage points. The gender-related gaps were lowest in the civics and economics parts, ranging from 2.78 to 3.13 percentage points, and highest in history and geography, ranging from 4.08 to 5.80 percentage points. The overall social studies gender achievement gap was 3.98 and 4.22 percentage points on sets 8A and 8B, respectively.

The means scores separated by student race/ethnicity varied by each group and sub-discipline in Grade 8. Students of all racial/ethnic group performed better in economics they did in other disciplines. White and Asian students performed somewhat similar to each other, with the mean difference fluctuating between 0.04 to 2.20 points by sub-disciplines. The difference in mean scores by the subject area between the higher performing group of White students and the lowest performing group of Black students ranged from 12.85 to 17.56 percentage points across the social studies sub-disciplines.

The difference between the two SES categories was consistent across all subject areas in eighth grade, as well as in sixth. In eighth grade, the gap was more pronounced in economics and geography than in civics and history. The SES-related difference ranged from 11 to 16 percentage points.

High school

The mean scores disaggregated by student-level characteristics for social studies sub-disciplines tested at the high school level within the U.S. Focus and World Focus parts are shown in Table 16.

World Focus. High school male students outperformed their female counterparts on all social studies sub-disciplines and on the overall test. The gender-related performance gap ranged from 3.06 percentage points in world geography to 5.35 points in economics. The overall World Focus subtest gender related gap was 8.31.

Student scores disaggregated by race/ethnicity showed that White student mean scores were the highest within each sub-discipline and on the total score, as well. The greatest gaps in performance were between White students and Hispanic and Black students. Performance gaps between White and Black students were wider than those between White and Hispanic

students. The White-Hispanic differences in mean scores ranged from 5.52 points in economics to 8.08 points in geography whereas White-Black differences ranged from 10.85 points in world history to 15.30 points in geography.

Table 16

High School: Sub-discipline and Total Social Studies Mean Scores Separated by Gender, Race/ethnicity, and SES

Variable	Civics (%)		Economics (%)		Geography (%)		History (%)		Overall Social Studies (%)	
	USF	WF	USF	WF	USF	WF	USF	WF	USF	WF
Student Gender										
Female	61.25	-	59.62	50.48	-	68.91	61.16	52.76	60.87	57.68
Male	64.74	-	63.29	55.83	-	71.97	64.35	56.35	64.25	61.46
Race/Ethnicity										
Native American	60.72	-	59.39	49.90	-	67.19	58.55	54.19	59.40	57.66
Asian	49.41	-	51.89	52.07	-	66.08	52.54	55.35	51.44	58.27
Black	50.77	-	47.95	43.28	-	57.37	52.82	45.38	51.18	48.96
Hispanic	53.99	-	53.35	49.15	-	64.59	56.20	48.81	54.93	54.14
White	66.12	-	64.29	54.67	-	72.67	65.15	56.23	65.28	61.38
Multi-Racial	60.93	-	60.98	50.83	-	67.63	61.17	51.88	61.06	56.92
Pacific Islander	50.62	-	53.70	52.08	-	72.50	59.52	54.91	55.56	60.21
Student SES										
High	66.32	-	64.36	55.53	-	73.64	65.68	57.14	65.61	62.32
Low	56.07	-	55.40	48.34	-	63.96	56.67	49.33	56.22	54.01

Note: WF refers to the World Focus test and USF for U.S. Focus test.

The performance gaps between White students and the four other racial/ethnic groups were smaller overall, but varied by sub-discipline. The race/ethnicity-based performance gap was higher in geography than in economics and world history.

The SES differences were consistent across all subject areas; however, they were smaller than in Grade 6 and in Grade 8, in which the SES-based gaps ranged from eleven to sixteen points. At the high school World Focus test, the SES-based gaps ranged from seven to ten percentage points. The differences between the mean scores of students with higher SES and lower SES were smaller in economics (7.19) followed by and history (7.81) and world geography (9.68).

U.S. Focus. The pattern of gender based gap was the similar to other tests with male students outperforming female student across all sub-disciplines and on the overall test. The gender-based gap was smaller in the U.S. Focus test and ranged from 3.19 (U.S. history) and 3.68 (economics) percentage points.

White students achieved higher mean scores on all social studies sub-disciplines than students from other racial/ethnic groups on the U.S. Focus subtest. The highest achievement gap was between the White and Black student groups. The difference were 14.10 points on the overall social studies mean scores, 16.34 in the economics, a 15.34 points in the U.S. civics/government, and 12.33 points U.S. history subtests. A substantial change in the pattern between scores of two racial groups appeared on the U.S. Focus test. Whereas "Asian", along with "White", was a higher-performing group in Grades 6 and 8, at the high school level, this group, conversely, performed differently from the "White" student group, and the scores of Asian students as compared to White students were lower by 12.40 percentage points in U.S. economics, 16.71 points in U.S. civics/government, and 12.61 percentage points in U.S. history. The overall social studies mean score of Asian students on U.S. Focus was 13.84 percentage points lower than that of White students.

The SES-related differences were consistent across all subject areas and were higher than on the World Focus. The lower SES-based gaps were in economics (8.96) and U.S. history (9.04) and the highest was the U.S. civics/government (10.25).

In summary, in 2012, Kansas male students consistently outperformed their female peers on the overall social studies test and by sub-disciplines, whereas the magnitude of the gender-related gap was inconsistent across social studies strands and grade levels. The group of White race/ethnicity group demonstrated higher scores on the four sub-disciplines and overall.

The achievement gap based on student socio-economic status held across all grade levels and disciplines. To further explore these differences and to look at effect sizes of the relationships on the economics test, multiple regression analysis will be performed, and outcomes will be reported in the next section.

Research Question Three

How is Student Performance in Economics Related to Student Gender, Race/ethnicity, and SES?

The descriptive statistics demonstrated the existence of gender, racial, and income achievement gaps in student performance on the 2012 Kansas statewide assessment in social studies. The general trends were that male students scored higher than female students; students from higher income households outperformed students from lower income households; and, generally, White and Asian students performed betters than Hispanic and Black students. In order to further explore achievement gaps in the economics subtests, multiple regression analysis was utilized to investigate the unique contributions of the student demographic characteristics to student scores in economics.

The dependent variable in the multiple regression model was the student percent correct score on the economics sub-test. The predicting variables were the student characteristics of gender, race/ethnicity, and SES and the interplay among them expressed in the interaction terms. Gender and SES are dichotomous variables whose categories were coded as a "0" or "1" "dummy" variables. "Female", coded as "0", served as the reference category for the "dummy" variable of Gender; "Higher SES" was the reference category for SES. Race/ethnicity, originally a nominal variable with seven categories (American Indian, Asian, Black, Hispanic, White, Multiracial, and Pacific Islander), was recoded into 6 separate "dummy" variables with White, the largest group in the category, being the reference category. The rest of the

race/ethnicity categories were coded as "1" for the corresponding category and "Else" as "0" to function as six "dummy" variables for race/ethnicity. The categories and codes are explained in Figure 4.

Figure 4

Variable Coding and Values for Student Demographic Variables

Independent variable	Definition	Coding/Computation
Block 1		
Gender (G)	Dummy for student gender	Female = 0; Male = 1
SES	Dummy for student socio-economic status	High SES = 0; Low SES = 1
d_W_AmInd	Dummy for White vs. American Indian	American Indian = 1, Else = 0
d_W_Asian	Dummy for White vs. Asian	Asian = 1, Else = 0
d_W_Black	Dummy for White vs. Black	Black = 1, Else = 0
d_W_Hisp	Dummy for White vs. Hispanic	Hispanic = 1, Else = 0
d_W_Multi	Dummy for White vs. Multiracial	Multiracial = 1, Else = 0
d_W_PacIsl	Dummy for White vs. Pacific Islander	Pacific Islander = 1, Else = 0
Block 2		
G *W_AmInd	Gender x Race/Ethnicity interactions	Compute = Gender*d_W_AmInd
G *W_Asian		Compute = Gender* d_W_Asian
G *W_Black		Compute = Gender* d_W_Black
G*W_Hisp		Compute = Gender* d_W_Hisp
G *W_Multi		Compute = Gender* d_W_Multi
G *W_PacIsl		Compute = Gender* b_W_PacIsl
SES*W_AmInd	SES x Race/Ethnicity interactions	Compute = SES * d_W_AmInd
SES*W_Asian		Compute = SES * d_W_Asian
SES*W_Black		Compute = SES * d_W_Black
SES*W_Hisp		Compute = SES * d_W_Hisp
SES*W_Multi		Compute = SES * d_W_Multi
SES*W_PasIsl		Compute = SES * d_W_PacIsl
Gender * SES	Gender x SES interactions	Compute = Gender*SES
Block 3		
SES*W_AmInd*G		Compute = SES * d_W_AmInd*G
SES W_Asian*G		Compute = SES * d_W_Asian*G
SES*W_Black*G	SES x Race/Ethnicity x Gender interactions	Compute = SES * d_W_Black*G
SES*W_Hisp*G		Compute = SES * d_W_Hisp*G
SES*W_Multi*G		Compute = SES * d_W_Multi*G
SES*W_PacIsl*G		Compute = SES * d_W_PacIsl*G

Dependent Variable = Economics percent-correct score

In addition to dummy variables, interaction terms were added to the model to reflect the joint effects of student-level characteristics. Two-way interactions were created by multiplying

each possible pair of the three independent variables and thus creating 13 terms. Specifically, six interaction terms of socioeconomic status versus race/ethnicity by multiplying six dummy variables of race/ethnicity and SES variable; six interaction terms for gender versus race/ethnicity, also by multiplying race/ethnicity dummy variables by the dummy variable of gender; and one interaction term for SES versus gender by multiplying those two dichotomous variables by each other. Finally, six three-way interaction terms were created to analyze the joint effect of all three independent variables. They were computed by multiplying dichotomous SES and gender by each of the race/ethnicity dummy variables as illustrated in Figure 4.

The independent variables were then entered using a hierarchical approach in three blocks as shown in Figure 4. The first block contained main effect variables: dummy variables of race/ethnicity and dichotomous variables of SES and gender. Thirteen two-way interaction terms were entered together in block two, and finally, six three-way interactions were entered together in block three.

The individual student economics test score as the dependent variable was regressed on the set of student demographic variables. The three student characteristic variables together explain four to sixteen percent of the variance in the economics scores. In Grade 6, student demographic variables together explain 13.7% and 15.7% (set A and B, respectively) of the variance in economics scores. In Grade 8, 12.3% and 13.1% in the variance is accounted for by the student demographic variables. At the high school level, 4.3% of the variance in the World Focus economics scores, and 7.2% in the U.S. Focus economics scores is explained by the student demographic variables. Consequently, from 84% to 96% of the economics score variability is accounted for by other factors not included in the regression model. The research

was limited to the demographic data included in the dataset whereas other factors within student, teacher, and school vectors often included in educational production function models were not a part of the dataset and, hence, this study.

Table 17

Regression Model Summaries by Test Set

Grade/Set	Model	*R*	R^2	ΔR^2	*F* Change	*df*1	*df*2	Sig. *F* Change
6A	1	.370	.137	.137	313.679	8	15807	.000
	2	.373	.139	.002	3.049	13	15794	.000
	3	.374	.140	.000	1.039	6	15788	.397
6B	1	.396	.157	.157	368.729	8	15877	.000
	2	.399	.159	.002	3.098	13	15864	.000
	3	.399	.159	.000	.847	6	15858	.533
8A	1	.350	.123	.123	276.128	8	15816	.000
	2	.353	.125	.002	2.812	13	15803	.000
	3	.354	.125	.001	1.749	6	15797	.105
8B	1	.362	.131	.131	296.821	8	15736	.000
	2	.364	.133	.001	1.932	13	15723	.022
	3	.365	.133	.000	1.458	6	15717	.188
H.S. World Focus	1	.208	.043	.043	77.693	8	13716	.000
	2	.211	.044	.001	1.156	13	13703	.306
	3	.212	.045	.000	1.150	6	13697	.330
H.S. U.S. Focus	1	.268	.072	.072	53.234	8	5506	.000
	2	.274	.075	.003	1.379	13	5493	.161
	3	.274	.075	.000	.465	5	5488	.803

Model 1 (Main effect): Predictors: (Constant) individual student factors;
Model 2. Predictors: (Constant) individual student factors, 2-way interactions;
Model 3. Predictors: (Constant) individual student factors, 2-way interactions; 3-way interactions.
Dependent Variable: Percent-correct on economics subtest.

Student gender, race/ethnicity, and SES in combination explain a statistically significant proportion of variability in the economics score. After the two-way interaction terms were added to the regression model, they explained additional half-percent of the variability, as shown in Table 17. The two-way interaction terms are statistically significant at

$p < .001$ level in Grade 6 for both test forms and set A in Grade 8 and at $p < .05$ in set 8B. Interaction terms were not significant at the high school level. In all models, significant "main effects" were obtained for gender, SES, and race/ethnicity and their unique contributions are discussed below.

Main Effects

To test the main effects of the student-level characteristics independently of the other predictors in the model, the corresponding dummy coded variable was added in the multiple regression models in blocks after other dummy coded variables had been entered, before the interaction terms. The main effect statistics for each demographic independent variable entered last in the model are summarized in Table 18. The statistics reported include R^2, *c*hange in R^2, β, and squared semi-partial correlation coefficients (sr^2).

The proportions of the variance in student economics scores explained by the main effects of gender, race/ethnicity, and SES were statistically significant in all assessed grade levels. The change in R^2 represents the unique contribution of each individual variable.

Among the three independent variables, student SES contributed most to the variance in the student economics score in Grade 6. The unique contribution of the SES tested by the change in R^2 was 5.5% on set A and 5.8% on set B. The main effect of student race/ethnicity[5] explained 2.6% and 3.4% of the variance in the economics score on sets A and B, respectively. The unique contribution of gender was statistically significant as well, and it accounted for 1.4% and 1.3% of the variability in the student economics score in Grade 6.

In Grade 8, the main effect of student SES contributed most to the variance in student economics scores, 4.6% on set A and 5.2% on set B. Race/ethnicity accounted for 3.0% and

[5] A group of six dummy coded race/ethnicity variables was entered as a block into the model.

3.1% of the variance in the economics score, and student gender accounted for 0.5 % of the variance.

Table 18

Main Effects Statistics for Gender, Race/Ethnicity, and SES by Grade Levels

Grade/ Student Variable	Set A[1]				Set B[1]			
	R^2	ΔR^2	β	sr^2	R^2	ΔR^2	β	sr^2
Grade 6	.137	.137			.157	.157		
Gender		.014	.118**	.014		.013	.114**	.013
SES		.055	-.250**	.055		.058	-.260**	.058
W_AmInd			-.010	.0001			-.028**	.001
W_Asian			.002	.000004			-.011	.00012
W_Black		.026	-.110**	.012		.034	-.143**	.019
W_Hisp			-.145**	.019			-.155**	.021
W_MultiR			-.038**	.0014			-.021*	.00044
W-PacIsl			-.004	.00002			0.001	.000001
Grade 8	.123	.123			.131	.131		
Gender		.005	.072**	.005		.005	.069**	.005
SES		.046	-.230**	.046		.052	-.243**	.052
W_AmInd			-.036**	.001			-.032**	.001
W_Asian			-.003	.00001			-.006	.00004
W_Black		.030	-.132**	.016		.031	-.140**	.021
W_Hisp			-.143**	.018			-.139**	.019
W_MultiR			-.042**	.002			-.042**	.002
W-PacIsl			-.004	.00001			-.007**	.00005
High School	.043	.043			.072	.072		
Gender		.014	.117**	.014		.006	.077**	.006
SES		.013	-.122**	.013		.016	-.132**	.016
W_AmInd			-.016	.0003			-.017	.0003
W_Asian			-.009	.0001			-.079**	.006
W_Black		.008	-.087**	.007		.032	-.141**	.019
W_Hisp			-.044**	.002			-.119**	.013
W_MultiR			-.024*	.001			-.018	.0003
W-PacIsl			-.003	.00001			‡[2]	‡[2]

Note: R^2 – multiple regression correlation coefficients;
ΔR^2 – change in multiple regression correlation coefficients;
β – standardized regression coefficients;
sr^2 – squared semipartial correlations.

Note[1]: HS Set A – World Focus; HS Set B – U.S. Focus.

Note[2]. ‡ indicates KSDE reporting standard of $n > 10$ was not met.

* $p < .05$, ** $p < .01$ for beta coefficients.

In the World Focus part of the high school assessment, student SES accounted for 1.3% of the variance, student gender explained 1.4%, and student race/ethnicity accounted for 0.8 percent of the variance in the economics score.

In the U.S. Focus part of the high school test, student race/ethnicity contributed most to the variance in the economics score explaining 3.2% of the variability, with student race/ethnicity contributing 1.6% and gender contributing 0.6%.

The standardized regression coefficient beta was significant for the main effects of the student gender and SES across all grade levels. SES was the strongest predictor, with beta weights ranging from -.26 to -.12, meaning that one standard deviation increase in the number of students with lower SES (dummy coded as 1) leads up to .26 standard deviation decrease in the predicted economics score. The standardized beta weights for the dummy coded student gender predictors were weaker than the SES. Beta weights for student gender were positive and ranged from .07 to .12, meaning that one standard deviation increase in the number of male students (dummy coded as 1) leads to up to .26 standard deviation increase in the predicted economics score.

Standardized beta weights within student race/ethnicity were significant for dummy coded variables of Black versus White, Hispanic versus White at $p < .01$. Beta weights were the strongest for these two groups among other groups within race/ethnicity. For the dummy coded variable of White versus Black, beta weights ranged from -0.14 to -0.11 in Grades 6 and 8 and U.S. Focus. It was lower in World Focus, at -0.87. Beta weights for dummy coded Hispanic had slightly higher effect on the predicted economic score in sixth and eighth grades and ranged from -0.16 to -0.14, meaning that one *SD* increase in the number of Hispanic students would lead to the 0.14 to 0.16 *SD* point decrease in the dependent variable. The effect was lower in

the World Focus subtest (-0.044). Beta weights were significant the Multiracial versus White at $p < .001$ in sets 6A, 8A, and 8B and $p < .05$ in set 6B and High school World Focus and not significant in U.S. Focus. Beta weights for White versus Asian were significant only in one set, high school U.S. Focus. Beta coefficients were negative for all dummy variables except for White versus Asian in 6A.

In order to further evaluate the unique contribution of student race/ethnicity into the economics score controlling for other variables, squared semi-partial correlation coefficients were employed in the analyses in each assessed grade level. As indicated above, "white" served as the reference group and six other categories were compared to it. The difference between the mean economics scores of White and Hispanic and White and Black students were significant at $p < .001$ across three assessed grade levels with White students outperforming Black and Hispanic students; among six categories of race/ethnicity, the differences in the scores between White groups and these groups contributed most to the economics score variability.

In Grade 6, the differences between the scores of White and Black students on sets A and B contributed 1.2% and 1.9% to the variability in economics scores, respectively. The differences between the means[6] of White students and Black students were 15.76 percentage points on set 6A and 19.31 on set 6B. In Grade 8, the contribution of the mean differences was 1.6% and 2.1%. The means differences between White and Black mean scores were 15.8 and 17.6 percentage points on sets 8A and 8B, respectively. At the high school World Focus test, the difference of the scores between White and Black students (11.39 percentage points) accounted for 0.7% of the economics score variability. On the U.S. Focus subtest, the difference accounted for 1.9% of the variability, with White students outperforming Black students by 16.34 percentage points.

[6] The mean scores are reported in Tables 14-16.

The differences between the scores of White and Hispanic students accounted for 1.9% and 2.1% of the variance in the economics score in sixth grade and 1.8% and 1.9% in eighth grade. At the high school level, the score difference between these two groups accounted for 0.2% of the variance in the economics score on the World Focus part and 1.3% on the U.S. Focus part. The differences in means between White and Hispanic students were 14.31 and 14.81 percentage points in Grade 6; 12.53 and 12.77 percentage points on sets 8A and 8B, respectively; and 10.94 on the high school U.S. Focus and 5.52 percentage points on the World Focus.

The difference in mean scores between White and American Indian student groups was significant on sets 6B, 8A, and 8B and accounting for at most 0.1 percent of the variance in economics score, and not significant on set 6A and at the high school level. The contrasts of the means scores between the groups of White and Multi-racial students were significant at $p < .05$ level on all but one set, the high school U.S. Focus part. The difference in the mean scores between White and Asian students was nonsignificant on all sets except for U.S. Focus, on which it accounted for 0.6% of the variance in the economics score.

Interaction Terms

Two-way interactions were significant in Grades 6 and 8. Therefore, they were further tested by adding the interaction terms between gender and race/ethnicity; gender and socioeconomic status; and race/ethnicity and socioeconomic status separately in the regression model. Table 19 presents multiple regression statistics for the significant two-way interactions.

The interactions between the student race/ethnicity and socioeconomic status variables were significant on both sets in Grade 6 and on set A in Grade 8. The joint effect of gender and race/ethnicity significantly accounted for the variability in economics scores on sets B in sixth

Table 19

Statistics Summary for Significant Interaction Terms

Interaction term	Grade/ Set	R^2	ΔR^2	F Change	$df1$	$df2$	Sig. F Change
SES* Race/Ethnicity	6A	.138	.001	4.562**	6	15,801	.000
	6B	.157	.001	3.298**	6	15,871	.003
	8A	.124	.001	4.064**	6	15,810	.000
Gender*Race/Ethnicity	6B	.158	.001	3.321**	6	15,865	.003
	8B	.132	.001	2.603*	6	15,724	.016

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

and eighth grades. The two-way interaction terms, however, accounted for only 0.1 percent of the variability in economics score. Given the large sample size, statistical significance of the interaction effects should be interpreted with caution. Therefore, the results of the significant interaction terms were controlled for the Type I error by testing the significance across the interaction "families" of Gender x Race/Ethnicity and SES x Race/Ethnicity variables. After the Bonferroni correction, which was done by adjusting the statistical significance level (p-value of .05) to the number of comparisons (six[7]) in each significant interaction "family", five effects were significant at $p < .05/6$ (or .0083) level. *B*-weights and beta coefficients for statistically significant interactions within each "family" are listed in Table 20.

The test of the interaction between the student SES and race/ethnicity variables after the Bonferroni correction indicated that the pattern in the economics mean scores across two racial/ethnic groups for students with higher SES backgrounds significantly differed from the pattern of the mean economics score for the students from lower SES backgrounds. The significant interaction terms between student socio-economic background and White versus Hispanic groups were found in both sets in Grade 6 ($b_{6A} = -5.238$, $p < .001$; $b_{6B} = -3.422$, $p <$

[7] The number of levels in the dummy variable of race/ethnicity, and therefore the number of contrasts for the SES X Race/Ethnicity and Gender X Race/Ethnicity.

Table 20

B-weights and β Coefficients for Significant Interaction Effects

	SES x White_Hispanic		SES x White_Black		Gender x White_Black	
Set	b-weight	β	b-weight	β	b-weight	β
6A	-5.235***	-.074***				
6B	-3.422***	-.05***			-5.217***	-.037***
8A	-2.956***	-.045***	-5.099***	-.048***		

*** $p < .0083$.

.001), and set A in Grade 8 (b_{8A} = -2.956, p = .003). Both Hispanic and White students from low socio-economic households performed at a lower level than those from high socio-economic households within their ethnic groups. The magnitude of this gap and its negative direction as measured by the *b*-weights implies that differences in the means of student scores from lower and higher SES backgrounds within the Hispanic ethnic group are from 2.9 to 5.2 points higher than such gap within the White racial group, meaning that SES has a greater effect on the achievement level of Hispanic students than it has on the achievement level of White students. Table 21 provides means score for the significant interaction terms.

Analysis of the interrelated impact of students SES and race/ethnicity revealed that statistically significant mean differences between the group of students from high and low SES backgrounds within White and Black groups of students were a source of the economics score variability in Grade 8, in set A. The economics mean scores of students from the lower SES households were significantly lower than those of students from higher SES households within and between both White and Black racial groups (b_{8A} = - 5.099, p = .001). This gap, however, was more pronounced within the group of Black students (-13.97 percentage points) than within the White racial group (-8.78 points). The mean scores are also reported in Table 21.

Table 21

Mean Scores and Differences in Means for Significant SES X Race/Ethnicity Interactions

	6A Means (%)		6B Means (%)		8A Means (%)		
	White	Hispanic	White	Hispanic	White	Hispanic	Black
High SES	76.11	70.47	73.56	66.37	75.01	68.39	66.41
Low SES	65.74	54.91	62.52	51.86	66.23	56.78	52.43
Δ(Low-High)	-10.38	-15.55	-11.03	-14.51	-8.78	-11.60	-13.97

Note: "White" is reference group for race/ethnicity, "High SES" for SES.

The analysis of the "family" of the significant interactions between student gender and race/ethnicity revealed that the pattern in the male/female differences in the economics scores was statistically different across two racial groups, White and Black, in set 6B. Whereas economics mean score of male students ($M_{Wmale} = 72.55$; $M_{Blmale} = 51.17$) were higher than those of female students ($M_{Wfemale} = 66.45$; $M_{Blfemale} = 50.31$), the gender-based gap in the student performance within the White student group was significantly different from that within the Black student group. The difference of the male and female difference within the White student group (6.09) was higher than the male and female difference within the Black student group (0.86) and statistically significant at $p < .001$ level. Appendix D contains by-grade level tabulation of mean scores for all racial/ethnic groups by their gender and SES.

In summary, among the examined student-level demographic characteristics, gender, socio-economic status, and race/ethnicity were significant sources of variability in the economics score as demonstrated by the 2012 History-Government Assessment outcomes. Among these three predictors, student socio-economic status contributed the most to the economics score variation explanation in Grades 6 and 8. At the high school level, student race/ethnicity contributed the most in the U.S. Focus part. In the World Focus, gender and SES contributed equally to the economics score variability. A large proportion of variability in the economic

score is unexplained, however, and is very likely due to other factors that were not a part of the assessment dataset.

Research Question Four

Part A. Student Performance on Questions in History, Civics, and Geography Subtests That Require Economic Knowledge as Compared to the Non-economics Items

The *2012 Kansas History-Government Assessment* contained test items that specifically addressed student knowledge of economic indicators, and the analysis of test outcomes was based on student performance on the items from that sub-discipline. The study of the test items in non-economics social studies areas, however, revealed that a number of economic concepts were also addressed in the questions that tested student knowledge in history, geography, and civics/government. Finding references to economics in non-economics sub-disciplines was not unexpected in a test that was intended to measure student knowledge in the broad and integrated subject area of social studies. This is particularly relevant in the state of Kansas, where a separate economics course is not required for high school graduation, yet economics is included as a subject area in social studies curricular standards.

In order to address this research question, each test form was studied by the three specialists in the field of economic education in order to determine test items in the history, civics/government, and geography subtests that required some understanding of economics terms and principles. A list of *51 Key Economic Concepts* (www.councilforeconed.org) and related principles was used as a reference guide. Each item was labeled as "1" if it contained references to economics and "0", if otherwise. If two of the three raters agreed on the need for economics understanding to answer the question correctly, then the question was designated as economics-related. The data regarding the numbers of questions in each set, by grade level, are presented in Table 22.

Table 22

Number of Economics-Related and Non-Economics-Related Items by Subtest

Sub-discipline	Number (and %) of items in relationship to economics											
	6A		6B		8A		8B		HS WF		HS USF	
	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)	#	(%)
History												
related	7	(29)	6	(25)	17	(57)	14	(47)	5	(36)	8	(57)
non-related	17	(71)	18	(75)	13	(43)	16	(53)	9	(64)	6	(43)
Total	24	(100)	24	(100)	30	(100)	30	(100)	14	(100)	14	(100)
Civics												
related	3	(37)	3	(37)	3	(30)	2	(20)	-	-	5	(56)
non-related	5	(63)	5	(63)	7	(70)	8	(80)	-	-	4	(44)
Total	8	(100)	8	(100)	10	(100)	10	(100)	-	-	9	(100)
Geography												
related	2	(25)	2	(25)	6	(60)	6	(60)	4	(40)	-	-
non-related	6	(75)	6	(75)	4	(40)	4	(40)	6	(60)	-	-
Total	8	(100)	8	(100)	10	(100)	10	(100)	10	(100)	-	-

Note: percentages of items in sub-disciplines are in parentheses.

The analysis of test items in history, civics, and geography revealed that knowledge of economic concepts was implied on a number of questions from those sub-disciplines. Nearly a quarter of the non-economics test items contained references to economics in sixth grade and nearly half of them in eighth grade and high school. Across all grade levels, history was assessed by a larger proportion of test items and also contained more references to economics.

The list of economic concepts by broader categories found in non-designated economics items is presented in Figure 5. In sixth grade history, the knowledge of the following fundamental economics concepts was implied: cost-benefit analysis, specialization, incentives, productive resources, property right, scarcity, trade and interdependence. Civics items required students' understanding the concept areas of taxation, the economic roles of government, public goods and services, economic development, including understanding of broad social and

economic goals, which are studied within three other broader categories. Geography items implied understanding of the fundamental economics concepts of productive resources, scarcity, choice, division of labor and specialization. In eighth grade, various economic terms were mentioned quite frequently, too. Background knowledge of a number of the concepts from all broad content categories was required in about half of the history test items. Civics items required understanding of the macroeconomics and microeconomic terms of government revenue and spending, taxation, roles of government in a market economy, market failures, as well as of international trade. Geography items, in addition to a large number of fundamental economics concepts, required understanding of international economics concepts such as trade barriers, exchange rates, absolute advantages, and the phenomenon of outsourcing as well as factors of economic growth. World Focus history and geography items required understanding of several fundamental concepts, microeconomic and international economic concepts. U.S. Focus history required understanding of a variety of fundamental concepts and microeconomic concepts and understanding of international barriers to trade and economic development. Civics/government items required understanding of microeconomics concept area of the economic roles of government, public goods, and externalities, and macroeconomic concept area of broad economic and social goals.

Figure 5

Economic Concepts in History (H), Civics (C), and Geography (G) Test Items, by Grade Level

Economic concepts by broad categories	Grade level			
	Grade 6	Grade 8	HS WF	HS USF
Fundamental				
Decision making/cost-benefit analysis	H	H		H
Division of labor, specialization	H, G	H, G	H	
Economic systems			H	H
Incentives	H	H, G		
Opportunity cost		G		
Productive resources	H, C, G	H, G	H, G	H
Productivity		G	H, G	
Property rights	H, C	H, G		H
Scarcity	H, G	H, G		H
Technology		H, G	H, G	
Trade, exchange, interdependence	H,C	H, G	H	
Macroeconomics				
Economic instability (employment, inflation)		G		C
Money and banking		H		C
Economic growth		H, G		C
Taxation	H, C	H, C		C
Public revenue and expenditures		H, C		H, C
Microeconomics				
Competition and market structures		H, G	H	H
Demand & supply		H	H, G	H
Markets and prices		H	H, G	H
Market failures (externalities, public goods)	C	C, G		H, C
Producers		H, G		
Price ceilings and floors		H, G		H
Roles of government	H, C	H, C		H, C
International economics				
Barriers to trade		H	H	H
Benefits of trade/comparative advantage		H, C, G	H	
Economic development (Broad social goals)	G, H	H, G	H	H, C
Exchange rates		G	G	

In further analysis, the economics-related items and the non-economics-related items were separately grouped in each subtest and the percent-correct student scores were calculated for each group in each discipline's subtest. New variables within each sub-discipline served as dependent variables for interdependent sample *t*-tests. A grouping variable distinguished the

percent-correct scores on the group of items with references to economics (= 0) from the percent-correct scores on the group of items without references to economics (=1). The outcomes of the two-group mean comparisons within history, civics, and geography subtests are discussed in the following section, by grade level and presented in Tables 23-26.

To estimate if the difference in means of two groups was statistically significant, the *p*-value generated by the independent sample *t*-test was compared with the conventional fixed *p*-value of .05. Considering the large sample size of the current study, an additional measure of the magnitude of the difference between two group means, or effect size, was calculated[8]. A standardized measure of the effect size such as Cohen's *d* could be difficult to interpret when, among other factors, the distributions are skewed, homogeneity of variance is not assumed, outliers are present, reliability of the testing instrument is low or unknown, and when the range of scores is restricted (Coe, 2002; Ledesma, Macbeth & Cortada de Kohan, 2009). According to Coe (2002), when the assumptions are violated, relying on the difference between two group means along with *p*-value and 95% confidence interval (*CI*)[9] as an estimate of the size of the effect is more appropriate than using a standardized effect size measure. The *t*-tests statistics are adjusted for the inequality of variances.

[8] Online calculator by Dr. Lee Becker was used to calculate Cohen's *d.* The calculator is available at http://www.uccs.edu/~lbecker/. It uses the following formula:

Cohen's $d = (M_1 - M_2)/SD_{\text{pooled}}$,

where $SD_{\text{pooled}} = \frac{\sqrt{SD_1^2 + SD_2^2}}{2}$

[9] The 95% *CI* is interpreted that the effect size of 95 out of 100 hypothetical new samples would be in the range estimated by the *CI* (Coe 2002). If 95% *CI* does not include zero in the range, the difference between two group means is significant. The 95% CI is also interpreted as the range, in which the true population mean difference could be found.

Grade 6

Table 23 presents the results of the independent sample *t*-tests and descriptive statistics by sub-discipline.

Table 23

Grade 6: Results of t Tests and Descriptive Statistics for Two-group Comparison, by Sub-discipline

Sub-discipline	Scores by group of questions				95% *CI* for mean difference	*t*	*df*	*d*
	With economics		Without economics					
	M %	*SD* %	*M* %	*SD* %				
History								
6A	48.75	21.73	58.30	17.17	-9.98, -9.12	-43.38***	30023.96	-.49
6B	56.55	24.35	55.24	17.05	0.85, 1.77	5.55***	28436.29	.06
Civics								
6A	64.72	28.40	53.80	24.22	10.34, 11.50	36.79***	30860.52	.-.41
6B	59.58	31.39	55.44	23.35	3.53, 4.75	13.34***	29341.79	.15
Geography								
6A	56.38	35.17	69.87	22.18	-14.14, -12.85	-36.79***	26673.97	-.46
6B	57.36	32.02	69.95	22.29	-13.19, -11.98	-40.67***	28353.53	-.46

*** $p < .001$.

Sixth-graders demonstrated significantly higher average scores on the civics/government questions with reference to economics than on the non-economics-related questions. Two-sample *t*-tests were significant on set 6A and set 8B at $p < .001$. The mean difference between two groups of question was about 7 points greater on set 6A than on set 6B.

In geography, sixth-grade students demonstrated lower scores on the geography questions that implied understanding of economic concepts than on those that did not. Two-sample *t*-tests were significant at $p < .001$ in 6A and 6B. The mean differences on both sets were the same, about 13 points.

In history, the non-economics vs. the economics mean differences were of opposite directions for the two test sets. For set 6A, the *t*-test was significant at $p < .001$ with the mean score higher on the non-economics than on the economics questions. On set 6B, the two-sample

t-test was also significant at $p < .001$, but the mean score on the economics questions was higher than on the non-economics items.

Grade 8

Table 24 presents the results of the independent sample *t*-tests and descriptive statistics by sub-discipline for the Grade 8 assessment, sets 8A and 8B.

Table 24

Grade 8: Results of t Tests and Descriptive Statistics for Two-group Comparison, by Sub-discipline

Sub-discipline	Scores by group of questions				95% *CI* for mean difference			
	with economics		without economics					
	M %	*SD* %	*M* %	*SD* %		*t*	*df*	*d*
History								
8A	56.48	18.77	58.97	19.76	-2.92; -2.07	-11.50***	31648.00	-.13
8B	50.45	19.87	65.40	20.72	-15.40, -14.51	-65.37***	31433.47	-.74
Civics								
8A	57.73	31.57	57.51	22.73	-0.38; 0.83	0.73	28749.61	.01
8B	55.39	38.83	60.13	20.74	-5.42, -4.05	-13.50***	24053.79	-.15
Geography								
8A	63.71	24.28	65.55	27.78	-2.41, -1.26	-6.26***	31092.60	-.07
8B	65.32	25.03	57.36	29.95	7.36, 8.58	25.61***	30526.52	.29

*** $p < .001$.

In history, eighth-grade students demonstrated lower mean scores on the questions with references to economics knowledge than on those that did not have references to economics. The independent sample *t*-tests were significant on both sets at $p < .001$. The differences in average scores were 2.49 on set 8A and 14.96 on 8B.

On the civics/government subtest, the independent sample *t*-test for set 8A was not significant ($p = .469$), indicating that student mean scores on the group economics-related civics/government questions did not differ from the mean scores on the non-economics-related items. On set 8B, the mean scores of eighth-graders were lower on the civics/government questions that implied understanding of economic concepts ($M_{8BEcon} = 55.38$, $SD_{8BEcon} = 38.83$) than on those that did not ($M_{8B} = 60.13$, $SD_{8B} = 20.75$). The difference in student performance on

economics-related questions versus non-economics related questions was statistically significant at $p < .001$.

In eighth-grade geography, the results of the independent-sample *t*-test were inconsistent between two sets, yet both were significant at $p < .001$. On set 8A, the mean scores were lower on the geography questions that had reference to economics than on those that had no references to economic. The mean difference was almost two points on set 8A.

On set 8B, conversely, eighth-graders demonstrated higher mean scores on the geography questions that required economics knowledge ($M_{8BEcon} = 65.32$, $SD_{8BEcon} = 25.03$) than on those that did not ($M_{8B} = 57.35$, $SD_{8B} = 29.95$). The size of the mean differences was eight points on set 8B.

High School

The results of the independent sample *t*-tests are reported separately by their focus.

World Focus. Results of the two-group mean difference analyses for the economics questions versus the non-economics questions in the sub-tests in history and geography are reported in Table 25 for grades 10 and 12 combined and separately for each subtest.

In the history subtest of the World Focus test, the two-group mean *t*-test was significant at $p < .001$, with students performing significantly better on the history questions with references to economics knowledge than on those without them. The mean difference was 9.32 points. The independent sample *t*-tests were significant in both grades 10 and 12 at $p < .001$.

The direction of mean differences was the same by-grade level indicating higher mean scores on the group of questions with references to economics in comparison to non-economics related history questions. Whereas the mean differences were practically the same (9.32 in tenth

Table 25

High School World Focus: Results of t Tests and Descriptive Statistics for Two-group Comparison, by Sub-discipline and by Grade Level

World Focus sub-discipline	Scores by group of questions (*n* = 13,725)				95% *CI* for mean difference	*t*	*df*	*d*
	with economics		without economics					
	M %	*SD* %	*M* %	*SD* %				
History	60.54	27.03	51.22	19.17	8.77, 9.88	32.96***	24,746.61	.40
Geography	64.08	27.23	74.67	20.89	-11.16, -10.01	-36.13***	25,722.06	-.44
History								
Grade 10	61.66	26.99	52.34	19.32	8.68, 9.97	28.32***	18,422.13	.40
Grade 12	57.34	26.87	48.01	18.39	8.26, 10.39	17.08***	6,282.34	.41
Geography								
Grade 10	64.10	26.83	75.06	20.51	-11.62, -10.30	-32.73***	19,031.53	-.46
Grade 12	64.02	28.34	73.53	21.89	-10.69, -8.34	-15.83***	6,679.57	-.38

*** $p < .001$.

grade and 9.33 in twelfth grade), the mean scores on two groups of history questions, with and without economics, were about 4 points higher in Grade 10 than in Grade 12. Higher mean scores of tenth-graders maybe due to a shorter time lag between learning and testing because world history classes are usually offered in Grade 10 or 9 in Kansas school.

In the World Focus geography subtest, the independent sample *t*-test was significant at $p < .001$, with mean scores being lower on the economics-related questions than on the non-economics-related questions. The mean difference was -10.59 points.

The mean differences in grades 10 and 12 were significant at $p < .001$ in both grade levels; they were -10.96 in tenth grade and -9.51 in twelfth grade. The direction of mean differences indicates that students performed worse on the geography items with references to economics than on those without. Total high school and by-grade level mean scores on the world geography items with economics were within less than 0.1 percent range ($M_{WF10Econ}$ = 64.02, $M_{WF12Econ}$ = 64.10, M_{WFEcon} = 64.08) and item without economics were within less than

two points range with the means in Grade 10 being slightly higher in Grade 12 (M_{WF10} = 75.06, M_{WF12} = 73.53, M_{WF} = 74.67).

Therefore, high school students demonstrated higher scores on economics-related questions in the context of world history than in world geography.

U.S. Focus. As for the World Focus test, the two-group comparison statistics for the U.S. Focus test are reported for the entire group and by-grade level, by sub-discipline. The results are reported in Table 26.

Table 26

High School U.S. Focus: Results of t Tests and Descriptive Statistics for Two-group Comparison, by Sub-discipline and by Grade Level

U.S. Focus sub-discipline	Scores by group of questions (n = 5,515)				95% *CI* for mean difference			
	with economics		without economics					
	M %	*SD* %	*M* %	*SD* %		*t*	*df*	*d*
History	60.85	22.04	65.31	22.12	-5.29, -3.64	-10.624***	11,027.85	-.20
Civics	60.00	26.60	66.76	25.77	-7.74, -5.79	-13.561***	11,027.85	-.26
History								
Grade 10	55.44	22.47	60.01	23.22	-8.23, -2.73	-3.84***	988.93	-.20
Grade 12	61.48	21.89	65.83	21.94	-5.22, -3.50	-9.96***	10,035.96	-.20
Civics								
Grade 10	53.39	26.81	62.20	26.83	-12.15, -5.47	-5.17***	990.00	-.33
Grade 12	60.65	26.49	67.21	25.63	-7.58, -5.54	-12.61***	10,024.91	-.25

*** $p < .001$.

In the history subtest, the independent sample *t*-test was significant at $p < .001$, with means on economics-related questions lower than those on the non-economics questions. The difference between two-group means was -4.47 points. Mean differences in two grade levels were statistically significant at $p < .001$, with students in both grade levels forming worse on the history test items that implied economics understanding than on those that did not imply it. The mean score for the group of items with economics in tenth-grade (54.44%) was seven points lower than the mean for the same group of items in twelfth-grade (61.48%) possibly because the

U.S. history topics are not typically covered before eleventh grade in Kansas. The mean difference between two groups of questions was -5.58 in Grade 10 and -4.36 in Grade 12.

In the civics/government subtest of the high school U.S. Focus, the two-group mean difference was significant at $p < .001$. The mean difference pattern was similar to that in U.S. history. High school students demonstrated lower mean scores on the U.S. civics/government questions that implied economics knowledge than on those that did not. The difference between two-group means, with and without economics in civics/government, was -6.76 points. By-grade level independent sample *t*-tests were significant at $p < .001$ within each grade group. The mean difference within two groups of civics/government test items, with and without economics, was greater in Grade 10 (-8.81) than in Grade 12 (-6.56).

Whereas students in both tenth and twelfth grades performed worse on the civics test items that required economics understanding than on those that did not, the mean score for the group of items with economics in Grade 10 (53.39%) was lower than the mean for the same group of items in Grade 12 (60.65%), and the difference between two grade-level means was significant at $p <.001$. The mean difference for the items without references to economics was also significant at $p < .001$ between Grade 10 and Grade 12, yet smaller (-5 points). This difference indicates that tenth graders on average had greater difficulty with civics/government items requiring economics understanding than with items without economics. This difference is probably due to the social studies course sequence in Kansas, where U.S. history and civics/government are not typically taken until Grade 11 and economics, if offered, until Grade 12.

It should be mentioned that the raters noticed that the nature of the references to economics differed across the grade levels. In Grade 6, the references to economics tended to be

implicit rather than explicit and a deep economics understanding was not required to answer to the questions correctly, even if it would be helpful. Starting from Grade 8, the economics terms included in non-economics test items were more explicit and, therefore, required understanding of the economics terms and principles in order to answer the questions from non-economics sub-disciplines correctly. At the high school level, economic concepts were explicitly present in the non-economics items requiring solid background knowledge of the subject. At this grade level, the mean scores the economics-related items were lower than the means of non-economics-related items in three out of four tests (civics, geography, and U.S. history). Inconsistent results across sub-disciplines and grade levels suggest that uncovering the reasons behind these differences would require further investigation, although the findings might be useful to guide content teaching at the specific grade-levels.

The fact that Kansas students tended to perform worse on the items with references to economics might indicate students' lack of understanding of some economic concepts taught through integration or insufficient coverage of economics across social studies. This type of analysis would benefit from a measurement instrument with more items that would possibly provide more consistent results. Test item and discriminant analyses were outside the scope and limits of the data set, but would probably help better understand the pattern in student performance on interdisciplinary items and identify strong and weak areas of economics and other sub-disciplines' learning through integration.

Part B. Student Comparative Performance on Other Social Studies Items Requiring Economic Knowledge as Compared to the Economics Subtest

In order to address the second part of this research question and compare student performance on the designated versus non-designated economics items, new variables were created. One variable, "SS_with_econ", a percent-correct score for the group of questions across non-economics sub-disciplines that implied interdisciplinary knowledge. The scores of "SS_with_econ" were combined with the designated economics subtest percent-correct scores, and it served as the dependent variable for the two-group comparison. A grouping variable distinguished between two groups of student scores, designated and non-designated economics items. The procedure was repeated in all test sets.

The independent sample *t*-tests were conducted for the two-group comparisons, and results are reported by grade level.

Grade 6

The descriptive statistics and *t*-test results are reported in Table 27.

Table 27

*Grade 6***:** *Results of t Tests and Descriptive Statistics for Two-group Comparison*

Set	scores by economics group				95% *CI* for mean difference	*t*	*df*	*d*
	designated		non-designated					
	M %	*SD* %	*M* %	*SD* %				
6A	69.41	22.51	54.01	18.61	14.94, 15.85	66.28***	30,549.90	.75
6B	66.27	22.45	57.53	20.45	8.28, 9.23	65.51***	31,171.46	.41

*** $p < .001$.

Sixth-graders demonstrated higher mean scores on the designated economics than on the non-designated economics items, and the difference was significant in both sets at $p < .001$. The mean differences were 15.40 percentage points on set 6A and 8.7 on set 6B.

*Grade **8***

The descriptive statistics and *t*-test results are reported in Table 28.

Table 28

Grade 8: *Results of t-tests and Descriptive Statistics for Two-group Comparison*

Set	scores by economics group				95% *CI* for mean difference	*t*	*df*	*d*
	designated		non-designated					
	M %	*SD* %	*M* %	*SD* %				
8A	69.25	20.63	59.30	17.79	10.38, 9.51	45.97***	30,979.56	.52
8B	69.75	21.02	54.96	19.00	14.35, 15.24	65.51***	31171.46	.74

*** $p < .001$.

Eighth-graders demonstrated higher mean scores on the designated economics items than on the non-designated economics items. The *t*-tests were significant $p < .001$ on sets 8A and 8B. The mean differences were 9.96 on set 8A and 14.80 on set 8B.

High school

The descriptive statistics and *t*-test results for the student scores on other social studies items that required economics knowledge in comparison with designated economics items for the high school level and by-grade level are reported in Table 29.

On the World Focus test, the difference in scores between two groups of items at the high school level was significant at $p < .001$. High school students performed worse on the designated economics items than on other social studies items that implied understanding of economic concepts. The mean difference between two groups of questions was -8.97.

In the U.S. Focus subtest, the difference in mean scores between the group of designated and non-designated economics items was also significant ($p = .024$), yet small (0.94). The mean scores on the designated economics items were slightly higher than the means on the non-designated economics items in U.S. Focus.

Table 29

High School: Results of t-tests and Descriptive Statistics for Two-group Comparison, by Focus Test and Grade Level

High school test	scores by economics group				95% *CI* for mean difference	*t*	*df*	*d*
	designated		non-designated					
	M %	*SD %*	*M %*	*SD %*				
World Focus	53.15	23.16	62.12	22.43	-9.51, -8.42	-32.59***	27,419.51	-.39
U.S. Focus	61.46	23.12	60.52	20.42	0.13, 1.75	2.261*	10,862.07	.04
World Focus								
Grade 10	52.97	22.80	62.75	22.24	-10.39, -9.15	-30.94**	947.33	-.43
Grade 12	53.64	24.14	60.31	22.85	-7.77, -5.58	-11.60**	20,327.21	-.28
U.S. Focus								
Grade 10	54.60	22.56	54.03	19.76	-2.09, 3.24	0.42	947.33	.03
Grade 12	62.14	23.07	61.16	20.34	.12, 1.83	2.26*	9899.91	.05

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

The independent sample *t*-tests separated by the grade level were significant at $p < .001$ in both Grade 10 and Grade 12 in World Focus subtest. As shown in Table 31, students in both grade levels performed worse on the designated items than on the non-designated economics items. The mean difference between the designated and non-designated economics item groups was larger in tenth grade (-9.77) than in twelfth grade (-6.67).

In U.S. focus, the mean difference between designated and non-economics items groups was not statistically significant in Grade 10 ($p = .674$) and significant at $p = .025$ in Grade 12. The mean differences between two groups of questions were small, .57 in tenth grade and .98 in twelfth grade, indicating the distributions of scores almost completely overlapped. The mean scores on both designated and non-designated economics groups questions of tenth-graders were about 7 percentage lower than those of twelfth-graders ($t_{10vs12designated}$ (5513) = -6.95, $p < .001$; $t_{10vs12non\text{-}designated}$ (5513) = -7.45, $p < .001$). In Grade 10, the mean scores for both designated and non-designated groups of question were low (54%) indicating that they might have insufficient

knowledge of economic concepts and, therefore, had difficulty answering the questions of civics and history that required economics understanding.

In summary, students in Grade 6 and Grade 8 on average performed better on the designated economics items than on other social studies items that contained reference to economics. This difference might be attributed to the fact that students in those grades performed better on the economics subtest than on history and civics subtests. In high school World Focus test, students performed better on the other social studies items that contained reference to economics than on the designated economics items. High school students had greater difficulty with the economics test as compared to other sub-disciplines, but when economics was present in the context of history and geography, they achieved higher scores. In the U.S. Focus test, all high school students and twelfth-graders in particular demonstrated slightly higher mean scores on the designated economics items than on the non-designated economic items, except for Grade 10 where the two-group mean score were similar. Tenth-graders achieved low mean scores (about 54%) on both designated and non-designated economics items possibly because they were not prepared for the test because the instruction of the disciplines tested within U.S. Focus does not usually occur before Grade 11 in Kansas high schools.

The number of designated economic concepts was small in each grade level; the number of the economic concepts required for understanding history, civics, and geography items was broader. Therefore, better performance on the small number of designated economics items might overestimate the real level of economic mastery.

In summary, the comparison of student performance on other social studies test items with or without reference to economics yielded inconsistent outcomes with no clear pattern by grade levels and within the sub-disciplines. Further investigation using different measurement

instruments to analyze the depth of student interdisciplinary knowledge is needed. The results of the analysis indicate that in order to increase learning outcomes in social studies, students need to have solid background in economics, and there are a number of opportunities to integrate economics in teaching about other social studies strands. These findings could be used to identify the scope of economics instruction required in social studies.

CHAPTER V

CONCLUSIONS AND DISCUSSION

The importance of economic literacy among school children was recognized in the state of Kansas by including economics as a separate sub-discipline in the *Kansas Standards for History and Government; Economics and Geography* and by administering statewide social studies assessments that contain economics questions. The 2012 History-Government Assessment, which was the last social studies statewide assessment within the No Child Left Behind reform movement, resulted in a large data set that allowed for determination of the level of understanding of targeted economics content indicated in the Kansas state standards. This study had several purposes. They were (1) to determine the level of student knowledge of assessed economic indicators and concepts; (2) to investigate how student demographics relate to economic understanding; (3) to compare test results in economics with those in other social studies sub-disciplines; and (4) to analyze the test items from the non-economics subject-areas of social studies, looking at those that did and did not require economics knowledge to answer correctly and comparing student performance on those two categories of questions.

Although 2004 *Kansas Standards for History and Government; Economics and Geography* have been replaced by new *Kansas Standards for History, Government, and Social Studies* (KSBE, 2013) and new assessments are being developed, the analysis of "old" assessment outcomes may provide important information for decision-making in the transition to the new accountability system.

Summary and Interpretation

Average scores achieved by students in sixth and eighth grades were higher than those at the high school level. While the majority of students "met" or "exceeded" standards according to

the performance levels set up by the state, it is the opinion of this researcher that Kansas students demonstrated a low level of achievement on the economics subtest, with mean scores below seventy percent. High school students demonstrated a low achievement level on the World Focus test with about half of them performing at less than or equal to 50 percent. Tenth-graders performed significantly worse than twelfth-graders on the U.S. related economics questions, possibly because the testing came before the instruction.

The detailed analysis of test items allowed identifying the specific economic concepts assessed and measuring their difficulty levels. Better performance was indicated on the microeconomic concept areas of supply and demand and on fundamental concept areas of opportunity costs, decision-making, and incentives. The concept area with the lowest achievement level was at the high school level in the fundamental area, choice and consequences, presented in an historical context. This outcome might signify that high school students had difficulty making important interdisciplinary connections and that social studies instruction requires greater emphasis on the fundamental economics terms throughout all grade levels. Another area of difficulty was international economics. The difficulty was noted statewide across the assessed grade levels in Kansas in 2005 as well (Kardash, 2007). This may imply that the international content category requires more attention by social studies teachers in Kansas schools.

To reflect the dominant role of history in the 2004 Kansas social studies standards (Bruner, 2008), some economics items were presented in an historical context. Overall, Kansas students tended to have greater difficulty with the economics questions that were conveyed in the context of history, suggesting that students either did not fully understand them or could not connect their knowledge from two disciplines.

The second research question compared student scores in each subtest to the overall social studies score. In sixth and eighth grades, students demonstrated higher achievement levels in geography and economics than in civics and history. In high school World Focus, conversely, economics scores were the lowest. This finding raises an interesting question about the factors that might play a role in the performance pattern of Kansas students demonstrating lower scores on the subject areas that are traditionally taught across the grade levels (and assessed by a larger number of test items) and higher scores on other strands of social studies standards that are, although infused, but probably less emphasized as compared to the extent of history's coverage. Were higher economics scores on a small number of test items a result of the "teaching to the test" as a consequence of the accountability movement or did students perform better because they learned about economic topics outside the classroom? These questions need a more thorough investigation to help illuminate the issues in this topic.

The low scores on economics and world history questions on the World Focus test, as well as the generally low achievement on international economics questions overall, might suggest that social studies teaching in Kansas requires a greater focus on the international component to better prepare today's students for the advantages and challenges of the interdependent global environment in which they will live.

The findings of this study on the gender gap are consistent with the results of the National Assessment of Education Progress in history and geography and reversed for civics (NCES, 2011a; NCES, 2011b; NCES, 2011c). The gender gap in economics found in this study parallels the findings of other studies, including NAEP in economics (Butters & Asarta, 2011; Kardash, 2007; Mead & Sandene, 2007; NCES, 2013; Walstad & Rebeck, 2001a). Economic educators have extensively examined the gender-related differences in economics performance and

obtained mixed results in different age groups. Several of them tried to suggest factors that might play a role in gender gap, with using certain measurement instruments being one of them. Kansas assessment was entirely multiple-choice, and several studies suggested that genders difference might be attributed to that format (Lumsden & Scott, 1987; Ferber, Birnbaum, & Green, 1983). More investigation may lend more insight into this issue because economic educators are still uncertain about the reasons for gender achievement gaps. It would be interesting to see if the gender gap is eliminated or narrowed when the elements of performance-based assessment, such as constructed-response questions, are implemented in the next round of the standards and accountability movement in Kansas.

The finding of this study indicating lower achievement levels of minority students, particularly Blacks and Hispanics, are alarming because one of the major goals of the No Child Left Behind reform movement was to close achievement gaps by 2014. On the other hand, it was frequently reported that social studies was "marginalized", especially in schools with higher concentrations of minority students, where the focus on raising scores in math and reading often led to "squeezing out" social studies instruction (Pace, 2007).

It should be noted that, in the multiple regression analyses, socioeconomic status was the strongest predictor of economics scores. Furthermore, the interaction effects were significant for SES and two ethnic groups in Grade 6 and Grade 8. The finding that the SES gap within the White group of students was smaller than that of Hispanic and Black students implies that SES has a stronger effect on achievement in these two ethnic groups than in the White group. This is an important question that needs further attention because it relates to income inequality. In American society, education has been historically viewed as a "great equalizer", however, in recent years the achievement gap between lower income and higher income students has been

increasing nationally (Tavernise, 2012). A possible reason for this may be that, with housing integration, there has been greater movement to predominantly suburban districts by minorities as their incomes increase. That leaves poorer minorities often concentrated in urban districts where both funding and achievement expectations are lower. The data available for this study did not permit investigating this possibility, but it certainly merits further examination. In general, these findings are important for educators and policymakers. For many students, especially those whose formal education will stop after high school, having a strong background in economics and other social studies is important as they will need that knowledge to make informed choices in many of their roles, but especially as voters.

The findings regarding relative student performance on economics-related items in the history, civics, and geography, tests should be noted. Most frequently, Kansas students had difficulties with economics-related social studies items in the non-economics test; however, they generally performed better on the designated economics items in comparison to the items that included economics in other social studies test. The list of the economic concepts required for understanding history, civics, and geography items was broad, implying that better performance on the small number of designated economics items might overestimate the real level of economic mastery. The possible reasons for the differences might be lack of understanding of some economic concepts taught through integration or insufficient coverage of economics across social studies. In order to learn social studies and demonstrate high achievement in meeting the standards, students need to have a background in economics. Even though economics coverage varies from classroom to classroom, the implication of these findings is that Kansas students would benefit from a greater inclusion of economics throughout the school curriculum.

Limitations

Although the assessment data provided a unique opportunity to analyze student achievement in economics at the state level, the study has several limitations. First, the test items from the 2012 History-Government Assessment were specifically designed to be aligned with the 2004 Kansas social studies standards and explicit indicators targeted for the state assessment. Therefore, the results of the analysis evaluated the levels of student achievement in economics based on a small number of items that were intended to assess student performance on only a few economic concepts. In addition, the reliability of the economics and other sub-tests in each grade level assessment form was lower than that of the entire test. Second, the subjects represented the student population of assessed grade levels in one specific state and, hence, the findings are specific only to the state of Kansas and should not be generalized, and any comparison to student performance in other states should be taken with caution. Third, the outcomes have limited relation with the previous findings based on the Kansas 2005 social studies assessment outcomes due to differences in standards, targeted indicators, and student population.

Fourth, student performance in economics was measured only by a standardized multiple-choice testing instrument, which, as suggested by Pahl (2003), often consists of trivial or straightforward fact-based test items. As Walstad and Rebeck (2001a, p.456) stated, "No single test can capture all that … students know about economics", and multiple-choice testing instruments have the least capability of doing it, especially when it comes to demonstrating higher order thinking skills.

Fifth, the state assessment in social studies was a "low-stakes" test with no real consequences to students. Consequently, the likely lack of student motivation may result in the outcomes not reflecting the true level of student knowledge.

Lastly, the access of the researcher to data was limited. Because access to school or district-level data was not available, the tested predictors of student performance in economics were limited to the three demographic characteristics (non-educational factors) included in the dataset. Even though student gender, race/ethnicity, and SES explained a significant proportion of the variability in the economics score, the effect sizes were small. It is reasonable to speculate that a relevant proportion of the variance might be explained by factors not included in the analysis. Previous studies indicate that these unaccounted factors may include teacher, school, and district characteristics that would be expected to add considerably to the unexplained variance.

Even in light of the limitations, the research results should provide useful information to teachers and administrators in understanding the level of student knowledge of the specific targeted indicators. This knowledge may complement classroom summative and formative assessment, lending insight into both within- and cross-disciplinary learning outcomes.

Implications of the Study

Whereas prior research shows that a separate economics course results in a higher learning rate of economic concepts, the reality of the crowded school curriculum frequently allows only for infusion of economics into teaching of other disciplines, most often in history and civics/government (Walstad, 1992). An economics course is not required for graduation in most school districts in the state of Kansas and in many districts or schools is not offered, even as an elective, until Grade 12, if at all. Instead, state education officials assume that it will be infused into history and other social studies courses. Little is known about how much economics is actually taught in history, civics, and geography classrooms across Kansas schools. A further

investigation, perhaps qualitative, of the economics content covered in terms of time and concepts would help illuminate this issue.

There is only anecdotal knowledge about social studies teachers' attitudes towards teaching economics in Kansas. A statewide survey of teachers about their practice of teaching and integrating economics, the amount of coverage that economic concepts receive in other social studies courses, teachers' background in economics and their attitudes toward the subject would provide a clearer picture of the status of economic instruction in the state of Kansas and would inform professionals and organizations that support and promote economic education of the kind of help teachers need to teach economics successfully.

It is often noted by economic educators that students who take an economics course are better equipped for more responsible decision-making, however, even taking a separate course does not guarantee a high level of economic literacy (Watts, 2006). In Kansas, the state assessment provides important data that has potential of evaluating student economics knowledge at the state level. However, the data does not allow distinguishing between students who took an economics course and those who were exposed to economics through integration. Having the opportunity to compare student performance in economics based on the type of instruction or course they received would contribute to a better understanding of the status and need for the economics education in the state. A study of treatment or commitment to economic education at the district or school levels across Kansas would be of value in helping to fill the gap in this area of knowledge.

The current study was a second attempt to evaluate student understanding of the specific economic concepts at the state level in Kansas, the first being Kardash (2007). Between 2005 and 2012, students still lack understanding of some fundamental and international economic

concepts. Kansas students' achievement gaps by student characteristics continue to exist. Though there are certain limits of comparing the present study with the previous findings, these trends should be noted. Further research with data from new assessments based on the 2013 social studies standards would provide additional insights. Researchers in the fields of geography, civics, and history, as well as economics, should take advantage of rich state assessment datasets and conduct detailed analyses of student understanding in their fields. Such research could provide important information for the teachers, teacher educators, curriculum developers in the respective areas, as well as providing additional information for policymakers.

During the transition to the new round of standards and accountability, the state is working on improving the system of providing schools and educators with information on student learning and improving teaching effectiveness. The current plan of improving educational assessment includes, among others, incorporation of performance tasks and banking student work to evaluate student growth (KSDE, 2014); it is the opinion of this researcher that school, teacher, course, and other important institutional and educational characteristics should also be included, with anonymity guaranteed, of course, in the assessment data sets in order to have an opportunity to analyze a larger number of factors that influence student learning. Further, a study of how individual districts use state assessment outcomes would also add important insight.

Although the analysis of the content quality of the test items was outside the focus of this research, it seems worth mentioning that there were several concerns about the correctness of economics terms and concepts used in the designated questions and obvious political bias in non-designated economics questions. As noted in the evaluation of the 2004 version of the Kansas social studies standards by the Thomas Fordham Institute, the presentation of the programs

started during the New Deal might "... nudge students toward a particular ideological conclusion - an inappropriate tactic in school standards, whether from left or right" (Stern & Stern, 2011, p. 63). This political bias from the history standards transferred into the high school history questions that were aligned with the corresponding indicator. Questions about the outcomes of the New Deal programs lacked politically neutrality. Therefore, test items, as well as the indicators on which they are based, should be carefully reviewed by specialists in the respective fields to strive for a better content accuracy, correct term usage, and political balance.

Conclusions

The inclusion of economics in the Kansas curricular standards and the social studies assessment helped focus attention on the importance of this sub-discipline in the school curriculum.

State assessments can be an important source of data to evaluate student learning outcomes statewide; however, they should be aligned with quality curriculum standards that foster the development of problem-solving and critical-thinking skills instead of providing mostly breadth of factual knowledge. New social studies standards approved in April of 2013 might help resolve the problem with old curriculum and standards that were, as many educators call them, 'a mile wide, and an inch deep' (Stewart, 2012).

Despite the strong effort of the state to assess the level of student economics knowledge within the state assessment program, the outcomes based on the small number of economic indicators provide only a small fragment of a big picture. There is a strong need for strategies and testing instruments that would allow assessing the depth of student economics understanding, the abilities of making meaningful contextual connections among and across social studies disciplines, and applying that knowledge to the analysis of current events and

policies. In order to be effective, the assessment should be an ongoing process and results should be carefully analyzed to improve curriculum and instruction.

During the new curriculum reform movement towards *Kansas College and Career Standards*, economics, as one of the core disciplines as identified by the new standards, should gain greater curricular ground since new Kansas social studies standards offer a convincing case for its role in citizenship education. Making economics an equal partner within social studies and integrating economic perspective into studying other disciplines should help form important thinking and reasoning skills that would assist students in their various roles as informed and responsible members of their communities and the world.

For educational reform to be successful, its important elements should be connected. In the previous round of standards and accountability reform movement, Kansas succeeded at developing a system of solid curricular standards and assessment, but the state did not have sufficient resources to provide suitable support and professional development for teachers to assist them in implementing the social studies standards (Bruner, 2008). If social studies teachers are to infuse economic knowledge into other social studies disciplines and teach higher order thinking skills to prepare students for the next steps of life or education, they must be provided with adequate training and guiding curriculum materials to complete these tasks. Confident and knowledgeable teachers can motivate and inspire students to become lifelong learners, which is one of the most important skills for the 21st century.

While the 2012 social studies assessment data offered the opportunity to gain substantial insight into economics understanding of Kansas students, it also revealed the need for further research in regard to the statewide level of economic literacy and for collecting more information to analyze educational factors that might play a role in student learning outcomes.

REFERENCES

Adams, J. E., Jr. (2003). Education reform: Overview. In J. W. Guthrie (Ed.), Encyclopedia of education (2nd ed., Vol. 2) (pp. 689-695). New York: Macmillan Reference USA.

Allgood, S., & Walstad, W. B. (1999). The longitudinal effects of economic education on teachers and their students. *The Journal of Economic Education*, *30*(2), 99-111.

Anderson, C., Meszaros, B.T., & Reiser, M.L. (2004). *Middle School Geography: Focus on Economics*. New York, NY: NCEE.

Archibald, S. & Ford, M. (2012). Using Value-Added Analysis to Raise Student Achievement in Wisconsin. *WPRI Report*, *25*(4).

Armento, B. J. (1987). Ideas for teaching economics derived from learning theory. *Theory into Practice*, *26*(3), 176-182.

Asarta, C. J., Butters, R. B., & Fischer, T. J. (2011). Human capital in the classroom: the role of teacher knowledge in economic literacy. *American Economist*, *56*(2), 47-57. Retrieved from http://go.galegroup.com.www2.lib.ku.edu:2048/ps/i.do?id=GALE%7CA270809864&v=2.1&u=ksstate_ukans&it=r&p=AONE&sw=w

Asarta, C. J., Butters, R. B., & Thompson, E. (2013). The gender question in economic education: Is it the teacher or the test? Department of Economics Working Paper No 2013-12. Newark, DE: University of Delaware. Retrieved from http://www.lerner.udel.edu/sites/default/files/ECON/PDFs/RePEc/dlw/WorkingPapers/2013/UDWP13-12.pdf

Ault, D., & Rutman, G. (1978). The role of economics in interdisciplinary and problem-oriented programs. *Journal of Economic Education*, *9*(2), 96-101.

Bach, G. L., Bellack, A. A., Chandler, L. V., Frankel, M. L., Gordon, R. A., Lewis, B. W., Samuelson, P. A., & Bond, F. A. (1961). *Economic education in the schools*. New York: Committee on Economic Development.

Bach, G. L, & Saunders, P. (1965). Economic education: Aspirations and achievements. *American Economic Review*, *55*(3), 329–356.

Baker, B.D. (2012, March 2). Amazing graph proves poverty doesn't matter!(?). Retrieved from http://schoolfinance101.wordpress.com/2012/03/02/amazing-graph-proves-poverty-doesnt-matter/

Banaszak, R. A. (1987). *The nature of economic literacy*. Bloomington Ind.: Clearinghouse for Social Studies/Social Science Education.

Banaszak, R. A. (1991). The economic perspective: Economic literacy and citizenship education. *Social science perspectives on citizenship education*, 88-115.

Baumol, W. J. (1994). Economic education for a half-century of radical change. In W. B. Walstad (Ed.) An International Perspective on Economic Education (pp. 19-36). Cambridge, Mass.: Kluwer Academic Publishers.

Baumol, W. J., & Highsmith, R. J. (1988). Variables affecting success in economic education: Preliminary findings from a new data base. *The American Economic Review*, *78*(2), 257-262.

Becker, W. (1983a). Economic education research: Part I, issues and questions. *Journal of Economic Education*, *14*(1), 10-17.

Becker, W. (1983b). Economic education research: Part II, new directions in theoretical model building. *Journal of Economic Education, 14*(2), 4-10.

Becker, W. (1983c). Economic education research: Part III, statistical estimation methods. *Journal of Economic Education, 14*(3), 4-15.

Becker, W. E. (2001). What does the quantitative research literature really show about teaching methods. *Preprint available online at: http://www.iub.edu/~citl/files/pdf/becker.pdf*

Becker, W., Greene, W., & Rosen, S. (1990). Research on high school economic education. *Journal of Economic Education*, *21*(3), 231-245.

Becker, W. & Hallow, K. (1994). What works and what doesn't: A practitioner's guide to research findings in economic education, *The International Journal of Social Education*, *8*(1), 87-95.

Becker, W. E., & Walstad, W. B. (Eds.). (1987). *Econometric modeling in economic education research*. Boston, MA: Kluwer-Nijhoff.

Bednarz, R. S. (2002). The quantity and quality of geography education in the United States: The last 20 years. *International Research in Geographical and Environmental Education*, *11*(2), 160-170.

Blanchard, R. A., Senesh, L., & Patterson-Black, S. (1999). The organic social studies curriculum and the 1994 NCSS standards: A model for linking the community and the world. *The Social Studies, 90*(2), 63-67.

Borg, M. O., & Stranahan, H. A. (2002). Personality type and student performance in upper-level economics courses: The importance of race and gender. *Journal of Economic Education*, *33*(1), 3-14. Retrieved from http://search.proquest.com/docview/235256979?accountid=14556

Bond, L.A. (1996). Norm- and criterion-referenced testing. *Practical Assessment, Research & Evaluation*, *5*(2). Retrieved May 7, 2013 from http://PAREonline.net/getvn.asp?v=5&n=2

Bosshardt, W. & Watts, M. (1990). Instructor effects and their determinants in precollege economic education. *Journal of Economic Education*, *21*(3): 265-76.

Bosshardt, W. & Watts, M. (1994) Instructor effects in economics in elementary and junior high schools. *Journal of Economic Education*, *25*(3), 195-211.

Bosshardt, W., & Watts, M. (2005). Teachers' undergraduate coursework in economics in the baccalaureate and beyond longitudinal study. *Journal of Economic Education, 36*(4), 400-406. Retrieved from http://search.proquest.com/docview/62086210?accountid=14556

Branson, M. S. (2003). The connection between civic and economic education. *Teacher Librarian*, *32*(3), 26-28.

Brenneke J.S., & Soper J.C. (1987). Economics in the school curriculum. *Theory into Practice*, *26* (3), 183-189. http://www.jstor.org.www2.lib.ku.edu:2048/stable/1476453

Buckles, S. (1991). Guidelines for economic content in school programs. In W. B. Walstad & J. C. Soper (Eds.), *Effective economic education in the schools* (pp. 24–34). Washington, DC: National Education Association and Joint Council on Economic Education.

Buckles, S., Watts, M., & Schug, M. C. (1999). How well do the U.S. standards work together? An analysis of the economic content of four national standards for social studies. *Children's Social and Economics Education, 2*(3), 145–157.

Buckles, S., Schug, M. C., & Watts, M. (2001). A national survey of state assessment practices in the social studies. *The Social Studies, 92*(4), 141-146. Retrieved from http://search.proquest.com/docview/274611099?accountid=14556

Buckles, S., & Freeman, V. (1984). A longitudinal analysis of a developmental economics education program. *Journal of Economic Education*, *75*(1), 5-10.

Buckles, S., & Watts, M. (1997). An appraisal of economics content in the history, civics, social studies, and geography national standards. *American Economic Review*, *87*(2), 254-59.

Buckles S., & Watts, M. (1998). National Standards in Economics, History, Social Studies, Civics, and Geography: Complementarities, Competition, or Peaceful Coexistence? *Journal of Economic Education*, *29*(2), 157-66.

Buckles, S., & Walstad, W. B. (2008). The National Assessment of Educational Progress in Economics: Test framework, content specifications and results. *Journal of Economic Education, 39*(1), 100-106.

Butters R. B., & Asarta C.J. (2011). A survey of economic understanding in U.S. high schools. *Journal of Economic Education, 42*(2), 200-05.

Butters, R. B., Asarta, C. J., & Fischer, T. J. (2011). Human capital in the classroom: The role of teacher knowledge in economic literacy. *American Economist, 56*(2), 47-57.

Butters, R.B., Asarta, C.J., and Thompson, E. (2013). The production of economic knowledge in urban and rural areas: The role of student, teacher and school characteristics. *Journal of Agricultural and Applied Economics, 45*(1), 1-15.

Butters, R. B., & Fischer, T. J. (2008). Establishing state specific benchmarks in economic education. *Journal of Consumer Education*, *25*, 61-72.

Bruner, M.L. (2008, December 1). *Assessing history in Kansas*. Retried from http://nationalhistorycenter.org/wp/wp-content/uploads/2008/11/brunerpaper.pdf

Cawelti, G & Protheroe, N. (2001). *High student achievement: how six school districts changed into high-performance systems*. Arlington, VA: Educational Research and Exploration Service.

Center for Civic Education. (1994). *National standards for civics and government*. Calabasas, CA: Center for Civic Education.

Clark J.R., Schug, M. & Harrison, A.S. (2009). Recent trends and new evidence in economics and financial education. *Journal of Economics and Finance Education, 8*(2), 1-10.

Clarke, M., Shore, A., Rhoades, K., Abrams, L., Miao, J., & Li, J. (2003). Perceived effects of state-mandated testing programs on teaching and learning: Findings from interviews with educators in low-, medium-, and high-stakes states. National Board on Educational Testing and Public Policy, Chestnut Hill, MA. Available at http://www.eric.ed.gov/PDFS/ED474867.pdf

Coe, R. (2002). It′s the effect size, stupid. What effect size is and why it is important. Paper presented at the Annual Conference of the British Educational Research Association, University of Exeter, England, 12-14 September 2002.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Cohn, E., and Geske, T. (1990). *The Economics of education* (3rd ed.). Oxford, England: Pergamon Press.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., & York, R. L. (1966). *Equality of educational opportunity: Summary report* (Vol. 2). U.S. Department of Health, Education, and Welfare, Office of Education.

Council for Economic Education. (2010). *Voluntary national content standards in economics (2nd Ed.)*. New York: NCEE. Retrieved from http://www.councilforeconed.org/wp/wp-content/uploads/2012/03/voluntary-national-content-standards-2010.pdf

Council for Economic Education. (1997). *Voluntary national content standards in economics*. New York: NCEE.

Council for Economic Education. (2011). *Survey of the states: The state of economic and personal finance education in our nation's schools*. New York: CEE. Available at http://www.councilforeconed.org/news-information/survey-of-the-states/

Council for Economic Education. (2014). *Survey of the states: The state of economic and personal finance education in our nation's schools*. New York: CEE. Available at http://www.councilforeconed.org/news-information/survey-of-the-states/

Crowl, T. K., Kaminsky, S., & Podell, D.M. (1997). *Educational psychology*. Dubuque, IA: Brown & Benchmark.

Davis-Kean, P. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*(2), 294-304.

Dalgaard, B. R. (1994). Economics in the social studies. *International Journal of Social Education, 8*(3), 35-39.

Dick, J., Blais, J., & Moore, P. G. (1996).*Civics and government: Focus on economics*. New York, NY: National Council on Economic Education.

Dumas, W., Evans, S., & Weible, T. (1997). Minimum state standards for secondary social studies teacher licensure: A national update. *The Social Studies*, *88*(4), 163-166.

Duncan, A. (2011).The Social Studies are essential to a well-rounded education. *Social Education, 75(*3), 124-125.

Duran, A. (2005) Factors to consider when evaluating school accountability results. *Journal of Law and Education. 34*(1), 73-100.

Education week (2004, August 3). *A nation at risk*. Retrieved from http://www.edweek.org/ew/issues/a-nation-at-risk/

Eisenhauer, J. G., & Zaporowski, M. P. (1994). Cross-disciplinary teaching in high school economics. *Social Education*, *58*(4), 226-29.

Ellington, L. (2010). Economics in History: What every high school student and teacher needs to know. In M.C. Schug & W.C. Wood (Eds.), *Teaching economics in troubled times*, (pp.153–176). New York: Routledge.

Eurydice (2010). Gender differences in educational outcomes: Study of the measures taken and the current situation in Europe. Brussels: Education, Audiovisual and Culture Executive Agency (http://www.eurydice.org)

Ferber, M A., Birnbaum, B.G., Green, C.A. (1983). Gender differences in economic knowledge: A reevaluation of the evidence. *Journal of Economic Education, 14*(2), 24-37.

Frey, B. (2006). *Statistics Hacks: Tips & Tools for Measuring the World and Beating the Odds*. O'Reilly Media, Inc.

Fuller, D. & Geide-Stevenson, D. (2003). Consensus among economists: Revisited. *Journal of Economic Education*, *34*(4), 369-387.

Gagnon, P. (2003). Educating democracy: state standards to ensure a civic core. Washington, D.C.: Albert Shanker Institute.

Geography Education Standards Project. (1994). *Geography for life: National geography standards*. Washington, DC: National Geographic Research and Exploration.

Glasnapp, D.R. & Poggio, J.P. (2001). *Technical report: 2001 Kansas Assessment in Science and Social Studies*. Lawrence, KS: University of Kansas, Center for Educational Testing and Evaluation.

George, D., & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Grant, S. G., & Horn, C. (2006). The state of state-level history testing. In S.G. Grant (Ed.), *Measuring history: Cases of high-stakes testing across the US* (pp. 9-27). Greenwich, CT: Information Age Publishing.

Grant, S. G. & Salinas, C. (2008). Assessment and accountability in the social studies. In L.S. Levstik & C.A. Tyson. (Eds.), *Handbook of research on social studies education*, (pp.219-238). New York, NY: Routledge.

Greene B. (1997). Verbal abilities, gender, and the introductory economics course: A new look at an old assumption. *The Journal of Economic Education, 28*(1), 13-30.

Grimes P. W., Millea M.J. & Thomas M.K. (2008). District level mandates and high school students' understanding of economics. *The Journal of Economics and Economic Education Research, 9*(2), 3-16.

Grimes P.W. (2012). Economic education in American elementary and secondary schools. In K. McGoldrick & G.M. Hoyt (Eds.), *International Handbook on Teaching and Learning Economics*. Edward Elgar Publishing.

Hamot, G. E. (2000). Citizenship education in the secondary school. W. G. Wraga, P.S. Hlebowitsh (Eds.), *Research Review for School Leaders*, *Volume III*. Mahwah, NJ: Lawrence Erlbaum.

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of economic literature*, *24*(3), 1141-1177.

Hanushek, E. A. (1995). Education production functions. In M. Carnoy (ed.), *International encyclopedia of economics of education* (2nd ed., pp.277-282). Tarrytown, NY: Pergamon.

Harris Interactive. (2005). *What American teens & adults know about economics*. Retrieved from http://www.councilforeconed.org/cel/WhatAmericansKnowAboutEconomics_042605-3.pdf.

Hartmann, D. P. (1977). Considerations in the choice of interobserver reliability estimates. *Journal of Applied Behavior Analysis*, *10*(1), 103-116.

Jenness, D. (1990). *Making sense of social studies*. New York, N.Y. : Macmillan.

Johnson, M., Robson, D., & Taengnoi, S. (2011). The gender gap in economics: A meta-analysis. *Available at SSRN 1914553*.

Heath, J. A. (1989). An econometric model of the role of gender in economic education. *The American Economic Review*, *79*(2), 226-230.

Heffron, S.G., & Downs, R.M. (eds.). (2012). Geography for Life: National geography standards (2nd ed.). Washington D.C.: National Council for Geographic Education.

Hansen, W. L. (1998). Principles-based standards: On the voluntary national content standards in economics. *Journal of Economic Education, 29*(2), 150-156.

Hertzberg, H.W. (1981). *Social studies reform 1880-1980*. Boulder, CO: Social Science Education Consortium.

Howard, R. W. (2003). The shrinking of social studies. *Social Education. 67*(5), 285–288.

Johnson M., Robson D., & Taengnoi S. (2011). The gender gap in economics: A meta-analysis Available at SSRN: http://ssrn.com/abstract=1914553 or http://dx.doi.org/10.2139/ssrn.1914553.

Irwin, P. M., Kingston, N. M., Skorupski, W. P., Clark, A.K., Glasnapp, D. R., & Poggio, J. P. (2009). *Technical manual for the Kansas Assessments in History and Government.* Lawrence, KS: University of Kansas, Center for Educational Testing and Evaluation.

Kansas State Board of Education (1999). *Kansas curricular standards for civics-government, economics, geography, and history*. Topeka, KS: KSBE.

Kansas State Board of Education (2004). *Kansas curricular standards for history and government; economics and geography.* (Approved in December, 2004, Revised in August 2005) available from www.ksde.org.

Kansas State Department of Education. (2014). Second edition of training presentation for the HGSS with notes [Power Point Slides] Retrieved from tttp://www.ksde.org/LinkClick.aspx?fileticket=QQzDJR5Ilts%3d&tabid=472&portalid=0&mid=1602

Kardash, N. (2007). *Analysis of economic knowledge among Kansas school children as demonstrated on the 2005 Kansas social studies assessment.* (Order No. 3239547, The University of Kansas). ProQuest Dissertations and Theses, 149 p. Retrieved from http://search.proquest.com/docview/304858178?accountid=14556.

Keynes, J.M. (1936). *The general theory of employment, interest and money*. London: Macmillan (reprinted in 1997 by Prometheus Books).

Lawson, L. D., & O'Donnell, M. G. (1986). Identifying factors that influence the learning of economics: A sixth-grade case study. *Journal of Economic Education*, *17*(3), 177-185.

Ledesma, R. D., Macbeth, G., & Cortada de Kohan, N. (2009). Computing effect size measures with ViSta-the visual statistics system. *Tutorials in Quantitative Methods for Psychology*, *5*(1), 25-34.

Leet, D.R., & Lopus, J.S. (2007). Ten observations on high school economics textbooks. *Citizenship, Social and Economics Education: An International Journal, 7*(3), 201-214.

Lee, J., & Weiss, A. (2007). *The Nation's Report Card: U.S. History 2006* (NCES 2007–474). U.S. Department of Education, National Center for Education Statistics. Washington, D.C.: U.S. Government Printing Office.

Leming, J.S., Ellington, L. & Schug, M. (2006). The state of social studies: A National random survey of elementary and middle school social studies teachers. *Social Education, 70*(5), 322-328.

Lintner, T. (2006). Social studies (still) on the back burner: Perceptions and practices of k-5 social studies instruction. *Journal of Social Studies Research*. *30*(3), 3-8.

Lopus, J. S. (1997). Effects of the high school economics curriculum on learning in the college principles class. *The Journal of Economic Education*, *28*(2), 143-153.

Lumsden, K. G., & Scott, A. (1987). The economics student reexamined: Male-female differences in comprehension. *Journal of Economic Education*, *18*(4), 365-375.

Lutkus, A., & Weiss, A. (2007). *The Nation's Report Card: Civics 2006* (NCES 2007–476). U.S. Department of Education, National Center for Education Statistics. Washington, D.C.: U.S. Government Printing Office.

Lynch, G. J. (1990). The effect of teacher course work on student learning: Evidence from the TEL. *Journal of Economic Education*, *21*(3), 287-296.

Lynch, G. J. (1994). High school economics: Separate course vs. the infusion approach. *International Journal of Social Education*, *8*(3), 59-69.

Manzo, K. (2005, March 16). Social studies losing out to reading, math. *Education Week*, 16-17.

Martinez, S. & Snider, L.A. (2001). History of Kansas education. *Planning and Research, Kansas State Department of Education*. Retrieved from http://www.ksde.org/

Marzano, R. J. *(*2006*). Classroom assessment and grading that works.* Alexandria, VA: Association for Supervision and Curriculum Development.

McCorkle, S., Meszaros, B. T., Morton, J. S., Schug, M. C., & Suiter, M. C. (1997). *Connecting the pieces: Building a better economics lesson*. New York: National Council on Economic Education.

McCloskey, D.N. (2000). Why economics should not taught in high school? In D.N. McCloskey, *How to be Human*: *Though an Economist* (pp.182-186). Ann Arbor, MI: University of Michigan Press.

McGuire, M.E. (2007). What happened to social studies? The disappearing curriculum. *Phi Delta Kappa, 88*(8), 620–624.

Mead, N., & Sandene, B. (2007). *The Nation's Report Card*: *Economics 2006* (NCES 2007–475). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

Meek, S., Morton, J. & Schug, M. C. (2011). *Economics: Concepts and choices*. Teacher's Edition. Holt McDougal.

Meszaros, B., & Suiter, M. (1998). The case for economics in the elementary classroom. *The Region*, *12*(2), 39-43.

Miller, S. L. (1988). *Economic education for citizenship*. Bloomington, IN: Social Studies Development Center, Indiana University.

Miller, J. E., & Rodgers, Y. V. D. M. (2008). Economic importance and statistical significance: Guidelines for communicating empirical research. *Feminist Economics, 14*(2), 117-149.

Miller, S. L. & VanFossen, P. J. (2008). Recent research on the teaching and learning of pre-collegiate economics. In, L. Levstik and C. Tyson (Eds.), *Handbook of research in social studies education* (pp.284-306). New York: Routledge.

National Center for Education Statistics (2011c). *The Nation's Report Card: U.S. History 2010* (NCES 2011–468). Washington, D.C.: U.S. Department of Education, Institute of Education Sciences.

National Center for Education Statistics (2011d). *National Assessment of Educational Progress (NAEP), 2009 high school transcript study* (HSTS). Washington, D.C.: U.S. Department of Education, Institute of Education Sciences.

National Center for Education Statistics (2013). *The Nation's Report Card: Economics 2012* (NCES 2013-453). Washington, D.C.: U.S. Department of Education, Institute of Education Sciences.

National Center for Civic Education (1994). *National standards for civics and government*. Calabasas, CA: Author. http://www.civiced.org/index.php?page=stds

National Center for History in the Schools. (1996). *National standards for history: basic education*. Los Angeles: National Center for History in the Schools. http://nchs.ucla.edu/standards/

National Commission on Excellence in Education. (1983). *A Nation at Risk. The imperative for education reform: a report to the nation and the Secretary of Education,* United States Department of Education by the National Commission on Excellence in Education. Washington, D.C.: U.S. Government Printing Office.

National Council for the Social Studies (1994). *Expectations of excellence: Curriculum standards for social Studies*. Washington, D.C.: National Council for the Social Studies.

National Council for Social Studies (2010). National Curriculum Standards for Social Studies: A Framework for Teaching, Learning, and Assessment.

National Geography Standards, Geography Education Standards Project (1994). *Geography for life: The national geography standards*. Washington, D. C.: National Geographic Society Committee on Research and Exploration.

Niederjohn, M. S., & Schug, M. C. (2008). Can students learn economics in US history? *Journal of Private Enterprise*, *23*(2), 167-176.

Neumann, R. (2010). Economics education and the great recession. *Radical Teacher, 87(1),* 36-43. Retrieved from http://go.galegroup.com.www2.lib.ku.edu:2048/ps/i.do?id=GALE%7CA227362060&v=2.1&u=ksstate_ukans&it=r&p=AONE&sw=w

Oberg, M. (1996). The spectre of political correctness: A reflection on the national history standards debate. *The Montana Professor*, *6*(1) http://mtprof.msun.edu/Win1996/MOberg.html

O'Brien, J.E. (1997). Statewide social studies assessment: Threat or treat? *The Social Studies, 88*(2): 53-58.

O'Donnell, M. G. (1987). Using the history of economic ideas to teach social studies. *Social Studies*, *78*(3), 118-22.

O'Neill, J. (1973). *An evaluation of the economics and the teaching strategies in 11th and 12th grade U.S. and world history textbooks*. New York: Joint Council on Economic Education.

Pace, J. L. (2007). Why we need to save (and strengthen) social studies. *Education Week*, *27*(16), 26-27.

Pahl, R. H. (1999). Social studies in the twenty-first century. *The Social Studies, 90*(5), 198. Retrieved from http://search.proquest.com/docview/274609530?accountid=14556

Pahl, R. H. (2003). Assessment traps in K-12 social studies. *The Social Studies, 94*(5), 212-215. Retrieved from http://search.proquest.com/docview/274776688?accountid=14556

Phipps, S., & Adler, S. (2003). Where's the History? *Social Education*, *67*(5), 296-299.

Posny, A. (2005). White papers based on core principles of redesign. Topeka, KS: Kansas State Board of Education. Retrieved from http://www.ksde.org/Portals/0/Board%20Documents/coreprinciples102005.pdf

Ravitch, D. (2011). *The death and life of the great American school system: How testing and choice are undermining education*. Basic Books.

Reardon, S.F. (2011). The widening academic achievement gap between the rich and the poor: New evidence and possible explanations. In R. Murnane & G. Duncan (Eds.), *Hhither opportunity? Rising inequality and the uncertain life chances of low-income children*. New York, NY: Russell Sage Foundation Press.

Redalevige, A. (2005). Adequacy, accountability, and the impact of "No Child Left Behind." *Educational and Policy Governance.* http://www.Ksg.harvard.edu/pepg/PDF/events/Adequacy/PEPG-05-27rudalevige.pdf

Rodgers, Y. V., Hawthorne, S., & Wheeler, R. C. (2008). Cross-state variation in economics content standards in the primary grades. *Social Education*, *72*(2), 88-94.

Roberts, H., & McCloskey, D. N. (2012). What economics should we teach before college, if any?. *The Journal of Economic Education*, *43*(3), 293-299.

Rutherford, D. J., & Boehm, R. G. (2004). Round two: standards writing and implementation in the social studies. *The Social Studies* (Washington, D.C.), *95*(6), 231-238.

Samuelson, P. (1987). How economics has changed. *Journal of Economic Education*, *75*(2), 107–110.

Saunders, P. & Gilliard, J. (Eds.) (1995). *A Framework for Teaching Basic Economic Concepts, With Scope and Sequence Guidelines*, K-12. New York: National Council on Economic Education.

Saunders, P., Bach, G. L., Calderwood, J. D., Hansen, W. L, & Stein, H. (1984). *Framework for teaching the basic concepts* (2nd ed.). New York: Joint Council on Economic Education.

Saxe, D.W. (1998). State history standards: An appraisal of history standards in 37 states and the District of Columbia. Washington, D.C.: Thomas B. Fordham Foundation.

Schug, M. C. (1991). The development of students' economic thought. In W. B. Walstad & J. C. Soper (Eds.). *Effective economic education in the school curriculum* (pp. 137-152). Washington, DC: Joint Council on Economic Education and the National Education Association.

Schug, M. C. (1994). How children learn economics. *The International Journal of Social Education,* (3), 25-34.

Schug, M.C. & Armento, B.J. (1985). Teaching economics to children. In M. Schug, (Ed.), *Economics in the school curriculum, K-12 (*pp. 33-43). Washington, D.C.: National Education Association and Joint Council on Economic Education.

Schug, M. C., Dieterle, D. A., & Clark, J. R. (2009). Are high school economics teachers the same as other social studies teachers? The results of a national survey. *Social Education*, *73*(2), 71-75.

Schug, M.C., & Niederjohn, M.S. (2008). Can students learn economics in U.S. history? *Journal of Private Enterprise, 23*(2), 167-176.

Schug, M. C., Harrison, A. S., & Clark, J. R. (2012). All we know that may be so in economic education. *Social Studies Research and Practice*, *7*(1), 1-8.

Schug, M.C., Lopus, J.S., Morton, J.S., Reinke, R., Wentworth, R., & Western, R.D. (2003). Is economics your worst nightmare?, *Social Education*, *67*(2), 73-78.

Schug, M. C., & Walstad, W. B. (1991). Teaching and learning economics. In Shaver, J. P. (Ed.), *Handbook of research on social studies teaching and learning* (pp. 411-419). New York: MacMillan Publishing Company.

Schug, M. C., & Western, R. D. (2003). *Wisconsin public schools: An economics free zone*. Thiensville, WI: Wisconsin Research Policy Institute.

Schug, M. C., & Wood, W. C. (Eds.) (2010). *Teaching economics in troubled times*. New York: Routledge.

Scriven, M.S. (1967). The methodology of evaluation. In R. W. Tyler et al. (Eds.), *Perspectives of curriculum evaluation* (American Educational Research Association monograph series on curriculum evaluation No. 1, pp.39-83). Chicago: Rand McNally.

Segall, A. & Helfenbein, R. (2008). Research on K-12 geography education. In L. Levstik & C. Tyson (Eds.), *Handbook of research in social studies education* (pp.259-283). New York: Routledge.

Senesh, L. (1964). *Our working world*. Chicago: Science Research Associates.

Shaver, J. P. (1977). The task of rationale-building for citizenship education. In J. P. Shaver (Ed.), *Building rationales for citizenship education* (pp. 96 -116). Washington, D.C.: National Council for the Social Studies.

Shepard, L.A., Hannaway, J., & Baker, E.L. (2009). Standards, assessments, and accountability. Education policy white paper. Washington, DC: National Academy of Education. Retrieved from http://www.naeducation.org/xpedio/groups/naedsite/documents/webpage/NAED_080866.pdf

Siegfried, J.J. (1979). Male-female differences in economic education: A survey. *Journal of Economic Education, 10*(2), 1-11.

Siegfried, J.J., & Meszaros, B.T. (1998). Voluntary economics content standards for America's schools: Rationale and development. *Journal of Economic Education, 29* (2), 139-149.

Soper, J. C., & Brenneke, J. S. (1981). The test of economic literacy and an evaluation of the DEEP system. *Journal of Economic Education*, *12*(2), 1-14.

Soper, J. C., & Walstad, W. B. (1987). *The test of economic literacy: Examiner's manual* (2nd ed.). New York: Joint Council on Economic Education.

Soper, J. C., & Walstad, W. B. (1988a). What is high school economics? Posttest knowledge, attitudes, and course content. *Journal of Economic Education*, *19*(1), 37-51.

Soper, J. C., & Walstad, W. B. (1988b). The reality of high school economics: The teacher's perspective. *Journal of Private Enterprise*, *4*(3), 85–96.

Sosin, K., Dick, J., & Reiser, M. L. (1997). Determinants of achievement of economics concepts by elementary school students. *The Journal of Economic Education*, *28*(2), 100-121.

Sparks, S.D. (2011, June 23). Study finds gaps remain large for Hispanic students. *Education Week*, *30*(36).

Stewart E. (2012, March 28). *Kansas raises assessment standards*. Retrieved from http://www.bvswnews.com/news/2012/03/28/kansas-raises-assessment-standards/

Stern, S. M., & Stern, J. A. (2011). *The state of state U.S. history standards, 2011*. Thomas B. Fordham Institute.

Stiggins, R.J. (1994). *Student-centered classroom assessment*. New York: Merrill.

Stigler, G. J. (1970). The case, if any, for economic literacy. *The Journal of Economic Education*, *1*(2), 77-84.

Swope, K. J., & Schmitt, P. M. (2006). The performance of economics graduates over the entire curriculum: The determinants of success. *The Journal of Economic Education*, *37*(4), 387-394.

Tavernise, S. (2012, Feb. 9). Education gap grows between rich and poor, studies say. *The New York Times*. Retrieved from http://www.nytimes.com/2012/02/10/education/education-gap-grows-between-rich-and-poor-studies-show.html?pagewanted=all&_r=2&#

Thornton, S. J. (2008). Continuity and change in social studies curriculum. In L.S. Levstik & C.A. Tyson. (Eds.), *Handbook of research on social studies education*, (pp. 15-32). New York, NY: Routledge.

Tobin, J. (1986, Jul 09). Economic literacy isn't a marginal investment. *Wall Street Journal (1923 - Current File)*. Retrieved from http://search.proquest.com/docview/135124495?accountid=14556

U.S. Department of Education, National Commission on Excellence in Education (1983). *A nation at risk. the imperative for education reform.* Washington, DC: U.S. Government Printing Office.

U.S. Department of Education. (2008). A nation accountable: Twenty-five years after A Nation at Risk. Washington, D.C. Available from http://www2.ed.gov/rschstat/research/pubs/accountable/accountable.pdf

Vars, G. F. (1991). Integrated curriculum in historical perspective. *Educational Leadership*, *49*(2), 14-15.

VanFossen, F.J. (2003). Best practice economic education for young children? It's elementary! *Social Education, 67*(2), 90-95.

VanFossen, P.J. (2005). Reading and math take so much of the time...': An overview of social studies instruction in elementary classrooms in Indiana. *Theory and Research in Social Education*, *33*(3), 376-403.

VanFossen, P.J. (2010). Best economic education practices for children. In, M. Schug & W. Wood (Eds.), *Teaching economics in troubled times*. Oxford, UK: Routledge.

VanFossen, P.J. & McGrew, C. (2010). An "economic way of thinking?": Approaches and curricula for teaching about social issues through economics. In, J. Pederson & S. Totten, (Eds.), *Teaching and studying social issues: Major programs and approaches.* Charlotte, NC: Information Age.

Vermont Department of Education (2007). *Vermont NAEP 2007 Results*. *Achievement gap report*. Montpelier, VT: Vermont Department of Education, Standards and Assessment. Retrieved from http://education.vermont.gov/documents/achievement_gap_07.pdf

Viadero, D. (2000, March 2). Lags in minority achievement defy traditional explanations, *Education Week*, 19 (28). Retrieved from http://www.eric.ed.gov/PDFS/ED458335.pdf

Vinovskis, M. (1999). *Road to Charlottesville: The 1989 Education Summit.* Washington, DC: U.S. Government Printing Office, pp. 1-56.

Warmke, R.F. (1970). High school economics: Problems and prospects. *Journal of Economic Education, 2*(1), 89-99.

Walstad, W.B. (1990). Research on high school economic education: Comment. *The Journal of Economic Education, 21*(3), pp. 248-253.

Walstad, W.B. (1992). Economics instruction in high schools. *Journal of Economic Literature*, *30*(4), 2019-2051.

Walstad, W.B. (1998). Why it's important to understand economics. *The Region, 12*(4), 22-26.

Walstad, W.B. (2001). Economic education in U.S. high schools. *The Journal of Economic Perspectives*, *15*(3), 195-210.

Walstad, W.B. (2005, July 9). *Economic education in U.S. high schools*. Retrieved from http://www.esri.go.jp/jp/workshop/050709/050709Walstad-R.pdf

Walstad, W. B. (2013). Economic understanding in US high school courses. *American Economic Review*, *103*(3), 659-63.

Walstad, W., & Allgood, S. (1999). What do college seniors know about economics? *The American Economic Review*, *89*(2), 350-354.

Walstad, W.B., & Buckles, S. (2008). The National Assessment of Educational Progress in Economics: Finding for general economics. *American Economic Review 98*(2): 541–46.

Walstad, W.B., & Kourilsky, M. (1999). *Seeds of success: Entrepreneurship and youth.* Dubuque, IA: Kendall/Hunt.

Walstad, W.B., & Rebeck, K. (2000). The status of economics in the high school curriculum. *Journal of Economic Education, 31*(1), 95–101.

Walstad, W. B., & Rebeck, K. (2001a). Assessing the economic understanding of U.S. high school students. *The American Economic Review*, *91*(2), 452-457.

Walstad, W.B., & Rebeck, K. (2001b). The test of economic literacy (3rd Ed.): Examiner's manual. New York: National Council on Economic Education.

Walstad, W. B., & Rebeck, K. (2012). Economics course enrollments in U.S. high schools. *Journal of Economic Education, 43*(3), 339.

Walstad, W. B., & Robson, D. (1997). Differential item functioning and male-female differences in multiple choice tests in economics. *Journal of Economic Education , 28*(2): 155-71.

Walstad, W. B., & Soper, J. C. (1988a). A report card on the economic literacy of U.S. high school students. *The American Economic Review*, *78*(2), 251-256.

Walstad, W. B., & Soper, J. C. (1988b). What is high school economics? TEL revision and pretest findings. *Journal of Economic Education*, *19*(1), 24-36.

Walstad, W. B., & Soper, J. C. (1989). What is high school economics? Factors contributing to student achievement and attitudes. *Journal of Economic Education, 20*(1), 23-38.

Walstad, W. B., & Van Scyoc, L. (1990). The effect of textbooks on economic understanding and attitudes in high school economics courses. *Journal of Research and Development in Education*, *24*(1), 46–54.

Walstad, W. B., & Watts, M (1985). Teaching economics in the schools: A review of survey findings. *Journal of Economic Education*, *16*(2), 135–146

Walstad, W., & Watts, M. (2011). Economics in the K–12 Curriculum: Coursework, Content, and Research. Retrieved from http://www7.nationalacademies.org/bose/BSS_Planning_meeting_Watts_Walstad_Paper.pdf

Watts, M. (1985). A Statewide assessment of pre-college economic understanding and DEEP. *Journal of Economic Education, 16*(3), 225-37.

Watts, M. (1987a). Student gender and school district differences affecting the stock and flow of economic knowledge. *The Review of Economics and Statistics, 69*(3), 561-566.

Watts, M (1987b). Survey data on precollege scope-and-sequence issues. *Journal of Economic Education*, *18*(1), 71–91.

Watts, M. (1987c). Ideology, textbooks, and the teaching of economics. *Theory Into Practice*, *26*(3), 190–197.

Watts, M. (2006). *What works: A review of research on outcomes and effective program delivery in precollege economic education*. New York, NY: National Council on

Economic Education. Retrieved from http://www.councilforeconed.org/eee/research/WhatWorks.pdf

Watts, M. (2007). A brief history and research review of U.S. precollege economic education. *Korean Journal of Economic Education*, Summer, 143-168.

Watts, M. (2012). Report of the committee for economic education for 2011. *American Economic Review, 102*(2), 691-696.

Watts, M., Salemi, M., Siegfried, J., Sosin, K., & Walstad, W. (2001). Research in economic education: Five new initiatives. *American Economic Review*, *91*(2), 440-445.

Watts, M., Schug, M., & Buckles, S. (1999). How well do the standards work together? An analysis of the economic content of four national standards for social studies. *Children's Social and Economic Education: An International Journal*, *2*(3), 145-157.

Watts, M., Schug, M., & Buckles, S. (2001). A national survey of state assessment practices in the social studies. *The Social Studies*, *92*(4), 141-146.

Watts, M., & Walstad, W. B. (2010). What research tells us about teaching high school economics? In M. C. Schug. & W. C. Wood (Eds.) *Teaching economics in troubled times*, (pp.200–212). New York: Routledge.

Wetzel, J. N., O'Toole, D. M., & Millner, E. L. (1991). A qualitative response model of student performance on a standardized test. *Atlantic Economic Journal*, *19*(3), 18-25.

Williams, M. L., Waldauer, C., & Duggal, V.G. (1992). Gender differences in economic knowledge: An extension of the analysis. *Journal of Economic Education, 23*(3), 219-231.

Ziegert, A.L. (2000). The role of personality temperament and student learning in principles of economics. *Journal of Economic Education, 31*(4): 307-22.

Appendix A

Cronbach's Alpha Coefficients

Reliability Statistics by Grade Level and Test Form for Economics subtest and Total Social Studies (H-G) test

Test set	Number of items Economics	Cronbach's Alpha for Economics subtest	Number of H-G test items	Cronbach's Alpha for H-G test
6A	8	.56	48	.83
6B	8	.61	48	.84
8A	10	.61	60	.88
8B	10	.64	60	.90
High school U.S. Focus	6	.41 (.350 for grade 10 .413 for grade 12)	29	.79
High school World Focus	6	.36 (.344 for grade 10 .405 for grade 12)	30	.74

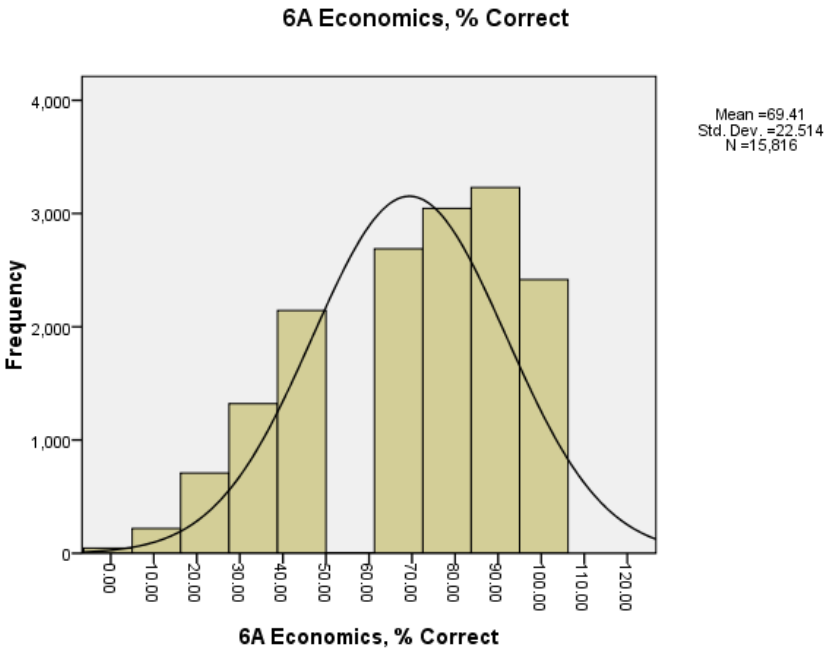
Notes: Cronach's alpha coefficients are low for the economics part of the test, which might be attributed to a small number of questions.

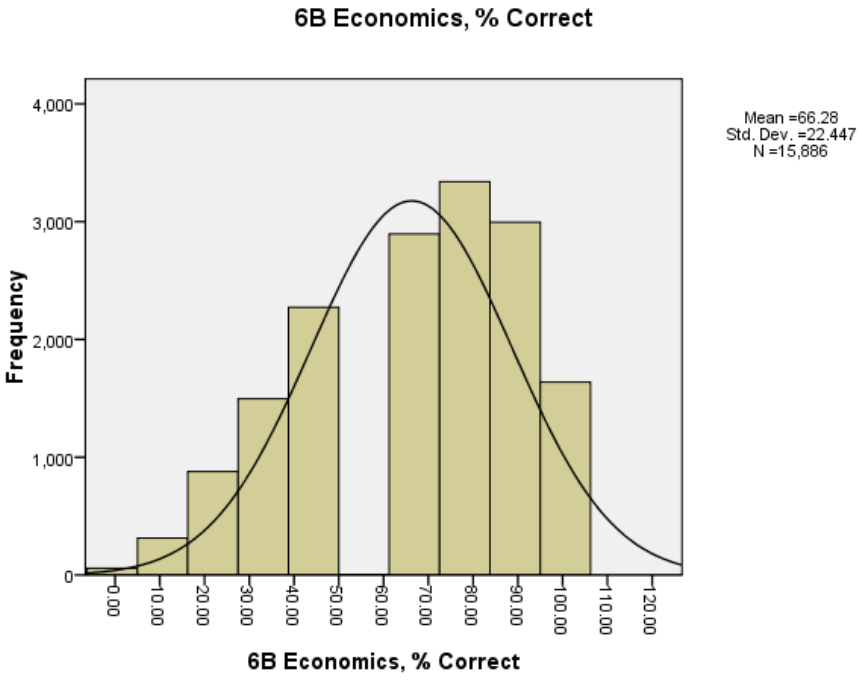
The total social studies test was a reliable testing instrument as internal variability ranged from "acceptable" to "excellent", according to the George & Mallery (2003) classification.

Appendix B

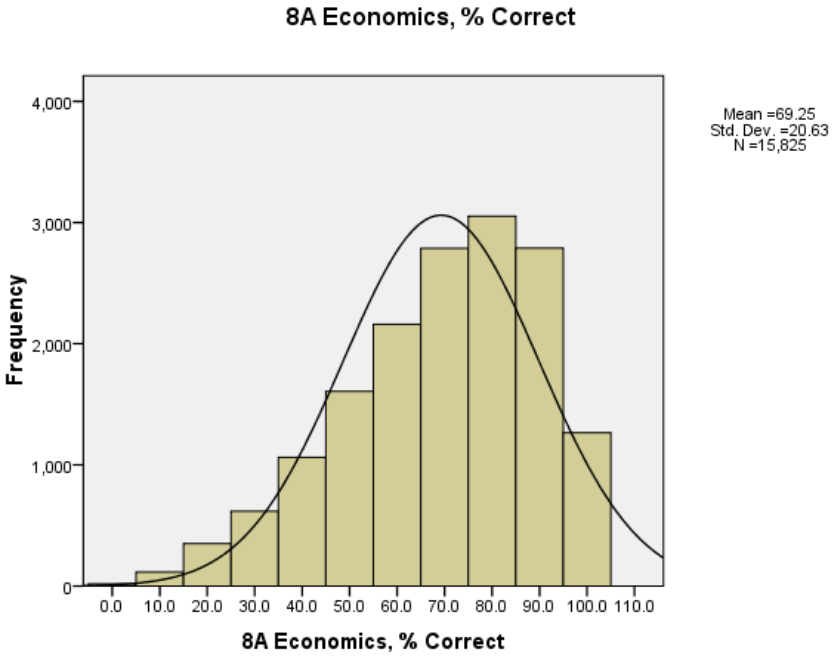
Score Distribution Histograms by Grade Level and Test Set

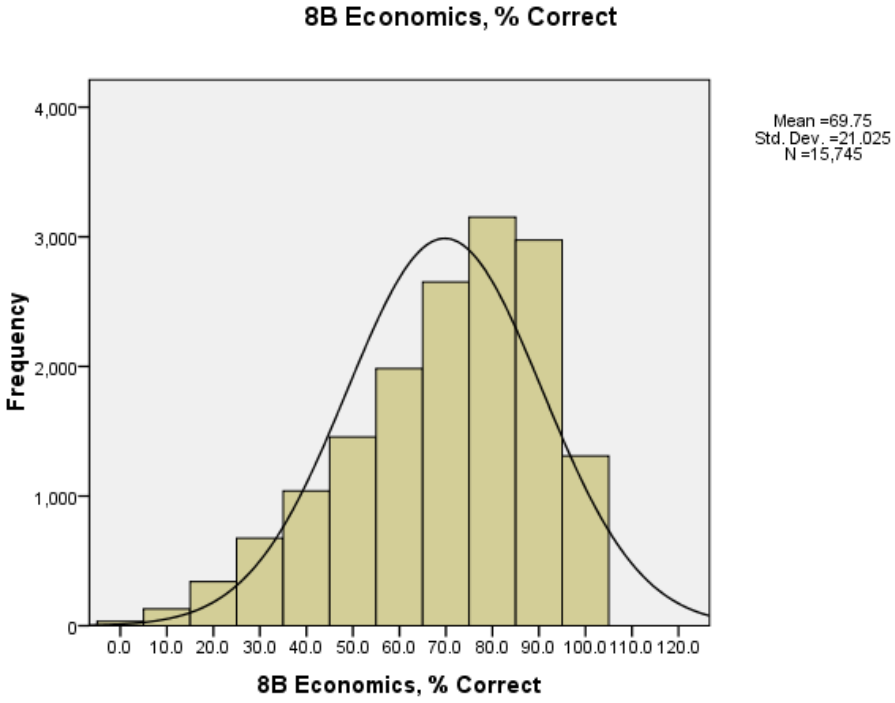
Grade 6



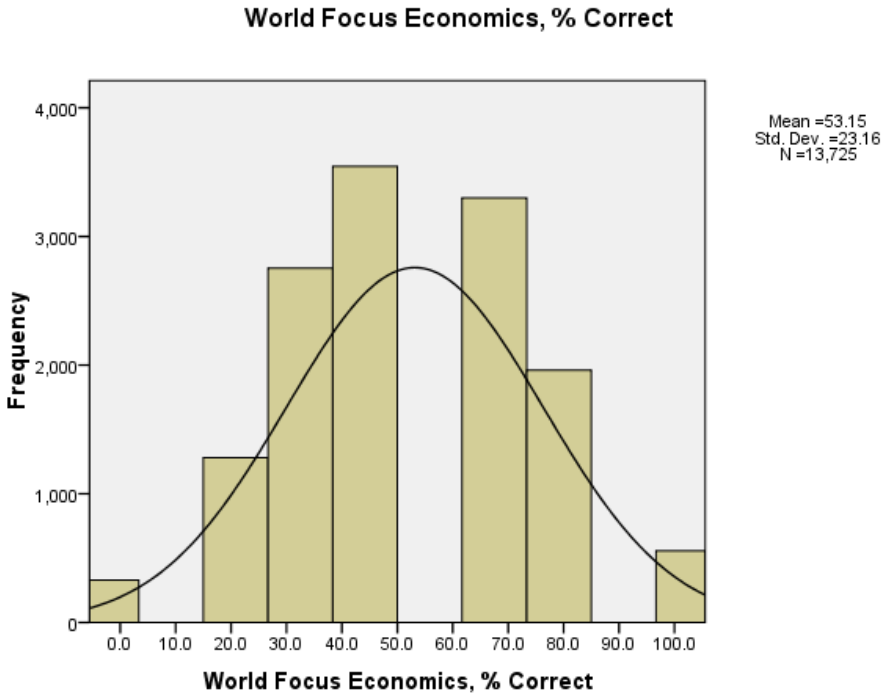


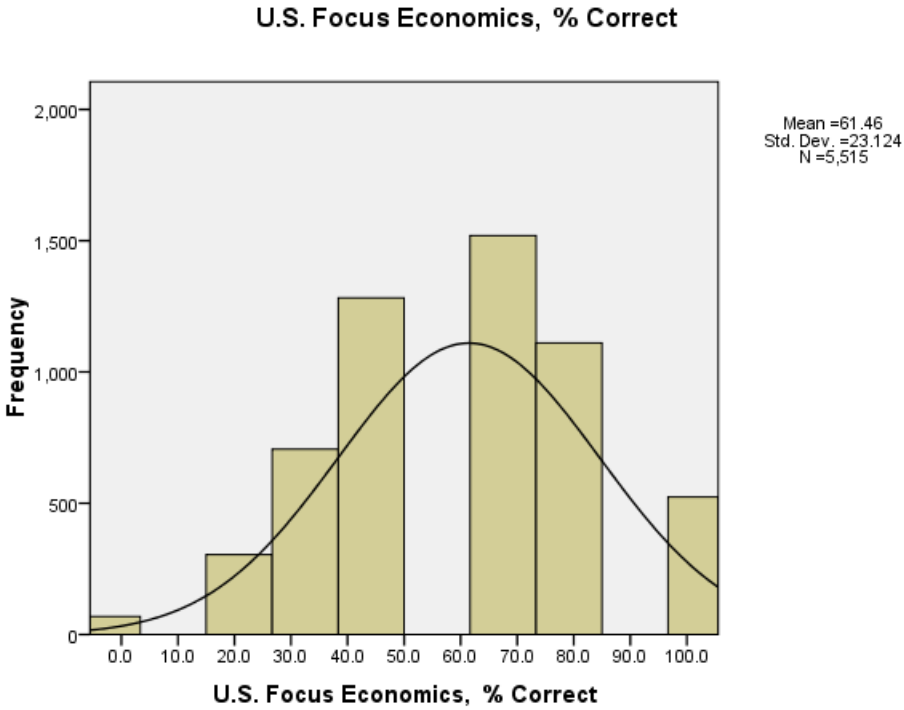
Grade 8





High School





Appendix C

Assessed Economics Indicators and Economic Concepts

Grade 6

Assessed concepts[1]	Assessed Indicators[2]	Standard grade	Benchmark & Indicator #
Determinants of supply	identifies factors that change supply or *demand* for a product (e.g., supply: *technology* changes; demand: invention of new and *substitute goods*; supply or demand: climate and weather).	5	2.2
Opportunity costs/ cost-benefit analysis	determines the *costs* and *benefits* of a *spending*, saving, or *borrowing* decision.	5	5.1($[3])
Scarcity and choice	explains how *scarcity* of *resources* requires communities and nations to make *choices* about *goods* and *services* (e.g., what foods to eat, where to settle, how to use land).	6	1.1
Trade agreements/ trade barriers	identifies barriers to trade among nations (e.g., treaties, war, transportation, geography).	6	3.2

[1] Source**:** *2011-2012 Kansas History-Government Assessment* forms.
[2] Source**:** *Kansas Elementary School History-Government Flip Chart* (revised 02.2009)
[3] *($) denotes indicators related to personal finance economics*

Assessed Economics Indicators and Economic Concepts (Continued)

Grade 8

Assessed concepts[1]	Assessed Indicators[2]	Standard grade	Benchmark & Indicator #
Determinants of net export (export/import)	describes examples of factors that might influence international trade (e.g. United States economic sanctions, weather, exchange rates, war, boycotts, embargoes).	7	3.1
Cost-benefit analysis of spending decisions	compares the benefits and costs of spending, saving, or borrowing decisions based on information about products and services.	7	5.1($[3])
Determinants of supply	analyzes the effect of scarcity on the price, production, consumption and distribution of good and services (e.g. price goes up and production goes down, consumption goes down and distribution is limited).	8	1.1
Productivity as a determinant of standards of living growth	explains how relative *price*, people's economic decisions, and innovations influence the *market* system (e.g., cotton gin led to increased *productivity*, more cotton produced, higher *profits*, and lower prices; steamboat led to increased *distribution* of *goods*, which brought down prices of goods and allowed goods to be more affordable to people across the United States; development of railroad led to transportation of cattle to eastern markets, price was decreased and profit was increased, timely access to beef).	8	2.1
Positive and negative incentives	describes the positive and negative incentives to which employees respond (e.g. wage levels, benefits, work hours, working conditions)	8	2.4

[1] Source**:** *2011-2012 Kansas History-Government Assessment* forms.
[2]Source**:** *Kansas Middle School History-Government Flip Chart* (revised 02.2009)
[3]($) *denotes personal finance indicator*

Assessed Economics Indicators and Economic Concepts (Continued)

High School

Assessed concepts[1]	Assessed Indicators[2]	Grade level	Benchmark & Indicator #
	World Focus		
Economic choices and consequences	explains how economic choices made by *societies* have intended and unintended consequences. (e.g., mercantilism, "planned economy" under Soviet Union, Adam Smith-Invisible hand/Laissez Faire).	High School	1.2
Economic systems	compares characteristics of traditional, command, market. And mixed economies on the basis of property rights, factors of production and locus of economic decision making (e.g. what how, for who)	High School	3.2
Labor market demand	Explains how the demand for and supply of labor are influences by productivity, education, skills, retraining, and wage rates (e.g. spinning mills and the beginning of the modern factory system, the increased use of machinery throughout the Industrial Revolution, assembly lines)	High School	5.3 ($[3])
	U.S. Focus		
Determinants of supply	explains the factors that could change supply of or demand for a product (e.g., societal values: prohibition of alcohol; scarcity of resources, war, technology, assembly line production)	High School	2.4
Role of government in market economy	evaluate the cost and benefits of governmental economic and social policies on society (e.g., minimum wage laws, anti-trust laws, EPA Regulations, Social Security, farm subsidies, international sanctions on agriculture, Medicare, unemployed insurance, corporate tax credits, public works projects)	High School	4.4
Costs and benefits of stock market investment	analyzes the costs and benefits of investment alternatives (e.g. stock markets, bonds, real estate)	High School	5.6

[1] Source**:** *2011-2012 Kansas History-Government Assessment* forms.
[2] Source**:** *Kansas High School History-Government Flip Chart* (revised 02.2009)
[3]($) *denotes personal finance indicator*

Appendix D

Mean Scores (%) by Race/Ethnicity, Gender, and SES

	6A				6B			
	Female		Male		Female		Male	
Race/Ethnicity	High SES	Low SES	High SES	High SES	High SES	Low SES	High SES	Low SES
Native American	62.02	59.33	82.26	68.52	61.74	59.62	68.21	58.87
Asian	74.76	61.33	80.60	65.45	70.83	55.19	74.37	65.75
Black	65.41	51.90	67.30	54.75	62.63	46.77	60.96	47.11
Hispanic	66.57	52.98	74.43	56.78	62.73	48.30	69.68	55.31
White	73.27	63.08	78.87	68.30	71.03	59.92	76.01	65.10
Multiracial	69.7	57.69	76.86	62.70	70.46	55.16	74.65	62.70
Pacific Islander	‡	‡	‡	‡	‡	‡	‡	‡
	8A				8B			
	Female		Male		Female		Male	
Race/Ethnicity	High SES	Low SES	High SES	High SES	High SES	Low SES	High SES	Low SES
Native American	65.52	56.67	69.15	62.31	67.7	55.00	75.50	61.45
Asian	74.27	62.62	78.05	62.54	74.35	62.43	78.70	63.33
Black	68.29	50.69	64.86	51.16	60.88	53.42	65.71	51.15
Hispanic	68.23	55.54	68.56	57.94	67.35	54.78	70.22	59.11
White	73.33	65.35	76.64	68.15	74.64	64.45	77.20	67.66
Multiracial	71.48	60.44	71.95	59.93	69.12	58.48	75.50	63.17
Pacific Islander	‡	‡	‡	‡	‡	‡	‡	‡
	High school World Focus				High school U.S. Focus			
	Female		Male		Female		Male	
Race/Ethnicity	High SES	Low SES	High SES	High SES	High SES	Low SES	High SES	Low SES
Native American	50.71	43.06	60.57	44.57	62.96	50.00	67.86	53.70
Asian	53.53	45.35	57.99	49.51	60.26	47.22	51.31	41.67
Black	43.67	39.19	48.81	43.24	47.30	45.32	53.54	46.90
Hispanic	51.06	45.22	52.92	50.12	55.72	48.69	57.71	54.64
White	52.95	48.13	59.48	52.00	63.90	57.18	67.92	61.10
Multiracial	52.56	44.81	55.18	48.94	64.36	58.53	62.84	55.56
Pacific Islander	‡	‡	‡	‡	‡	‡	‡	-

Note: ‡ KSDE Reporting standards not met (group size less than 10).