



National subject-matter content standards Montana school board trustees perceive as definitely necessary for all Montana students to master prior to high school graduation
by Michael Merle Smith

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in Education
Montana State University
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Abstract:

The problem in this study was, given there is not sufficient instructional time in a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database, which content standards do Montana school board trustees perceive to be definitely necessary for all Montana students to master prior to high school graduation? Montana school board trustees serving in school districts enrolling students in grades K-12 rated the relative importance of the McREL subject-matter content standards. The average percentage of trustees who indicated a content standard as definitely necessary for all Montana students to master prior to high school graduation allowed for the rank-ordering of the content standards from the most important to the least important. Trustees also rated the relative importance of three main goals of education. The demographic variables of school district classification, trustee gender, age, years of school board experience, educational level, occupation, and income level were analyzed to determine if there was a relationship between the variables and trustee responses.

The major findings from this study are: (a) only 120 to 140 of the 248 national subject-matter content standards would be included in the Montana K-12 school curriculum, (b) the Montana K-12 school curriculum would include virtually all of the content standards in some subjects while excluding virtually all of the national content standards in other subjects, (c) there were few significant differences between Montana school board trustee responses and the demographic variables examined, (d) trustees believe the main goal of education should be to provide the knowledge and skills students need to become well-rounded and live productive lives, and (e) there were more similarities than dissimilarities between the McREL/Gallup national study and this study.

The major conclusion from this study is if those who are responsible for identifying and defining the essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation choose to review and consider what Montana school board trustees perceive all Montana students should know and be able to do, they will need to develop a K-12 school curriculum that focuses more on some subjects and content standards while focusing less on others.

NATIONAL SUBJECT-MATTER CONTENT STANDARDS MONTANA SCHOOL
BOARD TRUSTEES PERCEIVE AS DEFINITELY NECESSARY FOR ALL
MONTANA STUDENTS TO MASTER PRIOR TO HIGH SCHOOL GRADUATION

by

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TABLE OF CONTENTS

| | | |
|----|--|----|
| 1. | INTRODUCTION TO THE STUDY | 1 |
| | Introduction | 1 |
| | Statement of the Problem | 12 |
| | Purpose of the Study | 13 |
| | Framework for the Study | 13 |
| | Research Questions | 14 |
| | Significance of the Study | 15 |
| | Definition of Terms | 20 |
| | Assumptions | 22 |
| | Limitations | 22 |
| | Delimitations | 23 |
| | Summary | 24 |
| 2. | LITERATURE REVIEW | 27 |
| | Introduction | 27 |
| | National Content Standards Movement | 27 |
| | Mid-Continent Regional Educational Laboratory (McREL) Comprehensive National Subject-Matter Content Standards Database | 58 |
| | Academic Instructional Time Available | 63 |
| | Mid-Continent Regional Educational Laboratory (McREL) National Content Standards Self-Report Survey | 68 |
| | School Board Duties and Responsibilities in Curriculum Development | 81 |
| | Summary | 86 |
| 3. | RESEARCH METHODOLOGY | 89 |
| | Introduction | 89 |
| | Participants | 90 |
| | Population | 90 |
| | Size and Demographics of Population | 91 |
| | Instrument | 93 |
| | Function | 93 |
| | Validity and Reliability | 94 |
| | Development | 96 |

| | |
|---|-----|
| Research Design | 97 |
| Rationale | 97 |
| Procedure | 98 |
| Analysis Strategy | 100 |
| Method of Data Analysis | 102 |
| Assumptions and Limitations | 103 |
| Assumptions | 103 |
| Limitations | 104 |
| Summary | 105 |
| | |
| 4. RESEARCH FINDINGS | 107 |
| Introduction | 107 |
| Results of Data Analysis | 108 |
| Research Question 1 | 116 |
| Research Question 2 | 117 |
| Research Question 3 | 127 |
| Research Question 4 | 132 |
| Research Question 5 | 139 |
| | |
| 5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS | 148 |
| Introduction | 148 |
| Summary of Study | 149 |
| Conclusions | 162 |
| Recommendations | 166 |
| | |
| REFERENCES CITED | 168 |
| | |
| APPENDICES | 175 |
| Appendix A: Population of Study | 176 |
| Appendix B: McREL Survey Questionnaires | 180 |
| Appendix C: Cover Letter and Recommendation/Suggestion Forms Used During the Field Testing of the McREL Survey Questionnaires | 259 |
| Appendix D: Initial Cover Letter to Participating Montana School District Superintendents | 264 |
| Appendix E: Cover Letter to Participating Montana School Board Trustees ... | 267 |
| Appendix F: Final Follow-up Cover Letter to Montana School District Superintendents | 270 |

| | |
|--|-----|
| Appendix G: Ranking of McREL Subject-matter Content Standards Based on Montana School Board Trustee Ratings | 272 |
| Appendix H: Results of T-Test for Two Independent Samples and One-Way Analysis of Variance for the Demographic Variables and Subject-Matter Areas | 291 |
| Appendix I: Results of T-Test for Two Independent Samples and One-Way Analysis of Variance for the Demographic Variables and Main Educational Goal Areas | 299 |

LIST OF TABLES

| Table | Page |
|---|------|
| 1 National Subject-Matter Organizations that Have Identified and Defined Content Standards and the Year the Content Standards Were First Released | 45 |
| 2 Number of National and State Curriculum Documents Examined and Analyzed by McREL Researchers for Each Subject-Matter Area | 60 |
| 3 Number of Content Standards and Benchmarks by General Subject-Matter Area in the McREL Comprehensive National Content Standards Database | 62 |
| 4 Distribution of Content Standards and Benchmarks within Each Subject-Matter Area and the Average Number of Benchmarks Per Content Standard | 64 |
| 5 Instructional Time Required to Address Each Subject-Matter Content Standard in the McREL Comprehensive National Subject-Matter Content Standards Database | 67 |
| 6 Subject-Matter Areas and Number of Content Standard Questions Addressed in Each Self-report Survey Questionnaire | 69 |
| 7 Ranking of Subject-Matter Content Areas by Average Percentage of Definitely Necessary Responses from U.S. Adults | 72 |
| 8 Number of Content Standards Identified as Definitely Necessary For American Students to Master by 50 Percent or More U.S. Adults | 73 |
| 9 Number of Content Standards, By Subject-Matter Area that Appear in the Top and Bottom 25 Content Standards when Rank-Ordered from 1 to 248 by U.S. Adults | 74 |

| | | |
|----|---|-----|
| 10 | Instructional Time Needed to Address Each Subject-Matter Content Standard in the McREL Comprehensive National Subject-Matter Content Standards Database | 76 |
| 11 | Number of Content Standards by Subject-Matter Area that Could Be Addressed when Using a Cut-Point of 133 | 77 |
| 12 | Number of Content Standards by Subject-Matter Area that Could Be Addressed when Using an Overlap Cut-Point of 160 | 78 |
| 13 | Number of Montana School District Administrative Units, Board of Trustees, and Students in Montana During the 2000-2001 School Year | 92 |
| 14 | Cronbach Alpha Coefficients of Internal Reliability for the 1997 McREL/Gallup National Survey Questionnaires | 95 |
| 15 | Number and Percentage of Montana School Board Trustees within Each Questionnaire Group | 108 |
| 16 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with School District Classification | 109 |
| 17 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Gender | 109 |
| 18 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Age | 110 |
| 19 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Years of Board Experience | 111 |

| | | |
|----|---|-----|
| 20 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Educational Level | 111 |
| 21 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Occupation | 112 |
| 22 | Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Income Level | 113 |
| 23 | Wilks' Lambda | 114 |
| 24 | Predicted Group Membership Classification Results | 115 |
| 25 | Ranking of Subject-Matter Content Areas by Percentage of Definitely Necessary Responses from Montana School Board Trustees | 118 |
| 26 | Number/Percentage of McREL Content Standards Identified as Definitely Necessary for Montana Students to Master by 50 Percent or More of Montana School Board Trustees | 119 |
| 27 | Top 25 and Bottom 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses from Montana School Board Trustees | 121 |
| 28 | Variation in Montana School Board Trustee Responses to Content Standards within Subject-Matter Areas | 122 |
| 29 | Comparative Influence of Subject-Matter Areas on the Montana School Curriculum if Cut-Point 120 Is Used to Determine Curriculum Content | 125 |
| 30 | Comparative Influence of Subject-Matter Areas on the Montana School Curriculum if Cut-Point 144 Is Used to Determine Curriculum Content | 126 |

| | | |
|----|---|-----|
| 31 | Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Gender | 129 |
| 32 | Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Income Level | 130 |
| 33 | Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Years of School Board Experience | 130 |
| 34 | Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Educational Level | 131 |
| 35 | Rank-Ordering of Educational Goals Based on Average Frequency of Definitely A Main Goal Responses from Montana School Board Trustees and Average Percentage of Total | 133 |
| 36 | Questionnaire Group One: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School District Classification | 135 |
| 37 | Questionnaire Group Two: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School District Classification | 136 |
| 38 | Questionnaire Group Four: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School Board Years of Experience | 137 |
| 39 | Questionnaire Group Three: Means for Main Educational Goals for the Demographic Variable of Trustee Educational Level | 138 |
| 40 | Questionnaire Group Three: Means for Main Educational Goals for the Demographic Variable of Trustee Occupation | 138 |

| | | |
|----|---|-----|
| 41 | Comparison of Number and Percentage of McREL Subject-Matter Content Standards and Percentage of Total Curriculum (TC) With a 144 Overlap Cut-Point | 139 |
| 42 | Comparison of Ranking of Subject-Matter Areas by Percentage of Definitely Necessary Responses | 141 |
| 43 | Comparison of Number and Percentage of McREL Content Standards Identified as Definitely Necessary for Students to Master by 50 Percent or More of the Respondents | 143 |
| 44 | Comparison of Top 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses | 143 |
| 45 | Comparison of Bottom 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses | 145 |
| 46 | Comparison of Rank-Ordering of Educational Goals Based on Average Percentage of Respondents Indicating an Educational Goal as Definitely a Main Educational Goal | 146 |

Abstract

The problem in this study was, given there is not sufficient instructional time in a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database, which content standards do Montana school board trustees perceive to be definitely necessary for all Montana students to master prior to high school graduation?

Montana school board trustees serving in school districts enrolling students in grades K-12 rated the relative importance of the McREL subject-matter content standards. The average percentage of trustees who indicated a content standard as definitely necessary for all Montana students to master prior to high school graduation allowed for the rank-ordering of the content standards from the most important to the least important. Trustees also rated the relative importance of three main goals of education. The demographic variables of school district classification, trustee gender, age, years of school board experience, educational level, occupation, and income level were analyzed to determine if there was a relationship between the variables and trustee responses.

The major findings from this study are: (a) only 120 to 140 of the 248 national subject-matter content standards would be included in the Montana K-12 school curriculum, (b) the Montana K-12 school curriculum would include virtually all of the content standards in some subjects while excluding virtually all of the national content standards in other subjects, (c) there were few significant differences between Montana school board trustee responses and the demographic variables examined, (d) trustees believe the main goal of education should be to provide the knowledge and skills students need to become well-rounded and live productive lives, and (e) there were more similarities than dissimilarities between the McREL/Gallup national study and this study.

The major conclusion from this study is if those who are responsible for identifying and defining the essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation choose to review and consider what Montana school board trustees perceive all Montana students should know and be able to do, they will need to develop a K-12 school curriculum that focuses more on some subjects and content standards while focusing less on others.

CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

The publication of A Nation at Risk: The Imperative for Educational Reform by the National Commission on Excellence in Education in 1983 impacted American educational policy in much the same way as the launching of Sputnik by the former Soviet Union in 1957. Each event raised questions regarding the quality of education in America's public schools and the nation's ability to graduate students who possessed the essential knowledge and skills needed to effectively compete in a rapidly changing global economy. Sputnik resulted in the United States concentrating its educational efforts on developing rigorous academic content standards in science, mathematics, and modern languages in order to compete in the space race (Hessong & Weeks, 1991). Twelve years after the startling launch of the world's first artificial satellite, the United States would astonish the world by sending the first human beings to walk on the surface of the moon and return home safely.

The political and educational debate concerning the need to identify and define the essential academic knowledge and skills all American students should acquire prior to high school graduation continues to rage nearly two decades after A Nation at Risk decried the quality of America's public schools and suggested America's K-12 public

school curriculums void of challenging and rigorous academic content (The National Commission on Excellence in Education, 1983). Unlike previous calls for national action that resulted in significant shifts in the nation's curricular focus, current efforts to reform the K-12 public school curriculum remain contentious and muddled in federal, state, and local indecision. The reluctance of many states and local school districts to accept and adopt national academic content standards remains controversial, divisive, and unresolved (Quality Counts 2002, 2002).

The responsibility for identifying and defining what subject-matter content knowledge and skills American students should learn has historically been the responsibility of each of the fifty states. The framers of the United States Constitution did not believe a federally controlled public school system could succeed, given the times and conditions of an emerging nation, and thus deferred to the states the responsibility for educating the nation's youth. The ratification of the Tenth Amendment to the Constitution gave the states the power to create, manage, and govern the nation's public schools (Clausen, 1979). It therefore, by default, became the responsibility of each of the states to determine individually what they believed their students should know and be able to do as a result of having received a public school education. States accepted this responsibility and identified and defined, at least in general terms, the essential subject-matter content knowledge and skills they believed their students should master prior to high school graduation.

State governments recognized early on that they possessed limited expertise in educational matters and would need to create state educational agencies to ensure the

educational provisions guaranteed their citizens within their respective state constitutions was achieved. State boards of education and departments of education were typical educational agencies that were created by state governments to formulate and implement state educational policies. The Montana Board of Public Education and Montana Office of Public Instruction (OPI) were created to organize, manage, and govern Montana's public schools (Montana Constitution, 1972; Montana Code Annotated, 1999).

State educational agencies are responsible for providing leadership and guidance to local school districts in many common school areas. One particularly important area is in establishing statewide curriculum standards (Morrison, 2000). State educational agencies have an obligation to both use and disseminate to local school districts educational research pertaining to the development, implementation, and evaluation of curriculum subject-matter content standards. The Montana Office of Public Instruction is statutorily responsible for developing subject-matter content standards and for collecting and maintaining a file of curriculum guides. The Montana Office of Public Instruction recommends subject-matter content standards to the Montana Board of Public Education for their review and possible statewide adoption (Montana Code Annotated, 1999). Adopted subject-matter content standards are then included in the Montana school accreditation process (Montana School Accreditation Standards and Procedures Manual, 2001). Local school districts are responsible for ensuring that each subject-matter content standard is addressed in their respective K-12 school curriculums.

Although states are ultimately responsible for identifying and defining the essential subject-matter content knowledge and skills students within their states should

master, states have generally left that function to local school districts that are governed by local lay school boards (National School Boards Association, 1996; M.P. Sadker & D.M. Sadker, 1991). It is generally believed that local school boards, as representatives of the school community, are better qualified to recognize and understand the unique and diverse needs and interests of their communities and can best respond to local concerns and issues in a more efficient and effective manner.

School boards are ultimately responsible for their school's operations and the quality of the educational activities and programs within their school districts. Trustees are responsible for working with school and community members in planning and developing their school's curriculum (Clem & Wilson, 1991; Finn, 1991). This obligation includes a commitment to periodically reviewing and revising, when necessary, the academic content knowledge and skills that are included in their local school curriculums (National School Boards Association, 1996; Jones, 2000; Sergiovanni, 2001). Prior to the late 1980's, local school districts were generally granted a great deal of freedom by state educational agencies to define what students should know and be able to do. As a result of minimal federal and state intrusion in matters pertaining to development of local school curriculums, what one state or local school district deemed to be essential academic knowledge and skills for their students to master might not necessarily be the same for students in other states or other school districts. A national consensus as to what essential subject-matter content knowledge and skills all American students should master prior to graduation from an American public high school was not clearly identified or defined.

In 1989 President Bush and the nation's fifty governors met in Charlottesville, Virginia for an educational summit to address a growing concern that the nation's youth were graduating from America's public high schools lacking the essential knowledge and skills needed to successfully participate in an ever expanding global marketplace. The educational reform movement that began nearly seven years earlier with the release of the A Nation at Risk report had not substantially improved the overall quality of America's public schools. In response to these concerns, summit attendees adopted six national educational goals they believed would provide the needed impetus to improve America's public schools by the year 2000 (The National Education Goals Report: Building a Nation of Learners, 1991).

Two of the national educational goals focused on the acquisition of essential subject-matter content knowledge and skills. One educational goal stated American students would by the year 2000 leave grades four, eight, and twelve having mastered challenging subject-matter content in English, mathematics, science, foreign languages, civics and government, economics, arts, history, geography, physical education, and health. The goal further stated that every American student would need to be able to use their minds well, in order to be prepared for responsible citizenship, further learning, and productive employment in our nation's modern economy. The second educational goal stated that by the year 2000 American students would be first in the world in science and mathematics achievement.

The attainment of both national goals would require identifying and defining the essential academic content knowledge and skills all American students would need to

master, regardless of where they lived or what school they attended. Federal, state, and local school district cooperation in establishing challenging subject-matter content standards would be needed if genuine educational reform was to occur in the nation's public schools.

In 1989, the National Council of Teachers of Mathematics (NCTM) released Curriculum and Evaluation Standards for School Mathematics. The publication's content standards identified and defined the essential mathematics knowledge and skills mathematics specialists and scholars believed all American students should know and be able to do in mathematics. The NCTM publication's curricular format and approach to identifying and defining the essential mathematics content knowledge and skills all American students should master served as a model for other subject-matter areas as they mobilized to create similar documents that represented the essential content knowledge and skills they believed all students should master in their respective subject-matter fields. By 1995, national content standards had been identified and defined for the subject-matter areas of language arts, mathematics, science, history, geography, civics, economics, the arts, foreign language, health, physical education, technology, and life skills.

The Goals 2000: Educate America Act of 1994 reaffirmed the federal commitment to achieving the six 1989 national education goals. Educational reform efforts for upgrading and improving America's public schools from this point on began to focus more on developing strategies for integrating national subject-matter content

standards into the curriculum decision making process at both the state and local school district levels.

In 1996, President Clinton and forty-six governors met for an educational summit in Palisades, New York. The summit was convened for the purpose of continuing the national subject-matter content standards dialogue and to discuss how the national subject-matter content standards developed by the various subject-matter organizations might be adopted and integrated into state and local school district curriculums. Summit attendees agreed to support all efforts to develop nationally rigorous subject-matter content standards, and to begin developing assessment instruments that would measure student progress towards achieving those standards.

States have historically recognized the important concept of local control of public schools and the need for communities to govern their own educational affairs. However, the control local school districts once enjoyed slowly waned during the final years of the 1980's as states responded to national criticism and research findings that indicated America's public schools were still in desperate need of serious educational reform. In the area of curriculum development, local school districts witnessed state boards and departments of education assuming greater responsibility for determining and articulating what students should know and be able to do at various stages throughout their K-12 schooling years. The flexibility that local school districts once had in identifying and defining the essential subject-matter content knowledge and skills they believed their students should master was gradually being replaced with subject-matter academic content and skills that state educational agencies believed to be essential for

students to know and be able to do prior to high school graduation. State departments of education began to hold local school districts more accountable for ensuring students mastered the academic content knowledge and skills that were contained within statewide curriculum and accreditation documents.

The development of national subject-matter content standards and subsequent efforts of federal and state governments to directly influence the local school district curriculum development decision making process provided the necessary momentum for the national content standards movement to proceed. The debate regarding the acceptance and adoption of a national school curriculum intensified, with legitimate arguments for and against framed in the context of federal, state, and local school district rights. Those in favor of adopting a national school curriculum argued that there was a common core of knowledge and skills that all Americans should know and be able to do to understand and participate in the American way of life. The nation benefits when all its citizens are well educated.

There were a number of people who believed the acceptance and adoption of the national subject-matter content standards in their entirety would be paramount to adopting a mandated national school curriculum. They argued the federal government had no business intruding into educational matters that are historically a function of states and local school districts. A concern that a federally mandated national curriculum would result in the further erosion of state and local school district control was bothersome for many. While many states and local school districts were aware of the national content standards movement and the various subject-matter content standards documents, state

and local school district officials were reluctant to consider them during the curriculum decision making process.

An American Federation of Teachers' 2001 report on individual state efforts to institute a statewide standards-based educational system concluded such efforts to be progressing at a snail's pace. The report revealed that only 29 states had clear and specific subject-matter content standards in the core subject-matter areas of English, mathematics, science, and social studies. Montana was identified as a state not having clear and specific subject-matter content standards at the elementary, middle school, and high school levels in all the core subject-matter areas. The report recommended states take more responsibility in developing subject-matter content standards and ensure the content standards they identified as essential clearly specify the learning continuum in the core subjects and identify the progression and development of critical knowledge and skills from grade to grade (Making Standards Matter 2000, 2001).

In 1997, the Mid-Continent Regional Educational Laboratory (McREL) published Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education. The McREL publication represented a consensus among national subject-matter specialists, experts, and classroom teachers as to the essential content knowledge and skills all American students should be required to master in 14 subject-matter areas (Kendall & Marzano, 1997). Because the McREL publication synthesized the findings of multiple national subject-matter documents, it was generally recognized as being a comprehensive national subject-matter content standards database. McREL researchers recommended that state and local school district curriculum planners seriously consider

using the McREL comprehensive national subject-matter content standards database when considering what essential subject-matter content knowledge and skills their students should master prior to high school graduation.

In 1999, a McREL research study revealed there was not sufficient academic instructional time in a student's K-12 schooling experience to effectively learn all the proposed subject-matter content standards that were contained in the McREL comprehensive subject-matter content national standards database (Florian, 1999). A student would have to attend school for 22 years, rather than the typical 13 years, if all the McREL content standards were to be taught (Marzano, Kendall & Cicchinelli, 1998). One solution to the problem of limited academic instructional time is to reduce the number of national subject-matter content standards that are included and taught in K-12 school curriculum. Local school districts choosing to use the McREL national content standards database for identifying the essential subject-matter content knowledge and skills their students should master could prioritize the McREL database content standards based on the relative degree of importance of each subject-matter content standard. National subject-matter content standards deemed to be of great importance would be included in the local school curriculum, while those deemed to be less important would receive little or no curricular focus.

Montana's efforts to identify and define the essential subject-matter content standards began in earnest in 1987, when the Montana Board of Public Education and Office of Public Instruction convened a statewide educational summit in Helena. The summit, entitled Project Excellence, brought together a diverse group of individuals from

inside and outside the Montana educational community to discuss the quality of education in Montana's public schools, and to respond to the educational issues and concerns associated with the national educational reform movement.

Several educational recommendations were identified as a result of the Montana educational summit. One recommendation suggested Montana immediately create subject-matter curriculum committees for the purpose of reviewing and evaluating the quality of the state accreditation standards. World-class standards that identified and defined what content knowledge and skills all Montana students should master prior to high school graduation needed to be identified. Montana began reviewing and revising each subject-matter area that was included in the state accreditation standards immediately following the educational summit. As the year 2002 began, the state remained actively engaged in this process (National Education Summit: Montana Action Statement, 1999; Montana School Improvement Initiative: Standards Revision Project, 1999).

The McREL comprehensive national subject-matter content standards database is generally believed to represent a national consensus as to the essential content knowledge and skills all American students should know and be able to do within traditional and contemporary academic subjects. States and local school districts can use the McREL comprehensive national subject-matter content standards database as they engage in the process of identifying what they believe their students should know and be able to do. Research studies on instructional time, however, indicate there is not sufficient academic instructional time in a student's K-12 schooling years to effectively be taught all the

subject-matter content standards that are contained in the McREL comprehensive national subject-matter content standards database. The number of McREL subject-matter content standards to be taught would need to be reduced. They would need to be prioritized from the most essential to the least essential for all American students to know and be able to do.

School board trustees are recognized as important participants in the curriculum planning, implementation, and evaluation process and need to be active participants in the process of identifying and defining what all students in their school districts should know and be able to do. Montana school board trustees can use the McREL national content standards database to assist them in identifying the essential subject-matter content knowledge and skills they believe all their students should master prior to high school graduation.

Statement of the Problem

The problem addressed in this study was there is not sufficient academic instructional time within a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database. Montana school board trustees have a responsibility and duty to identify the essential subject-matter content knowledge and skills they believe all their students should master prior to high school graduation. Given the reality that there is not sufficient academic instructional time for Montana students to master all the McREL national subject-matter content standards, which of the standards in the McREL

database do Montana school board trustees perceive to be essential for all Montana students to master prior to high school graduation?

Purpose of the Study

The purpose of this descriptive study was to identify which of the national subject-matter content standards identified in the McREL comprehensive national subject-matter content standards database Montana school board trustees believe are essential for all Montana students to master prior to high school graduation, and if the demographic variables of school district classification, ethnicity, gender, age, years of school board experience, educational level, occupation, and income level were related to trustee responses.

Framework for the Study

This study was designed to replicate the 1998 McREL survey study that asked American adults to identify which of the national subject-matter content standards contained in the McREL comprehensive national subject-matter content standards database they perceived were essential for all American students to master prior to high school graduation. The percentage of respondents who considered a national subject-matter content standard definitely necessary for students to master prior to high school graduation was used to rank-order each McREL subject-matter content standard. The rank ordering of the McREL standards by American adults resulted in a prioritization of the McREL standards from the most important to the least important. The final ranking

identified the essential subject-matter content knowledge and skills American adults believed were definitely necessary for all American students to master. In this study, Montana school board trustees were asked to identify the McREL content standards they perceive to be essential for all Montana students to master prior to high school graduation. The findings from this study provide a rank-ordering and prioritization of the McREL comprehensive national subject-matter content standards from the most important to the least important as perceived by Montana school board trustees.

Research Questions

The research questions addressed in this study were:

1. Which of the McREL comprehensive national subject-matter content standards do Montana school board trustees perceive to be definitely necessary for all Montana students to master prior to high school graduation?
2. Which subject-matter areas would receive more or less curricular focus as a result of the rank-ordering of the McREL comprehensive national subject-matter content standards by Montana school board trustees?
3. Are the demographic variables of school district classification, gender, age, years of board experience, educational level, occupation, and income level related to Montana school board trustee responses?
4. What do Montana school board trustees perceive the main goals of education to be and are the demographic variables of school district classification, gender, age,

years of board experience, educational level, occupation, and income level related to those perceptions?

5. What are the similarities and dissimilarities between the findings of the McREL 1998 survey study and this study?

Significance of the Study

The national, state, and local educational and political debate regarding what students should know and be able to do prior to high school graduation remains controversial and confrontational eighteen years after A Nation at Risk bemoaned the quality of the nation's public schools. The following passages in the opening pages of the 1983 landmark national report portrayed the state of the American K-12 public school system as a troubled enterprise:

Our Nation is at risk. Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. . . . the educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a Nation and a people. If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war (p. 5).

Although the national report addressed a variety of educational issues and concerns that were in need of curriculum reform, the findings indicated an exodus of a great number of students from traditional academic and vocational educational programs for a less demanding and non-academic general school program. The report described the condition of the secondary school curriculum as follows:

Secondary school curricula have been homogenized, diluted, and diffused to the point that they no longer have a central purpose. In effect, we have a cafeteria-style curriculum in which appetizers and desserts can easily be mistaken for the main courses. Students have migrated from vocational and college preparatory programs to general track courses in large numbers. The proportion of students taking a general program of study has increased from 12 percent in 1964 to 42 percent in 1979 (p. 18).

With regard to course content the commission made the following

recommendation:

We recommend that state and local high school graduation requirements be strengthened and that, at a minimum, all students seeking a diploma be required to lay the foundations in the Five New Basics by taking the following curriculum during their four years of high school: (a) four years of English; (b) three years of mathematics; (c) three years of science; (d) three years of social studies; and (e) one-half year of computer science. For the college-bound, two years of foreign language in high school are highly recommended in addition to those taken earlier (p. 24).

Although significant efforts had been made by the states during the 1990's to develop and revise state subject-matter content standards, evidence from national and international assessments continued to indicate marginal improvement in the academic performance of many of the nation's students on tests of academic achievement (National Assessment of Educational Progress, 1999; Third International Mathematics and Science Study, 1996). Many of America's students were still not mastering the necessary subject-matter content knowledge and skills needed to succeed in school and in life. The failure of states and local school districts to successfully identify what essential subject-matter content knowledge and skills should be included in the K-12 school curriculum undermined efforts to reform the American public school curriculum and improve student achievement.

In developing subject-matter content standards, many states and local school districts turned to the national subject-matter content standards that had been developed by national subject-matter specialists and professional organizations. National content standards served as a blueprint for both states and local school districts as they strived to develop world-class subject-matter content standards and integrate them into the public school curriculum.

In 1987 the Montana Legislature funded Project Excellence for the purpose of examining and revising content standards in each accreditation subject-matter area. Ten years later, the Montana Legislature approved the Montana School Improvement Initiative which supported continuing school improvement efforts in Montana schools. One key element of that ongoing initiative was the requirement for the Montana Boards of Education to continually review and update the state accreditation subject-matter content standards and to ensure local school districts were integrating them into their local school curriculums.

In response to the 1999 National Education Summit Action Question: "What are the areas where your state has made the most improvement and the areas that need additional attention?" Montana officials indicated the state had completed the initial review and revision of content standards for reading, mathematics, communication arts, health enhancement, science, technology, world languages, arts, social studies, library media, and workplace competencies. Montana officials identified a need to continue to focus on ensuring that rigorous content standards existed in the core areas of English, mathematics, science, and history/social studies.

Montana's response to the Educational Summit Action Statement acknowledged a continuing need to identify world-class content standards in the traditional subject-matter areas and a commitment to ensuring all Montana students learn the essential subject-matter content knowledge and skills necessary for achieving and sustaining a fulfilling life, while at the same time addressing the needs and interests of Montana and the nation. Montana and local school districts can use the McREL comprehensive national subject-matter content standards database to achieve these aims.

Marzano, Kendall, and Gaddy (1999) indicated local school districts should not rely solely on mandated state subject-matter content standards for determining what students should be taught in local school districts. They suggested curriculum developers identify and define the essential subject-matter content knowledge and skills that all American students should learn throughout their K-12 schooling, and that this be done within the contexts of the local school-community. They further suggested local school curriculum developers seriously consider the work of national subject-matter specialists and professional organizations that have already developed content-specific standards within their respective subject-matter fields.

Marzano, Kendall and Cichinelli (1998) suggested that local school districts consider replicating the 1998 McREL national survey study that sought to identify what American adults believed American students should definitely master prior to high school graduation. They suggested school districts consider using the survey questionnaires to gather similar information from other school-community subpopulations who have a vested interest in improving the quality of schooling (e.g., employers, individuals with

differing degrees of experiences and knowledge of the various subject-matter content standards, individuals with and without children in school, political leaders, and others). McREL researchers suggested the McREL national survey study serve as a model for others interested in identifying and describing what essential subject-matter content knowledge and skills should be included in a K-12 public school curriculum.

The significance of this study is derived from the perceived need to provide additional information to those who are responsible for deciding what essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation. National content standards that identify the essential subject-matter content knowledge and skills all American students should know have already been identified and can be found in the McREL comprehensive national subject-matter content standards database. Montana and local school districts are obligated to examine the national standards and to consider incorporating them into the curriculum decision making process. Alignment between national, state, and local subject-matter content standards needs to be an active and sustained process if the quality of education in Montana is to continually improve for all children. This study provides Montana educational agencies and local school districts with additional information that can be used throughout the curriculum development process.

Montana school board trustees, who are ultimately responsible for what is taught in their local school districts, can as a result of their participation in this study gain a better understanding of the essential subject-matter content knowledge and skills national subject-matter specialists believe all American students should know and be able to do.

The results of the self-report survey can provide Montana and local school district curriculum planners with additional information as they proceed to identify and define the essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation.

Definition of Terms

Following is a list of terms and their definitions as they apply to this study:

Curriculum: The written documents that identify and describe the essential subject-matter content knowledge and skills students should master prior to high school graduation. Subject-matter content standards and benchmarks are included in the curriculum documents.

Content Standard: A content standard describes the knowledge and skills that students need to master in a subject-matter area (Marzano et al., 1999). A content standard describes what a student should know, understand and be able to do in a specific subject-matter area (Montana School Accreditation: Standards and Procedures Manual, 2001).

Content Benchmark: A content benchmark specifies the content knowledge and skills students are expected to learn by the end of a designated grade level or span of grades, with a preference for articulating benchmarks at primary, upper elementary, middle, and high school levels within each content standard (Marzano et al., 1999). A content benchmark is an expectation for a student's knowledge, skills, and abilities along

a developmental continuum in each content standard area (Montana School Accreditation: Standards and Procedures Manual, 2001).

Montana Public K-12 School District: A Montana public school system that combines an elementary school district (K-8) with a high school district (9-12) for administrative purposes, and employs one school superintendent to administrate both school districts.

Montana School District Trustees: The supervision and control of schools in each school district shall be vested in a board of trustees to be elected as provided by law (Montana Constitution, 1972).

School District Classification: School district classification is based on the population of the community in which the school district is located. A first class school district has a population of 6,500 or more; a second class school district has a population of 1,000 or more but less than 6,500; and a third class school district has a population of less than 1,000 (Montana Code Annotated, 1999).

McREL Comprehensive National Subject-Matter Contents Standards Database: A compilation of the subject-matter content standards and content benchmarks that have been identified by national subject-matter specialists and professional organizations as being essential for students to master (Kendall & Marzano, 1997).

Assumptions

The assumptions in this study were:

1. The McREL comprehensive national subject-matter content standards database represents a national consensus as to the essential subject-matter content knowledge and skills all American students should master prior to high school graduation.
2. Montana school board trustees are ultimately responsible for approving the subject-matter content knowledge and skills that are included in the local school curriculum and, therefore, obligated to participate in the curriculum development process and identifying the essential subject-matter content knowledge and skills all students in their school districts should master prior to high school graduation.
3. The findings of this study provide important and useful information for those who are responsible for identifying and defining the essential subject-matter content knowledge and skills that all Montana students should master prior to high school graduation.

Limitations

The limitations of this study are:

1. The study was limited to the population of this study (Appendix A) and restricts the direct generalization of the findings to the population of this study and to no other population. However, the Montana Board of Public Education, the Montana

Office of Public Instruction, and school board trustees and curriculum planners representing populations not included in this study might consider these findings of value when seeking to identify the essential subject-matter content knowledge and skills Montana students should master prior to high school graduation.

2. Although a single survey questionnaire could be designed to contain all the content standards contained in the McREL comprehensive national subject-matter content standards database, it is not realistic to expect that a respondent would take all the time needed to complete such a lengthy survey questionnaire. Therefore, four survey questionnaires, each addressing different subject-matter content standards, were developed and were randomly distributed to Montana school board trustees.
3. This study was limited by the limitations associated with the distribution and collection of a self-report survey questionnaire, e.g., respondent's general knowledge of the topic, ease of completion, low response rate (Gay & Airasian, 2000).

Delimitations

The delimitations of this study are:

1. Only Montana school board trustees who are school board members in a school system that combines an elementary (K-8) school district with a high school (9-12) district for administrative purposes and employs a single superintendent to administrate both school districts were surveyed.

2. Only the demographic variables of school district classification, gender, age, years of board experience, educational level, occupation, and income level were analyzed to determine if they were related to Montana school board trustee responses.

Summary

In order for the nation's children to successfully participate and succeed politically, economically, and socially in an interconnected global society, they will need to possess the essential subject-matter content knowledge and skills that have been identified in the national subject-matter content standards. The inability of the nation's public schools to make significant inroads into improving the overall academic performance of many of the nation's children continues to plague the school reform movement. State and local school districts can consider adopting the national curriculum that is predicated on the national subject-matter content standards as one viable way for improving their public schools.

Efforts at the national, state, and local school district levels to improve the K-12 public school curriculum have intensified during the 1990's. The federal government has clearly demonstrated a genuine concern for improving the nation's public schools by continuing to support and fund the national subject-matter content standards movement and campaigning for the adoption of a national school curriculum predicated on those standards. States and local school districts, although generally opposed to a national school curriculum, have nonetheless been working diligently towards identifying what

they believe students should know and be able to do, and developing and revising state and local subject-matter content standards with varying degrees of success.

National subject-matter content specialists and professional organizations have reached a national consensus on what essential subject-matter content knowledge and skills all American students should know and be able to do prior to high school graduation. McREL has developed a comprehensive national subject-matter content standards database that contains the essential subject-matter content knowledge and skills that subject-matter specialists and professional organizations have identified as being essential for all American students to master during their K-12 schooling experience and prior to high school graduation. The McREL comprehensive national subject-matter content standards database can be used by state and local school district curriculum developers and planners to compare and contrast their curriculum subject-matter content standards with those generally recognized as being world class.

A problem with the McREL database is there are too many national subject-matter content standards in the database that can be realistically taught during a student's thirteen years of public schooling. Some of the essential subject-matter content knowledge and skills addressed in the national database need to be identified as being more important than other subject-matter content knowledge and skills. In other words, the rank-ordering and prioritization of the national standards may be necessary to determine which of the standards are definitely necessary for students to master prior to graduation from America's public high schools.

As important participants in the curriculum implementation and evaluation process, Montana school board trustees are obligated to assist in identifying and defining what essential subject-matter content knowledge and skills Montana students in their school districts should master prior to high school graduation. The McREL comprehensive national subject-matter content standards database can provide a means for Montana school board trustees to identify the most essential subject-matter content knowledge and skills Montana students should master. This viable information can be used with other curriculum sources to determine what subject-matter content knowledge and skills Montanans believe are essential for all Montana K-12 students to master.

An overview of the literature as it pertains to this study is presented in the following chapter. The literature review examines the national content standards movement and McREL's efforts to create a comprehensive national content standards database that can be used by states and local school districts to identify and define what all American students should know and be able to do in each of the subject-matter areas. The review addresses the academic instructional time limitations associated with using the McREL comprehensive national content standards database and provides one possible approach for resolving this issue. The review concludes with a discussion of the duties and responsibilities of school board trustees in the curriculum development process.

CHAPTER 2

LITERATURE REVIEW

Introduction

A synthesis and evaluation of the current literature as it pertains to this study is provided in the literature review. The literature review will focus on the following areas: (1) the national content standards movement: 1983-2002, (2) the development of the Mid-Continent Regional Educational Laboratory's (McREL) comprehensive national subject-matter content standards database, (3) issues relating to academic instructional time available to effectively teach the McREL subject-matter content standards, (4) the 1998 McREL national content standards self-report survey, and (5) school board duties and responsibilities with respect to curriculum development. The literature review will focus on the American public school system generally and, when appropriate, the Montana public school system specifically.

National Content Standards Movement

National, state, and local school district efforts to identify and define the essential subject-matter content knowledge and skills that all American students should master prior to high school graduation is not a recent educational endeavor. From America's early colonial beginnings to the dawn of the twenty-first century, the political, economic,

and social conditions of the nation at any given time have directly or indirectly impacted the general nature of the American public school curriculum. While rudimentary schooling in the remote and isolated settlements of a vast wilderness in early America concentrated on providing rudimentary instruction in reading, writing, and arithmetic, the complex technological world of today demands students possess a greater wealth of knowledge and skills if they are ever to successfully participate in an ever changing global economy. The American educational system has quickly evolved from educating a few in several basic elementary subjects to educating the masses in well over 20 subjects, covering as many as 100 different courses. With regard to what essential content knowledge and skills all American students should master prior to high school graduation, the evolution of the K-12 public school curriculum continues to unfold.

The American public school curriculum has generally reflected what local school district communities have believed their students should know and be able to do. Parents, educators, students, and school board members have historically been the primary collaborators during the curriculum development process, and have generally decided what academic content knowledge and skills were essential for their children to master (Sergiovanni, 2001). For the most part, teachers and school administrators have usually been the primary sources for determining what subject-matter content knowledge and skills should be taught. Their curriculum decisions have been historically predicated on the content knowledge and skills found in local and state adopted textbooks (Wilens et al., 2000). This subjective process has resulted in school curriculums varying from state to state and from local school district to local school district without a national consensus as

to what essential subject-matter content knowledge and skills American students should acquire (Goertz, 2001). What one state or school district perceives to be essential for American students to know and be able to do in the various academic subject-matter areas may not be perceived as essential in other states or other school districts (Jones, 2000). The political nature of deciding what should be taught and what should be mastered by all American students remains unresolved today, nearly 20 years after the national content standards movement began.

Prior to the 1980's, leadership and guidance at the state level in defining what was essential for students to know and be able to do was generally provided in the form of curriculum guides and accreditation documents. The state guides and documents typically contained non-obtrusive and broadly interpreted curriculum language, thus allowing local school districts a great deal of latitude in interpreting curricular intent (Gandal & Vranek, 2001). Most states presented expected student learner outcomes in terms of general goals rather than as specific and concise student learner expectations. Viewed as a whole, state curriculum documents have usually been weak and far from acceptable (Marzano & Kendall, 1996).

An example of a 1987 Montana accreditation standard for students in primary grades (K-3) reflects the ambiguity and weakness that can be found in state curriculum guides and documents.

By the end of the primary level, the student shall have the opportunity to:

1. Understand measurable attributes, the concept of a unit, and the process of measuring, and

2. Apply measurement skills to everyday situations (Montana School Accreditation: Standards and Procedures Manual, 1987).

Comparing and contrasting this Montana subject-matter content standard with the following National Council of Teachers of Mathematics (NCTM) content standard in the same curriculum strand reveals how broadly defined learner goals at the state level may result in intended learning varying from school to school.

Understands and applies basic and advanced properties of the concepts of measurement:

1. Understands the basic measures of length, width, height, weight, and temperature;
2. Understands the concept of time and how it is measured;
3. Knows process for telling time, counting money, and measuring length, weight, and temperature, using basic standard and non-standard units; and,
4. Makes quantitative estimates of familiar dimensions, weights, and time intervals and checks them against measurements (Kendall & Marzano, 1997).

The NCTM standard reduces the possibility that an educator teaching to this mathematics standard will confuse or misinterpret academic intent. Essential academic content and skills for this NCTM mathematics content standard are clearly identified and defined and are easier to teach and assess for student mastery. The Montana academic content standard as written may result in student learning; however, both the content knowledge and skills acquired may vary from school to school as a result of a

misinterpretation of curriculum intent. Most state curriculum documents simply have weak standards, requiring local school districts to engage in a great deal of content standards writing and curriculum redesign to ensure their students are exposed to world-class standards (Marzano & Kendall, 1996).

States should assume a major role in advising their local school districts in matters pertaining to curriculum development (Goodlad, 1984). State departments of education can create a central bank of essential content standards that local school districts could access when developing their local curriculum content standards. The content standards bank should include subject-matter content standards for at a minimum reading, writing, and mathematics. Sergiovanni indicates local school districts should be held responsible for developing quality academic standards for advanced mathematics, science, literature, history, social science, art, music, English, and other essential subject-matter areas (Sergiovanni, 2001).

Although the U.S. Constitution deferred to each of the states the responsibility for organizing and managing the nation's public schools, all three branches of the federal government have to some degree influenced public education in America. From convening national educational summits and creating educational commissions to investigate the quality of the nation's schools and suggesting ways to improve them, from enacting federal educational legislation, and from the various supreme court rulings pertaining to educational matters, the federal government has historically shaped national educational policy. The content standards movement that began in the early 1980's can be directly traced to federal intervention, both intended and unintended.

The current national content standards movement is generally recognized as having begun with the much heralded release of the A Nation at Risk report in 1983 by the National Commission on Excellence in Education. The Commission was charged by Secretary of Education Terrel H. Bell to examine the quality of education in the United States and report the results to the nation within 18 months. Secretary Bell was concerned with what he believed was a public perception that something was seriously wrong with the nation's public schools. One of the Commission's goals was to assess the quality of teaching and learning in our nation's K-12 public schools. Although a number of findings and recommendations were presented in the final report, the report declared:

“If only to keep and improve on the slim competitive edge we still retain in world markets, we must rededicate ourselves to the reform of the educational system for the benefit of all” (p. 7).

The Commission's examination of the quality of the teaching and learning in the nation's K-12 public schools revealed a national public school system failing to provide all American students with the essential academic content knowledge and skills needed to effectively compete in an ever changing and interdependent world marketplace. International comparisons of student achievement revealed American students never finishing first or second in 19 academic areas when compared to students in other industrialized nations, and finishing last in 7 other academic areas. Nearly 23 million American adults and 13 percent of all 17-year-olds were considered functionally illiterate, and 40 percent among minority youth. Average high school student achievement on standardized achievement tests was lower than it had been two decades earlier. College admission scores were steadily declining. Finally, business and military leaders were

indicating it was costing them millions of dollars to provide remedial education and training programs in such basic skills as reading, writing, spelling, and computation.

The report called on political and educational leaders to seek ways to solve the problems identified in the report. With regard to academic content, political and educational leaders were strongly urged to find ways to continue to improve the teaching of mathematics and science. They were also challenged to support and actively seek ways to improve the teaching and learning in the academic fields of English, history, geography, economics, and foreign languages, and to avoid over-emphasizing technical and occupational subjects at the expense of the arts and humanities.

The report indicated students were migrating from challenging courses in the traditional high school vocational and college preparation tracks for more liberal and less challenging courses in the general track. The number of high school electives being offered needed to be decreased and the number of required courses that stressed higher level thinking and problem solving and that challenged all students to actively participate in the learning process needed to be increased. High schools needed to require all students to enroll in and successfully complete four years of English, three years of mathematics, three years of science, three years of social studies, and 1/2 year of computer science. For those pursuing a postsecondary education, two years of a foreign language should also be required. Finally, schools needed to adopt more rigorous and measurable subject-matter content standards and establish higher expectations for academic performance.

The front-page news and ensuing public media frenzy the A Nation at Risk report created immediately catapulted education to the top of the American public agenda. The report was far reaching and did not quietly disappear into the night. The report captured the nation's attention and immediately stimulated lively discussions in political and educational circles. Rather than becoming defensive and blaming others, national, state, and local politicians and school district educational leaders immediately began to focus their attention on ways to improve America's public schools.

From 1983 to 1989, states and local school districts actively sought ways to reform their respective educational systems. Typical reform efforts in the immediate years following A Nation at Risk included increasing high school graduation requirements, developing sound assessment and accountability practices, and addressing teacher certification and compensation issues. The movement continued to be front and center in the public conscience and headlines in the public press. The findings and suggestions caused the nation to collectively seek ways to reform public schools.

While national, state, and local school district politicians and educational leaders sought practical and effective ways to implement the recommendations of the A Nation at Risk report, there were also a number of renowned educational scholars who joined in the reform debate by publicly sharing and publishing their thoughts for improving America's schools. In a matter of two years, from 1983 to 1985, dozens of studies, reports, and lay publications on American schooling were released. Those that follow were often cited as sources having had the greatest impact on reforming the American school curriculum during the early years of the national content standards movement.

In 1983, the same year A Nation at Risk was released, Mortimer Adler published The Paideia Proposal: An Educational Manifesto. Adler, at the time of the publication, was chairman of the Paideia Group, a group of 21 educators sharing a common belief as to the purposes of schooling and what was needed to reform America's public schools. Adler was working at the Institute for Philosophical Research in Chicago at the time of the publication. With respect to curriculum reform, Adler suggested a common curriculum for all. Adler believed the best education for the best should also be the best education for all and should serve as the foundation for developing the nation's public school curriculum. Adler believed there was a common core of learning that all students should be required to master. Tracking students, non-essential courses (including electives), and job training should be eliminated from the American public school curriculum. Acquisition of a second language, physical education, health, limited manual activities, and some instruction in finding a career could be included in the curriculum, but only in support of the basic course of study. The basic core of study would concentrate on ensuring all students acquired the essential academic knowledge and skills in language arts (e.g., reading, writing, speaking, and listening), literature, the arts, mathematics, science, history, geography, and social studies.

In 1983, Ernest Boyer released High School: A Report on Secondary Education in America. He was a member of the Paideia Group at the time of the publication and was president of the Carnegie Foundation for the Advancement of Teaching, former U.S. Commissioner of Education, and former Chancellor of the State University of New York. He believed high schools should recognize that all students needed to be prepared for a

lifetime of both work and further education. He recommended a core of common learning serve as the foundation for all high school students. This core of common learning should be designed to help all students live in an interdependent and complex world. It would include language (e.g., English, speech, literature, foreign language, and the arts), history (U.S. history, western civilization, and non-western studies), civics, mathematics, science (e.g., physical and biological), technology, health, and world of work.

In 1984, TheodoreSizer released Horace's Compromise: The Dilemma of the American High School. At the time of this publication he was a professor at Brown University, an American historian, former Dean of Harvard's Graduate School of Education, former Headmaster at Phillips Academy, and a member of the Paideia Group. He believed the primary goal of high schools should be to help students use their minds well, to think clearly and imaginatively and to be well-informed. Schools should teach less and ensure what they taught was structured in an integrated and coherent manner. The foundation of his curriculum would support the acquisition of essential knowledge and skills in literacy, numeracy, and civic understanding. The curriculum would focus on identifying and defining the essential content knowledge and skills that all American students should master in reading, writing, speaking, listening, measuring, estimating, calculating, imagining, and reasoning. All of these would be interwoven into the subject-matter areas of mathematics, science, literature, the arts, philosophy, and history.

In 1984, John Goodlad released A Place Called School: Prospects For The Future. Goodlad, at the time of the publication, was a Professor of Education at the University of

California and former Dean of the Graduate School of Education at that same institution. Goodlad proposed the school curriculum be based on a common core of studies that all students would be required to take, and from which students could not escape by enrolling in electives. The common core curriculum would be up to 80 percent common for all American students. Goodlad suggested the school curriculum concentrate on providing all students with the essential content knowledge and skills identified and defined in literature, language, mathematics, science, vocational education, social studies, and physical education. To a lesser degree, the curriculum should provide learning opportunities in the arts, foreign language, and technology.

Several other national reports that suggested what essential curriculum content knowledge and skills students should master were also released during 1983-1984. In 1983, the Educational Equality Project of the College Board released Academic Preparation for College: What Students Need to Know and Be Able to Do. The report identified what a committee of educators believed students should know and be able to do in order to succeed in college and in the world of work. The major recommendation of the report was to structure student learning within a framework of basic academic competencies and academic subjects. Academic competencies were defined as the broad intellectual skills essential for success in all fields of study, regardless of academic discipline. The seven competency areas were reading, writing, speaking and listening, mathematics, reasoning, studying, and observing. The six basic academic subjects were English, the arts, mathematics, science, social studies, and foreign language. Although technology was not included as a basic academic subject, the report recognized the

importance for students to be technologically literate. The report identified what students needed to know and be able to do in each of the six academic subjects.

In 1983, the Education Commission of the State's Task Force on Education for Economic Growth issued a report entitled Action for Excellence. The report suggested that the best way to address national economic development was to improve America's public schools. The task force responsible for preparing the report was composed of state governors and corporate leaders. The report's findings warned of America's declining position in world markets and suggested that the only way to once again be internationally competitive was to ensure the American labor force was highly efficient. The report concluded that the future success of the nation, its defense, social stability, well-being and national prosperity was dependent on the nation's ability to successfully improve the quality of education and training in the nation's public schools.

The period 1986-1996 represented a time when American educational policy at the federal, state, and local school district levels reflected a need to focus on identifying and defining the essential content knowledge and skills within each of the traditional curriculum subject-matter areas. Each of the national subject-matter organizations developed and released documents that identified and defined what they believed American students should know and be able to do in their respective subject-matter areas. Their efforts provided fuel for those who believed there was a common and basic core of essential content knowledge and skills that all American students should master.

There were also a number of influential studies, reports, and publications that appeared during this ten-year period and that were often cited as having had an impact on

the national content standards movement. In 1986, the National Assessment of Educational Progress (NAEP) released a report that found America's 17-year-old students woefully deficient in academic knowledge in history and literature. NAEP is a congressionally mandated project of the U.S. Department of Education's National Center for Education Statistics (NCES). Commonly referred to as the nation's report card, it is the only ongoing, comparable, and representative assessment of what U.S. students know and are able to do. The report indicated students who participated in the study could only correctly answer slightly more than 50 percent of the history and literature assessment questions. Several educational scholars indicated that if a national report card grade were assigned to the nation's eleventh grade students based on their knowledge of history and literature, it would be a failing grade (Ravitch & Finn, 1987).

In 1986, William Bennett released First Lessons: A Report on Elementary Education in America. Bennett was U.S. Secretary of Education at the time of the publication. Bennett concluded, from his examination of the quality of America's elementary schools, that as a whole they were doing much better than America's junior high and high schools. Yet, Bennett believed they could still do better. With regard to the elementary school curriculum, Bennett proposed that essential content knowledge and skills be identified for the subject-matter areas of reading, writing, science, mathematics, social studies, the arts, history, civics, geography, computers, cultural literacy, foreign languages, health, and physical education.

In 1987, Bennett released James Madison High School: A Curriculum For American Students. In his mythical high school, Bennett expressed a need for high

schools to establish a sound core curriculum consisting of clear and attainable content standards that identified the essential content knowledge and skills all students should master in the core subject-matter areas of English, social studies (e.g., world history, U.S. history, and civics), mathematics, science, foreign languages, physical education and health, and the arts. Electives and vocational arts courses would be included, but would be secondary to the required learnings in the core subject-matter areas.

In 1987, E. D. Hirsch, Jr., published Cultural Literacy: What Every American Needs to Know. Hirsch at the time of this publication was a founding member and director of the Cultural Literacy Network. Hirsch argued that a common knowledge among its citizens was critically important if the fragile fabric of the American culture was to be preserved and the gap between the haves and have nots reduced. The premise of the publication is that about 80 percent of the knowledge commonly shared among literate Americans had not significantly changed over the last 100 years, and that it is not likely to do so in the near future. The essential subject-matter content knowledge and skills that Hirsch and his colleagues identified as essential for all Americans to master would be just as important for students to know 10 years from now as it is today.

Hirsch's work represented the first attempt by anyone to identify and define the essential subject-matter knowledge and skills students should know or be able to do in a number of different subject-matter areas, and present that information in a single work. Hirsch and his colleagues chose to identify and define essential content knowledge and skills in the subject-matter areas of English, literature, the arts, religion, history, economics, civics, philosophy, mathematics, science, and technology. Many of the

nation's school districts quickly embraced Hirsch's work and designed their curriculums and instructional strategies and methods to address the content contained in Cultural Literacy. School districts assumed Hirsch's definitive list of essential subject-matter content knowledge and skills was valid and truly represented what all American students should know and be able to do.

The premise that Hirsch's work was a legitimate representation of what all American students should know and be able to do was seriously challenged by McREL researchers a decade later. McREL researchers would argue that Hirsch's identification of essential subject-matter content knowledge and skills was based on Hirsch and several of his university colleagues identifying and defining what literate individuals might have a familiarity with, or a tendency to know and be able to do, rather than being based on what national subject-matter specialists and academic professional organizations believed the essential content knowledge and skills to be (Marzano, Kendall & Gaddy, 1999). This aside, Hirsch's core knowledge movement had, and will continue to have, a profound impact on the national content standards movement.

In 1988, Bennett released James Madison Elementary School: A Curriculum For American Students, which further expounded on his earlier publication, First Lessons. This publication reflected Bennett's earlier curriculum focus on English, social studies, mathematics, science, foreign language, the arts, and physical education and health. What set this publication apart from his earlier work was Bennett's introduction of grade spans, or benchmarks. Bennett, in broad and general terms, identified the strands and themes he believed students should acquire content knowledge and skills in, and the

grade spans where this should occur. For example, in mathematics, students in the grade span K-3 would need to learn by the end of grade 3 the essential content knowledge and skills in numbers, basic operations, fractions, decimals, rounding, geometric shapes, measurement of length, area, and volume, bar graphs, estimation, and elementary statistics.

Despite the many national reports and scholarly works, and in lieu of all the attention, dedication, and commitment to improving the nation's schools as a result of these and numerous other scholarly publications, overall student achievement showed no signs of significantly improving as the decade of the 1990's approached. Many of the nation's economic issues and concerns that existed at the time the A Nation at Risk report was released still existed six years later in 1989 (America 2000, 1989). In American Education: Making It Work, a U.S. Department of Education 1988 report to the President and the American people, Secretary Bennett stated:

But we are certainly not doing well enough, and we are not doing well enough fast enough. We are still at risk. The absolute level at which our improvements are taking place is unacceptably low. Too many students do not graduate from our high schools, and too many of those who do graduate have been poorly educated. Our students know too little, and their command of essential skills is too slight (p. 1-2).

The 1989 Phi Delta Kappa annual educational Gallup poll that asked the public whether they favored requiring schools to conform to national achievement standards and goals and use a standardized national curriculum received overwhelming support. The public at large gave a 70 percent approval rating, with 77 percent of parents supporting using national standards to improve their schools (Phi Delta Kappan, 1989).

In 1989, President George Bush met with the nation's 50 governors at an educational summit in Charlottesville, Virginia to address the continuing concern that American students were not capable of meeting the challenges existing in the new world economy. Evidence clearly indicated American students were continually being outperformed academically by students in other industrial nations. Employers were still complaining they could not hire enough qualified workers and were being forced to spend inordinate sums of money on remedial training.

President Bush and the governors concluded the educational summit agreeing on six broad national goals for education to be attained by the year 2000 (The National Education Goals Report: Building a Nation of Learners, 1991). President Bush announced that it was absolutely imperative that the nation establish cooperative national educational goals if the nation was to successfully address the technological, scientific, and economic challenges of the 21st century (National Education Goals Panel, 1994). Two of the goals referred specifically to academic achievement. Goal 3 stated American students would demonstrate competency in challenging subject matter, to include English, mathematics, science, history, and geography; learn to use their minds well, so they would be prepared for responsible citizenship, further learning, and productive employment in a modern economy. Goal 2 stated American students would be first in the world in science and mathematics achievement. Those in attendance also agreed that in order to achieve these national goals, educators would need to be motivated to set challenging content standards in all the major subject-matter areas.

Two federal organizations were established following the educational summit to assist the nation in achieving the new educational goals by the year 2000. The National Education Goals Panel (NEGP) was created to address issues and concerns associated with defining what subject-matter areas and academic content knowledge and skills should be deemed essential for all American students to know and be able to do. The National Council on Education Standards and Testing (NCEST) was created to address issues and concerns associated with the types of assessments and accountability measures that should be used. NCEST would later recommend the national content standards be voluntary and that a national assessment be designed and implemented.

The creation of both NEGP and NCEST to assist states in achieving the six national educational goals resulted in national subject-matter organizations immediately taking steps to establish content standards in their respective subject-matter areas. The National Council of Teachers in Mathematics (NCTM) had already been actively involved in identifying and defining what they believed all American students should know and be able to do in mathematics, and released their recommendations in 1989: Curriculum and Evaluation Standards for School Mathematics. The format and style of the NCTM document became a guide for the remaining subject-matter organizations as they embarked on setting content standards in their respective subject-matter areas. By 1997 national content standards had been developed in 15 subject-matter areas. Table 1 identifies each of the 15 subject-matter organizations that have identified and described the essential content standards in their respective subject-matter areas and the year the subject-matter content standards were first released.

Table 1. National Subject-Matter Organizations that Have Identified and Defined Content Standards and the Year the Content Standards Were First Released

| Content Area | Organization Developing Content Standards | Date |
|--------------------|---|------|
| Mathematics | National Council of Teachers of Mathematics | 1989 |
| Science | American Association for the Advancement of Science | 1989 |
| Work | Secretary's Commission on Achieving Necessary Skills (SCANS) | 1990 |
| Social Studies | National Council for Social Studies | 1994 |
| The Arts | Consortium of National Arts Education Associations | 1994 |
| Civics | Center for Civic Education | 1994 |
| Geography | Geography Education Standards Project | 1994 |
| History | National Center for History in the Schools | 1994 |
| Health | Joint Committee on National Health Education Standards | 1995 |
| Physical Education | National Association for Sport and Physical Education | 1995 |
| Business | National Business Education Association | 1995 |
| Language Arts | National Council of Teachers of English and the International Reading Association | 1996 |
| Foreign Language | National Standards in Foreign Language Education Project | 1996 |
| Technology | International Technology Education Association | 1996 |
| Economics | National Council on Economic Education | 1997 |

While the various national subject-matter content organizations were either starting or finishing their work on identifying and defining essential subject-matter content knowledge and skills within their respective academic fields, the Mid-Continent Regional Educational Laboratory (McREL) began to systematically gather, review, and

analyze these noteworthy national and state curriculum documents. McREL researchers synthesized the national subject-matter curriculum documents and began to develop a comprehensive national subject-matter content standards database that contained the subject-matter content knowledge and skills each of the national subject-matter organizations believed was essential for all American students to master prior to high school graduation. The work McREL researchers began in 1990 resulted in the development of a comprehensive national subject-matter content standards database by 1997 in 14 subject-matter areas.

In 1991, Chester Finn, a professor of education and public policy at Vanderbilt University and director of the Educational Excellence Network, published We Must Take Charge: Our Schools And Our Future. Finn suggested schools rebuild instruction around a national curriculum of core subjects consisting of history, science, geography, mathematics, literature, and writing. Finn believed the core of what is learned must be the same for everyone, with about 67 percent of the high school curriculum, 80 percent of the middle school curriculum, and 100 percent of the elementary curriculum being the same for everybody. Finn states:

... it is time to put in place a rich, solid core of common learning for all young Americans and an effective means of determining how well it is being learned. Let's reject those old bugaboos that a national curriculum is a prescription for catastrophe and national exams are a plot to turn us into a land of dutiful robots. Let's instead open our eyes to the fact that we're living amid a catastrophe that might be ameliorated by embracing a national curriculum and an examination system to accompany it (p. 247).

Finn further suggested:

. . . universal mastery of a common core is what will hold us together as Americans, equalize our opportunities for happiness and prosperity, and revitalize the nation's civic, economic, and cultural life (p. 254).

In 1991, the U.S. Department of Labor released the Secretary's Commission on Achieving Necessary Skills (SCANS) report that identified the knowledge and skills students would need to possess to succeed in the world of work. The report identified five competencies and a foundation of skills and personal qualities that were prerequisites for success on the job. The five competencies described a worker who could productively use resources, interpersonal skills, information, systems, and technology efficiently and effectively. The SCANS report identified a three-part foundation of intellectual skills and personal qualities they believed needed to be present if the five competencies were to be achieved. Students would need to be proficient in reading, writing, mathematics, listening, and speaking. American students would need to be creative thinkers, decision-makers, problem solvers, life-long learners, and good reasoners. Finally, workers would need to assume individual responsibility, possess a positive self-esteem, be social, be self-managers, and demonstrate integrity.

In 1992, NCEST released to Congress its report, Raising Standards for American Education. The report proposed creating an oversight board, the National Education Standards and Assessment Council (NESAC), which would establish guidelines for standards and assessment development. NCEST committee members indicated that their examination of the quality of the nation's schools revealed an absence of explicit national standards keyed to world-class levels of performance. The absence of world-class standards was severely hampering the committee's ability to monitor the nation's

progress toward achieving the six national education goals. In the absence of well-defined and demanding standards, the nation had in fact established a minimum skills curriculum in virtually all subject-matter areas. The systematic adoption of world-class standards would be absolutely necessary if the nation hoped to turn its educational system around.

NCEST further stated that by establishing national standards in each of the traditional subject-matter content areas, three national priorities could be addressed. First, national subject-matter content standards would extend to all students the opportunity to receive a quality education. Second, national subject-matter content standards would strengthen America's democratic institutions and values and allow all citizens to participate in the political process. Finally, national subject-matter content standards would enhance the nation's economic competitiveness by improving the nation's human capital.

The NCEST report suggested subject-matter content standards be developed at national and state levels and consist of a number of specific components. With respect to content standards, the report suggested content standards describe the essential knowledge, skills, and understandings that should be taught if students were to be highly competent in challenging subject matter. Content standards would need to reflect high expectations for all students. The content standards needed to be national and not federal, meaning not mandated, but rather voluntary. States and local school districts would decide how the national content standards would best serve their efforts to reform their school curriculums. Finally, the national subject-matter content standards would need to

be dynamic and not static. Care would need to be taken to initially develop quality subject-matter content standards but also recognize that the development process is ongoing and would need to be reexamined continuously in order to keep pace with the development of knowledge and skills in the various subject-matter areas.

In 1994, President Clinton signed into law the Goals 2000: Educate America Act, which provided for the creation of the National Education Standards and Improvement Council (NESIC). NESIC was empowered to certify national and state subject-matter content and performance standards, opportunity-to-learn standards, and state assessments. The act also authorized the National Education Goals Panel (NEGP). Four additional subject-matter areas were added to the national content standards list: foreign language, the arts, economics, and civics and government.

In 1994, the National Education Commission on Time and Learning released a report entitled Prisoners of Time. The report challenged the educational community to abandon the traditional uniform six-hour day and 180-day school year calendar and seek new and better ways to use school time to enhance learning. The report recommended that states and local school boards work with schools to use school time more productively. The commission further recommended schools and communities commit themselves to ensuring all students achieve world-class standards in the core academic areas of English, language arts, mathematics, science, civics, history, geography, the arts, and foreign languages. The commission recommended that schools devote 5.5 hours a day to academic instruction in the core academic subject-matter areas.

In 1995, McREL published Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education. The McREL publication represented a synthesis of all the content standards identified and defined by each of the major subject-matter organizations identified in Table 1, including behavioral studies and life skills.

In 1996, the often referenced Third International Mathematics and Science Study (TIMSS) was released. The findings renewed concerns regarding the competitiveness of the United States in the global economy. The study showed that, on average, 8th grade students in the United States performed lower than the international average in mathematics and higher than the international average in science. The nation's 4th graders scored higher than the international average in both mathematics and science. The nation's 12th graders scored lower in mathematics and science than those of students in their final year of secondary school in the majority of other countries. On assessments in physics and advanced mathematics, the United States was among the lowest scoring countries participating in the study.

In 1996, President Clinton and 40 state governors met for an educational summit in Palisades, New York, and rededicated themselves to supporting the ongoing efforts to establish clear academic standards in the core subject-matter areas, both at the national and state levels. The federal government recommended states continue to consider using the voluntary national curriculum standards as a guide for developing state and local school district curriculum content standards.

There were several additional professional and lay school reform publications that were released in the late 1980's and 1990's and that contributed to the ongoing content

standards movement. In 1996, the National Association of Secondary School Principals (NASSP) released Breaking Ranks: Changing an American Institution. The report dealt with the American high school. Nine purposes for high schools were identified. One purpose spoke to the need for high schools to establish demanding academic standards that could stand up to national scrutiny and that all American students would be expected to master. The report recommended high schools clearly define the essential content knowledge and skills American students should master prior to high school graduation. The report recommended the American high school curriculum, at a minimum, identify and define the essential content knowledge and skills in the subject-matter areas of literature and language, mathematics, social studies, science, and the arts.

In 1999, the American Association of School Administrators (AASA) released a report entitled Preparing Schools and School Systems for the 21st Century. The report indicated that in order for students to successfully participate and succeed in the 21st century, schools would need to develop clear academic standards in all subject-matter areas and that all American students be held accountable for achieving them. Schools of the 21st century would need to insure students possessed the essential knowledge and skills in literature, the arts, culture, history, geography, science, communication, civics, reading, writing, mathematics, and critical thinking. Finally, schools of the 21st century would need to instill a love for lifelong learning in all American students.

Montana's efforts to reform its state and local school curriculums in response to the findings and suggestions of the A Nation at Risk report did not occur at the state level until 1986, when the Montana Office of Public Instruction convened a statewide

conference to address the subject-matter content issue. The conference, Project Excellence, was attended by teachers, school administrators, parents, school board trustees, business leaders, Montana Office of Public Instruction and Board of Public Education representatives, university representatives, and politicians. The conference attendees participated in a series of brainstorming activities that produced a number of recommendations for reforming Montana's K-12 public schools.

In the area of curriculum reform, it was recommended that subject-matter area committees be formed for the purpose of examining the state's accreditation standards pertaining to curriculum subject-matter content. The subject-matter committees were charged with identifying and defining essential content knowledge and skills all Montana students would need to master prior to high school graduation. Committees were expected to develop challenging world-class subject-matter content standards that all Montana students would be required to master prior to high school graduation.

The Montana Office of Public Instruction was responsible for managing and supervising the work of each of the subject-matter committees. Statewide and regional public meetings were held for subject-matter committees to present what they believed to be the essential content knowledge and skills all Montana students needed to master. The meetings provided the public an opportunity to comment on the work of each of the subject-matter committees and express what content knowledge and skills they felt were appropriate for Montana students to master. The committee recommendations, upon review and concurrence of the Montana Superintendent of Public Instruction, were then presented to the Montana Board of Public Education for their approval and adoption.

There continues to be public support for setting rigorous academic content standards according to public opinion research. The Business Roundtable 2000 survey study, What Parents, Students and Teachers Think About Standards, Tests, Accountability . . . and More, states that advocates for standards-based reform should not back down from developing and implementing world-class content standards. Public support for national subject-matter content standards remains rather high with individuals who reside in the suburbs, urban areas, and rural communities, with all ethnic groups, with all economic classes, and with all political affiliations.

The Business Roundtable 2000 survey found that 83 percent of the parents polled believed that having guidelines for what students should know and be able to do would improve student performance; 81 percent of teachers believed it would improve student performance. Seventy-eight percent of the public favored requiring high school students to take a standardized core curriculum consisting of certain courses, while 73 percent of the teachers favored a standardized core curriculum. When parents were asked to identify the essential content knowledge and skills all students should master prior to high school graduation, 91 percent identified basic reading, writing, and mathematics; 79 percent identified good work habits; 78 percent identified computer skills; 61 percent identified U.S. history and geography; 56 percent identified biology, chemistry and physics; and 35 percent identified world history.

An American Federation of Teachers (AFT) 2001 study entitled Making Standards Matter found that although 49 states were involved to some degree in developing state curriculum content standards, in the subject-matter areas of English,

mathematics, science, and social studies, most of the content standards were weak and woefully inadequate. No state had a fully developed curriculum that specified the common learning along a continuum in the core academic subjects, nor defined the essential knowledge and skills that all students should master from grade to grade (American Federation of Teachers, 2001). The study indicated Montana had developed clear, specific, and content-grounded standards in science for middle and high school students, but had not developed quality standards for any other subject-matter area for either the elementary, middle school, or high school levels.

Reality Check 2002 is an annual report prepared by Public Agenda and Education Week. The report identifies the progress of the academic standards movement and the impact of reform efforts as seen by key stakeholders. Students, teachers, and parents are asked questions about their schools, while business leaders and college professors are asked to evaluate the skills of students they employ or teach. According to Reality Check 2002, the content standards movement continues to attract widespread support among teachers and parents. Among parents who know their school district is implementing higher academic standards, only two percent want to stop the effort. Fifty-three percent want to continue with the effort as planned, and 34 percent want to continue but with some adjustments. Eighty-seven percent of teachers surveyed agree that raising standards is a move in the right direction. Employers and professors indicate they are still frustrated with the number of high school graduates lacking basic skills in grammar and spelling, writing clearly, being motivated and conscientious, being organized and to work on time, and in basic mathematics.

In the 2002 issue of Quality Counts 2002, Education Week researchers spent a year studying the quality of public education in the 50 states. The report provided a snapshot of the overall condition of the nation's K-12 public schools. The researchers reviewed thousands of pages of data from a variety of governmental and private sources, surveyed policy makers and business leaders, and polled educators. They compiled statistics for more than 75 indices and graded the states on their policies and performance on these indices in four major categories. One category addressed academic standards and accountability.

The Education Week researchers analyzed each state's efforts to develop clear and specific content standards in the core subjects of English/language arts, mathematics, science, and social studies/history. The states were assigned a traditional school letter grade in the standards and accountability category based on their development of clear and specific content standards (40 percent of grade), development of quality assessments aligned with content standards (30 percent of grade), and statewide accountability practices (30 percent of grade). The nation received an overall grade of C, while Montana received an F. Montana was reported as having only developed clear and specific content standards in science for middle and high school students, assessing students in only three grades at the state level using a norm-referenced multiple-choice test, and not having statewide accountability practices in place. Nearly 20 years after the A Nation at Risk report and Project Excellence, Montana had made little progress in identifying and defining the essential content knowledge and skills all Montana students should master prior to high school graduation, even though comprehensive national

content standards had been identified and defined by subject-matter specialists in 15 subject-matter areas by 1997.

The Thomas B. Fordham Foundation, beginning in 1997, has studied the quality of state standards and their development in the subject-matter areas of English, mathematics, science, history, and geography. The 1997 report described state efforts to develop quality content standards as not encouraging. When reviewing the states as a whole, foundation researchers found academic content standards to be mostly vague, uninspired, timid, full of dubious educational advice, and generally not demanding. The average grade assigned to the state's efforts was a D-plus. The State of State Standards 2000 report (Finn & Petrilli, 2000), although slightly better than the 1997 report, was still disappointing for the most part. The overall grade for state efforts to identify and define quality content standards had risen to a C-minus. English received a C-minus, history received a D-plus, geography received a C-minus, mathematics received a C, and science received a C-minus.

The Fordham Foundation news for Montana was disappointing in 1997 and again in 2000. Montana received an F in 1997 and a D-minus in 2000. In 2000, Montana received an F in English, a D in both mathematics and science, and no grade in history and geography. Montana was ranked 43rd with an overall .66 cumulative GPA. Foundation researchers indicated Montana's English content standards were extremely limited, underdeveloped, and needed to be extensively revised if they were to be of any use to local school districts. In general, the state's English content standards were not comprehensive, demanding, or measurable. Montana mathematics content standards

were cited as needing more clarification and detail regarding what students are expected to know and be able to do. Montana science content standards were cited as being brief and in some instances trying to include a great deal of content and skills within a single content standard and within a single grade level. The foundation researchers, in describing Montana's overall effort to develop quality subject-matter content standards, stated:

There is much to be said for leaving curricular matters to local entities, but I fear they will find little more in this document than vague encouragement in carrying out their tasks of curricular planning and learning evaluation. Certainly it is too vague to be of much use in accomplishing the task set forth in the cover letter that accompanies the standards: "Over the past 10 years, Montana had engaged in a serious examination of what we want our students to know and be able to do" (p. 67).

And for the nation as a whole:

. . . this means that 42 states still hold mediocre or inferior expectations for their K-12 students, at least in most subjects. Hence it must be said, 17 years after A Nation at Risk, 11 years after the Charlottesville Summit, and in the same year that our National Educational Goals were to be met, most states still have not successfully completed the first step of standards-based reform (p. 3).

A number of scholarly publications, governmental reports, and educational findings that have influenced the content standards movement have been presented.

Those who believe a common core of essential learning that all American students must master exists, find comfort in knowing national subject-matter scholars, researchers, and educators have identified what they believe is a common core of essential learning.

Although a national curriculum has not been formally enacted, the voluntary state and local school district adoption of the work completed by each of the national subject-matter organizations would no doubt be recognized as representing a national curriculum.

Only by ensuring all American students master a common core of essential learning will the nation achieve educational equity and provide all American children the opportunity to successfully participate and succeed in life (Wilens et al., 2000).

Dianne Ravitch (1992) in National Standards and Curriculum Reform: A View From the Department of Education captures the essence of educational equity and equality that national content standards guarantee:

Standards are the guarantor of excellence and equity in education. Just as standards obviously drive student athletes' training and performance, standards can improve the quality of education and students' academic performance. Standards define what every child—not just a few—should have the opportunity to learn. When institutionalized throughout an education system, they guarantee poor parents that their children will have the same educational opportunity as the children of affluent parents—that their children will have access to the same challenging courses and will be expected to strive for the same standards (p. 26).

Mid-Continent Regional Educational Laboratory (McREL) Comprehensive National Subject-Matter Content Standards Database

The Mid-Continent Regional Educational Laboratory (McREL) is one of several regional educational laboratories created by the U.S. Congress in 1966. McREL is a private, nonprofit organization dedicated to improving education through applied research and development. One of McREL's primary areas of research and evaluation is in the area of content standard and benchmark development.

McREL researchers began their examination and analysis of content standards in the early 1990's using the NCTM mathematics standards and benchmarks as an operational guide. Their goal was to develop a curriculum format that would further refine NCTM's work and provide educators with a more specific and concise

mathematics document that clearly defined and identified what essential mathematics knowledge and skills American students needed to master and at what appropriate grade levels. In 1993, McREL, as a result of their content standards research, published a technical report entitled The Systematic Identification and Articulation of Content Standards and Benchmarks: An Illustration Using Mathematics. The publication was updated in 1995 to include the national goal subject-matter areas of language arts, science, history, geography, civics, economics, the arts, and foreign language, as well as the subject-matter areas of physical education, health, behavioral studies, technology, and life skills.

In 1997, McREL published Content Standards: A Compendium of Standards and Benchmarks for K-12 Education. The publication clearly identified and defined essential content knowledge and skills all American students needed to know and be able to do prior to high school graduation in 15 subject-matter areas. McREL researchers spent seven years surveying and consolidating various national and state curriculum documents to identify and define what public school students should know and be able to do in the various subject-matter areas. They consulted 142 national and state documents that addressed content standards and benchmarks and created a comprehensive national subject-matter content standards database. The McREL database provided a coherent and succinct set of subject-matter content standards and benchmarks for students enrolled in primary (K-2), upper elementary (3-5), middle school (6-8), and high school (9-12) grades. Table 2 identifies the number of national and state curriculum documents that were reviewed and analyzed by researchers in each of the 15 subject-matter areas.

Table 2. Number of National and State Curriculum Documents Examined and Analyzed by McREL Researchers for Each Subject-Matter Area.

| Subject-Matter Area | Number |
|---------------------|--------|
| Language Arts | 32 |
| Mathematics | 8 |
| Science | 15 |
| History | 12 |
| Geography | 6 |
| Civics | 9 |
| Economics | 6 |
| The Arts | 6 |
| Health | 6 |
| Physical Education | 3 |
| Foreign Language | 3 |
| Technology | 14 |
| Behavioral Studies | 4 |
| Life Skills | 18 |
| Total | 142 |

The curriculum documents that were consulted by McREL researchers were products of professional subject-matter organizations that were either funded by the U.S. Department of Education to develop, or that were developed by professional subject-matter organizations generally recognized as being legitimate representatives of their subject-matter areas. The standards and benchmarks that appear in Content Knowledge represent the cumulative wisdom and opinions of literally thousands of professional subject-matter experts and professional subject-matter organizations (Kendall & Marzano, 1997). As a result of a stringent review, analysis, and selection process, the McREL content standards are generally recognized as representing an implied national curriculum, identifying and defining the essential subject-matter content knowledge and skills all American students should master (Marzano, Kendall & Gaddy, 1999).

McREL researchers define a content standard as describing the essential knowledge and skills students should attain during their K-12 schooling years. An example of one science content standard developed by McREL researchers as a result of their examination and analysis of 15 national and state science documents follows:

Standard 4: Knows about the diversity and unity that characterize life (p. 78).

McREL researchers define a benchmark as the specific content knowledge and skills associated with a content standard and within a specific grade span. An example of several benchmarks developed by McREL researchers as a result of their examination and analysis of 15 national and state science documents for science standard 4 follows:

- K-2 Knows that plants and animals have features that help them live in different environments.
- 3-5 Knows that plants and animals progress through life cycles.
- 6-8 Knows ways in which living things can be classified.
- 9-12 Knows how variation increases chance of survival of a species and of life (p. 78)

McREL researchers identified 256 content standards and 3,968 benchmarks in 15 general subject-matter areas. Table 3 identifies the number of content standards and benchmarks for each of the general subject-matter areas.

Table 3. Number of Content Standards and Benchmarks by General Subject-Matter Area in the McREL Comprehensive National Content Standards Database.

| Subject-Matter Area | Number of Standards | Number of Benchmarks |
|------------------------|---------------------|----------------------|
| Language Arts | 8 | 274 |
| Mathematics | 9 | 226 |
| Behavioral Studies | 4 | 100 |
| Physical Education | 5 | 105 |
| Thinking and Reasoning | 6 | 121 |
| Technology | 5 | 94 |
| Foreign Language | 5 | 84 |
| Science | 16 | 265 |
| Economics | 10 | 159 |
| Civics | 29 | 427 |
| Health | 10 | 136 |
| Geography | 18 | 238 |
| History | 87 | 497 |
| The Arts | 25 | 269 |
| Work Skills | 19 | 188 |
| Total | 258 | 3,968 |

State and local school districts can access the McREL content standards database when developing state and local school district subject-matter content standards and benchmarks. However, states and local school districts have been reluctant to embrace the McREL subject-matter content standards as written, and for whatever reasons have normally chosen to spend inordinate amounts of time and money developing their own. The overall low grades assigned to well over half the states by the researchers of Quality Counts 2002 and The State of State Standards 2000 suggest state and local school district curriculum planners have not yet been successful in clearly articulating what subject-matter content knowledge and skills are essential for all students to master. The McREL

comprehensive national content standards database can serve as a viable resource in developing state and local school district curriculums.

McREL researchers indicated the comprehensive national subject-matter content standards database is a viable and excellent resource that truly represents the essential knowledge and skills all American students should acquire. They conclude:

Given the number and quality of the documents that were used to construct this database, one might legitimately claim that it is the most valid and thorough accounting to date of what content-specialists say students should know and be able to do across most common subject areas (p. 85).

McREL researchers also conclude:

The credibility of the people and organizations whose work is represented in this database lends validity to the claim that it is a complete and credible basis from which to determine what legitimately comprises student literacy (p. 88).

Academic Instructional Time Available

One of the problems confronting curriculum planners when considering developing or revising state and local school district K-12 curriculums using the McREL comprehensive national subject-matter content standards database as a resource is the amount of content knowledge and skills that are contained within the 256 content standards and 3,968 content standards benchmarks. Is there enough academic instructional time in a student's 13 years of K-12 schooling to master all the content knowledge and skills that subject-matter specialists and experts have indicated are essential for all American students to master, and that are contained within the McREL database?

In order to determine if there is sufficient instructional time to effectively teach all the content knowledge and skills that are contained within the McREL database, McREL researchers examined the amount of instructional time available in a student's K-12 schooling years and the amount of time needed to teach a subject-matter content standard. The McREL database contains 256 content standards and 3,968 benchmarks spanning grades K-12. However, with respect to the subject-matter area of history, a number of content benchmarks are addressed within only one grade span and are not repeated in others. Therefore, with regard to classroom instructional time, the database is considered to contain 200 subject-matter content standards and 3,093 benchmarks. Table 4 identifies the distribution of the content standards and benchmarks within the various subject-matter areas and the average number of benchmarks per subject-matter content standard.

Table 4. Distribution of Content Standards and Benchmarks within Each Subject-Matter Area and the Average Number of Benchmarks Per Content Standard.

| Subject-Matter Area | Number of Standards | Number of Benchmarks | Average Number of Benchmarks Per Standard |
|------------------------|---------------------|----------------------|---|
| Language Arts | 8 | 274 | 34.3 |
| Mathematics | 9 | 226 | 25.1 |
| Behavioral Studies | 4 | 100 | 25.0 |
| Physical Education | 5 | 105 | 21.0 |
| Thinking and Reasoning | 6 | 121 | 20.2 |
| Technology | 5 | 94 | 18.8 |
| Foreign Language | 5 | 84 | 16.8 |
| Science | 16 | 265 | 16.6 |
| Economics | 10 | 159 | 15.9 |
| Civics | 29 | 427 | 14.7 |
| Health | 10 | 136 | 13.6 |
| Geography | 18 | 238 | 13.2 |
| History | 31 | 497 | 65.5 |
| The Arts | 25 | 269 | 10.8 |
| Work Skills | 19 | 188 | 9.9 |
| Total | 200 | 3,093 | 15.5 |

Table 4 shows the number of content standards and benchmarks are not equally distributed among the various subject-matter areas. History has the greatest number of content standards (31) and behavioral studies the fewest (4). Civics has the greatest number of benchmarks (427) and foreign language the fewest (84). Language arts has the greatest number of average benchmarks per standard (34.3) and work skills the fewest (9.9). As a result of the difference in the average number of benchmarks per content standard, McREL researchers determined the number of benchmarks per standard would be a better measurement of the amount of content any given subject-matter area contained.

Although there are 256 subject-matter content standards and 3,968 benchmarks in the McREL database, the content in the database covers 200 separate content standards and addresses 3,093 benchmarks. The reason for this difference is because of the overlapping history standards across the various grade levels. If a history content standard is taught in the 5-6 grade span, the content would not be repeated in the other grade spans even though content standard benchmarks are identified in the other grade spans (Marzano, Kendall & Cicchinelli, 1998).

The average number of days in a typical American school year is 180 (Goodlad, 1984). The average number of hours in a typical American school day is 5.6 (National Education Commission on Time and Learning, 1994). Therefore, the number of hours an American student would attend school a year would be 1,008 hours, or 13,104 hours during a student's 13 years of K-12 schooling. Educators would have 13,104 hours to teach all the content knowledge and skills identified in the 200 content standards and

3,093 benchmarks in the McREL comprehensive national subject-matter content standards database.

Montana public K-12 school districts must conduct school for at least 180 days annually and provide at least 720 aggregate hours (4 hours a day) for students in grades 1 to 3, and 1,080 aggregate hours (6 hours a day) for students in grades 4 to 12 (Montana Code Annotated, 1999; Montana Statewide Education Profile, 1999). Montana students enrolled in grades 1 to 3 typically attend school for 6 hours a day.

The 13,104 school hours, however, is not a true reflection of the amount of time actually available for classroom instruction. Other school factors such as time-off-task and noninstructional activities reduces the amount of time available for academic instruction. The amount of time available for instruction may vary from 21 percent to 69 percent (Marzano, Kendall, & Gaddy, 1999; Florian, 1999; Goodlad, 1984; M.P. Sadker & D.M. Sadker, 1991). If the highest estimate of 69 percent is used to determine the instructional time available for students to master the 200 content standards and 3,093 benchmarks, there would be approximately 9,042 instructional hours in a student's K-12 schooling years to be taught and master all the McREL standards and benchmarks.

The question of how much time is required to teach a specific McREL content standard and benchmark was investigated by McREL researchers. In one study, McREL researchers asked 350 educators to estimate the amount of instructional time needed to adequately address the content knowledge and skills in a representative sample of benchmarks. The study concluded that approximately five hours would be needed to teach a content standard benchmark (Marzano, Kendall & Gaddy, 1999). In a second

study, 208 educators from rural, suburban, and urban school districts were asked to estimate the amount of instructional time required to teach the content standards at four specific grade levels: K-2, 3-5, 6-8, and 9-12. The amount of instructional time varied among subject-matter areas and grade levels. The subject-matter area requiring the greatest amount of instructional time per benchmark was language arts (6.8 hours) and the least amount of instructional time per benchmark was civics (2.0 hours). The average amount of instructional time needed to teach a benchmark was 4.3 hours (Florian, 1999).

Table 5 shows the amount of instructional time needed to adequately teach the 3,093 McREL benchmarks in the 15 subject-matter areas if the conservative estimate of five hours per benchmark is used.

Table 5. Instructional Time Required to Address Each Subject-Matter Content Standard in the McREL Comprehensive National Subject-Matter Content Standards Database.

| Subject-Matter Area | Number of Standards | Number of Benchmarks | Instructional Time in Hours |
|------------------------|---------------------|----------------------|-----------------------------|
| Language Arts | 8 | 274 | 1,370 |
| Mathematics | 9 | 226 | 1,130 |
| Behavioral Studies | 4 | 100 | 500 |
| Physical Education | 5 | 105 | 525 |
| Thinking and Reasoning | 6 | 121 | 605 |
| Technology | 5 | 94 | 470 |
| Foreign Language | 5 | 84 | 420 |
| Science | 16 | 264 | 1,325 |
| Economics | 10 | 159 | 795 |
| Civics | 29 | 427 | 2,135 |
| Health | 10 | 136 | 680 |
| Geography | 18 | 238 | 1,190 |
| History | 31 | 407 | 2,035 |
| The Arts | 25 | 269 | 1,345 |
| Work Skills | 19 | 188 | 940 |
| Total | 200 | 3,093 | 15,465 |

Table 5 shows it would require 15,465 hours of devoted academic instructional time to adequately teach all 3,093 benchmarks in the McREL comprehensive national subject-matter content standards database. Robert Marzano (2001), senior fellow at McREL, indicates that in order for a student to adequately be taught and master all the content knowledge and skills in the McREL database, the student would have to complete 22 years of schooling instead of the 13 years that students currently receive (Scherer, 2001). The estimated time (15,465 hours) needed to adequately teach the 3,093 content standard benchmarks and the estimated instructional time (9,042 hours) currently available in a student's 13 years of K-12 schooling would require schools to either increase the number of instructional hours in the school day, or lengthen the school year, or reduce the number of content standards and benchmarks students would be required to master.

The focus of this study is on the latter option. Given there is not sufficient enough instructional time in a student's K-12 schooling years to adequately address all essential content knowledge and skills identified in the McREL database, Montana school board trustees are asked to indicate which of the McREL subject-matter content standards they believe all Montana students should definitely master prior to high school graduation.

Mid-Continent Regional Educational Laboratory (McREL)
National Content Standards Self-Report Survey

In 1998, McREL researchers conducted a study to determine which of the McREL comprehensive national subject-matter content standards American adults believed were

definitely necessary for American students to master prior to high school graduation. McREL contracted with the Gallup Organization to assist in the design of the study and to conduct the survey. The Gallup Organization is one of the world's largest management consulting firms and provides market research services around the world. Gallup's core expertise is in measuring and understanding human attitudes and behavior. McREL requested Gallup survey the American public to determine the relative importance of the subject-matter content standards in the McREL database. Gallup developed and administered a questionnaire that provided McREL researchers with this information.

Because of the number of content standards in the McREL database and a need to restrict the possible number of survey questions an American adult would be asked to respond to, Gallup selected a self-report four-questionnaire design. Respondents randomly received one of four questionnaires. Each addressed several different subject-matter areas. Table 6 identifies the areas and the number of content standard questions addressed in each of the questionnaires. The questionnaires are included in Appendix B.

Table 6. Subject-Matter Areas and Number of Content Standard Questions Addressed in Each Self-Report Survey Questionnaire.

| Questionnaire | Subject-Matter Areas | Number of Content Standards |
|-----------------|---|-----------------------------|
| Questionnaire 1 | World History, Health, Mathematics, and Foreign Language | 81 |
| Questionnaire 2 | U.S. History, Physical Education, Science, Behavioral Studies, and Technology | 81 |
| Questionnaire 3 | Civics, Language Arts, Life Skills, and Economics | 89 |
| Questionnaire 4 | Geography, The Arts, Historical Understanding | 90 |
| Total | | 341 |

Note. The total of 341 questionnaire questions that respondents were asked to rate exceeds the totals of 256 and 200 content standards previously referred to in this study. The difference between the figures of 200 content standards and 256 content standards is due to overlapping history standards, as mentioned earlier. The reason the total of 341 questionnaire questions exceeds the 200 content standards is a result of several standards containing to much depth of content to be rated as one standard. Standards of this nature were subdivided into additional questions. In other cases content standards were also combined. As a result of this subdividing and combining of content standards, the survey addresses 248 standards rather than 256 (Marzano, Kendall & Cicchinelli, 1999).

Within each questionnaire, respondents were asked to indicate if they believed a McREL subject-matter content standard was definitely, probably, probably not, or definitely not necessary for American students to master by the time they graduated from high school. Respondents were also given an opportunity to choose don't know. The number of questionnaire content standard questions that pertained to any one subject-matter area ranged from 5 in technology to 48 in world history. The number of content standards questions addressed in each of the four questionnaires ranged from 81 to 90.

The analysis of the survey consisted of determining the percentage of definitely necessary responses each questionnaire content standard question received. Gallup believed this analysis approach represented the strongest indication from the respondents if a McREL content standard should be included in the American K-12 public school curriculum.

The sample for the survey study was adults 18 years of age or older, living in the continental United States. A telephone recruitment/mail survey design was used to select the sample. Those telephoned who agreed to participate in the survey were randomly mailed one of the four questionnaires. Gallup believed the average length of each of the questionnaires might result in a low return rate and chose to employ an over-sampling

strategy. Gallup determined that a sample of 2,400 adults was needed to attain the desired confidence level of 95 percent and assumed only 33 percent of the questionnaires would be completed and returned. Based on this assumption, Gallup solicited 7,400 willing participants.

Respondents who agreed to participate, and who were mailed a questionnaire and did not return it within two weeks of the initial mailing, were contacted by telephone and reminded to complete the questionnaire and return it as soon as possible. A second reminder telephone call occurred two weeks later if a questionnaire had still not been returned. Gallup received 2,553 completed questionnaires from a mailing of 7,418 survey questionnaires, or a response rate of 34 percent. Gallup determined this response rate yielded an adequate sample size for each of the four self-report questionnaires: 690 for Questionnaire 1; 667 for Questionnaire 2; 599 for Questionnaire 3; and 597 for Questionnaire 4. The final samples were weighted to represent the differing distributions of American adults relative to gender, age, and education.

In addition to the questionnaire responses for each of the subject-matter content standards questions, respondents were also asked to provide demographic information in the areas of gender, age, educational level, race/ethnic origin, employment status, state of residency, and income level. Finally, respondents were asked to respond to three questions pertaining to the goals of education. The demographics and perceptions of the goals of education were included in the analyses of the survey results.

The analysis of the survey data revealed that American adults do not perceive each subject-matter area of equal value. Some subject-matter areas had more content standards

within their subject-matter area selected as definitely necessary for American students to master than did others. Table 7 ranks the subject-matter areas based on the average percentage of definitely necessary responses.

Table 7. Ranking of Subject-Matter Content Areas by Average Percentage of Definitely Necessary Responses from U.S. Adults.

| Rank | Subject-Matter Area | Number of Standards | Percentage of Definitely Necessary Responses |
|------|------------------------|---------------------|--|
| 1 | Health | 10 | 73.9% |
| 2 | Work Skills | 19 | 62.6% |
| 3 | Language Arts | 8 | 56.6% |
| 4 | Technology | 9 | 59.4% |
| 5 | Mathematics | 9 | 50.1% |
| 6 | Thinking and Reasoning | 6 | 49.8% |
| 7 | Science | 16 | 49.0% |
| 8 | Civics | 29 | 48.7% |
| 9 | Behavioral Studies | 4 | 48.2% |
| 10 | Physical Education | 5 | 44.2% |
| 11 | Economics | 10 | 42.5% |
| 12 | History | 79 | 40.8% |
| 13 | Geography | 18 | 38.8% |
| 14 | Foreign Language | 5 | 26.7% |
| 15 | The Arts | 25 | 15.5% |

Table 7 indicates that the subject-matter area of health received the highest overall rating (73.9%), while the arts received the lowest overall rating (15.5%). McREL researchers indicated that if 50 percent were used as a general indicator of acceptance, American adults believed health, work skills, language arts, technology, mathematics, and thinking and reasoning were important subject-matter areas and would be included in the American school curriculum.

Table 8 identifies the number of content standards within each subject-matter area that were rated definitely necessary by at least 50 percent of the respondents. A total of 102 (41%) of the 248 McREL content standards were identified as definitely necessary by at least 50 percent of the respondents.

Table 8. Number of Content Standards Identified as Definitely Necessary for American Students to Master by 50 Percent or More U.S. Adults.

| Rank | Subject-Matter Area | Number of Standards | Number of 50% Definitely Necessary Responses | |
|------|------------------------|---------------------|--|-------|
| 1 | Health | 10 | 10 | 100% |
| 2 | Work Skills | 19 | 19 | 100% |
| 3 | Language Arts | 8 | 6 | 75.0% |
| 4 | Science | 16 | 8 | 50.0% |
| 5 | Thinking and Reasoning | 6 | 3 | 50.0% |
| 6 | Civics | 29 | 13 | 44.8% |
| 7 | Mathematics | 9 | 4 | 44.4% |
| 8 | Technology | 5 | 2 | 40.0% |
| 9 | Physical Education | 5 | 2 | 40.0% |
| 10 | History | 79 | 28 | 35.4% |
| 11 | Behavioral Studies | 4 | 1 | 25.0% |
| 12 | Geography | 18 | 4 | 22.2% |
| 13 | Economics | 10 | 2 | 20.0% |
| 14 | Foreign Language | 0 | 0 | 0% |
| 15 | The Arts | 25 | 0 | 0% |
| | Total | 248 | 87 | (35%) |

Table 8 shows the variability within subject-matter areas relative to the perceived importance of specific content standards. At least 14 of the 16 subject-matter areas includes at least one content standard that 50 percent of the respondents indicated as definitely necessary for American students to master. All the content standards in the subject-matter areas of health and life skills were identified as definitely necessary for

American students to master by at least 50 percent of the respondents. Not one content standard in either the subject-matter area of foreign language or the arts was identified as definitely necessary for American students to master by at least 50 percent or more of the respondents.

Table 9 identifies the number of content standards, by subject-matter area, that appear in the top and bottom 25 content standards when rank-ordered from 1 to 248. The top 25 ranked standards are distributed among nine of the 17 subject-matter areas with nine (36%) of the 25 from the subject-matter area of health. The bottom 25 ranked content standards are distributed among three subject-matter areas with 15 (60%) of the 25 from the subject-matter area of the arts.

Table 9. Number of Content Standards by Subject-Matter Area that Appear in the Top and Bottom 25 Content Standards when Rank-Ordered from 1 to 248 by U.S. Adults.

| Subject-Matter Area | Top 25 Standards | Subject-Matter Area | Bottom 25 Standards |
|---------------------|------------------|---------------------|---------------------|
| Health | 9 (36%) | The Arts | 15 (60%) |
| Life Skills | 5 (20%) | World History | 9 (36%) |
| Technology | 3 (12%) | Foreign Language | 1 (4%) |
| U.S. History | 2 (8%) | | |
| Mathematics | 2 (8%) | | |
| Language Arts | 1 (4%) | | |
| Geography | 1 (4%) | | |
| World History | 1 (4%) | | |
| Civics | 1 (4%) | | |

When reviewing Tables 7, 8, and 9, one might infer that the subject-matter areas of health and life skills contain the essential content knowledge and skills that American

adults believe American students definitely need to master. Using the same tables, one might infer both foreign language and the arts to be of less importance when considering what American students should know and be able to do.

The results of the McREL national content standards survey provides an opportunity for curriculum developers to examine what American adults believe are the most important content standards in the McREL comprehensive national subject-matter content standards database. The four questionnaires, when analyzed collectively, provided a rank-ordering of the 248 subject-matter content standards from 1 to 248 (Marzano, Kendall & Cicchinelli, 1999).

The purpose for administering the McREL national content standards survey was to determine which of the McREL comprehensive national subject-matter content standards American adults perceived were essential for American students to master. Given there is not sufficient instructional time to adequately teach all of McREL content standards, the rank-ordered list generated by the survey respondents would allow the McREL researchers to determine which content standards could be taught and which ones could not. Those content standards appearing at the top of the rank-ordered list would more likely be included in the school curriculum and taught, while those appearing at the bottom of the list might not be included in the curriculum and, therefore, not taught.

Table 10 identifies the average amount of time McREL researchers estimate it would take to teach a subject-matter content standard based on the average number of benchmarks contained with a subject-matter content standard and then using the earlier calculated amount of time needed to teach any given content standard: five hours.

Table 10. Instructional Time Needed to Address Each Subject-Matter Content Standard in the McREL Comprehensive National Subject-Matter Content Standards Database.

| Subject-Matter | Number of Standards | Number of Benchmarks | Average Number of Benchmarks/Standards | Instructional Time in Hours |
|------------------------|---------------------|----------------------|--|-----------------------------|
| Language Arts | 8 | 274 | 34.3 | 171.5 |
| Mathematics | 9 | 226 | 25.1 | 125.5 |
| Behavioral Studies | 4 | 100 | 25.0 | 125.0 |
| Physical Education | 5 | 105 | 21.0 | 105.0 |
| Thinking and Reasoning | 6 | 121 | 20.2 | 101.0 |
| Technology | 5 | 94 | 18.8 | 94.0 |
| Foreign Language | 5 | 84 | 16.8 | 84.0 |
| Science | 16 | 264 | 16.6 | 83.0 |
| Economics | 10 | 159 | 15.9 | 79.5 |
| Civics | 29 | 427 | 14.7 | 73.5 |
| Health | 10 | 136 | 13.6 | 68.0 |
| Geography | 18 | 238 | 13.2 | 66.0 |
| History | 31 | 497 | 13.1 | 65.5 |
| The Arts | 25 | 269 | 10.8 | 54.0 |
| Work Skills | 19 | 188 | 9.9 | 49.5 |
| Total | 200 | 3,093 | | |

Note. The amount of instructional time needed to address each subject-matter content standard is computed by multiplying the average number of benchmarks for a subject-matter content standard by five hours.

The estimated instructional time needed to teach a subject-matter area content standard was used by McREL researchers to determine at what point on the rank-ordered list of content standards they would have to stop. Because of the 9,042 hours limitation in an American student's K-12 schooling years, the McREL researchers stopped when the sum of each of the rank-ordered content standards reached 9,042 hours. McREL researchers reached 9,042 hours at the 133rd rank-ordered content standard. Content

standards ranked 1 to 133 could be adequately addressed in an American student's K-12 schooling years. Table 11 identifies the number of content standards by subject-matter area that could be addressed if the 133 cut-point was used.

Table 11. Number of Content Standards by Subject-Matter Area that Could Be Addressed when Using a Cut-Point of 133.

| Subject-Matter Area | Number of | | Percent of | |
|------------------------|-----------------|--------------------|-----------------|------------|
| | McREL Standards | Standards Selected | McREL Standards | Curriculum |
| Health | 10 | 10 | 100% | 8.0% |
| Work Skills | 19 | 19 | 100% | 15.0% |
| Language Arts | 8 | 7 | 88.0% | 5.0% |
| History | 79 | 40 | 51.0% | 30.0% |
| Mathematics | 9 | 5 | 56.0% | 4.0% |
| Thinking and Reasoning | 6 | 3 | 50.0% | 2.0% |
| Science | 16 | 11 | 69.0% | 8.0% |
| Economics | 10 | 4 | 40.0% | 3.0% |
| Civics | 29 | 18 | 62.0% | 14.0% |
| Physical Education | 5 | 2 | 40.0% | 2.0% |
| Technology | 5 | 5 | 100% | 3.0% |
| Geography | 18 | 6 | 33.0% | 5.0% |
| Behavioral Studies | 4 | 3 | 75.0% | 2.0% |
| Foreign Language | 5 | 0 | 0% | 0% |
| The Arts | 25 | 0 | 0% | 0% |
| Total | 248 | 133 | (54%) | 100% |

A curriculum predicated on the top rank-ordered subject-matter content standards by survey respondents would include all the content standards identified in the subject-matter areas of health, work skills, and technology. Forty percent of the curriculum would be devoted to the core academic areas of language arts, mathematics, science, and history. Thirty percent of the curriculum would consist of history standards while foreign language and the arts would be excluded.

McREL researchers indicated the 133 cut-point might be a conservative estimate of the number of content standards that could be adequately taught and included within the American school curriculum. The teaching of essential content knowledge and skills does not always take place in isolation but often overlaps subject-matter areas. McREL researchers suggested an arbitrary adjustment factor of 20 percent be used to address the instructional overlap. The 20 percent overlap factor adjustment would increase the number of content standards that might be adequately taught. The new overlap cut-point would allow 160 content standards to be considered for inclusion within the American school curriculum. Table 12 identifies the number of content standards by subject-matter area that would be considered if the 160 overlap cut-point adjustment is used.

Table 12. Number of Content Standards by Subject-Matter Area that Could Be Addressed When Using an Overlap Cut-Point of 160.

| Subject-Matter Area | Number of | | Percent of | |
|------------------------|-----------------|--------------------|-----------------|------------|
| | McREL Standards | Standards Selected | McREL Standards | Curriculum |
| Health | 10 | 10 | 100% | 6.0% |
| Work Skills | 19 | 19 | 100% | 12.0% |
| Language Arts | 8 | 8 | 100% | 5.0% |
| History | 79 | 48 | 61.0% | 30.0% |
| Mathematics | 9 | 6 | 67.0% | 4.0% |
| Thinking and Reasoning | 6 | 6 | 100% | 4.0% |
| Science | 16 | 13 | 81.0% | 8.0% |
| Economics | 10 | 7 | 70.0% | 4.0% |
| Civics | 29 | 24 | 83.0% | 15.0% |
| Physical Education | 5 | 4 | 80.0% | 3.0% |
| Technology | 5 | 5 | 100% | 3.0% |
| Geography | 18 | 6 | 33.0% | 4.0% |
| Behavioral Studies | 4 | 4 | 100% | 3.0% |
| Foreign Language | 5 | 0 | 0% | 0% |
| The Arts | 25 | 0 | 0% | 0% |
| Total | 248 | 160 | (65%) | 101% |

With 27 additional content standards added to the curriculum, six subject-matter areas now have all their content standards addressed: language arts, health, technology, behavioral studies, thinking and reasoning, and work skills. The core academic subject-matter areas of language arts, mathematics, science, and history now comprise 47 percent of the taught curriculum. There are still no foreign language or arts content standards included within the taught curriculum.

When the McREL researchers analyzed the sub-populations based on demographic information, not all variables produced findings that were significant when considering what should or should not be included in the K-12 school curriculum. The variables that produced the most interpretable results were age, income level, and educational level.

Respondents who had more education tended to include more standards in language arts, civics, mathematics, science, U.S. history, and world history in their top 25 selection, while those with less education tended to include more health, work skills, and technology in their top 25 selected standards. Older respondents identified more health, work skills, and civics content standards in their top 25, while younger respondents identified more technology, mathematics, world history, and science standards in their top 25 selection. Finally, respondents with incomes over \$50,000 identified more language arts, U.S. and world history, geography, science, and civic standards in their top 25, while respondents with incomes under \$50,000 identified more health and work skill standards in their top 25 selection.

Respondents were also asked to rate three historical goals for public education. One educational goal indicated the main goal of education was to provide the knowledge that helps individual students obtain meaningful employment. A second educational goal indicated the main goal of education was to provide the knowledge that helps individual students become well-rounded and live productive lives. The third educational goal indicated the main goal was to provide the knowledge that allows our country to acquire and maintain a competitive edge. Nearly 90 percent of the respondents surveyed believed the major goal of education should be to produce well-rounded individuals; nearly 80 percent believed the major goal of education should be to increase the probability that American students gain employment after graduation; and nearly 60 percent of the respondents believed the major goal of education should be to ensure the United States maintains its competitive edge.

The overall findings of the McREL national content standards survey suggest that when the amount of academic instructional time available is less than the amount of academic instructional time needed to adequately teach all the content knowledge and skills subject-matter specialists and experts deem essential, American adults will identify some subject-matter areas and some subject-matter content as more important than others for American students to master. The results of the McREL survey clearly indicate the subject-matter areas and the McREL comprehensive national subject-matter content standards American adults believe the nation's students should master prior to graduation from high school.

School Board Duties and Responsibilities in Curriculum Development

The authority to supervise and manage education in the various states resides in state departments of education, but the responsibility for education at the local school district level is usually delegated to local school boards of education (Morrison, 2000). The legal power of school boards is derived from state constitutions and school board duties and responsibilities generally identified in state statutes (Ellis, Cogan & Howey, 1991). Typical school boards consist of five to nine members who are either elected to office or are appointed by public officials.

A joint study in 1997 by the New England School Development Council and the Educational Research Service provided general school board member demographics for school boards in five states. The study found that with regard to gender, 65.1 percent were males and 34.9 percent females. With regard to years of school board experience, 49.2 percent had served for less than three years, 32.3 percent from four to six years, and 18.5 percent for seven years or more. With regard to educational level, 15.4 percent had no more than a high school education, 10.8 percent had some college work, and 70.8 percent had a college degree. With regard to occupation, 40 percent were in business, 12.3 percent homemakers, 47.7 percent in professional and agricultural fields (Goodman, Fulbright & Zimmerman, 1997).

The supervision and control of Montana schools is vested in a local school board whose members are elected to office for a three-year term. Montana school boards

generally consist of five to seven board members (Montana Constitution, 1972; Montana Code Annotated, 1999).

Montana school board duties and responsibilities, with regard to curriculum development, include the following:

1. Incorporating all state learner goals into their local school curriculum,
2. Defining and organizing the state subject-matter learner goals into specific curricula,
3. Ensuring the learner goals are introduced to students at their appropriate developmental age,
4. Engage in a cooperative effort with teachers, school administrators, students, parents, community members, and state representatives when developing the school curriculum,
5. Develop written sequential curricula for each subject-matter area,
6. Ensure the curriculum addresses essential content and skills, and thinking,
7. Review curricula at intervals not exceeding five years and modify as needed, and
8. Establish a curriculum review cycle and time lines for curriculum development and evaluations (Montana School Accreditation Standards and Procedures, 2001).

Although local school boards are ultimately responsible for curriculum development, the responsibility for identifying and defining what content knowledge and skills are to be included in the school curriculum has historically been determined by the educational staff within school districts or school buildings. Yet, it is suggested that other individuals who have a vested interest in public schooling, such as parents and business

leaders, also be involved in determining what content knowledge and skills all students should be asked to master.

School districts embarking on the journey to review, revise, or develop a school curriculum need to be cognizant of the critical roles teachers, administrators, parents, students, graduates, business and civic leaders, and school board trustees play throughout the curriculum development process (Sergiovanni, 2001). Their collective wisdom and expertise can contribute to the development of a viable school curriculum that truly reflects what the school-community believes all students should know and be able to do as a result of having received a K-12 education in their school district (Hessong & Weeks, 1991). The importance of school board involvement in this process is addressed in Paths to New Curriculum (Clem & Wilson, 1991):

Although parents and board members are not direct consumers or practitioners of curriculum, they are deeply invested in what happens in the school and can be particularly sensitive to change. They are stakeholders. Not to involve these people, in appropriate ways, in curriculum review and change is to court disaster. . . Including board members in whole-school review is logical and usually happens (p. 12-14).

Connecticut's Common Core of Learning, adopted by the Connecticut Board of Public Education in 1987, represents a common set of skills, knowledge, and attitudes the people of Connecticut believe are essential for all their students to know and be able to do prior to high school graduation. With regard to school board involvement in the development of local school curriculums, the Connecticut Board of Public Education states:

Local school boards of education should compare their existing goals and program priorities to the common core of learning to help identify desired changes (p. 17).

In The Key Work of School Boards: Guidebook, a National School Boards Association (NSBA) 2000 publication, the authors identify eight essential areas where school boards need to focus their attention. One of the eight essential areas is in developing content standards. NSBA authors state:

Establishing standards is one of the board's most important responsibilities (p. 5). Myra and David Sadker (1991) in Teachers, School, and Society state: Some educators and citizens feel school boards should have a strong voice in curriculum decision making, because they are in touch with the needs of the local community and have a clear sense of the abilities and interests of their students (p. 184).

It is suggested that school boards identify what they expect all students to know and be able to do within the various K-12 grades. They need to identify and define the specific content and skills that are essential for all their students to master, and must ensure their local standards incorporate the essential content knowledge and skills identified in their state and in national standards documents.

In Becoming a Better Board Member (1996), NSBA leaders state:

Gone is the day, if indeed there ever was one, when curriculum decisions were made in isolation by professional educators and routinely approved by school boards. Today's school boards, in its democratic role as representative of the people, must not only keep its finger on the pulse of the community but also see to it that key stake holders—including students, parents and other citizens—have a chance to make their views known on major decisions about curriculum and instruction (p. 203).

Again, school board members have a responsibility to become actively involved in the curriculum development process. They must become consumers of the educational literature and research pertaining to curriculum matters and seek ways to integrate what educational scholars have identified as effective strategies and proven practices for

improving student learning for all students. These beliefs are further addressed in

Making School Reform Happen (Bullard & Taylor, 1993):

And as school reform movements take hold in large and small communities, it is becoming increasingly important that school boards take an active and informed role in demonstrating not only their interest in improving schools but their commitment to a process that will ensure the education for all children (p. 345).

The North Central Regional Educational Laboratory, in Critical Issue: Integrating Standards into the Curriculum (2001), also expresses the need for school board members to be actively involved in the curriculum development process:

Ideally, at the local level, a curriculum committee is established to develop the standards-based curriculum and to address broader concerns that will be reflected in the curriculum framework. This committee is made up of administrators, school board members, teachers and school staff, parents, students (when appropriate), and community members, but the majority should be school personnel (p. 2).

The Colorado Association of School Boards in School Boards Can: What School Boards Can Do To Support Student Achievement (1999) indicate a school board has the responsibility to develop a school district's own content standards in core academic subjects and in ensuring these core academic content standards exceed their state's content standards.

In Research You Can Use to Improve Results (Cotton, 1999), the Northwest Regional Educational Laboratory (NWREL) provides a synthesis of the educational research as it pertains to effective schooling practices. With regard to school leadership, effective schools have leaders who work with schools to identify a limited number of priority learning objectives that specifically and clearly describe what students should

know and be able to do. They also sequence the learner objectives by grade levels, or benchmarks.

Whereas a Montana school superintendent is vested with the legal duty and responsibility for developing and recommending to school board trustees the school district's curriculum, it is ultimately the legal responsibility of the school board to approve and adopt the school curriculum (Montana Code Annotated, 1999).

Summary

The national subject-matter content standards movement has transcended nearly two decades. During that period of time subject-matter specialists and educational scholars have identified and defined the essential content knowledge and skills American students should master prior to high school graduation in all the traditional and contemporary subject-matter areas. The essential content knowledge and skills that have been identified and defined in each subject-matter area are contained within the McREL comprehensive national subject-matter content standards database. The problem that curriculum planners encounter when considering adopting or integrating the McREL subject-matter content standards within their school curriculums is amount of content that is contained within the McREL comprehensive national subject-matter content standards database. There is not sufficient academic instructional time in a typical American student's 13 years of public schooling to master all the content knowledge and skills in the McREL content standards database. Although an option to lengthen the school day

and/or school year represents possible solutions to the problem, these solutions have generally received little or no school and community support.

The second option, to reduce the number of subject-matter content standards taught, was the focus of a national study by McREL. McREL researchers asked American adults to rank order the 248 subject-matter content standards in the McREL comprehensive national subject-matter content standards database based on each content standards relative importance. The findings from the McREL study confirm there is not sufficient time to adequately teach all 248 subject-matter content standards. Less than 60 percent of the content standards in the McREL comprehensive national subject-matter content standards database could be taught given the instructional time restraints. The study also found that American adults do not view each subject-matter area as equally important. Some subject-matter areas would receive more curricular attention while other subject-matter areas would be virtually eliminated.

School boards, as representatives of the school-community, are responsible for ensuring all students in their schools receive a quality education. One of their more important responsibilities is to ensure the essential subject-matter content knowledge and skills required for successful participation in the American way of life and a highly interdependent global economy are acquired by all the students entrusted in their care. School boards must assume a leadership role when it comes to curriculum development and actively seek ways to involve themselves in the curriculum development process.

The McREL researchers suggest there are a number of school and community groups that might be surveyed to determine which of the content standards in the McREL

comprehensive national subject-matter content standards database are essential for American students to master prior to high school graduation. They suggest local educators, parents, or other community members might consider using a self-report survey approach similar to the one McREL and Gallup employed. The McREL comprehensive national subject-content standards database is a viable resource that local school curriculum committees can use to lessen the amount of work that is needed to develop subject-matter content standards, or if they wish to augment the content standards developed by the state. This study recognized the important role Montana school board trustees have in managing their local schools and their responsibility to participate in the curriculum development process. Montana school board trustees were asked to identify which of McREL comprehensive national subject-matter content standards they perceive are definitely necessary for all Montana students to master prior to high school graduation.

The methodology for this descriptive study will be presented in the following chapter. A description of the population, the data gathering process, and the research design will be discussed.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The problem addressed in this study was that there is not sufficient academic instructional time within a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database. Montana school board trustees have a responsibility and duty to identify the essential subject-matter content knowledge and skills they believe all their students should master prior to high school graduation. Given the reality that there is not sufficient academic instructional time for Montana students to master all the McREL national subject-matter content standards, which of the standards in the McREL database do Montana school board trustees perceive to be essential for all Montana students to master prior to high school graduation?

The purpose of this descriptive study was to identify which of the subject-matter content standards identified in the McREL database Montana school board trustees believe are essential for all Montana students to master prior to high school graduation, and if the demographic variables of school district classification (trustee gender, age,

years of school board experience, educational level, occupation, and income level) are related to trustee responses.

This study was designed to replicate the 1998 McREL/Gallup national survey study with Montana school board trustees. Montana school board trustees were asked to identify which of the content standards in the McREL database they believed are essential for all students in their school districts to master prior to high school graduation and which subject-matter content standards are not. The McREL content standards, as a result of Montana school board trustee responses, were rank-ordered from the most important to the least important from 1 to 248. The rank-ordering of the McREL subject-matter content standards by Montana school board trustees indicates the relative importance of subject-matter areas and each McREL subject-matter content standard.

The criteria for rank-ordering the McREL subject-matter content standards was the percentage of Montana school board trustees who considered a subject-matter content standard definitely necessary for all Montana students to master prior to high school graduation. The standards, based on Montana school board ratings, were rank-ordered from the most important to the least important, and thus were prioritized from 1 to 248. The characteristics of the population, the instrument used to collect data, and the research design follow.

Participants

Population

The population in this study was Montana school board trustees in K-12 public school districts that combine an elementary school district (K-8) and a high school district

(9-12) for administrative purposes and employ one superintendent to supervise both school districts. The population consisted of 925 Montana school board trustees governing in 160 K-12 public school districts. The decision to use the entire population, rather than sampling the population, was predicated on the relatively small size of the population and the concerns associated with using a four-questionnaire design.

Size and Demographics of Population

The 2000-2001 Directory of Montana Schools (OPI, 2001) indicated there were 346 school districts in Montana during the 1999-2000 school year. One hundred and sixty school districts enrolled students in grades K-12. Of the remaining 186 school districts, 28 were K-8 elementary school districts, five were 9-12 county high schools, and 153 school districts represented small independent elementary school districts enrolling elementary students in small schools with varying K-8 organizational structures (see Table 13).

The 2000-2001 Directory of Montana Schools (OPI, 2001) indicated there were 157,381 students enrolled in Montana K-12 public schools during the 1999-2000 school year. The 160 K-12 school districts included in this study represented 138,381 students, or 88 percent of the total K-12 student enrollment during the 1999-2000 school year. The 28 K-8 elementary school districts not included in this study represented 10,841 students, or seven percent of the total K-12 student enrollment during the 1999-2000 school year. The five county high school districts not included in this study represented 1,386 students, or one percent of the total K-12 student enrollment during the 1999-2000 school

year. The remaining independent K-8 elementary school districts not included in this study represented 6,773 students, or four percent of the total K-12 student enrollment during the 1999-2000 school year (see Table 13).

There were 1,594 school board trustees governing in Montana K-12 public school districts during the 2000-2001 school year (Montana School Boards Association, 2000). The 160 school districts included in this study represented 925 school board trustees, or 58 percent of the total K-12 trustees governing during the 2000-2001 school year. The 28 K-8 elementary school districts not included in this study represented 132 school board trustees, or eight percent of the total Montana school board trustees during the 2000-2001 school year. The five county high school districts not included in this study represented 34 school board trustees, or two percent of the total Montana school board trustees during the 2000-2001 school year. The remaining independent K-8 elementary school districts not included in this study represented 503 school board trustees, or 32 percent of the total Montana school board trustees during the 2000-2001 school year (see Table 13).

Table 13. Number of Montana School District Administrative Units, Board of Trustees, and Students in Montana During the 2000-2001 School Year.

| Administrative units | Number of | | |
|---|------------------|------------------|----------|
| | School Districts | Board of trustee | Students |
| K-12 combined school districts | 160 | 925 | 138,381 |
| K-8 elementary school districts | 28 | 132 | 10,841 |
| 9-12 county high school districts | 5 | 34 | 1,386 |
| Independent K-8 elementary school districts | 153 | 503 | 6,773 |
| Total | 346 | 1,594 | 157,381 |

In summary, the population of this study included school board members from 160 Montana school districts enrolling students in grades K-12, or 46 percent of the total number of school districts in Montana during the 2000-2001 school year. The population of this study included 925 Montana school board trustees, or 58 percent of the total K-12 school board trustees in Montana during the 2000-2001 school year. The population of this study included school districts enrolling 138,381 students, or 88 percent of the total K-12 student enrollment in Montana during the 1999-2000 school year. Appendix A lists the 160 Montana school districts identified in this study and the number of trustees in each school district who randomly received one of the four questionnaires.

Instrument

Function

A four-questionnaire design that was developed by researchers at McREL and Gallup was used in this study. Questionnaires were used to gather information pertaining to the relative importance of each of the McREL content standards in 16 subject-matter related areas. Each of the four questionnaires addressed several different subject-matter related areas (see Table 6). Montana school board trustees were asked to identify if they believed a McREL subject-matter content standard was either definitely, probably, probably not, or definitely not necessary for all Montana students to master prior to high school graduation. The percentage of Montana school board trustees who identified a McREL subject-matter content standard as definitely necessary for all Montana students

to master was used to rank-order the McREL subject-matter content standards from the most important to the least important, from 1 to 248.

In addition to Montana school board trustees identifying which of the McREL national subject-matter national content standards should be included and taught in a K-12 public school curriculum, Montana school board trustees were also asked to respond to three questions pertaining to the basic goal of public education in Montana.

Validity and Reliability

The survey contained all the content standards in the McREL database. The McREL database represents the analysis and synthesis of 146 national subject-matter documents by McREL researchers. The criteria used by McREL researchers to determine if a curriculum document should be considered for analysis was the curriculum document's completeness, perceived acceptance by the subject-matter community, and the level of specificity and scope that was congruent with the perspective on standards and benchmarks expressed by McREL researchers (Marzano, Kendall & Gaddy, 1999). The subject-matter content standards that are contained in the McREL database represent a consensus among national subject-matter specialists and professional organizations as to the essential knowledge and skills that American students should master prior to high school graduation.

The domain of content knowledge and skills identified in each of the four questionnaires represents all the individual subject-matter content standards contained in the McREL database, and therefore provides content validity. To reduce the possibility

that the validity of the survey was diminished, each questionnaire was field-tested and reviewed to ensure the directions for completing them were clear and that each subject-matter content standard statement was not confusing or ambiguous. Questionnaires were examined to ensure there was not difficult vocabulary and that difficult and complex content standard question structures did not exist. Scoring and analysis of the data was objective and consistent for each of the questionnaires (Gay & Airasian, 2000).

Questionnaires were field-tested in school districts representing each of the three school district classifications. Respondents were given the opportunity to comment on the design, structure, and clarity of the questionnaires (Appendix C). There were no suggestions from the Montana school board trustees who participated in the field-test to make any questionnaire language, design, or structural changes.

Internal-consistency reliability of the questionnaires was determined using Cronbach's alpha (Gay & Airasian, 2000). The reliability coefficient indicates the extent to which a questionnaire measures the stability of responses. Reasonably high reliability coefficients approaching 1.00 are desirable (Tuckman, 1972). Table 14 identifies the Cronbach alpha coefficients for each of the four questionnaires used in this study. The coefficients for each of the four survey instruments reflect a high level of reliability.

Table 14. Cronbach Alpha Coefficients Of Internal Reliability for the 1997 McREL/Gallup National Survey Questionnaires.

| Questionnaires | Number of Respondents | Alpha Coefficients |
|-----------------|-----------------------|--------------------|
| Questionnaire 1 | 58 | .9708 |
| Questionnaire 2 | 50 | .9471 |
| Questionnaire 3 | 52 | .9690 |
| Questionnaire 4 | 36 | .9744 |

Development

The questionnaires used in this study were similar to the questionnaires used by McREL and the Gallup Organization in 1998 to poll a representative sample of U. S. adults (Marzano, Kendall & Cicchinelli, 1998). The McREL/Gallup Organization survey was amended in this study to exclude the opportunity for a respondent to select "don't know" when asked to rate a subject-matter content standard as to its relative importance. The decision to eliminate this response choice allowed for the measurement of the intensity of conviction of the respondents to each of the McREL subject-matter content standards (Dumas, 2000; Moser & Kalton as cited in Converse & Presser, 1986). Trustee demographic information in the study was expanded and included the independent variables of school district classification, gender, age, years of school board experience, educational level, occupation, and income level.

To limit the number of McREL national subject-matter content standards that any one trustee would have to respond to, a four-questionnaire design was used. Trustees randomly received one of the four questionnaires. Each questionnaire addressed the national content standards in a given set of subjects and the four questionnaires in their entirety covered all the content standards in the McREL database. Table 6 identifies the number of subject-matter areas and McREL national content standards related questions in each of the four questionnaires.

The McREL comprehensive national subject-matter content standards database contains 256 standards representing 14 subject-matter areas. Eight standards in K-4 social studies that were addressed in other history areas and considered redundant were

not included in the survey, reducing the number of national subject-matter content standards surveyed to 248 content standards.

The four questionnaires collectively address all 248 McREL national subject-matter content standards using 341 survey questions. The discrepancy between 248 national content standards and 341 survey questions is due to subdividing several of the national content standards into multiple questions. A national content standard was subdivided into several questions when it was determined that greater clarity and understanding would be needed for an individual content standard that contained a great deal of content depth.

Research Design

Rationale

Using a mail-in survey provided a practical means for gathering information needed to determine which of the national subject-matter content standards identified in the McREL database Montana school board trustees believed were essential for all Montana students to master prior to high school graduation. The survey also presented three goals for education that Montana school board trustees rated relative to degree of importance. Montana school board trustees provided demographic information (i.e., gender, age, years of board experience, educational level, occupation, and income level) and along with district classification provided an opportunity to determine if there is a relationship between the demographic variables and Montana school board trustee responses.

The four-design questionnaires used in this study were developed and used by McREL and the Gallup Organization in 1998. The collection and analysis of the data in that study allowed McREL researchers to determine which of the McREL national subject-matter content standards American adults considered essential for all American students to master prior to high school graduation. The replication of that study with Montana school board trustees, using similar questionnaires, allows Montana state educational agencies and local school districts to examine the responses of Montana school board trustees in much the same way as American adult responses were examined in the 1998 McREL and Gallup national survey. The rank-ordering and prioritization of the McREL national standards from the most essential to least essential by Montana school board trustees provides state and local school district curriculum developers an opportunity to examine the perceptions of a school-community group who are important participants in the curriculum development process.

Procedure

Montana school board trustees who govern in public school districts enrolling students in grades K-12 were asked to identify which of the McREL standards they perceived to be essential for all Montana students to master prior to high school graduation. Because of the number of subject-matter content standards in the McREL database and the amount of response time required for a respondent to rate all of the McREL subject-matter content standards, a four-questionnaire design was used. Each one of the four questionnaires addressed different subject matters but provided the same

directions and procedures for completing. The self-report questionnaires were distributed to each K-12 public school district superintendent in sufficient proportion to ensure all four questionnaire designs were randomly distributed to the entire population surveyed.

All 160 K-12 school superintendents were contacted by telephone and apprised of the study and were asked to assist in the distribution of the questionnaires, collection of the questionnaires, and return of the questionnaires. Survey questionnaires, cover letters, and a stamped, self-addressed envelope were mailed to each K-12 public school district superintendent following the initial telephone contact. A cover letter addressed to the school district superintendent described the study and requested his/her assistance in distributing, collecting, and returning the self-report survey questionnaires in the stamped and self-addressed envelope provided (Appendix D).

School district superintendents were asked to randomly distribute the four questionnaires to their respective school board trustees and to support the study by encouraging their trustees to complete and return them to the school superintendent by a specified time so they could be collectively returned to the researcher prior to the survey deadline. A cover letter addressed to each of the school board trustees and attached to each of the four self-report survey questionnaires described the study and its importance (Appendix E). The cover letter also indicated their school superintendent had been asked to assist in the study by distributing and collecting the self-report survey questionnaires and returning them. School district superintendents collected all trustee self-report survey questionnaires and mailed them back. Two additional follow-up contacts and mailings occurred in school districts not returning at least one completed trustee questionnaire.

The chronological timeline for conducting the survey study follows:

1. All four questionnaires were field-tested during the month of February, 2001.
2. All 160 school superintendents in this study were contacted by telephone during the period March 1-9, 2001.
3. The first mailing of the questionnaires to all 160 school districts in this study occurred on March 14, 2001 with a request that completed self-report survey questionnaires be returned by April 20, 2001.
4. School district superintendents in districts that had not returned their trustee self-report survey questionnaires by April 20, 2001 were contacted by telephone during April 21-23, 2001 to determine the reasons why their trustee questionnaires had not yet been returned and if a second mailing would result in additional questionnaires being completed and returned.
5. Second questionnaire mailings occurred on April 23, 2001 with a completion and return date of May 18, 2001.
6. A third mailing occurred on June 1, 2001 to any school district that had not yet returned at least one self-report survey questionnaire. The third mailing included two self-report survey questionnaires and a cover letter asking school superintendents to distribute them to any two school board trustees who they believed would take the time to complete and return them (Appendix F).

Analysis Strategy

Montana school board trustees who govern in school systems that combine an elementary school district (K-8) with a high school district (9-12) for administrative

purposes were asked to rate the McREL subject-matter content standards as either definitely, probably, probably not, or definitely not necessary for all Montana students to master prior to high school graduation. Each response to each McREL subject-matter content standard was rated independently of the others (i.e., item-by-item). The average percentage of Montana school board trustees who identified a McREL national subject-matter content standard as definitely necessary for Montana students to master was determined to be the best indicator of the relative importance of that McREL subject-matter content standard and, therefore, a strong indicator of the essential subject-matter content knowledge and skills that all Montana students should master prior to high school graduation.

The analysis of the data and focus of the findings were predicated on the average percentage of Montana school board trustees who indicated a McREL national subject-matter content standard as definitely necessary for all Montana students to master prior to high school graduation. The rank-ordering of the McREL comprehensive national subject-matter content standards by Montana school board trustees identified the subject-matter areas and content-standards Montana school board trustees believed should receive the greatest curricular focus.

The following research questions were addressed in this study:

1. Which of the McREL comprehensive national subject-matter content standards do Montana school board trustees perceive to be definitely necessary for Montana students to master prior to high school graduation?

2. Which subject-matter areas would receive more or less curricular focus as a result of the rank-ordering of the McREL comprehensive national subject-matter content standards by Montana school board trustees?
3. Are the demographic variables of school district classification, trustee gender, age, years of school board experience, educational level, occupation, and income level related to Montana school board trustee responses?
4. What do Montana school board trustees perceive the main goal of education to be and are the demographic variables of school district classification, gender, age, years of board experience, educational level, occupation, and income level related to those perceptions?
5. What are the similarities and dissimilarities between the findings of the McREL/Gallup 1998 survey study and this study?

Method of Data Analysis

Statistical Programs for the Social Sciences (SPSS) Base 10.0 was used to analyze the data. Research questions 1, 2, and 3 were analyzed by calculating the average percentage of Montana school board trustees who indicated a McREL subject-matter content standard question was definitely necessary for all Montana students to master prior to high school graduation. A T-test for two independent samples was used to determine if there was a difference in mean scores for Montana school board trustee responses and the demographic variables of trustee gender and income level within each questionnaire subject-matter area for research questions 3 and 4. A one-way analysis of

variance was used to determine if there was a difference in mean scores for Montana school board trustee responses and each of the demographic variables of trustee age, school board years of experience, educational level, occupation, and school district classification within each questionnaire subject-matter area for research questions 3 and 4. Research questions 3 and 4 were tested at the .05 level of significance. Research question 5 was analyzed by comparing the rank ordering of the McREL subject-matter content standards by American adults in the 1997 McREL/Gallup national survey with the rank ordering of the McREL subject-matter content standards of Montana school board trustees in this study.

Assumptions and Limitations

Assumptions

1. The Montana school board trustees who participated in this study by completing and returning one of the four questionnaires are representative of the population of this study. The demographic attributes and characteristics of the Montana school board trustees who completed and returned one of the four questionnaires are similar to those of the total population.
2. The rank-ordering and prioritization of the content standards in the McREL comprehensive national subject-matter content standards database by Montana school board trustees represent the perceptions of those Montana school board trustees who were included in this study but did not complete and return one of the questionnaires.

3. The rank-ordering and prioritization of the content standards in the McREL database by Montana school board trustees identify which subject-matter areas Montana school board trustees perceive to be the most important and which subject-matter areas Montana school board trustees perceive to be the least important.
4. The rank-ordering and prioritization of the main goals of education by Montana school board trustees represent the perceptions of those Montana school board trustees who were included in this study but did not complete and return one of the questionnaires.
5. The analysis of the data reflects if the demographic variables of school district classification (gender, age, years of school board experience, educational level, occupation, and income level) are related to the rank-ordering of the content standards in the McREL database and the rank-ordering and prioritization of the goals of education.
6. The analysis of the data identifies the similarities and dissimilarities between the 1998 McREL and Gallup survey study and this study.

Limitations

1. For a population of between 900 and 950 individuals, it is suggested that a sample size range between 269 to 274 individuals (Gay & Airasian, 2000). A sample of the population was not used in this study; however, efforts to ensure a return rate that closely approximated or exceeded the suggested sampling range was actively

pursued throughout the questionnaire distribution and collection phases of this study.

Summary

Nine hundred and twenty-five school board trustees who govern in 160 Montana K-12 public school districts were asked to identify if each of the 248 content standards contained in the McREL database was definitely necessary for all Montana students to master prior to high school graduation. Because there is not enough reasonable time for a Montana school board trustee to complete a single questionnaire that would have included all 341 McREL content standards questions, four different questionnaires that were developed by McREL and the Gallup Organization were used.

Montana school board trustees were randomly assigned one of four questionnaires. Each of the questionnaires addressed several subject-matter areas and consisted of anywhere between 81 to 90 subject-matter content standards questions, along with three general questions relating to the goals of education. For the purpose of comparing subpopulations, the study addressed the demographic variables of school district classification, gender, age, years of school board experience, educational level, occupation, and income level.

For each McREL national subject-matter content standard question in each of the randomly assigned questionnaires, Montana school board trustees were asked to indicate if they perceived a standard to be definitely, probably, probably not, or definitely not necessary for all Montana students to master prior to high school graduation. A definitely

necessary response to a subject-matter content standard question was considered to be the strongest indication that a Montana school board trustee believed a Montana student should master that subject-matter content standard prior to high school graduation. Data analysis and subsequent findings were predicated on this response choice. All 248 McREL subject-matter content standards were rank-ordered based on the average percentage of definitely necessary responses for each subject-matter content standard, from 1 to 248. The study began in March, 2001 and was completed in July, 2002. The results of the data analysis and findings of this study are presented in the following chapter.

CHAPTER 4

RESEARCH FINDINGS

Introduction

The research findings address the results of the data analysis and their meaning in relation to the problem and purpose of this study. The problem addressed in this study was that there is not sufficient academic instructional time within a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database. Montana school board trustees have a responsibility and duty to identify the essential subject-matter content knowledge and skills they believe all their students should master prior to high school graduation. Given the reality that there is not sufficient academic instructional time for Montana students to master all the McREL national subject-matter content standards, which of the content standards in the McREL database do Montana school board trustees perceive to be essential for all Montana students to master prior to high school graduation?

The purpose of this descriptive study was to identify which of the national subject-matter content standards identified in the McREL comprehensive national subject-matter content standards database Montana school board trustees believe are

essential for all Montana students to master prior to high school graduation, and if the demographic variables of school district classification, trustee gender, age, years of board experience, educational level, occupation, and income level were related to trustee responses.

Results of Data Analysis

The population of this study consisted of all Montana school board trustees serving in Montana public school systems that combine an elementary school district (K-8) with a high school district (9-12) for administrative purposes, and employ one school superintendent to administrate both school districts. Two hundred and fifty-six school board trustees participated in the study. Table 15 identifies the number of Montana school board trustees who participated in the study within each questionnaire group. Of the 925 Montana school board trustees who randomly received one of the four questionnaires, 256 (27.7%) returned a completed questionnaire and were included in the study. Of the total of 256, 68 (26.6%) were included in questionnaire group 1; 68 (26.6%) were included in questionnaire group 2; 65 (25.4%) were included in questionnaire group 3; and 55 (21.4%) were included in questionnaire group 4.

Table 15. Number and Percentage of Montana School Board Trustees within Each Questionnaire Group.

| | <u>Questionnaire Groups</u> | | | | Total |
|----------|-----------------------------|------------|------------|------------|------------|
| | Q 1 | Q 2 | Q 3 | Q 4 | |
| Trustees | 68 (26.6%) | 68 (26.6%) | 65 (25.4%) | 55 (21.4%) | 256 (100%) |

Table 16 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute

associated with the demographic variable of school district classification. Of the Montana school board trustees who participated in the study, 115 (45%) govern in second class school districts, 99 (38.6%) govern in third class school districts, and 42 (16.4%) govern in first class school districts.

Table 16. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with School District Classification.

| Classification | Q1 | Questionnaire Groups | | | Total |
|----------------|------------|----------------------|------------|------------|-------------|
| | | Q2 | Q3 | Q4 | |
| First Class | 8 (11.7%) | 13 (19.1%) | 11 (16.9%) | 10 (18.2%) | 42 (16.4%) |
| Second Class | 37 (54.3%) | 24 (35.3%) | 32 (49.2%) | 22 (40.0%) | 115 (45.0%) |
| Third Class | 23 (34.0%) | 31 (45.6%) | 22 (33.9%) | 23 (41.8%) | 99 (38.6%) |
| Total | 68 (100%) | 68 (100%) | 65 (100%) | 55 (100%) | 256 (100%) |

Table 17 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee gender. Of the Montana school board trustees who participated in the study, 164 (67.2%) were males and 80 (32.8%) were females.

Table 17. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Gender.

| Gender | Q1 | Questionnaire Groups | | | Total |
|---------|------------|----------------------|------------|------------|-------------|
| | | Q2 | Q3 | Q4 | |
| Males | 49 (76.6%) | 40 (58.8%) | 42 (70.0%) | 33 (63.5%) | 164 (67.2%) |
| Females | 15 (23.4%) | 28 (41.2%) | 18 (30.0%) | 19 (36.5%) | 80 (32.8%) |
| Total | 64 (100%) | 68 (100%) | 60 (100%) | 52 (100%) | 244 (100%) |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 244 Montana school board trustees identified here is due to 12 school board trustees not indicating their gender in the demographic section of the survey.

Table 18 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee age. Of the Montana school board trustees who participated in the study, 237 (96.3%) were 35 years old or older and 118 (48.0%) of all respondents were 45-54 years old.

Table 18. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Age.

| Age | Questionnaire Groups | | | | Total |
|-------|----------------------|------------|------------|------------|-------------|
| | Q1 | Q2 | Q3 | Q4 | |
| 25-34 | 3 (4.6%) | 1 (1.5%) | 3 (5.0%) | 2 (3.9%) | 9 (3.7%) |
| 35-44 | 26 (39.4%) | 30 (44.1%) | 19 (31.7%) | 20 (38.5%) | 95 (38.6%) |
| 45-54 | 31 (47.0%) | 33 (48.5%) | 31 (51.6%) | 23 (44.2%) | 118 (48.0%) |
| 55-64 | 6 (9.0%) | 3 (4.4%) | 4 (6.7%) | 6 (11.5%) | 19 (7.7%) |
| 65+ | 0 (0%) | 1 (1.5%) | 3 (5.0%) | 1 (1.9%) | 5 (2.0%) |
| Total | 66 (100%) | 68 (100%) | 60 (100%) | 52 (100%) | 246 (100%) |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 244 Montana school board trustees identified here is due to 10 school board trustees not indicating their age in the demographic section of the survey.

Table 19 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee years of board experience. Of the trustees who participated in the study, 131 (52.4%) had 0-3 years of board experience and 21 (8.4%) had 11 years or more.

Table 20 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee educational level. Of the trustees

who participated in the study, 248 (99.2%) have graduated from high school and 181 (72.4%) have been involved in postsecondary education at either a junior college, community college, or university.

Table 19. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Years of Board Experience.

| Years of Board Experience | Questionnaire Groups | | | | | Total |
|---------------------------|----------------------|------------|------------|------------|-----|---------|
| | Q1 | Q2 | Q3 | Q4 | | |
| 0-3 | 36 (55.4%) | 37 (54.4%) | 25 (38.5%) | 33 (63.5%) | 131 | (52.4%) |
| 4-6 | 13 (20.0%) | 19 (27.9%) | 21 (32.3%) | 12 (23.1%) | 65 | (26.0%) |
| 7-10 | 8 (12.3%) | 8 (11.8%) | 12 (18.5%) | 5 (9.6%) | 33 | (13.2%) |
| 11+ | 8 (12.3%) | 4 (5.9%) | 7 (10.7%) | 2 (3.8%) | 21 | (8.4%) |
| Total | 65 (100%) | 68 (100%) | 65 (100%) | 52 (100%) | 250 | (100%) |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 250 trustees identified here is due to six school board trustees not indicating their years of board experience in the demographic section of the survey.

Table 20. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Educational Level.

| Educational Level | Questionnaire Groups | | | | | Total |
|---------------------------------------|----------------------|------------|------------|------------|-----|---------|
| | Q1 | Q2 | Q3 | Q4 | | |
| Some high school | 0 (0%) | 0 (0%) | 1 (1.5%) | 1 (1.8%) | 2 | (.8%) |
| High school graduate | 14 (21.5%) | 13 (9.1%) | 12 (18.5%) | 6 (11.6%) | 45 | (18.0%) |
| Trade, technical, vocational training | 6 (9.2%) | 4 (5.9%) | 7 (10.7%) | 5 (9.6%) | 22 | (8.8%) |
| Some junior/community college | 15 (23.1%) | 22 (32.3%) | 16 (24.6%) | 6 (11.6%) | 59 | (23.6%) |
| Undergraduate work/degree | 18 (27.7%) | 18 (26.5%) | 19 (29.3%) | 19 (36.1%) | 74 | (29.6%) |
| Graduate work/degree | 12 (18.5%) | 11 (16.2%) | 10 (15.4%) | 15 (28.8%) | 48 | (19.2%) |
| Total | 65 (100%) | 68 (100%) | 65 (100%) | 52 (100%) | 250 | (100%) |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 250 school board trustees identified here is due to six trustees not indicating their years of school board experience in the demographic section of the survey.

Table 21 identifies the number and percentage of trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee occupation. Of those who participated in the study, 80 (33.1%) had occupations in agriculture, forestry, or fishing; 41 (16.9%) in services; and 30 (12.4%) trustees indicated their occupations did not match any of the occupation attribute choices.

Table 21. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Occupation.

| Occupation | Questionnaire Groups | | | | | | | |
|--|----------------------|------------|------------|------------|------------|--|--|--|
| | Q1 | Q2 | Q3 | Q4 | Total | | | |
| Agriculture, forestry and fishing | 24 (37.5%) | 18 (26.9%) | 19 (31.2%) | 19 (38.0%) | 80 (33.1%) | | | |
| Mining | 2 (3.1%) | 0 (0%) | 1 (1.6%) | 0 (0%) | 3 (1.2%) | | | |
| Construction | 4 (6.3%) | 4 (6.0%) | 6 (9.8%) | 3 (6.0%) | 17 (7.0%) | | | |
| Manufacturing | 2 (3.1%) | 4 (6.0%) | 1 (1.6%) | 4 (8.0%) | 11 (4.6%) | | | |
| Finance, insurance, and real estate | 4 (6.3%) | 5 (7.4%) | 3 (4.9%) | 2 (4.0%) | 14 (5.8%) | | | |
| Transportation, communications, electric, gas, and sanitary services | 2 (3.1%) | 3 (4.5%) | 3 (4.9%) | 3 (6.0%) | 11 (4.6%) | | | |
| Wholesale trade | 0 (0%) | 2 (3.0%) | 1 (1.6%) | 0 (0%) | 3 (1.2%) | | | |
| Retail trade | 2 (3.1%) | 5 (7.4%) | 1 (1.6%) | 3 (6.0%) | 11 (4.6%) | | | |
| Services | 10 (15.5%) | 12 (7.9%) | 13 (21.3%) | 6 (12.0%) | 41 (16.9%) | | | |
| Public administration | 4 (6.3%) | 2 (3.0%) | 4 (6.6%) | 2 (4.0%) | 12 (5.0%) | | | |
| Homemaker | 1 (1.6%) | 2 (3.0%) | 2 (3.3%) | 4 (8.0%) | 9 (3.7%) | | | |
| Nonclassifiable | 9 (14.1%) | 10 (14.9%) | 10 (11.6%) | 4 (8.0%) | 30 (12.3%) | | | |
| Total | 64 (100%) | 67 (100%) | 61 (100%) | 50 (100%) | 242 (100%) | | | |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 250 trustees identified here is due to 14 trustees not indicating their occupation in the demographic section of the survey.

Table 22 identifies the number and percentage of Montana school board trustees who participated in the study within each questionnaire group for each attribute associated with the demographic variable of trustee income level. Of the Montana school board trustees who participated in the study, 100 (41.5%) reported incomes of less than \$50,000 and 141 (58.5%) reported incomes of more than \$ 50,000.

Table 22. Number and Percentage of Montana School Board Trustees within Questionnaire Groups for Demographic Attributes Associated with Trustee Income Level.

| Income level | Questionnaire Groups | | | | | | | |
|--------------------|----------------------|------------|------------|------------|-------------|--|--|--|
| | Q1 | Q2 | Q3 | Q4 | Total | | | |
| Less than \$50,000 | 25 (41.0%) | 25 (37.9%) | 26 (41.9%) | 24 (46.2%) | 100 (41.5%) | | | |
| More than \$50,000 | 36 (59.0%) | 41 (62.1%) | 36 (58.1%) | 28 (53.8%) | 141 (58.5%) | | | |
| Total | 61 (100%) | 66 (100%) | 62 (100%) | 52 (100%) | 241 (100%) | | | |

Note. The difference between the 256 Montana school board trustees identified in Table 15 and the 244 Montana school board trustees identified here is due to 15 school board trustees not indicating their income level in the demographic section of the survey.

In summarizing the general demographic attributes of the 256 Montana school board trustees who were included in this study, the data indicates that 164 (67.2%) were males; 115 (45.0%) and 99 (38.6%) came from second and third class school districts, respectively; 213 (86.6%) were 35-54 years old; 131 (53.4%) had 0-3 years of school board experience; 181 (72.4%) had undergraduate and graduate degrees or some postsecondary educational experience; 80 (33.1%) were involved in farming, forestry, or fishing; and 141 (58.5%) had incomes of \$50,000 or more.

In order to determine if the Montana school board trustees within each of the four questionnaire groups came from the population in this study, a Wilks' Lambda discriminant analysis was conducted. The Wilks' Lambda predicts group membership from a set of criterion variables and the statistical results may vary from 0 to 1. The smaller the calculated values, the greater the probability that individuals within those groups do not come from the same population. The higher the calculated values, the greater the probability that individuals within those groups do come from the same population.

The criterion variables of school district classification (trustee gender, age, years of school board experience, educational level, and income level) were used to determine if group membership could be predicted. Table 23 shows the statistical results of the analysis. Table 23 shows that the three discriminant functions were not able to predict group membership and, therefore, it can be concluded that the trustees in each of the four questionnaire groups came from the same population.

Table 23. Wilks' Lambda.

| Test of Function(s) | Wilks' Lambda | Chi-square | df | Sig. |
|---------------------|---------------|------------|----|------|
| 1 through 3 | .932 | 16.061 | 18 | .588 |
| 2 through 3 | .974 | 6.030 | 10 | .813 |
| 3 | .990 | 2.296 | 4 | .682 |

Table 24 provides additional support for the proposition that all the trustees in the four questionnaire groups come from a common population. Table 24 compares the actual group predictions to actual group memberships. The analysis results indicate that

only 31.8 percent of the trustees in the four questionnaire groups were correctly classified. It is expected that 25 percent of the trustees would have been correctly classified if the trustees were randomly classified. In terms of the demographic variables of school district classification, trustee gender, age, years of school board experience, educational level, and income level for each of the four questionnaire groups, the analysis indicates all of the trustees in the four questionnaire groups are from the same population. The findings presented in both Table 23 and Table 24 allow reasonable comparisons of the relative rankings of the McREL subject-matter content standards to be made across the four questionnaire groups.

Table 24. Predicted Group Membership Classification Results.

| Actual Group | <u>Predicted Group Membership</u> | | | | Total |
|--------------|-----------------------------------|---------|---------|---------|-------|
| | Group 1 | Group 2 | Group 3 | Group 4 | |
| Group 1 | 19 | 10 | 11 | 19 | 59 |
| Group 2 | 19 | 15 | 15 | 17 | 66 |
| Group 3 | 16 | 11 | 17 | 13 | 57 |
| Group 4 | 8 | 11 | 9 | 23 | 51 |
| % Group 1 | 32.2 | 16.9 | 18.6 | 32.2 | 100.0 |
| Group 2 | 28.8 | 22.7 | 22.7 | 25.8 | 100.0 |
| Group 3 | 28.1 | 19.3 | 29.8 | 22.8 | 100.0 |
| Group 4 | 15.7 | 21.6 | 17.6 | 45.1 | 100.0 |

Note: 31.8 percent of original grouped cases correctly classified.

The data of this study was analyzed to address each of the research questions presented in the study. Research question 1 was analyzed to determine the relative importance of each of the content standards in the McREL comprehensive national

subject-matter content standards database from the perspective of Montana school board trustees. Research question 2 was analyzed to determine the relative importance of each of the subject-matter areas as a result of the rank-ordering of the McREL comprehensive national subject-matter content standards in research question 1. Research question 3 was analyzed to determine if the trustee demographic variables are related to the responses of Montana school board trustees in the survey. Research question 4 was analyzed to determine what Montana school board trustees believe the main goal of American public education should be. Research question 5 was analyzed to determine the similarities and dissimilarities between the 1997 McREL and Gallup national survey study and this study.

Research Question 1

1. Which of the McREL comprehensive national subject-matter content standards do Montana school board trustees perceive to be definitely necessary for Montana students to master prior to high school graduation?

Research question 1 examined the relative importance of each of the 248 McREL comprehensive national subject-matter content standards. Montana school board trustees were asked to rate McREL subject-matter content standards as either definitely, probably, probably not, or definitely not necessary for all Montana students to master prior to high school graduation. The percentage of respondents who rated a McREL subject-matter content standard as definitely necessary for all Montana students to master was used to rank-order the content standards from 1 to 248. If two or more subject-matter content standards had an equal number of definitely necessary responses, the number of probably

necessary responses was then analyzed. If ties remained, the process was repeated analyzing probably not and definitely not responses.

Appendix G identifies the relative importance of each of the content standards in the McREL comprehensive national subject-matter content standards database based on the total percentage of definitely necessary responses from Montana school board trustees. The McREL standards are rank-ordered based on their relative importance from 1 to 248, with 1 being the highest ranked McREL subject-matter content standard and 248 the lowest ranked McREL subject-matter content standard.

Research Question 2

2. Which subject-matter areas would receive more or less curricular focus as a result of the rank-ordering of the McREL standards by Montana school board trustees?

Table 25 rank-orders the 17 McREL content standards database subject-matter areas based on the highest percentage of definitely necessary responses that were assigned to each McREL subject-matter content standard within each of the subject-matter areas. The table indicates that the subject-matter area of health received the highest overall rating with each of the health content standards receiving more definitely necessary responses than all the content standards in any other subject-matter area, 63.8 percent. The content standards in the arts (dance, music, theater, and visual) received the fewest number of definitely necessary responses and was rated last overall, 12.6 percent.

Table 25. Ranking of Subject-Matter Content Areas by Percentage of Definitely Necessary Responses from Montana School Board Trustees.

| Rank | Subject-Matter Area | Percentage of Definitely Necessary Responses |
|------|--------------------------|--|
| 1 | Health | 63.8% |
| 2 | Language Arts | 57.7% |
| 3 | Life Skills | 56.6% |
| 4 | Mathematics | 56.4% |
| 5 | Thinking and Reasoning | 49.2% |
| 6 | Technology | 47.8% |
| 7 | U.S. History | 47.8% |
| 8 | Science | 47.2% |
| 9 | Civics | 46.3% |
| 10 | Economics | 44.5% |
| 11 | Behavioral Studies | 34.3% |
| 12 | Historical Understanding | 33.3% |
| 13 | Physical Education | 32.5% |
| 14 | Geography | 32.4% |
| 15 | World History | 31.4% |
| 16 | Foreign Language | 16.1% |
| 17 | The Arts | 12.6% |

If 50 percent were used as a general indicator of overall support for a subject-matter area, four subject-matter areas would meet or exceed the 50 percent criteria: health, language arts, life skills (i.e., working with others, self-regulation and life work), and mathematics. Table 26 identifies the number of content standards within each of the McREL subject-matter areas that 50 percent or more of the Montana school board trustees in this study indicated all Montana students should master.

Table 26. Number/Percentage of McREL Content Standards Identified as Definitely Necessary for Montana Students to Master by 50 Percent or More of Montana School Board Trustees.

| Subject-Matter Area | Number of McREL Content Standards | Number and Percentage of Content Standards Identified as Definitely Necessary | |
|-----------------------------|-----------------------------------|---|-------|
| 1 Health | 10 | 10 | 100% |
| 2 Life Skills | 19 | 16 | 84.2% |
| 3 Language Arts | 8 | 5 | 62.5% |
| 4 Mathematics | 9 | 5 | 55.6% |
| 5 Thinking and Reasoning | 6 | 3 | 50.0% |
| 6 Economics | 10 | 4 | 40.0% |
| 7 Technology | 5 | 2 | 40.0% |
| 8 Civics | 29 | 11 | 37.9% |
| 9 U.S. History | 31 | 10 | 32.3% |
| 10 Science | 16 | 5 | 31.3% |
| 11 World History | 46 | 13 | 28.3% |
| 12 Geography | 18 | 3 | 16.7% |
| 13 Behavioral Studies | 4 | 0 | 0% |
| 14 Historical Understanding | 2 | 0 | 0% |
| 15 Physical Education | 5 | 0 | 0% |
| 16 Foreign Language | 5 | 0 | 0% |
| 17 The Arts | 25 | 0 | 0% |
| Total | 248 | 87 | 35% |

Over half of the content standards in health, life skills (i.e., working with others, self-regulation, and life work), language arts, mathematics, and thinking and reasoning were identified as definitely necessary for all Montana students to master prior to high school graduation. All of the health content standards met the 50 percent criteria. The subject-matter areas of behavioral studies, historical understanding, physical education, foreign language, and the arts (i.e., dance, music, theater, and visual) did not have a single content standard identified by at least 50 percent of the Montana school board trustees as

definitely necessary for all Montana students to master. Twelve of the 17 subject-matter areas had at least one content standard for which 50 percent or more of the Montana school board trustees indicated the content standard was definitely necessary for all Montana students to master. In total, 87 (35.0%) of the content standards in the McREL database were identified by Montana school board trustees as definitely necessary for all Montana students to master prior to high school graduation.

Table 27 identifies the McREL subject-matter areas and the number of content standards within the subject-matter areas for the top and bottom 25 rank-ordered content standards identified in research question 1. The top 25-ranked content standards represent those standards ranked from 1 to 25 and the bottom 25-ranked content standards represent those standards ranked from 224 to 248 by Montana school board trustees. The top 25-ranked content standards are distributed among 10 of the 17 McREL subject-matter areas with no specific subject-matter area containing a disproportionate number of content standards. The subject-matter areas of U.S. history, civics, and work skills have four content standards in the top 25 and, combined, represent 48 percent of the total number of content standards in the top 25. The core academic areas of language arts, mathematics, science, and history each have at least one standard in the top 25. The bottom 25-ranked content standards are distributed among five of the 17 McREL subject-matter areas with both the arts and foreign language having a disproportionate number of content standards in the bottom 25. The subject-matter area of the arts has 14 content standards in the bottom 25, and the subject-matter area of world history has seven content standards in the bottom 25. The arts content standards comprise 56 percent of the total

number of content standards in the bottom 25, and world history 28 percent. Together, the arts and world history have 21 of the 25 content standards, or 84 percent, in the bottom 25. World history and geography are the only two subject-matter areas with at least one content standard ranked in both the top and bottom 25.

Table 27. Top 25 and Bottom 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses from Montana School Board Trustees.

| Subject-Matter Area | Top 25 | Subject-Matter Area | Bottom 25 |
|---------------------|-------------------|---------------------|-------------------|
| | Content Standards | | Content Standards |
| U.S. History | 4 (16%) | The Arts | 14 (56%) |
| Civics | 4 (16%) | World History | 7 (28%) |
| Life Skills | 4 (16%) | Foreign Language | 2 (8%) |
| Mathematics | 3 (12%) | Physical Education | 1 (4%) |
| World History | 2 (8%) | Geography | 1 (4%) |
| Health | 2 (8%) | | |
| Science | 2 (8%) | | |
| Technology | 2 (8%) | | |
| Language Arts | 1 (4%) | | |
| Geography | 1 (4%) | | |

Table 28 identifies the variation of Montana school board trustees' responses to content standards within each of the subject-matter areas. The subject-matter area with the widest range of responses within its subject-matter area was world history. One of the 46 world history standards was rated definitely necessary for Montana students to know or be able to do by 30 percent of the Montana school board trustees participating in the study, while another one of the 46 world history standards was rated definitely necessary by 80.1 percent of the Montana school board trustees in the study. The difference between the low and high percentages, or range, indicates Montana school board trustees perceived the importance of the world history content standards within that subject-matter

area somewhat differently. Some world history standards were considered more essential for Montana students to master than others, as was the case for most subject-matter areas. Historical understanding and behavioral studies had the smallest range of responses within their subject-matter areas, 0 percent and 7.4 percent respectively. In both subject-matter areas, Montana school board trustees generally agreed that the relative importance of each of the content standards within both subjects was basically the same.

Table 28. Variation in Montana School Board Trustee Responses to Content Standards within Subject-Matter Areas.

| Subject-Matter Area | Low | High | Range |
|--------------------------|-------|-------|-------|
| Health | 50.0% | 80.3% | 30.3% |
| Language Arts | 37.5% | 84.4% | 46.9% |
| Life Skills | 43.8% | 75.0% | 31.2% |
| Mathematics | 30.3% | 86.4% | 56.1% |
| Thinking and Reasoning | 35.9% | 68.8% | 32.9% |
| Technology | 23.9% | 85.1% | 61.2% |
| U.S. History | 20.9% | 85.1% | 64.2% |
| Science | 32.8% | 77.6% | 44.8% |
| Civics | 15.6% | 76.6% | 61.0% |
| Economics | 26.6% | 60.9% | 34.3% |
| Behavioral Studies | 29.9% | 37.3% | 7.4% |
| Historical Understanding | 33.3% | 33.3% | 0% |
| Physical Education | 11.9% | 49.3% | 37.4% |
| Geography | 13.0% | 75.9% | 62.9% |
| World History | 3.0% | 80.1% | 77.1% |
| Foreign Language | 4.6% | 28.8% | 24.2% |
| The Arts | 1.9% | 37.0% | 35.1% |

McREL researchers indicate there is not sufficient academic instructional time available in an American student's K-12 schooling years to master all the content standards in the McREL comprehensive national subject-matter content standards

database. The teaching and mastering of all 256 McREL subject-matter content standards would require approximately 15,465 academic instructional hours. However, the examination of the typical American school year and school day indicates there are approximately 9,042 academic instructional hours currently available in an American student's K-12 schooling years. The length of the Montana school year and school day are similar to the national findings regarding available academic instructional time.

Given the reality there is not sufficient academic instructional time for a Montana student to master all the content standards in the McREL comprehensive national subject-matter content standards database, curriculum planners who use the McREL database to develop their curriculums will need to identify those subject-matter content standards to include and exclude in their curriculums. The rank-ordering of the McREL comprehensive national subject-matter content standards by Montana school board trustees in research question 1 can now be used in the identification and prioritization process.

Table 10 identified the amount of academic instructional time required to teach a McREL content standard for each of the subject-matter areas. The amount of academic instructional time required to teach a McREL content standard varies across subject-matter areas. For example, it would take approximately 171.5 hours to effectively teach a language arts content standard and approximately 49.5 hours to teach a works skills content standard. Using the instructional times identified in Table 10, each of the subject-matter content standards that were rank-ordered by Montana school board trustees in response to research question 1 was assigned the appropriate academic instructional time

starting with the highest-ranked content standard, mathematics content standard 4. Each subsequent content standard's academic instructional time was added to the cumulative total until 9,042 academic instructional hours was reached. The 9,042 academic instructional hours was reached at the 120th rank-ordered content standard, science content standard 4. This point is referred to in this study as cut-point 120.

Table 29 identifies the comparative influence the various subject-matter areas would have on the Montana K-12 school curriculum if cut-point 120 was used to determine curriculum content. The table shows that 100 percent of both the health and life skills (e.g., working with others, self-regulation, and life work) subject-matter areas would be included in the Montana K-12 school curriculum. Between 51.7 and 75 percent of the content standards in the subject-matter areas of civics, economics, science, mathematics, thinking and reasoning, language arts, and U.S. history would also be included in the Montana K-12 school curriculum. Less than 40 percent of the content standards in technology, physical education, world history, and geography would be included in the Montana K-12 school curriculum, and the Montana K-12 school curriculum would be void of content standards in the subject-matter areas of the arts (i.e., dance, music, theater, and visual), foreign language, behavioral studies, and historical understanding.

A cut-point of 120 addresses 48 percent of the total number (248) of content standards in the McREL comprehensive national subject-matter content standards database. Fifty-two percent of the McREL subject-matter content standards are not addressed and therefore would not be included in the Montana K-12 school curriculum.

Table 29. Comparative Influence of Subject-Matter Areas on the Montana School Curriculum if Cut-Point 120 Is Used to Determine Curriculum Content.

| Subject-Matter Area | # of McREL Standards | # of Standards Selected | % of McREL Standards | % of Montana Curriculum |
|--------------------------|----------------------|-------------------------|----------------------|-------------------------|
| Health | 10 | 10 | 100% | 8.3% |
| Life Skills | 19 | 19 | 100% | 15.9% |
| Language Arts | 8 | 6 | 75.0% | 5.0% |
| U.S. History | 31 | 22 | 71.0% | 18.3% |
| Mathematics | 9 | 6 | 67.0% | 5.0% |
| Thinking and Reasoning | 6 | 4 | 67.0% | 3.3% |
| Science | 16 | 10 | 63.0% | 8.3% |
| Economics | 10 | 6 | 60.0% | 5.0% |
| Civics | 29 | 15 | 52.0% | 12.5% |
| Physical Education | 5 | 2 | 40.0% | 1.7% |
| Technology | 5 | 2 | 40.0% | 1.7% |
| World History | 46 | 15 | 33.0% | 12.5% |
| Geography | 18 | 3 | 17.0% | 2.5% |
| Behavioral Studies | 4 | 0 | 0% | 0% |
| Historical Understanding | 2 | 0 | 0% | 0% |
| Foreign Language | 5 | 0 | 0% | 0% |
| The Arts | 25 | 0 | 0% | 0% |
| Total | 248 | 120 | 48% | 100% |

Whereas Table 29 addresses a Montana K-12 public school curriculum predicated on the first 120 rank-ordered subject-matter content standards by Montana school board trustees, Table 30 expands the number of subject-matter content standards by 20 percent. The cut-point of 120 is considered to be a conservative estimate of the number of subject-matter content standards that could be effectively taught during a Montana student's K-12 schooling years. The McREL researchers have concluded that a number of subject-matter content standards might be combined and thus increase the number of subject-matter content standards that could be included in the K-12 school curriculum. It is suggested

that because a number of subject-matter areas overlap and academic instruction is often integrated into various subject-matter areas that an overlap adjustment factor be considered. This overlap adjustment factor is simply arbitrary but would increase the number of McREL subject-matter content standards that could be included in the K-12 school curriculum. McREL researchers in their national study used an overlap adjustment factor of 20 percent that increased the number of content standards that could be taught by 27 in their study. Table 30 reflects a similar overlap factor of 20 percent and extends the subject-matter content standards that could be included in a Montana K-12 school curriculum from 120 to 144.

Table 30. Comparative Influence of Subject-Matter Areas on the Montana School Curriculum if Cut-Point 144 Is Used to Determine Curriculum Content.

| Subject-Matter Area | # of McREL Standards | # of Standards Selected | % of McREL Standards | % of Montana Curriculum |
|--------------------------|----------------------|-------------------------|----------------------|-------------------------|
| Health | 10 | 10 | 100% | 6.9% |
| Life Skills | 19 | 19 | 100% | 13.2% |
| Language Arts | 8 | 8 | 100% | 5.6% |
| Thinking and Reasoning | 6 | 6 | 100% | 4.2% |
| Economics | 10 | 9 | 90.0% | 6.3% |
| Science | 16 | 14 | 87.5% | 9.7% |
| Mathematics | 9 | 7 | 77.8% | 4.9% |
| U.S. History | 31 | 24 | 77.4% | 16.7% |
| Civics | 29 | 20 | 69.0% | 13.9% |
| Behavioral Studies | 4 | 2 | 50.0% | 1.4% |
| Physical Education | 5 | 2 | 40.0% | 1.4% |
| Technology | 5 | 2 | 40.0% | 1.4% |
| World History | 46 | 17 | 37.0% | 11.8% |
| Geography | 18 | 3 | 17.0% | 2.1% |
| The Arts | 25 | 1 | 4% | .7% |
| Historical Understanding | 2 | 0 | 0% | 0% |
| Foreign Language | 5 | 0 | 0% | 0% |
| Total | 248 | 144 | 58% | 100% |

Extending the rank-ordered subject-matter content standards list from 120 to 144 resulted in four additional subject-matter areas having 100 percent of their content standards included in a Montana K-12 school curriculum: health, life skills (i.e., working with others, self-regulation, and life work), language arts, and thinking and reasoning. Civics, U.S. history, mathematics, science, and economics now have over 70 percent of their content standards included in the Montana K-12 school curriculum. The arts (i.e., dance, music, theater, and visual), foreign language, behavioral studies, and historical understanding did not benefit greatly from an expanded list of content standards that could be taught.

A cut-point of 144 addresses 58 percent of the total number (248) of content standards in the McREL comprehensive national subject-matter content standards database. Forty-two percent of the McREL subject-matter content standards are not addressed and therefore would not be included in the Montana K-12 school curriculum.

Research Question 3

3. Are the demographic variables of school district classification, gender, age, years of board experience, educational level, occupation, and income level related to Montana school board trustee responses?

A T-test for two independent samples was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of trustee gender and income level within each questionnaire subject-matter area. A one-way analysis of variance was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of

trustee age, school board years of experience, educational level, occupation, and school district classification within each questionnaire subject-matter area (Ferguson, 1989). Bonferroni comparisons were used to initially identify significant differences among means (Wagner, 1992). The Bonferroni method assumes group variances are equal. Tamhane's T2 comparisons were used when Bonferroni comparisons did not identify significant differences in means and group variances were thus assumed to be unequal. Tamhane's T2 comparisons identified where significant differences in means occurred (SPSS Base 10, 1999). Both the T-test for two independent samples and the one-way analysis of variance were tested at the .05 level of significance. Means ranged from 0.0 to 4.0, with a mean approaching 4.0 representing the strongest response rating. The results of the T-test for two independent samples and the one-way analysis of variance for the demographic variables and subject-matter areas in this study are provided in Appendix H.

An analysis of the data did not produce findings significantly different for the demographic variables of school district classification, trustee age, and occupation within any of the McREL subject-matter areas. Significant differences were found for the demographic variables of trustee gender, school board experience, educational level, and income level.

Significant differences were found in Montana school board trustee responses in the subject-matter areas of world history, health, foreign language, civics, life skills (i.e., working with others, self-regulation, and life skills), geography, the arts, and historical understanding for the demographic variable of trustee gender. Female trustees rated all subject-matter areas significantly higher than male trustees, with the exception of the

historical understanding. Male trustees rated the subject-matter area of historical understanding significantly higher than female trustees. Table 31 identifies the means for each of the subject-matter areas where there was a significant difference in means for the demographic variable of trustee gender.

Table 31. Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Gender.

| Subject-Matter Area | Gender | |
|--------------------------|---------------|-----------------|
| | Male Trustees | Female Trustees |
| World History | 2.9409 | 3.2125 |
| Health | 3.4635 | 3.7685 |
| Foreign Language | 2.5898 | 2.9378 |
| Civics | 3.2759 | 3.5195 |
| Life Skills | 3.4157 | 3.6250 |
| Geography | 2.9026 | 3.2337 |
| The Arts | 2.3974 | 2.7475 |
| Historical Understanding | 3.6660 | 3.3860 |

Significant differences were found in Montana school board trustee responses in the subject-matter areas of world history and technology for the demographic variable of trustee income level. Trustees with incomes of less than \$50,000 rated technology significantly higher than trustees with incomes of \$50,000 or more. Trustees with incomes of \$50,000 or more rated world history significantly higher than trustees with incomes of less than \$50,000. Table 32 identifies the means for each of the subject-matter areas where there was a significant difference in means for the demographic variable of trustee income level.

Table 32. Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Income Level.

| Subject-Matter Area | <u>Income Level</u> | |
|---------------------|---------------------|---------------------|
| | Less than \$ 50,000 | More than \$ 50,000 |
| World History | 2.8094 | 3.1272 |
| Technology | 3.4320 | 3.1854 |

A significant difference was found in Montana school board trustee responses in the subject-matter area of health for the demographic variable of trustee years of school board experience. Trustees with 0-3 years of school board experience rated health significantly higher than trustees with 7-10 years of school board experience. Table 33 identifies the means for each of the age categories for the subject-matter of health.

Table 33. Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Years of School Board Experience.

| Subject-Matter Area | <u>Years of School Board Experience</u> | | | |
|---------------------|---|--------|--------|--------|
| | 0-3 | 4-6 | 7-10 | 11+ |
| Health | 3.6606 | 3.4266 | 3.1250 | 3.6818 |

Significant differences were found in Montana school board trustee responses in the subject-matter area of U.S. history, physical education, and science for the demographic variable of trustee educational level. Trustees with only a high school education and trustees with university undergraduate work or degrees rated U.S. history significantly higher than trustees with trade, technical, or vocational training beyond high

school. Trustees with only a high school education rated physical education significantly higher than trustees with university graduate work or degrees. Trustees with only a high school education and trustees with university undergraduate and graduate work or degrees rated science significantly higher than trustees with trade, technical, or vocational training beyond high school. Trustees with undergraduate university work or degrees rated science significantly higher than trustees with some community or junior college work. Table 34 identifies the means for each of the educational level categories for the subject-matter of U.S. history, physical education, and science.

Table 34. Means for Subject-Matter Areas Where a Significant Difference Was Identified for the Demographic Variable of Trustee Educational Level.

| Subject-Matter Area | <u>Educational Level</u> | | | | |
|---------------------|--------------------------|--------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 |
| U.S. History | 3.5146 | 3.0405 | 3.2641 | 3.5238 | 3.3082 |
| Physical Education | 3.3776 | 2.8182 | 2.9711 | 3.2005 | 2.9008 |
| Science | 3.4714 | 2.8529 | 3.2624 | 3.6239 | 3.3997 |

Key

- 1 - High school graduate
- 2 - Trade, technical, or vocational training beyond high school
- 3 - Some college, including community or junior college
- 4 - Undergraduate college work or undergraduate university degree
- 5 - Graduate school work or university graduate degree

The analysis of the data relating to research question 3 produced the greatest number of significant differences for the demographic variable of trustee gender. Eight of the 14 significant differences found when examining the relationship between the demographic variables of school district classification, trustee gender, age, years of school board experience, educational level, occupation, and income level and the rating

means of Montana school board trustees in 17 McREL subject-matter areas were associated with trustee gender. Female trustees rated seven of eight subject-matter areas significantly higher than did male trustees. The demographic variable of trustee educational level had three subject-matter areas with significant differences, with trustees with only a high school education and trustees with undergraduate and graduate university work and degrees rating three subject-matter areas significantly higher than trustees with trade, technical, or vocational training beyond high school. Trustee income level produced two significant findings, and trustee school board years of experience produced one.

Research Question 4

4. What do Montana school board trustees perceive the main goal of education to be and are the demographic variables of school district classification, gender, age, years of board experience, educational level, occupation, and income level related to those perceptions?

Montana school board trustees in this study were asked to rate three main goals for public education. One main goal indicated that public schools should provide the knowledge that helps individual students obtain meaningful employment. A second main goal indicated that public schools should provide the knowledge that helps individual students have a well-rounded and productive life. The third main goal indicated that public schools should provide the knowledge that allows our country to acquire and maintain a competitive edge. Montana school board trustees rated each of the three main goals as either definitively, probably, probably not, or definitely not a main goal of public

education. Table 35 identifies the rank-ordering of the three main educational goals based on the average frequency of definitely a main goal responses. The average percentage of total definitely a main goal responses is also provided. Table 35 indicates that Montana school board trustees believe the main goal for public education is to provide the knowledge that helps individual students have a well-rounded and productive life.

Table 35. Rank-Ordering of Educational Goals Based on Average Frequency of Definitely a Main Goal Responses from Montana School Board Trustees and Average Percentage of Total.

| Rank | Educational Goals | Average Frequency of Definitely a Main Goal Responses | % of Total |
|------|---|---|------------|
| 1 | Provide knowledge that helps individual students have a well-rounded and productive life. | 52.3 | 84.7% |
| 2 | Provide knowledge that helps students obtain meaningful employment. | 42 | 68.7% |
| 3 | Provide knowledge the allows our country to acquire and maintain a competitive edge. | 27 | 44.1% |

A T-test for two independent samples was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of trustee gender and income level within each questionnaire for the main goal questions. A one-way analysis of variance was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of trustee age, school board years of experience, educational level, occupation,

and school district classification within each questionnaire for the main goal questions. Bonferroni comparisons were used to initially identify significant differences among means. The Bonferroni method assumes group variances are equal. Tamhane's T2 comparisons were used when Bonferroni comparisons did not identify significant differences in means and group variances were thus assumed to be unequal. Tamhane's T2 comparisons identified where significant differences in means occurred (SPSS Base 10, 1999). Both the T-test for two independent samples and the one-way analysis of variance were tested at the .05 level of significance. Means ranged from 0.0 to 4.0, with a mean approaching 4.0 representing the strongest response rating. The results of the T-test for two independent samples and the one-way analysis of variance for the demographic variables and main educational goal questions in this study are provided in Appendix I.

An analysis of the data did not produce findings that were significantly different for the demographic variables of trustee gender, age, and income level for any of the main educational goal questions. Significant differences were found for the demographic variables of school district classification, trustee years of board experience, educational level, and occupation.

Significant differences were found in Montana school board trustee responses in questionnaire groups one and two for the demographic variable of school district classification. In questionnaire group one, Montana school board trustees in third class school districts rated the educational goal that indicates education should provide knowledge that allows our country to acquire and maintain a competitive edge significantly higher than trustees in first class school districts. Table 36 identifies the

response means for Montana school board trustees in questionnaire group one where there was a significant difference in means for the demographic variable of school district classification.

Table 36. Questionnaire Group One: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School District Classification.

| Educational Goal | <u>School District Classification</u> | | |
|--|---------------------------------------|--------------|-------------|
| | First Class | Second Class | Third Class |
| Provide knowledge that allows our county to acquire and maintain a competitive edge. | 2.571 | 3.513 | 3.3333 |

In questionnaire group two, Montana school board trustees in first class school districts rated both the goal that indicates education should provide knowledge that helps individual students obtain meaningful employment and the goal that indicates education should provide knowledge that helps individual students have a well-rounded and productive life significantly higher than trustees in second class school districts. In questionnaire group two, Montana school board trustees in third class school districts rated both the goal that indicates education should provide knowledge that allows our country to acquire and maintain a competitive edge and the goal that indicates education should provide knowledge that helps individual students have a well-rounded and productive life significantly higher than trustees in second class school districts. Table 37 identifies the response means for Montana school board trustees in questionnaire group two where there was a significant difference in means for the demographic variable of school district classification.

Table 37. Questionnaire Group Two: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School District Classification.

| Educational Goals | School District Classification | | |
|---|--------------------------------|--------------|-------------|
| | First Class | Second Class | Third Class |
| Provide knowledge that helps individual students obtain meaningful employment. | 3.7500 | 2.7083 | 3.7097 |
| Provide knowledge that helps individual students have a well-rounded and productive life. | 3.8462 | 3.0417 | 3.8710 |
| Provide knowledge that allows our county to acquire and maintain a competitive edge. | 3.2500 | 2.6250 | 3.3548 |

Significant differences were found in Montana school board trustee responses in questionnaire group four for the demographic variable of trustee school board years of experience. Montana school board trustees in first class school districts rated the educational goal that indicates education should provide knowledge that helps individual students obtain meaningful employment significantly higher than trustees in second class school districts. Montana school board trustees in first class school districts rated the educational goal that indicates education should provide knowledge that allows our country to acquire and maintain a competitive edge significantly higher than trustees in third class school districts. Table 38 identifies the response means for Montana school board trustees in questionnaire group four where there was a significant difference in means for the demographic variable of trustee school board years of experience.

Table 38. Questionnaire Group Four: Means for Main Educational Goals Where a Significant Difference Was Identified for the Demographic Variable of School Board Years of Experience.

| Educational Goals | School Board Years of Experience | | | |
|---|----------------------------------|--------|--------|--------|
| | 0-3 | 4-6 | 7-10 | 11+ |
| Provide knowledge that helps individual students obtain meaningful employment. | 3.8750 | 3.4167 | 3.6000 | 3.5000 |
| Provide knowledge that allows our country to acquire and maintain a competitive edge. | 3.5938 | 2.9167 | 2.8000 | 3.0000 |

Although the analysis of variance indicated a significant difference for the demographic variables of trustee educational level and occupation, Bonferroni and Tamhane's T2 comparison tests were not able to be performed for any of the educational goals where a significant difference was identified because at least one demographic variable attribute had fewer than two Montana school board trustees responding. Table 39 identifies the response means for Montana school board trustees in questionnaire group three where there was a significant difference in means for the demographic variable of trustee educational level. The means are provided for comparison purposes and do not identify where significant differences occur. Table 40 identifies the response means for Montana school board trustees in questionnaire group three where there was a difference in means for the demographic variable of trustee occupation.

Table 39. Questionnaire Group Three: Means for Main Educational Goals for the Demographic Variable of Trustee Educational Level.

| Educational Goals | Trustee Educational Level | | | | | |
|---|---------------------------|-------------------|------------------|-------------------|-------------------|-------------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Provide knowledge that helps individual students obtain meaningful employment. | 1.0000 (n= 1) | 3.5833 (n= 12) | 3.3333 (n= 6) | 3.7500 (n= 16) | 3.4375 (n= 16) | 3.3000 (n= 10) |
| Provide knowledge that helps individual students have a well-rounded and productive life. | 1.0000 (n= 1) | 3.4167 (n= 12) | 3.2857 (n= 7) | 4.0000 (n= 16) | 3.6875 (n= 16) | 4.0000 (n= 10) |
| Provide knowledge that allows our country to acquire and maintain a competitive edge. | 1.0000 (n= 1) | 3.3333 (n= 12) | 3.0000 (n= 6) | 3.5000 (n= 16) | 3.0625 (n= 16) | 3.1000 (n= 10) |

Key

- 1 - Some high school
- 2 - High school graduate
- 3 - Trade, technical, or vocational training beyond high school
- 4 - Some college, including community or junior college
- 5 - Undergraduate college work or undergraduate university degree
- 6 - Graduate school work or university graduate degree

Table 40. Questionnaire Group Three: Means for Main Educational Goals for the Demographic Variable of Trustee Occupation.

| Educational Goal: Provide knowledge that helps individual students have a well-rounded and productive life. | |
|---|----------------|
| Occupations | Means |
| Agriculture, forestry, and fishing | 3.4118 (n= 17) |
| Mining | 4.0000 (n= 1) |
| Construction | 3.6667 (n= 6) |
| Manufacturing | 4.0000 (n= 1) |
| Finance, insurance, and real estate | 3.0000 (n= 3) |
| Transportation, communications, electric, gas, and sanitary services | 2.5000 (n= 2) |
| Wholesale trade | 4.0000 (n= 1) |
| Retail trade | 4.0000 (n= 1) |
| Services | 3.7500 (n= 12) |
| Public administration | 3.5000 (n= 4) |
| Homemaker | 3.5000 (n=2) |
| Nonclassifiable | 3.2857 (n=7) |

Research Question 5

5. What are the similarities and dissimilarities between the findings of the McREL 1998 survey study and this study?

Table 41 compares responses of American adults included in the McREL/Gallup 1998 survey study by and responses of Montana trustees included in this study. Table 41 identifies the number and percentage of McREL content standards to be included in a school curriculum if an overlap cut-point of 144 was used to determine which McREL standards all students should master prior to high school graduation. Table 41 also identifies the percentage of the school curriculum that would be devoted to each McREL subject-matter area based on the number of content standards in each subject-matter area.

Table 41. Comparison of Number and Percentage of McREL Subject-Matter Content Standards and Percentage of Total Curriculum with a 144 Overlap Cut-Point.

| Subject-Matter Area | # of McREL Standards | 1998 McREL/Gallup National Study | | | 2001 Montana School Board Study | | |
|--------------------------|----------------------|----------------------------------|------|------|---------------------------------|------|------|
| | | # | % | TC% | # | % | TC% |
| Health | 10 | 10 | 100% | 7% | 10 | 100% | 7% |
| Life Skills | 19 | 19 | 100% | 13% | 19 | 100% | 13% |
| Language Arts | 8 | 8 | 100% | 6% | 8 | 100% | 6% |
| Technology | 5 | 5 | 100% | 4% | 2 | 40% | 1% |
| Behavioral Studies | 4 | 4 | 100% | 3% | 2 | 50% | 1% |
| U.S. History | 31 | 28 | 90% | 19% | 24 | 77% | 17% |
| Science | 16 | 12 | 75% | 8% | 14 | 88% | 10% |
| Mathematics | 9 | 6 | 67% | 4% | 7 | 78% | 5% |
| Thinking and Reasoning | 6 | 4 | 67% | 3% | 6 | 100% | 4% |
| Civics | 29 | 19 | 66% | 13% | 20 | 69% | 14% |
| Physical Education | 5 | 3 | 60% | 2% | 2 | 40% | 1% |
| Economics | 10 | 5 | 50% | 4% | 9 | 90% | 6% |
| Historical Understanding | 2 | 1 | 50% | 1% | 0 | 0% | 0% |
| Geography | 18 | 6 | 33% | 4% | 3 | 17% | 2% |
| World History | 46 | 14 | 30% | 10% | 17 | 37% | 12% |
| Foreign Language | 5 | 0 | 0% | 0% | 0 | 0% | 0% |
| The Arts | 25 | 0 | 0% | 0% | 1 | 4% | 1% |
| Total | 248 | 144 | | 100% | 144 | | 100% |

Both studies indicate all content standards in the subject-matter areas of health, life skills, and language arts would be included in the school curriculum. The McREL/ Gallup national survey study would also include all the content standards in the subject-matter areas of technology and behavioral studies, while this study would also include all the content standards in the area of thinking and reasoning. The McREL/ Gallup national survey study would not include any foreign language or arts content standards within the overlap cut-point of 144. This study would not include foreign language or historical understanding content standards, and would include only one arts content standard within the overlap cut-point of 144. The percentage of the total school curriculum that would be devoted to each subject-matter area when both studies are compared reveals little difference. The area of technology represents the largest percentage range between both studies, a range of three percent. Sixteen out of the 17 McREL areas in this study have percentage range differences of two percent or less. Of the highest rated 144 subject-matter area content standards in the McREL/Gallup national survey study, 129 (89.6%) are common to those in the highest rated content standards in this study.

Table 42 compares the ranking of subject-matter areas by percentage of definitely necessary responses for each of the 248 McREL comprehensive national subject-matter content standards surveyed in this study. The subject-matter area of health received the highest number of definitely necessary responses and the areas of geography, foreign language, and the arts the fewest in both studies. Thirteen of 15 McREL areas in the McREL/Gallup national study received a higher percentage of definitely necessary responses than the same subject-matter areas in this study. The areas of technology and

behavioral studies received a higher percentage of definitely necessary responses in this study than in the McREL/Gallup national study. The greatest range in the percentage of definitely necessary responses between common subject-matter areas in both studies was in the area of behavioral studies, a range of 14.4 percent. The average range in the percentage of definitely necessary responses between common areas in both studies was 6.04 percent. Five of the 15 McREL areas received the same rank in each study, four areas were within one rank, and the remaining six areas were within two ranks.

Table 42. Comparison of Ranking of Subject-Matter Areas by Percentage of Definitely Necessary Responses.

| <u>1998 McREL/Gallup National Study</u> | | | <u>2001 Montana School Board Trustee Study</u> | | |
|---|---|-------|--|---|-------|
| Rank | Subject-Matter Area | % | Rank | Subject-Matter Area | % |
| 1 | Health | 73.9% | 1 | Health | 63.8% |
| 2 | Life Skills | 62.6% | 2 | Language Arts | 57.7% |
| 3 | Language Arts | 59.4% | 3 | Life Skills | 56.6% |
| 4 | Technology | 57.4% | 4 | Mathematics | 56.4% |
| 5 | Mathematics | 50.15 | 5 | Thinking and Reasoning | 49.2% |
| 6 | Science | 49.9% | 6 | Technology | 47.8% |
| 7 | Thinking and Reasoning | 49.8% | 7 | Science | 47.2% |
| 8 | Civics | 48.7% | 8 | Civics | 46.3% |
| 9 | Behavioral Studies | 48.2% | 9 | Economics | 44.5% |
| 10 | Physical Education | 44.2% | 10 | U.S. History/ World History/ Historical Understanding | 37.5% |
| 11 | Economics | 42.5% | 11 | Behavioral Studies | 34.3% |
| 12 | U.S. History/ World History/ Historical Understanding | 40.8% | 12 | Physical Education | 32.5% |
| 13 | Geography | 38.8% | 13 | Geography | 32.4% |
| 14 | Foreign Language | 26.7% | 14 | Foreign Language | 16.1% |
| 15 | The Arts | 15.5% | 15 | The Arts | 12.6% |

Table 43 compares the number and percentage of McREL content standards that were identified in the McREL national survey study and this study as definitely necessary for all students to master by 50 percent or more of the respondents. The subject-matter area of health was the only common subject-matter area in both studies to have all its content standards identified as definitely necessary for all students to master. The subject-matter areas of foreign language and the arts did not have any of their content standards identified as definitely necessary by any of the respondents in both studies. Of the 248 McREL subject-matter content standards that respondents were asked to rate in both studies, 102 subject-matter content standards were identified as definitely necessary for all students to master in the McREL/Gallup national survey study, and 87 in this study. The greatest range in the number of subject-matter content standards that were identified as definitely necessary within each subject-matter area between both studies was five in the combined subject-matter areas of U.S. history, world history, and historical understanding. The 14 remaining common subject-matter areas had a range of three or less subject-matter content standards that received a definitely necessary response across both studies.

Table 44 compares the top 25-ranked subject-matter content standards based on the percentage of definitely necessary responses in both the McREL/Gallup national survey study and this study. Of the subject-matter areas that are represented by each of the top 25 subject-matter content standards, nine out of ten are common in both studies. The subject-matter area of science does not have a content standard in the top 25 in the McREL/Gallup national survey study but has two content standards included in the top 25

Table 43. Comparison of Number and Percentage of McREL Content Standards Identified as Definitely Necessary for Students to Master by 50 Percent or More of the Respondents.

| Subject-Matter Area | 1998 McREL/Gallup National Study | | 2001 Montana School Board Trustee Study | |
|---|----------------------------------|------------|---|------------|
| | Number | Percentage | Number | Percentage |
| Health | 10 | 100% | 10 | 100% |
| Life Skills | 19 | 100% | 16 | 84.2% |
| Language Arts | 6 | 75.0% | 5 | 62.5% |
| Mathematics | 4 | 44.0% | 5 | 55.6% |
| Thinking and Reasoning | 3 | 50.0% | 3 | 50.0% |
| Economics | 2 | 20.0% | 4 | 40.0% |
| Technology | 2 | 40.0% | 2 | 40.0% |
| Civics | 13 | 44.8% | 11 | 37.9% |
| U.S. History/World History/ Historical Understanding | 28 | 35.4% | 23 | 29.1% |
| Science | 8 | 50.0% | 5 | 31.3% |
| Geography | 4 | 22.2% | 3 | 16.7% |
| Behavioral Studies | 1 | 25.0% | 0 | 0% |
| Physical Education | 2 | 40.0% | 0 | 0% |
| Foreign Language | 0 | 0% | 0 | 0% |
| The Arts | 0 | 0% | 0 | 0% |
| Total | 102 | | 87 | |

Table 44. Comparison of Top 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses.

| 1998 McREL/Gallup National Study | | 2001 Montana School Board Trustee Study | |
|----------------------------------|--------------------------|---|--------------------------|
| Subject-Matter Area | Top 25 Content Standards | Subject-Matter Area | Top 25 Content Standards |
| Health | 9 (90%) | U.S. History | 4 (16%) |
| Life Skills | 5 (26%) | Civics | 4 (16%) |
| Technology | 3 (60%) | Life Skills | 4 (16%) |
| U.S. History | 2 (7%) | Mathematics | 3 (12%) |
| Mathematics | 2 (22%) | World History | 2 (8%) |
| Language Arts | 1 (13%) | Health | 2 (8%) |
| Geography | 1 (6%) | Science | 2 (8%) |
| World History | 1 (2%) | Technology | 2 (8%) |
| Civics | 1 (4%) | Language Arts | 1 (4%) |
| | | Geography | 1 (4%) |

in this study. The greatest range in the number of content standards that are included in the top 25 for any given subject-matter area is seven for the subject-matter area of health. Respondents in the McREL/Gallup national survey study included 90 percent of the total number of health content standards in the top 25, while respondents in this study included two content standards, or eight percent. There were three more civics content standards, two more U.S. history and science content standards, and one more mathematics, world history and technology standards included in the top 25 in this study. There was one more technology and world history included in the top 25 in the McREL/Gallup national survey study than in this study. Both language arts and geography had an equal number of content standards in the top 25 in both studies.

Table 45 compares the bottom 25-ranked subject-matter content standards based on the percentage of definitely necessary responses in both the McREL/Gallup national survey study and this study. Of the subject-matter areas that are represented by each of the bottom 25 subject-matter content standards, three out of five are common in both studies. The subject-matter areas of physical education and geography do not have a content standard in the bottom 25 in the McREL/Gallup national survey study, but each has one content standard included in the bottom 25 in this study. The greatest range in the number of content standards that are included in the bottom 25 for any given subject-matter area is two for the subject-matter area of world history.

Table 45. Comparison of Bottom 25 Ranked Content Standards Based on Percentage of Definitely Necessary Responses.

| <u>1998 McREL/Gallup National Study</u> | | <u>2001 Montana School Board Trustee Study</u> | |
|---|-------------------|--|-------------------|
| Bottom 25 | | Bottom 25 | |
| Subject-Matter Area | Content Standards | Subject-Matter Area | Content Standards |
| World History | 9 (20%) | The Arts | 14 (56%) |
| The Arts | 15 (60%) | World History | 7 (28%) |
| Foreign Language | 1 (20%) | Foreign Language | 2 (8%) |
| | | Physical Education | 1 (4%) |
| | | Geography | 1 (4%) |

Table 46 compares the rank-order of the three main educational goals based on the average percentage of respondents who indicated the educational goal was definitely a main educational goal in the McREL/Gallup national survey study and this study. The rank-ordering of the three main educational goals was the same in both studies. Table 45 indicates that, based on the number of definitely a main goal responses, Montana school board trustees rated each of the three educational goals lower than McREL/Gallup respondents. The range in percentage of respondents indicating an educational goal as being definitely a main educational goal between the top ranked main educational goal and the bottom ranked educational goal in both studies was virtually identical, approximately 40 percent.

Table 46. Comparison of Rank-Ordering of Educational Goals Based on Average Percentage of Respondents Indicating an Educational Goal as Definitely a Main Educational Goal.

| Rank | Educational Goals | 1998 McREL/Gallup National Study | 2001 Montana School Board Trustee Study |
|------|---|----------------------------------|---|
| 1 | Provide knowledge that helps individual students have a well-rounded and productive life. | 89% | 84.7% |
| 2 | Provide knowledge that helps students obtain meaningful employment. | 79% | 68.7% |
| 3 | Provide knowledge the allows our country to acquire and maintain a competitive edge. | 59% | 44.1% |

Montana school board trustees were asked to determine the relative importance of 248 McREL subject-matter content standards. Their efforts resulted in the rank-ordering of the 248 McREL standards from those Montana school board trustees determined were definitely necessary to those definitely not necessary for all Montana students to master prior to high school graduation. Montana school board trustees were also asked to rate the relative importance of three educational goals. The results from this rating allowed for the rank-ordering of the educational goals from the most important to the least important.

Montana school board trustee demographic information was collected and analyzed to determine if trustee responses were related to the rank-ordering of the 248 McREL subject-matter content standards and the educational goals. Finally, the results

from the 1998 McREL and Gallup national survey study were compared with the findings of this study to identify similarities and dissimilarities. The findings from the analysis of each of the research questions posed in this study have been presented in this chapter.

The conclusions from the interpretation of the results in this chapter and their implications are presented in the next chapter.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

The problem of this study was there is not sufficient academic instructional time within a Montana student's K-12 schooling years to master all the content knowledge and skills identified in the McREL comprehensive national subject-matter content standards database. Montana school board trustees have a responsibility and duty to identify the essential subject-matter content knowledge and skills they believe all their students should master prior to high school graduation. Given the reality that there is not sufficient academic instructional time for Montana students to master all the McREL national subject-matter content standards, which of the content standards in the McREL comprehensive national subject-matter content standards database do Montana school board trustees perceive to be essential for all Montana students to master prior to high school graduation?

The purpose of this study was to identify which of the national subject-matter content standards identified in the McREL comprehensive national subject-matter content standards database Montana school board trustees believe are essential for all Montana students to master prior to high school graduation, and if the demographic variables of school district classification, gender, age, years of board experience,

educational level, occupation, and income level were related to trustee responses. Montana school board trustees were also asked to identify what they believed the main goal of education should be. Finally, this study compared the findings of the 1998 McREL/Gallup national survey study with the findings of this study to determine if there were any similarities or dissimilarities in the relative importance assigned to each of the subject-matter areas, content standards, and main goals of education.

Summary of Study

The national content standards movement is generally recognized as having begun with the release of The National Commission on Excellence in Education's report, A Nation at Risk, in 1983. The report was not kind to public education, citing overwhelming evidence that America's public schools were not effectively teaching all children well. The report called on the American people to immediately and seriously seek ways to reform America's public schools.

As states and local school districts responded to the multitude of scathing and blistering national educational reports that soon followed the A Nation at Risk report, states and local school districts began to critically review and revise their curriculum documents. One national report or commission after another throughout the final two decades of the 20th century continued to question the quality of America's K-12 public schools and the nation's ability to educate its youth for a rapidly changing global economy. The lack of world-class and demanding subject-matter content standards in the nation's public school curriculums was often cited as a reason for the continuing poor performance of American students on international tests of academic achievement.

In 1989 President Bush and the 50 state governors met at an educational summit and identified six national educational goals they believed needed to be achieved by the year 2000 if America was to effectively compete economically in the international community. Two of the six national educational goals addressed the need to ensure the American public school curriculum contained demanding and challenging subject-matter content. State and local school district leaders were challenged by summit attendees to immediately begin identifying and defining explicit content standards in all the major subject-matter areas that described the essential content knowledge and skills all American students should master prior to high school graduation, and that would help the nation achieve the six national educational goals.

The National Educational Goals Panel (NEGP) was created following the educational summit to assist states in determining and defining what academic content knowledge and skills should be deemed essential for all American students to know and be able to do. Much of the national funding and support for the development of content standards within each of the various subject-matter areas originated with the NEGP. The efforts of the NEGP to assist national subject-matter area specialists and organizations to develop world-class content standards that identified and defined what all American students should know and be able to do prior to high school graduation was viewed by most states and local school districts as an intrusion into an educational area historically and constitutionally deferred to each of the states and their local school districts. The various national subject-matter curriculum documents that were developed were collectively considered to represent a national curriculum.

Although NEGP helped fund and support the development of many of the national subject-matter curriculum documents that identified the essential subject-matter content knowledge and skills, the NEGP recommended the national subject-matter content standards be voluntary and not be mandated. NEGP recommended the subject-matter content standards be used when state and local school district curriculum planners review, revise, and develop their respective curriculums.

The National Council of Teachers of Mathematics (NCTM) was the first national subject-matter organization to identify the specific content standards and benchmarks all American students should master in a subject-matter area. In 1989 in Curriculum and Evaluation Standards for School Mathematics, NCTM identified the essential content knowledge and skills all American students should master in mathematics. The NCTM mathematics curriculum document provided a curricular design and format that was soon adopted by many other subject-matter areas as they began work on identifying and defining the essential content knowledge and skills all American students should master in their respective subject-matter areas. By 1997, 14 subject-matter areas had followed NCTM's lead and had developed and published content standards and benchmarks in their respective subject-matter areas (Table 1).

In 1990, researchers from the Mid-Continent Regional Educational Laboratory (McREL) began reviewing the national content standards in those subject-matter areas that had produced and released curriculum documents identifying essential learnings. A synthesis of the subject-matter curriculum documents by McREL researchers eventually culminated with the 1997 publication of Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education (Table 2). Content Knowledge contains

the content standards and benchmarks for 14 subject-matter areas and is generally recognized to be a comprehensive national subject-matter content standards database. There is consensus among the various national subject-matter area specialists and organizations that the McREL comprehensive national subject-matter content standards database represents the essential content knowledge and skills all American students should master prior to high school graduation. The McREL database contains 256 content standards and 3,093 benchmarks in 14 subject-matter areas (Table 3).

A concern often raised regarding the national content standards and benchmarks that each of the various subject-matter areas have identified as being essential for all American students to master is the amount of academic instructional time needed to effectively teach all of them. Is there enough academic instructional time in an American student's 13 years of schooling to master all the content standards and benchmarks contained within the McREL database? McREL researchers, based on their examination of the length of the typical American school year and the time devoted to the direct instruction of academic content and skills in a school day, determined there were approximately 9,042 hours available in a student's K-12 schooling years for academic instruction.

McREL researchers then determined the amount of time needed to teach all the various subject-matter content standards and benchmarks in the McREL database. They concluded it would take 15,465 hours to teach all the content standards and benchmarks in the McREL content standards database (Table 5). When comparing the academic instructional time available and the time needed to teach all 256 McREL subject-matter content standards, it is apparent there is not sufficient instructional time for students to

master all the content standards and benchmarks contained in the McREL database. In fact, McREL researchers indicated it would take 22 years of schooling, instead of the current 13, for all the content standards and benchmarks in the McREL database to be effectively taught and mastered by all American students.

Given the reality that there is not sufficient time in an American student's K-12 schooling years to effectively be taught all the content standards in the McREL database, which of 256 McREL content standards should be taught and mastered by American students prior to high school graduation? In 1998 McREL and the Gallup Organization conducted a national survey study to address this question and to determine which of the McREL subject-matter content standards American adults believed were definitely necessary for all American students to master, and which standards they believed were not essential. The analysis of the McREL/Gallup national survey study allowed McREL researchers to rank-order 248 McREL standards from the most important to the least important, from 1 to 248, based on their relative importance.

As a result of the 9,042 hours limitation and a calculation of the amount of time to teach any given McREL subject-matter content standard, McREL researchers determined that rank-ordered content standard 133 would be reached at approximately 9,042 hours. The subject-matter content standards from 1 to 133, therefore, could be included in the American school curriculum, while the content standards from 134 to 248 could not. The major finding from the McREL/Gallup national survey study addressed the issue of which subject-matter areas would receive the most curricular focus and which would not as a result of the rank-ordering of the subject-matter content standards by American adults. The subject-matter areas of health, life skills, and technology were considered to

be the most important subject-matter areas with all of their content standards included in the top 1-133 rank-ordering. Foreign language and the arts were considered to be the least important subject-matter areas with none of their content standards included in the top 1-133 rank-ordering (Table 7).

The McREL/Gallup national survey study also asked American adults to identify what they believed the main goal of education should be. Eighty-nine percent indicated the main goal of education should be to provide the knowledge that helps individual students have a well-rounded and productive life. Seventy-nine percent indicated the main goal of education should be to provide the knowledge that helps individual students obtain meaningful employment. Fifty-nine percent indicated the main goal of education should be to provide knowledge that allows our country to acquire and maintain a competitive edge.

Montana's efforts to reform its state's curriculum documents began in earnest in 1986 with the Project Excellence educational summit in Helena, Montana. Although curriculum reform recommendations were identified during the summit, efforts to reform the Montana state curriculum documents have been painfully slow in developing. The annual analysis of Montana's efforts to reform its state curriculum documents by several national educational groups clearly indicates Montana still has a long way to go to meet the challenge of identifying rigorous and demanding world-class subject-matter content standards of any practical value for local school district curriculum planners. In fact, local school district curriculum planners would better address the educational needs of their students and communities by taking the initiative to develop their own subject-matter content standards by seriously considering consulting and using the work of the

national subject-matter area organizations. The failing grades Montana continually receives for their curriculum reform efforts, nearly 16 years after the adjournment of Project Excellence, should cause local school district curriculum planners to have little confidence and faith in the quality of the subject-matter content standards currently provided in state curriculum documents.

Montana school board trustees are responsible for assisting in the development and evaluation of their local school curriculums. That responsibility includes identifying and defining the essential content knowledge and skills all their students should master in each subject-matter area prior to high school graduation. Because the McREL content standards are generally recognized as representing a consensus among national subject-matter specialists and organizations as to the essential content knowledge and skills all American students should master, Montana school board trustees should logically consider using the McREL database to help identify and define the subject-matter content knowledge and skills they believe all their students should master prior to high school graduation.

Montana school board trustees governing in public school systems that combine an elementary (K-8) school district with a high school (9-12) district for administrative purposes and retain a single school superintendent to administrate both school districts were selected to participate in this descriptive study. The population of the study consisted of 925 Montana school board trustees representing 160 K-12 Montana public school systems and enrolling 138,381 students in grades K-12 during the 2000-2001 school year (Appendix A).

A four-questionnaire design that was developed by researchers at McREL and Gallup was used in this study. Questionnaires were used to gather information pertaining to the relative importance of each of the McREL content standards in 16 subject-matter related areas. Each of the four questionnaires addressed several different subject-matter areas (Table 6 and Appendix B). Montana school board trustees were asked to identify if they believed a McREL subject-matter content standard was either definitely, probably, probably not, or definitely not necessary for all Montana students to master prior to high school graduation. Trustees were also asked to rate the relative importance of three questions pertaining to the main goals of education using the same rating scale used for determining the relative importance of the McREL subject-matter content standards.

Although this study was designed to closely replicate the 1998 McREL/Gallup national survey study, two modifications to the data gathering survey questionnaires were made. The first modification was to eliminate the response rating scale option of don't know. Montana school board trustees were given four response rating scale options. The choice to choose don't know was not provided.

The second change to the data gathering survey instrument was in the demographic variables identified for analysis. Similar to the demographic variables used in the McREL/Gallup national survey study, Montana school board trustees were asked to provide demographic information pertaining to trustee gender, age, educational level, and income level. In addition to the McREL/Gallup demographic variables, Montana school board trustees were also asked to provide demographic information pertaining to years of school board experience and occupation. The size of the school system trustees governed in was also used in the analysis of the demographic data. Demographic

variables were analyzed to determine if trustee questionnaire responses for each of the content standards and main educational goal questions were related to the demographic variables.

Each of the four questionnaires was field-tested with Montana school superintendents and school board trustees to determine if any ambiguous questions or formatting problems would either prevent a trustee from completing and returning a questionnaire, or lead to inaccurate information being provided. School superintendents were solicited by telephone and by mail prior to and during the questionnaire distribution and completion process for their assistance in ensuring questionnaires were randomly distributed, collected, and returned within the designated time periods. Two additional follow-up telephone contacts and mailings were made to school districts that did not return at least one completed questionnaire within the established timelines. Two hundred and fifty-six Montana school board trustees representing 112 K-12 public school systems completed and returned a questionnaire and were included in this study.

Montana school board trustees were asked to determine the relative importance of 248 McREL subject-matter content standards. The 248 McREL standards were then rank-ordered from 1 to 248 based on the percentage of Montana school board trustees who identified a standard as definitely necessary for all Montana students to master prior to high school graduation. The rank-ordering of the 248 McREL standards identified which of the McREL subject-matter areas and content standards Montana school board trustees believed were essential for all Montana students to master prior to high school graduation, and which McREL subject-matter areas were not (Appendix G).

Using the McREL research that determined there are only 9,042 hours of academic instructional time in a student's 13 years of public schooling and the estimated time needed to effectively teach any given McREL subject-matter content standard, it was determined that the Montana school curriculum could only include the subject-matter knowledge and skills that were included in the first 120 rank-ordered content standards (Table 29). Because several of the McREL content standards can be taught across subject-matter areas and the cut-point of 120 is considered to be a conservative estimate of the number of McREL subject-matter content standards that could be taught, the rank-ordering was extended by 20 percent, increasing the cut-point to 144. Based on a cut-point of 144, 58 percent of the total number of content standards in the McREL database that were rank-ordered as a result of Montana school board trustees would be included in a Montana K-12 school curriculum.

When examining the 144 subject-matter content standards that were rated by Montana school board trustees and included in a Montana K-12 public school curriculum, the subject-matter areas with 100 percent of their content standards within the 144 cut-point are health, life skills (i.e., working with others, self-regulation, and life work), language arts, and thinking and reasoning. Other subject-matter areas included economics 90 percent, science 87.5 percent, mathematics 77.8 percent, U.S. history 77.4 percent, civics 69 percent, behavioral studies 50 percent, physical education and technology 40 percent, world history 37 percent, geography 17 percent, and the arts 4 percent. The subject-matter areas of foreign language and historical understanding did not have a single content standard within the 144 cut-point (Table 30).

A T-test for two independent samples was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of trustee gender and income level within each questionnaire subject-matter area. A one-way analysis of variance was used to determine if there was a difference in means for Montana school board trustee responses and the demographic variables of trustee age, school board years of experience, educational level, occupation, and school district classification within each questionnaire subject-matter area. Bonferroni and Tamhane's T2 comparisons were used to identify where significant differences among means occurred. Both the T-test for two independent samples and the one-way analysis of variance were tested at the .05 level of significance (Appendix H and I).

The analysis of the data, with regard to the relationship between Montana school board trustee content standards responses and the demographic variables of school district classification, trustee age, gender, years of school board experience, educational level, occupation, and income level, resulted in no significant differences being identified for the demographic variables of school district classification, trustee age and occupation. Significant differences were identified for the demographic variables of trustee gender, years of school board experience, educational level, and income level.

Female trustees rated the subject-matter areas of world history, health, foreign language, civics, life skills (i.e., working with others, self-regulation, and life work), geography, and the arts significantly higher than male trustees. Male trustees rated historical understanding significantly higher than female trustees (Table 31).

Trustees with incomes of less than \$50,000 rated the subject-matter area of technology significantly higher than trustees with incomes of \$50,000 or more. Trustees

with incomes of \$50,000 or more rated the subject-matter area of world history significantly higher than trustees with incomes of less than \$50,000 (Table 32). Trustees with 0-3 years of school board experience rated health significantly higher than trustees with 7-10 years of school board experience (Table 33).

Trustees with only a high school education and trustees with university undergraduate work or a degree rated U.S. history significantly higher than trustees with trade, technical, or vocational training beyond high school. Trustees with only a high school education and trustees with university undergraduate and graduate work or a degree rated science significantly higher than trustees with trade, technical, or vocational training beyond high school. Trustees with university undergraduate work or a degree rated science significantly higher than trustees with some community or junior college work (Table 34).

Montana school board trustees were asked to rate the relative importance of three main goals of education. Eighty-five percent of the trustees identified providing the knowledge that helps individual students have a well-rounded and productive life as the number one main educational goal. Sixty-nine percent of the trustees identified providing the knowledge that helps individual students obtain meaningful employment as the second main goal of education. Forty-four percent of the trustees identified providing the knowledge that allows our country to acquire and maintain a competitive edge as the third main goal of education (Table 35).

The analysis of the data with regard to the relationship between Montana school board trustee responses pertaining to the main goals of education and the demographic variables of school district classification (trustee age, gender, years of school board

experience, educational level, occupation, and income level) resulted in no significant differences being identified for the demographic variables of trustee gender, age, and income level. Significant differences were identified for the demographic variables of school district classification, trustee years of school board experience, educational level, and occupation.

Significant differences were found in Montana school board trustee responses in questionnaire groups one and two for the demographic variable of school district classification. In questionnaire group one, trustees in third class school districts rated the national educational goal of acquiring and maintaining a competitive edge significantly higher than trustees in first class school districts. In questionnaire group two, trustees in first class school districts rated the national educational goal of obtaining meaningful employment and the educational goal of producing a well-rounded and productive citizen significantly higher than trustees in second class school districts (Table 36). Also, in questionnaire group two, trustees in third class school districts rated the national educational goal of acquiring and maintaining a competitive edge and the educational goal of producing a well-rounded and productive citizen significantly higher than trustees in second class school districts (Table 37).

Significant differences were found in Montana school board trustee responses in questionnaire group four for the demographic variable of trustee school board years of experience. Montana school board trustees in first class school districts rated the educational goal of obtaining meaningful employment significantly higher than trustees in second class school districts. Montana school board trustees in first class school

districts rated the educational goal of acquiring and maintaining a competitive edge significantly higher than trustees in third class school districts (Table 38).

When comparing the rank-ordering of the first 144 subject-matter content standards in both the 1998 McREL/Gallup national survey study and this study, the first 144 content standards in the McREL/Gallup study would include all the content standards in the subject-matter areas of health, life skills (i.e., working with others, self-regulation, and life work), language arts, technology, and behavioral science, and would exclude any content standards in the subject-matter areas of foreign language and the arts. In this study, the first 144 content standards would include all the content standards in the subject-matter areas of health, life skills (i.e., working with others, self-regulation, and life work), language arts, and thinking and reasoning, and would exclude any content standards in the subject-matter areas of historical understanding and foreign language (Table 41). One hundred and twenty-nine of the first 144 rank-ordered McREL subject-matter content standards, or 89.6 percent, are common to both studies.

When examining the top and bottom 25 rank-ordered content standards, the major difference was identified in the number of health standards that were in the top 25 in the subject-matter of health. The McREL/Gallup national survey study had nine out of the 10 health content standards in the top 25, while two health content standards were in the top 25 in this study (Table 44).

Conclusions

An examination of the findings for each of the research questions in this study resulted in the following conclusions:

1. If curriculum planners, at both the state and local school district level, who are responsible for identifying and defining the essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation choose to review and consider what Montana school board trustees perceive all Montana students should know and be able to do, they will need to develop a K-12 school curriculum that focuses more on some subjects and content standards and focuses less on others.

When examining the rank-ordering of the first 144 McREL subject-matter content standards, based on Montana school board trustee ratings, the Montana K-12 school curriculum would include 100 percent of all the content standards in the subject-matter areas of health, life skills, language arts, and thinking and reasoning while excluding virtually all of the content standards in historical understanding, foreign language, and the arts. Nearly 56 percent of the Montana K-12 school curriculum would be devoted to teaching the content standards in four subject-matter areas: U.S. history, civics, life skills, and world history. The remaining 44.4 percent of the Montana K-12 school curriculum would be devoted to teaching the content standards in the remaining subject-matter areas of economics, science, mathematics, behavioral science, physical education, technology, and geography (Table 30).

The examination of the percentage of content standards within each subject-matter area that would be included in a K-12 Montana school curriculum also reveals some interesting findings. World history would account for 11.8 percent of the school curriculum but would only include 37 percent of its content standards. Less than 50 percent of the content standards in the subject-matter areas of behavioral studies, physical

education, technology, and geography would be included in the Montana K-12 school curriculum.

2. Not all the demographic variables produced findings that were significant when considering what should and should not be included in a Montana K-12 school curriculum. Although the demographic variables of trustee educational level, years of school board experience, and income level did reveal significant differences, not more than two significant differences were found within any one of them and therefore were considered of little consequence. However, the analysis of the demographic variable of trustee gender resulted in significant differences being identified in eight McREL subject-matter areas. Female trustees rated the academic subject-matter areas of world history, health, foreign language, civics, life skills, geography, and the arts, while male trustees rated historical understanding significantly higher than did female trustees. When examining these significant differences for trustee gender, it is apparent that female trustees see greater value in the content standards within the subject-matter areas of historical understanding, foreign language and the arts, subject-matter areas Montana school board trustees as a collective group have left out of the Montana K-12 school curriculum.

3. When focusing on what the main goal of public education should be, over 84 percent of the Montana school board trustees in this study believe the main goal of education should be to provide the knowledge that helps individual students have a well-rounded and productive life. The main goal associated with providing the knowledge that allows our country to acquire and maintain its competitive edge was a distant third, garnishing only half as much support. Montana school board trustees believe the goal of

meeting the educational needs of the individual student are more important than the economic needs of the nation.

4. Significant differences were identified for trustee gender, years of school board experience, educational level, and occupation within the four questionnaire groups when examining trustee rating responses for the three main educational goals. Although the significant differences were determined by analyzing the differences in rating means, the rank-ordering of the three main goals did not change within any of the four questionnaire groups for any of the significant differences identified for the demographic variables.

5. The findings in the 1998 McREL national survey study and those of this study are more similar than dissimilar. When examining the first rank-ordered 144 McREL subject-matter content standards that would be included in a school curriculum in both studies, nearly 90 percent are common to both studies. The subject-matter areas of health, life skills, and language arts are included in the top three in both studies, and the subject-matter areas of historical understanding, foreign language, and the arts included in the bottom three in both studies. The major difference in the number of content standards that were identified in the top 25 subject-matter content standards between both studies occurred in the subject-matter of health. The McREL/Gallup study included 82 percent more of the health content standards in their top 25 rank-ordering than were included in this study. The rank-ordering of the three main goals for education are identical in both studies with the focus on the individual student far exceeding the need to focus on the economic well-being of the nation.

Recommendations

The analysis of the data in this study allowed for the rank-ordering of 248 McREL subject-matter content standards based on their relative importance as determined by 256 Montana school board trustees governing in 112 Montana K-12 public school districts. When the rank-ordering is examined in light of what is known about the amount of instructional time currently available in Montana public schools and the estimated amount of time required to teach each of the McREL subject-matter content standards, curriculum planners in Montana can consider the findings of this study when deciding what essential subject-matter content knowledge and skills to include in the school curriculum.

For the findings of this study to have practical and meaningful application, the following recommendations are suggested:

1. The findings of this study be available for the Montana Board of Public Education, Montana Office of Public Instruction, and local school district curriculum planners to review and consider.
2. Other state and local school district educational and community individuals or groups who have a vested interest in public education and who might be asked or volunteer to be involved in the curriculum development process participate in a similar or modified study to ascertain what they believe all Montana students should know and do prior to high school graduation. Individuals and groups to consider surveying might include parents, school administrators, employers, politicians, senior citizens, vocational and trade instructors, college and university

professors, and any others who are willing or indicate an interest in participating in the curriculum development process.

Although the opinions of Montana school board trustees are important when considering what academic knowledge and skills all Montana students should master prior to high school graduation, the development of the Montana K-12 school curriculum based solely on the findings in this study would be ill advised. The findings of this study should be included in curriculum development discussions and during the curriculum decision making process. When considering the academic instructional time limitations, the findings and analysis of this study can assist those responsible for developing a quality Montana K-12 school curriculum to determine what essential subject-matter content knowledge and skills all Montana students should master prior to high school graduation.

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APPENDICES

APPENDIX A

POPULATION OF STUDY

First Class School Districts: population of 6,500, or more.

| School District | Number of Trustees | School District | Number of Trustees |
|---------------------------|--------------------|------------------|--------------------|
| 1. Anaconda | 7 | 13. Helena | 8 |
| 2. Belgrade | 7 | 14. Kalispell | 11 |
| 3. Billings | 9 | 15. Lewistown | 8 |
| 4. Bozeman | 9 | 16. Libby | 7 |
| 5. Browning | 8 | 17. Livingston | 9 |
| 6. Butte | 8 | 18. Miles City | 11 |
| 7. Corvalis | 5 | 19. Missoula | 11 |
| 8. Glendive | 10 | 20. Polson | 8 |
| 9. Great Falls | 7 | 21. Ronan | 7 |
| 10. Hamilton | 7 | 22. Sidney | 6 |
| 11. Hardin | 6 | 23. Stevensville | 6 |
| 12. Havre | 8 | | |
| Total number of trustees: | | | 183 |

Second Class School Districts: population of 1,000 or more but less than 6,500.

| School District | Number of Trustees | School District | Number of Trustees |
|--------------------|--------------------|---------------------|--------------------|
| 1. Absarokee | 9 | 33. Hot Springs | 7 |
| 2. Arlee | 5 | 34. Huntley Project | 5 |
| 3. Bainville | 5 | 35. Lane Deer | 5 |
| 4. Belt | 5 | 36. Laurel | 5 |
| 5. Big Sandy | 6 | 37. Lodge Grass | 7 |
| 6. Broadus | 9 | 38. Malta | 5 |
| 7. Brockton | 3 | 39. Manhattan | 6 |
| 8. Cascade | 7 | 40. Park City | 5 |
| 9. Centerville | 5 | 41. Plains | 6 |
| 10. Charlo | 7 | 42. Plentywood | 5 |
| 11. Chinook | 9 | 43. Poplar | 5 |
| 12. Choteau | 7 | 44. Power | 5 |
| 13. Circle | 7 | 45. Red Lodge | 7 |
| 14. Colstrip | 5 | 46. Roundup | 6 |
| 15. Columbia Falls | 8 | 47. Scobey | 5 |
| 16. Columbus | 5 | 48. Shelby | 7 |
| 17. Conrad | 5 | 49. Shepherd | 7 |
| 18. Culbertson | 5 | 50. Sheridan | 7 |
| 19. Cut Bank | 5 | 51. St. Ignatius | 5 |
| 20. Darby | 5 | 52. Sun River | 7 |
| 21. Dutton | 5 | 53. Sunburst | 5 |
| 22. Ennis | 5 | 54. Terry | 5 |
| 23. Eureka | 7 | 55. Thompson Falls | 5 |
| 24. Fairfield | 8 | 56. Three Forks | 5 |
| 25. Florence | 5 | 57. Townsend | 5 |
| 26. Forsyth | 6 | 58. Troy | 6 |
| 27. Fort Benton | 8 | 59. Twin Bridges | 5 |
| 28. Frenchtown | 5 | 60. Victor | 5 |
| 29. Froid | 5 | 61. Whitefish | 8 |
| 30. Glasgow | 5 | 62. Whitehall | 7 |
| 31. Harlem | 5 | 63. Wibaux | 5 |
| 32. Harlowton | 9 | 64. Wolf Point | 7 |

Total number of trustees: 380

Third Class School Districts: population of less than 1,000.

| School District | Number of Trustees | School District | Number of Trustees |
|-----------------|--------------------|---------------------------|--------------------|
| 1. Alberton | 5 | 38. Lima | 5 |
| 2. Augusta | 5 | 39. Lincoln | 5 |
| 3. Baker | 5 | 40. Medicine Lake | 5 |
| 4. Belfry | 5 | 41. Melstone | 5 |
| 5. Bigfork | 6 | 42. Moore | 5 |
| 6. Blue Sky | 5 | 43. Nashua | 5 |
| 7. Box Elder | 5 | 44. Noxon | 5 |
| 8. Brady | 5 | 45. Opheim | 5 |
| 9. Bridger | 5 | 46. Outlook | 5 |
| 10. Broadview | 4 | 47. Peerless | 5 |
| 11. Chester | 5 | 48. Philipsburg | 5 |
| 12. Custer | 5 | 49. Plevna | 5 |
| 13. Denton | 5 | 50. Pryor | 5 |
| 14. Dodson | 5 | 51. Rapelje | 5 |
| 15. Drummond | 4 | 52. Reedpoint | 5 |
| 16. Fairview | 6 | 53. Richey | 4 |
| 17. Flaxville | 5 | 54. Roberts | 5 |
| 18. Frazer | 5 | 55. Rocky Boy | 5 |
| 19. Fromberg | 4 | 56. Rosebud | 5 |
| 20. Gardiner | 6 | 57. Roy | 5 |
| 21. Geraldine | 5 | 58. Ryegate | 5 |
| 22. Geyser | 6 | 59. Saco | 5 |
| 23. Grass Range | 5 | 60. Savage | 5 |
| 24. Harrison | 5 | 61. Shields Valley | 5 |
| 25. Hays | 5 | 62. St. Regis | 5 |
| 26. Heart Butte | 5 | 63. Stanford | 5 |
| 27. Highwood | 3 | 64. Superior | 5 |
| 28. Hinsdale | 5 | 65. Turner | 5 |
| 29. Hobson | 5 | 66. Valier | 6 |
| 30. Hysham | 5 | 67. West Yellowstone | 5 |
| 31. J-I | 5 | 68. Westby | 5 |
| 32. Joliet | 7 | 69. White Sulpher Springs | 7 |
| 33. Jordan | 5 | 70. Whitewater | 5 |
| 34. Judith Gap | 5 | 71. Willow Creek | 3 |
| 35. K-G | 3 | 72. Winifred | 5 |
| 36. Lambert | 5 | 73. Winnett | 5 |
| 37. Lavina | 3 | | |

Total number of trustees: 362

APPENDIX B

McREL SURVEY QUESTIONNAIRES

McREL NATIONAL STANDARDS SURVEY QUESTIONNAIREQuestionnaire 1

Thank you for agreeing to take the time to participate in a study to identify those national content standards that Montana School Board Trustees believe are most essential for Montana students to learn prior to high school graduation. The Mid-continent Regional Educational Laboratory (McREL) has created a comprehensive national subject-matter content standards database that includes the most valid and thorough accounting to date of what national subject-matter specialists and educational organizations believe students should know and be able to do in each of the traditional subject-matter areas. Those national content standards are what appear in this survey questionnaire.

The survey you have received includes four subjects: World History, Health, Mathematics, and Foreign Language. Each subject-matter area includes all the national content standards contained in the McREL national content standards database for that subject. You are being asked to indicate if you believe each content standard in each subject is definitely, probably, probably not or definitely not necessary for Montana students to know or be able to do by the time they graduate from high school.

Please complete and return this important survey questionnaire as soon as reasonably possible.

1. Please return the survey directly to your district Superintendent so it may be included with your colleagues in a self-addressed and stamped envelope.
2. No individual responses will be reported and no attempt will be made to identify individual respondents.
3. Your individual responses will be kept strictly confidential, so express your opinions freely.
4. Your responses should not be influenced by your own level of knowledge. Your responses should be based on what you believe Montana high school graduates should know and be able to do today.
5. You can give the same or a different response to each national content standard as you move from one content standard to the next.

Directions: For each proposed national content standard please indicate by marking the appropriate box if you believe the national content standard is either:

1. ***Definitely*** necessary for Montana students to learn prior to high school graduation.
2. ***Probably*** necessary for Montana students to learn prior to high school graduation.
3. ***Probably not*** necessary for Montana students to learn prior to high school graduation.
4. ***Definitely not*** necessary for Montana students to learn prior to high school graduation.

SUBJECT I: WORLD HISTORY

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 1. Understands physical, social, and cultural characteristics of the earliest human communities and the ways in which these communities were influenced by the environment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Understands methods used to study the earliest human communities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Understands characteristics of the earliest agricultural communities around the world and factors that contributed to their development, including environmental factors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Understands characteristics of civilizations in Mesopotamia, Egypt, and Indus Valley. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Understands how agricultural societies spread and new states emerged in ancient times. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Understands the political, social and cultural consequences of population movements and warfare in Europe and Asia in ancient times. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Understands characteristics of Judaism and events that led to the spread of Judaism. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Understands the significance of the spread of iron technology in Sub-Saharan and West Africa. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 9. Understands how Greek civilization emerged and how interrelations developed among peoples of the eastern Mediterranean and Southwest Asia. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Understands how major religious and large-scale empires arose in the Mediterranean basin, China and India. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Understands how early agrarian civilizations and cities arose in Middle and South America. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Understands the causes and consequences of the decline of the Roman and Han Empires and the rise of the Byzantine Empire. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Understands ways in which the spread of different religions influenced social and political conditions in various regions between the 4th and 8th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Understands characteristics of Gupta society in India between the 4th and 8 th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Understands the causes and consequences of the development of Islamic civilization between the 7th and 10th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Understands the major developments in China and East Asia in the era of the Tang Dynasty from the 7th to the 10th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 17. Understands the political, social, and cultural changes in Europe between the 6th and 11th century, including the effects of the development of feudalism. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Understands the building of state societies in Africa, and the southward migrations of Bantu-speaking peoples. | | | | |
| 19. Understands characteristics of Chinese, Japanese, and Cambodian societies and the Turkic Empires between the 10th and 13th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Understands social, political, economic, and intellectual developments in European society between the 11th and 14th centuries, including the role of feudalism and characteristics of city states such as Genoa, Venice, and Bruges. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Understands the rise of the Mongol empire and its consequences for Asian and European peoples from 1200 to 1350. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Understands the growth of states, towns, and trade in Sub-Saharan Africa between the 11th and 15th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Understands the characteristics of European society between 1300 and 1450, including the causes and consequences of the plague. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 24. Understands significant developments in Afro-Eurasia between 1300 and 1450, including the causes and consequences of the rise and decline of the Ottoman Empire. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Understands characteristics of Caribbean, Middle America, North America, and South American societies between 1000 and 1500. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Understands how the navigation of the oceans and linking of all major regions of the world between 1450 and 1600 led to worldwide change. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. Understands the causes and consequences of the religious wars in Europe during the 16th and 17th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. Understands the characteristics of the beliefs that emerged during the Renaissance, Reformation, and Enlightenment in Europe between the 15 th and 18th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. Understands how large territorial empires dominated much of Europe and Asia between the 16th and 18th centuries, including the Ming Dynasty and the Ottoman, Safavid, and Mughal Empires. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 30. Understands the economic, political and cultural relationships among peoples of Africa, Europe and the Americas between 1500 and 1750, including characteristics of European colonies and the characteristics of slavery in different regions of the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. Understands transformations in India and Asia in the era of European expansion from 1500 to 1800. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. Understands major global trends from 1450 to 1770, such as changes in boundaries, shifts in political power, and significant economic developments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. Understands the causes and consequences of the Latin American independence movements and the revolutions in France, and the Americas, and Haiti in the late 18th and early 19th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. Understands the causes and consequences of the agricultural and industrial revolutions from 1700 to 1850. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Understands how Eurasian societies were transformed in an era of global trade and the emergence of European power from 1750 to 1850, including Japan's political and social transformation in the 19th century and events that shaped the expansion and development of Russia in the 19th and early 20th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 36. Understands patterns of nationalism, state-building, and social reform in Europe and Americas from 1830 up to World War I. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. Understands patterns of global change in the era of Western military and economic domination from 1850 up to World War I, including characteristics of imperialism, the consequences of European immigration, and significant political events in 20th century China. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. Understands major global trends from 1750 up to World War I, including trends in world population and the consequences of reform movements in world religions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. Understands global and economic trends in the high period of Western dominance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. Understands the causes and global consequences of World War I, including Lenin's and Stalin's policies and other significant developments in Russia in the early 20th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. Understands the search for peace and stability throughout the world in the 1920s and 1930s, including the causes of the Great Depression and the ways in which the emergence of new art, literature, music, and scientific theories influences society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 42. Understands the causes and global consequences of World War II, including characteristics of Nazism, the impact of the Holocaust, and significance of Japan's sphere of influence in East Asia. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. Understands how new international power relations took shape in the context of the Cold War and how colonial empires broke up. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. Understands major global trends since World War II, including economic, technological, and cultural trends. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. Understands the promises and paradoxes of the second half of the 20th century, including the influences on population growth, the characteristics of modern economic systems, and effectiveness of the United Nations programs in improving health and welfare. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. Understands causes of economic imbalances and social inequalities among the world's peoples and efforts made to close the gaps. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Understands the importance of the revolutions in toolmaking, agriculture, and industrialization as major turning points in human history. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 48. Understands the circumstances under which European countries came to exercise temporary military and economic dominance in the world in the late 19th and 20th centuries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT II: HEALTH

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 49. Knows the availability and effective use of health services, products, and information. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Knows the environmental and other external factors that affect individual and community health, including the influence of research, medical advances, and public health policies on prevention and control of health problems. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 51. Understands the relationship of family health to individual health, including the inherent responsibilities of dating, marriage, and parenthood. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 52. Knows how to maintain mental and emotional health, including stress management and the importance of communication. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Knows essential concepts and practices concerning injury prevention and safety. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Understands essential concepts about nutrition and diet. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55. Knows how to maintain and promote personal health, and understands changes in personal health needs during the life cycle. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 56. Knows essential concepts about the prevention and control of disease, including the importance of regular examinations for early detection and the treatment of disease. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Understands aspects of substance use and abuse, including the influence of alcohol, tobacco, and other drugs on individuals and the community. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Understands the fundamental concepts of growth and development, including physical, mental, emotional, and social changes that occur throughout life and how these changes differ among individual. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Understands the importance of sound health practices during the prenatal period. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT III: MATHEMATICS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 60. Ability to effectively use a variety of approaches when solving mathematical problems, including creating models and using logic and mathematical arguments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 61. Ability to work with relatively advanced number systems (such as the real number system and systems other than those in base-ten), including understanding roots, exponents, scientific notation and characteristics of and relationships between various number representations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Ability to work with a variety of procedures when computing numbers, including arithmetic operations on real numbers, adding and subtracting algebraic expressions, counting procedures, and understanding properties of operations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Ability to use various strategies to estimate quantities and measurements, to check reasonableness of computational results, and to find sources of error. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 64. Ability to apply the principles of measurement (such as use of appropriate tools, units, and formulas), solve problems involving dimensions (for example, the perimeter, area, and volume of objects and figures), and solve time, rate and distance problems. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 65. Ability to work with relatively advanced geometry concepts, such as characteristics and properties of figures, triangle and angle relationships and use of vectors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 66. Ability to analyze data, use concepts such as mean, median, and standard deviation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. Ability to effectively present data in tables and graphs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Ability to apply concepts of probability, including experimental, simulation, and theoretical methods. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 69. Ability to work with relatively advanced algebraic concepts, such as use of variables, coordinates, expressions, and methods of solving equations, inequalities, and systems of equations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Ability to work with properties of functions, including various representations and defining characteristics. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. Understanding of the nature and use of mathematics in science and other real-world applications. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT IV: FOREIGN LANGUAGE

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 72. Ability to verbally greet, give directions and express likes and dislikes in the foreign language. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 73. Ability to use the foreign language in conversations about family, cultural and current events. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 74. Ability to identify the main ideas, details, and themes from a wide number of media sources in the foreign culture, including literary texts, newspapers, television and the visual arts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 75. Ability to comprehend and interpret written and spoken language from a wide number of media sources in the foreign culture, including literary texts, newspapers, television and the visual arts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Ability to present information, concepts and ideas in the foreign language to an audience of listeners. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 77. Ability to make presentations in the foreign language under different types of situations, such as in plays or skits, video or audio tapes, reports and e-mail. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 78. Knows simple patterns of behavior and interaction in the foreign culture, such as those that occur in school, the family and the community, and how these compare to one's own culture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 79. Understands basic cultural beliefs and perspectives of the foreign culture, such as its religious and family values, and how these compare to one's own culture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably</u> <u>Not</u> | <u>Definitely</u> <u>Not</u> |
|---|--------------------------|--------------------------|-------------------------------|---------------------------------|
| 80. Demonstrates knowledge and understanding of the traditions of the foreign culture, as revealed in its songs, games, birthday celebrations, story telling, food, artwork and crafts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 81. Understands the basic nature of languages (sounds, grammar, context, borrowed words, formal and informal expressions, etc.) and how the foreign language differs from one's own language in terms of these functions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

V: GOAL OF EDUCATION

DIRECTIONS: For each of the following statements please indicate with an in the appropriate box if you believe the statement should:

- * definitely be a main goal of education
- * probably be a main goal of education
- * probably not be a main goal of education
- * definitely not be a main goal of education

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 82. A main goal of education should be to provide knowledge that helps individual students obtain meaningful employment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 83. A main goal of education should be to provide knowledge that helps individual students have a well-rounded, productive life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 84. A main goal of education should be to provide knowledge that allows our country to acquire and maintain a competitive edge. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

VI: DEMOGRAPHICS

DIRECTIONS: The following demographic questions are for classification purposes only, and as with all your previous responses, will be kept confidential.

85. Please mark the box indicating your gender: Male Female

86. Please mark the box that corresponds to your age:

18-24 25-34 35-44 45-54 55-64 65+

87. Please mark the box that indicates how many years you have been a Montana School Board Trustee (include the current school year: 2000-01):

0-3 4-6 7-10 11+

88. Please mark the box indicating the highest level of formal education you have completed:

8th grade or less

Some high school

High school graduate

Trade, Technical or Vocational Training Beyond High School

Some college, including Community and Junior College

Undergraduate College Work or Undergraduate University Degree

Graduate School Work or Graduate University Degree

89. Please mark the box that best describes your primary occupation:

- | | |
|--|--|
| <input type="checkbox"/> Agricultural, forestry, and fishing | <input type="checkbox"/> Wholesale Trade |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Retail Trade |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Services |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Finance, insurance, and real estate | <input type="checkbox"/> Homemaker |
| <input type="checkbox"/> Transportation, communications, electric, gas, and sanitary services | <input type="checkbox"/> Nonclassifiable |

90. Please mark the box that represents your total annual household income during the previous year (January 1 to December 31, 2000), before taxes:

- Less than \$50,000 \$50,000 or more

Thank you for taking the time to complete and return this survey.

McREL NATIONAL STANDARDS SURVEY QUESTIONNAIREQuestionnaire 2

Thank you for agreeing to take the time to participate in a study to identify those national content standards that Montana School Board Trustees believe are most essential for Montana students to learn prior to high school graduation. The Mid-continent Regional Educational Laboratory (McREL) has created a comprehensive national subject-matter content standards database that includes the most valid and thorough accounting to date of what national subject-matter specialists and educational organizations believe students should know and be able to do in each of the traditional subject-matter areas. Those national content standards are what appear in this survey questionnaire.

The survey you have received includes four subjects: United States History, Physical Education, Science, Behavioral Studies, and Technology. Each subject-matter area includes all the national content standards contained in the McREL national content standards database for that subject. You are being asked to indicate if you believe each content standard in each subject is definitely, probably, probably not or definitely not necessary for Montana students to know or be able to do by the time they graduate from high school.

Please complete and return this important survey questionnaire as soon as reasonably possible.

1. Please return the survey directly to your district Superintendent so it may be included with your colleagues in a self-addressed and stamped envelope.
2. No individual responses will be reported and no attempt will be made to identify individual respondents.
3. Your individual responses will be kept strictly confidential, so express your opinions freely.
4. Your responses should not be influenced by your own level of knowledge. Your responses should be based on what you believe Montana high school graduates should know and be able to do today.
5. You can give the same or a different response to each national content standard as you move from one content standard to the next.

Directions: For each proposed national content standard please indicate by marking the appropriate box if you believe the national content standard is either:

1. ***Definitely*** necessary for Montana students to learn prior to high school graduation.
2. ***Probably*** necessary for Montana students to learn prior to high school graduation.
3. ***Probably not*** necessary for Montana students to learn prior to high school graduation.
4. ***Definitely not*** necessary for Montana students to learn prior to high school graduation.

SUBJECT I: UNITED STATES HISTORY

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 1. Understands the characteristics of Societies in the Americas, western Europe, and West Africa, and Interactions among these groups prior to European exploration of the Americas. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Understands the characteristics and and consequences of European exploration, conquest and settlement in the Americas, including Columbus' voyages. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Understands how early Europeans and Africans interacted with Native Americans in the Americas. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Understands how political, social, and religious institutions emerged in the North America colonies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Understands how the values and institutions of European economic life took root in the colonies and how slavery reshaped European and African life in the Americas. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Understands the causes of the American Revolution, the ideas and interests involved in shaping the revolutionary movement, and reasons for the American victory. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Understands the impact of the American Revolution on the politics, economy, and society of the times. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 8. Understands the institutions and practices of government created during the revolution and how these elements were revised between 1787 and 1815 to create the foundation of the American political system. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Understands characteristics of the United States' territorial expansion between 1801 and 1861, including federal policy toward Native Americans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Understands foreign policy and related events of the 19th century, including the Monroe Doctrine, Manifest Destiny, the War of 1812, and the Mexican-American War. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Understands how the Industrial Revolution, increasing immigration, the rapid expansion of slavery, and the westward movement changed American lives and led to regional tensions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Understands significant characteristics of American politics in the first half of the 19th century, including Jacksonian Democracy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Understands events that led to the sectional conflicts between the North and South (Missouri Compromise and the Compromise of 1850), and the viewpoints of those favoring and opposing slavery during this time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 14. Understands the characteristics of slavery in the period before the Civil War, and the growing abolitionist movement opposing it. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Understands cultural, religious, and social reform movements during the period before the Civil War, including Transcendentalism, the Second Great Awakening, the rise of Utopian communities, and the rights and contributions of women. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Understands the causes of the Civil War. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Understands the course and character of the Civil War, including its military, political, and social effects on society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Understands important civil and military leaders and their actions during the Civil War period, including Abraham Lincoln, and the Emancipation Proclamation, the leadership of Jefferson Davis, and the campaigns of Ulysses S. Grant and William T. Sherman. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Understands the social, political, and economic factors that characterized the Reconstruction period after the Civil War and the impact of the period on society, including the significance of President Andrew Johnson's impeachment, and the addition of the 14th and 15th amendments to the U.S. Constitution. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 20. Understands how the rise of big business, heavy industry, and mechanized farming transformed American society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Understands massive immigration after 1870 and how new social patterns, conflicts, and ideas of national unity developed amid growing cultural diversity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Understands the nature of work (factory work, child labor, etc.), the labor movements, and the characteristics of political parties and elections of the late 19th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Understands the federal Indian policy and the political and cultural characteristics of Native American life in the late 19th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Understands factors that contributed to U.S. expansionist foreign policy in the late 19th century, including economic interests, nationalism, and racial beliefs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Understands how progressives and others addressed problems of industrial capitalism, urbanization, and political corruption in the early 20th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Understands efforts to achieve women's right to vote in the early 20th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 27. Understands the changing role of the United States in world affairs through World War I. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. Understands how the United States changed between the post-World War I years and the eve of the Great Depression, including social and cultural development – such as the impact of the radio, print media, and the movies – and economic and political developments, such as the rise of a consume culture and the impact of women’s voting rights. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. Understands the causes of the Great Depression and how it Affected American society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. Understands how the New Deal addressed the Great Depression, transformed the role of the federal government, and initiated welfare state. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. Understands the causes, origins, and course of World War II, the character of war at home and abroad, and how it reshaped the U.S. role in world affairs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. Understands the economic boom and social, religious, and cultural changes of post-World War II America, including those initiated by the Cold War. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 33. Understands the domestic policies of the post-World War II period, including those of the Truman, Eisenhower, Kennedy, and Johnson presidencies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. Understands the Cold War and the Korean and Vietnam conflicts in Domestic and international politics. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Understands the struggle for racial and gender equality and for the extension of civil liberties, including the Warren Court decisions and the civil rights movement. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Understands developments in foreign and domestic policies from the Nixon through Clinton presidencies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. Understands the major social and economic developments in contemporary America – including the women's movement, changing immigration and internal migrations, the changing workplace and the influence of the media on American culture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT II: PHYSICAL EDUCATION

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 38. Has and demonstrates use of advanced skills for selected sports or other physical activities, such as dance and outdoor activities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. Knows the rules and strategies for the selected sports or other physical activities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. Understands the concepts and principles associated with the development of motor skills. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. Understands the concepts and principles governing fitness maintenance and improvement, such as the overload principle. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 42. Understands how "sport" psychology affects the performance of physical activities, including the effect of anxiety on performance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. Understands factors that impact the ability to participate in physical activity (for example, cost, availability of facilities, and equipment required) and those that affect preferences, such as age, gender, race, and social status. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 44. Understands the potentially dangerous consequences and outcomes from participation in physical activity, such as physical injury and potential conflicts with others. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. Understands how to monitor and maintain a health-enhancing level of physical fitness. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. Knows the status of one's own heart and respiratory endurance, flexibility of joints, and muscular strength. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Meets health-related fitness standards appropriate for one's level of physical capability. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 48. Understands the social and personal responsibilities associated with participation in sports and other physical activities, such as working with others to achieve common goals, and the awareness of cultural, ethnic, gender, and physical diversity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT III: SCIENCE

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably</u> <u>Not</u> | <u>Definitely</u> <u>Not</u> |
|--|--------------------------|--------------------------|-------------------------------|---------------------------------|
| 49. Understands basic features of the Earth, including its composition and atmosphere and the causes of weather, climate, and seasons. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Understands basic Earth processes, the causes and effects of rock and geological cycles and movements of Earth's underlying plates. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 51. Understands how fossils and sedimentary rock layers reveal evidence of past life and environments on Earth. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 52. Understands essential ideas about the composition and structure of universe and the Earth's place in it, including characteristics and motions of objects in the Solar System and in the universe. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Understands the diversity and unity that characterize life, and knows classification systems used to group organisms. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 54. Understands the genetic basis for the transfer of biological characteristics from one generation to the next, including the passing of hereditary traits through sexual reproduction and the characteristics and functions of DNA, genes, and chromosomes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55. Knows the general structure and functions of cells in organisms. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 56. Understands how species depend on one another and on the environment for survival. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Understands the cycling of matter and the flow of energy through living environment, including photosynthesis and respiration and food chains and webs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Understands the basic concepts of the evolution of species. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Understands basic concepts about the structure and properties of matter, including the make-up of atoms, molecules, elements, and compounds; the states of matter; the conservation of mass; and the factors and processes involved in chemical reactions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 60. Understands the characteristics, sources, and transformations of different energy types, such as heat, light, sound, electrical, and nuclear energy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Understands different types of motion, including electromagnetic motion and sound waves, and the principles that explain them, including effects of balanced and unbalanced forces. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Knows the kinds of forces that exist between objects and within atoms, including the characteristics and effects of magnetic, electric, electromagnetic, and gravitational forces. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Understands that scientific knowledge involves an ongoing process of testing, revising and occasionally discarding theories and that it is built on logical arguments, solid evidence, and skepticism. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 64. Knows that scientific inquiry involves identifying and clarifying the questions, methods, controls, and variables in scientific experiments, and that the results of scientific inquiry emerge from different types of investigations and public communication among scientists. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 65. Understands that people of all ages, abilities, and backgrounds participate in the enterprise of science and that it is made up of a variety of disciplines that require the hard work of individuals and teams. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT IV: BEHAVIORAL SCIENCE

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 66. Understands that heredity, group, and cultural influences contribute to human development, identity, and behavior. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. Understands that social distinctions are a part of every culture and that they can take many different forms, such as social class based on parentage or wealth. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Understands that while a group may act, hold beliefs, and/or present itself as a cohesive whole, individual members may hold widely varying beliefs, so the behavior of a group may not be predictable from an understanding of each of its members. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 69. Understands how the diverse elements that contribute to the development and transmission of culture (language, literature, the arts, traditions, beliefs, values, and behavior patterns) function as an integrated whole. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Understands that social groups may have patterns of behavior, values, beliefs, and attitudes that can help or hinder cross-cultural understanding. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. Understands that differences in behavior of individuals arise from the interaction of heredity and experience and that even instinctive behavior may not develop well if a person is exposed to abnormal conditions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 72. Understands the basic factors that influence how human beings interpret new ideas and evaluate different types of evidence, including that people might ignore evidence that challenges their beliefs and accept evidence that supports them. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 73. Understand the basic characteristics of human thinking and learning, including that the context in which something is learned may limit how that knowledge is used. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 74. Understands the basic social, economic, and political factors that contribute to conflicts in society; the challenges associated with these conflicts; and ways to respond to and reduce them. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 75. Understands the basic characteristics and influences of different social, political, and religious institutions in our society and how they change over time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Understands how mass media, migrations, and conquest affect social change by exposing one culture to another, and that extensive borrowing among cultures has led to the virtual disappearance of some cultures but only modest changes to others. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT V: TECHNOLOGY

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 77. Knows the characteristics and uses of computer hardware and operating systems, and knows how to connect to other computers and computer networks. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 78. Knows the characteristics and uses of computer software programs, including the common features and uses of word processing, database, and spreadsheet programs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 79. Understands individual and social issues related to the use and development of technology, including the influences of science, technology, and society upon one another. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 80. Understands the nature of technological designs and is able to identify a problem, choose from among alternative solutions, implement a solution and evaluate the solution based on costs, benefits, risks, constraints, and trade-offs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 81. Understands the nature and operation of systems, including how systems are monitored and controlled through the use of feedback. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

V: GOAL OF EDUCATION

DIRECTIONS: For each of the following statements please indicate with an in the appropriate box if you believe the statement should:

- * definitely be a main goal of education
- * probably be a main goal of education
- * probably not be a main goal of education
- * definitely not be a main goal of education

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 82. A main goal of education should be to provide knowledge that helps individual students obtain meaningful employment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 83. A main goal of education should be to provide knowledge that helps individual students have a well-rounded, productive life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 84. A main goal of education should be to provide knowledge that allows our country to acquire and maintain a competitive edge. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

VI: DEMOGRAPHICS

DIRECTIONS: The following demographic questions are for classification purposes only, and as with all your previous responses, will be kept confidential.

85. Please mark the box indicating your gender: Male Female

86. Please mark the box that corresponds to your age:

18-24 25-34 35-44 45-54 55-64 65+

87. Please mark the box that indicates how many years you have been a Montana School Board Trustee (include the current school year: 2000-01):

0-3 4-6 7-10 11+

88. Please mark the box indicating the highest level of formal education you have completed:

8th grade or less

Some high school

High school graduate

Trade, Technical or Vocational Training Beyond High School

Some college, including Community and Junior College

Undergraduate College Work or Undergraduate University Degree

Graduate School Work or Graduate University Degree

89. Please mark the box that best describes your primary occupation:

- | | |
|--|--|
| <input type="checkbox"/> Agricultural, forestry, and fishing | <input type="checkbox"/> Wholesale Trade |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Retail Trade |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Services |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Finance, insurance, and real estate | <input type="checkbox"/> Homemaker |
| <input type="checkbox"/> Transportation, communications, electric, gas, and sanitary services | <input type="checkbox"/> Nonclassifiable |

90. Please mark the box that represents your total annual household income during the previous year (January 1 to December 31, 2000), before taxes:

- Less than \$50,000 \$50,000 or more

Thank you for taking the time to complete and return this survey.

McREL NATIONAL STANDARDS SURVEY QUESTIONNAIREQuestionnaire 3

Thank you for agreeing to take the time to participate in a study to identify those national content standards that Montana School Board Trustees believe are most essential for Montana students to learn prior to high school graduation. The Mid-continent Regional Educational Laboratory (McREL) has created a comprehensive national subject-matter content standards database that includes the most valid and thorough accounting to date of what national subject-matter specialists and educational organizations believe students should know and be able to do in each of the traditional subject-matter areas. Those national content standards are what appear in this survey questionnaire.

The survey you have received includes four subjects: Civics, Language Arts, Life Skills, and Economics. Each subject-matter area includes all the national content standards contained in the McREL national content standards database for that subject. You are being asked to indicate if you believe each content standard in each subject is definitely, probably, probably not or definitely not necessary for Montana students to know or be able to do by the time they graduate from high school.

Please complete and return this important survey questionnaire as soon as reasonably possible.

1. Please return the survey directly to your district Superintendent so it may be included with your colleagues in a self-addressed and stamped envelope.
2. No individual responses will be reported and no attempt will be made to identify individual respondents.
3. Your individual responses will be kept strictly confidential, so express your opinions freely.
4. Your responses should not be influenced by your own level of knowledge. Your responses should be based on what you believe Montana high school graduates should know and be able to do today.
5. You can give the same or a different response to each national content standard as you move from one content standard to the next.

Directions: For each proposed national content standard please indicate by marking the appropriate box if you believe the national content standard is either:

1. ***Definitely*** necessary for Montana students to learn prior to high school graduation.
2. ***Probably*** necessary for Montana students to learn prior to high school graduation.
3. ***Probably not*** necessary for Montana students to learn prior to high school graduation.
4. ***Definitely not*** necessary for Montana students to learn prior to high school graduation.

SUBJECT I: CIVICS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 1. Understands ideas about civic life, politics, and government, including ideas about how individuals, government, and society are interrelated. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Understands various forms of government and the relationships of limited and unlimited government to political and economic freedoms. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Understands the sources, purposes, and functions of law. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Understands the concept of a constitution, the various purposes that constitutions serve, and the conditions that contribute to the respective responsibilities of the legislative, executive, and judicial branches. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Understands the major characteristics of systems of shared powers and of parliamentary systems, including the respective responsibilities of the legislative, executive, and judicial branches. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Understands characteristics of confederal systems of government, such as the Confederate States of America; federal systems of government, such as the United States; and unitary systems of government, such as the state governments of the United States. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 7. Understands the characteristics and theories of various forms of representation, including arguments for and against representative government as distinguished from direct popular rule. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Understands the central ideas of American constitutional government and how this form of government has shaped the character of American society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Understands the significance of fundamental values and principles of American constitutional democracy for individual and society, including values and principles such as equality, sovereignty, and checks and balances. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Understands the characteristics of volunteerism in American society and the relationship between American volunteerism and America's ideas about limited government. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. Understands the role of diversity in American life and the importance of shared values, political beliefs, and civic beliefs in an increasingly diverse American society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Understands the relationship among liberalism, republicanism, and American constitutional democracy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 13. Understands the character of American political and social conflict and factors that tend to prevent or lower its intensity. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Understands issues concerning and the reasons for the discrepancies between American ideals and the realities of American social and political life and examples of historical and contemporary efforts to reduce these discrepancies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Understands the reasons the framers of the U.S. Constitution adopted a federal system in which power and responsibility are divided and shared between national government and state governments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. Understands the ways in which United States federalism is designed to protect individual rights to life, liberty, and property, including the extent to which the three branches of government (legislative, executive, and judicial) reflect the people's sovereignty. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. Understands the major responsibilities of the national government for domestic and foreign policy, and understands how government is financed through taxation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Understands issues concerning the relationships among local, state, and national governments, including the kinds of powers reserved to the states under the Tenth Amendment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 19. Understands how the rule of law and due process rights serve to protect individual rights and promote the common good. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Understands the importance of an independent judiciary in a constitutional democracy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Understands the effects of Americans relying on the legal system to solve social, economic, and political problems rather than using other means, such as private negotiations, mediation, and participation in the political process. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Understands what is meant by "the public agenda," how it is set, (and how it is influenced by public opinion and the media. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. Understands the origins, development, and characteristics of the two-party system in the United States. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Understands the roles of political parties, campaigns, elections, and associations and groups in American politics. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Understands the process by which public policy concerning a local, state, or national issue is formed and carried out. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Understands how the world is organized politically into nation-states, how nation-states interact with one another, and the related issues surrounding U.S. foreign policy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 27. Understands the major foreign policy positions that have characterized the United States' relations with the world, including its current leadership role in the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. Understands the purposes and functions of major governmental international organizations (such as NATO) and major non-governmental organizations (such as the Roman Catholic Church and multinational corporations). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. Understands the impact of significant political and nonpolitical developments on the United States and other nations, including the influence that American ideas about rights have had abroad and how other people's ideas about rights have influenced Americans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. Understands the meaning of citizenship in the United States, and knows the requirements for citizenship and naturalization. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. Understands the relationships among personal, political, and economic rights, and how these different rights can both reinforce and conflict with one another. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. Understands how certain character traits enhance citizens' ability to fulfill personal and civic responsibilities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 33. Understands the importance of political leadership, public service, and a knowledgeable citizenry in American constitutional democracy, including how participation in civic and political life can help citizens attain individual and public goals. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT II: LANGUAGE ARTS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 34. Demonstrates competence in the general skills and strategies of the writing process, including the ability to draft, revise, edit, and proofread written work. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Writes different kinds of compositions (such as descriptive, persuasive, and analytical compositions) for a variety of audiences and purposes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Demonstrates competence in the stylistic and rhetorical aspects of writing, including using vocabulary and details to support ideas and a variety of structural elements, such as paragraphs and different sentence types, lengths, and transitions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 37. Writes with a command of the grammatical and mechanical conventions of composition, including correct spelling, capitalization, punctuation, parts of speech, language terms, and appropriate format. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. Effectively gathers and uses information for research purposes, including identifying important research questions and topics, using a variety of information sources, summarizing information, and creating bibliographies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. Demonstrates competence in the general skills and strategies of the reading process, including understanding influences on a reader's response to a text, using context to understand its meaning and the ability to analyze key ideas and events that may influenced a text. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. Demonstrates competence in general skills and strategies for reading literature, such as identifying and analyzing literary elements of text (plot, literary devices, dialogue, action, and character), relating literary elements to his/her own life, and making connections among literary works. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. Demonstrates competence in the general skills and strategies for reading information, such as scanning informational texts for relevant information, identifying how the material is organized and using indexes, appendixes, glossaries, and table of contents. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 42. Demonstrates competence in applying the reading process to different types of literary texts, such as fiction, biographies, autobiographies, science fiction, poems, satires, parodies, and plays. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. Demonstrates competence in applying the reading process to specific types of informational texts, such as essays, textbooks, historical documents, editorials, news stories, letters, and diaries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. Demonstrates competence in speaking and listening as tools for learning, including participating in group discussions, making effective formal presentations, and making informed judgments about nonprint media. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. Demonstrates an understanding of the history of the English language. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. Demonstrates an understanding of the social, political, and geographic influences on language use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Demonstrates an ability to compare different forms of the English language, such as the way it is used in a public speech compared to the way it is spoken at home or in other informal settings. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 48. Demonstrates a familiarity with selected literary works of enduring quality, including knowing the characteristics of classic literary works and awareness of a variety of American, British and world classic literature and authors. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT III: LIFE SKILLS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 49. Understands and applies the basic principles of presenting an argument, including identifying the logic and validity of arguments, the techniques used to slant information, and the differences between fact and opinion. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Understands and applies basic principles of logic and reasoning, including understanding the formal meanings of logical connectors, and informal quantifiers, and terms; how logic is used to create and test rules, form arguments, and reach conclusions; and how to form alternative conclusions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 51. Effectively uses mental processes to compare, contrast, and classify persons, places, things, and events. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 52. Understands and applies basic principles of hypothesis testing and scientific inquiry, including gathering and analyzing data, analyzing validity of explanations and conclusions presented in studies, verifying the results of experiments, and presenting alternative explanations and conclusions to experiments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Applies basic trouble-shooting and problem-solving techniques in real-world situations by identifying the problem, representing it accurately, evaluating various solutions and recommending and defending the selected solution. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Applies decision-making techniques, such as using appropriate criteria, considering alternatives, and using a balance sheet or a decision-making grid or matrix to select the most appropriate alternative. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55. Demonstrates the ability to contribute to the overall effort of a group through respecting other members of the group, contributing to a supportive climate in the group, engaging in active listening, identifying and using the strengths of others, taking initiative when needed, helping establish and evaluate progress toward group goals, challenging practices that aren't working, and identifying and dealing with causes of conflict in the group. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 56. Understands causes of conflict and conflict-resolution techniques, including the use of negotiation skills and effective responses to criticism. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Demonstrates the ability to work well in diverse situations and with diverse individuals, including persons who are of the opposite gender or from a different ethnic group or religious affiliation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Displays effective interpersonal communication skills, that is, interacts verbally and non-verbally in a clear, appropriate, and effective manner and considers the views and feelings of others when communicating. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Demonstrates leadership skills, that is, serves as a leader and follower in groups, passes on authority when appropriate, works with others toward planned goals and celebrates accomplishments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. Sets and manages goals, including carrying out the necessary steps to achieve them and making contingency plans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Performs self-appraisal, including identifying 1) personal attributes, experiences, accomplishments and goals; 2) career preferences and goals; 3) acceptable wants and needs and ways in which they can be obtained. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 62. Demonstrates the ability to consider the risks involved in situations and seek preventive measures to avoid hazard or injury. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Demonstrates a sense of purpose and perseverance relative to personal goals and in the face of difficulty. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 64. Uses techniques to maintain or improve self-image and self-esteem and keeps mistakes and criticism in perspective. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 65. Controls impulsive behavior by suspending judgment and keeping responses open while assessing a situation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 66. Makes effective use of basic tools by using work space effectively, working with various tools and materials to construct objects, and following instructions when using new instruments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. Demonstrates the ability to manage money effectively, including preparing and following a budget, making forecasts regarding future income and expenses, using sound buying principles for purchases, and using credit sensibly. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Knows strategies for pursuing and finding a job, including determining procedures for applying for a specific job, obtaining information about the products and procedures of a prospective employer, preparing letters of inquiry or job applications, and preparing for job interviews. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 69. Knows how to make general preparations for entering the work force, including evaluating educational opportunities and analyzing the job market, preparing a resume, applying for necessary permits and licenses, preparing for common employment tests, knowing what factors to consider when choosing a job, and developing an explicit career action plan. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Demonstrates the ability to handle basic adult living situations, such as renting an apartment, conducting banking services, buying and maintaining a car, using health and child care services, understanding the basic nature of contacts, using a telephone and public transportation effectively, and dealing with the rules and regulations of the Internal Revenue Service. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. Displays reliability and a basic work ethic, that is, completes work effectively and in a way that is acceptable to supervisors, behaves appropriately and shows loyalty and respect to authority figures and the organization, and develops plans and strategies that make personal skills more useful to an organization. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 72. Demonstrates competence in using different information sources, including charts, diagrams, drawings, and tables. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT IV: ECONOMICS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 73. Understands the different types of economic resources (natural, human, and capital) and how each operates in terms of scarcity, which determines their allocation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 74. Understands that the alternative uses of the same resource, known as opportunity cost, is the cost that occurs when a limited resource is applied to its best use. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 75. Understands the differences between barter and money exchange, and the advantages of money over barter. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Understands the different types of economic systems (market and command) and how each of these systems produces, distributes, and allocates resources. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 77. Understands the role of economic institutions in a market system, such as corporations, labor unions, banks, and the stock market. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 78. Understands the concept of prices and the interaction of supply and demand in a market economy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 79. Understands the characteristics of competition in a market system, including how it is affected by monopolies, collusion, and government regulation and why there are market failures and corrections. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 80. Understands the concepts of unemployment and unemployment rate, and the types and causes of unemployment as they relate to the labor force in a market economy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 81. Understands income distribution in a market economy, including types of income (for example, wages and salaries, rent, interest, and profit) and factors that affect them, such as taxation, transfer payments, training programs, level of education, supply and demand for labor, and technology. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 82. Understands the role government plays in the United States economy, such as providing public goods and services, protecting property, and providing standards and a stable currency. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 83. Understands the different types of taxation (federal, state, and local) and the services provided by each (e.g., national defense from federal revenues, education from state and local revenues). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 84. Understands the difference between fiscal and monetary policy in the United States and the basic relationships between the money supply, interest rates, spending and economic growth, as well as the general ways the government responds to budget deficits and the basic role the Federal Reserve System plays in monetary policy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 85. Understands the definition of Gross Domestic Product and the main factors that influence its growth or decline. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 86. Understands the definitions of inflation and deflation, their general causes and effects, and the main policies the government uses to combat inflation. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 87. Understands the basic concepts about international economics, including the characteristics of international trade, currency exchange rates and markets, barriers to trade, and the costs and benefits of trade policies. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 88. Understands the role of interest rates in a market economy and their effect on savings and investment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 89. Understands the concept of entrepreneurship and the role of entrepreneurs in a market economy. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

V: GOAL OF EDUCATION

DIRECTIONS: For each of the following statements please indicate with an in the appropriate box if you believe the statement should:

- * definitely be a main goal of education
- * probably be a main goal of education
- * probably not be a main goal of education
- * definitely not be a main goal of education

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 90. A main goal of education should be to provide knowledge that helps individual students obtain meaningful employment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 91. A main goal of education should be to provide knowledge that helps individual students have a well-rounded, productive life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 92. A main goal of education should be to provide knowledge that allows our country to acquire and maintain a competitive edge. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

VI: DEMOGRAPHICS

DIRECTIONS: The following demographic questions are for classification purposes only, and as with all your previous responses, will be kept confidential.

93. Please mark the box indicating your gender: Male Female

94. Please mark the box that corresponds to your age:

18-24 25-34 35-44 45-54 55-64 65+

95. Please mark the box that indicates how many years you have been a

Montana School Board Trustee (include the current school year: 2000-01):

0-3 4-6 7-10 11+

96. Please mark the box indicating the highest level of formal education you have completed:

8th grade or less

Some high school

High school graduate

Trade, Technical or Vocational Training Beyond High School

Some college, including Community and Junior College

Undergraduate College Work or Undergraduate University Degree

Graduate School Work or Graduate University Degree

97. Please mark the box that best describes your primary occupation:

- | | |
|--|--|
| <input type="checkbox"/> Agricultural, forestry, and fishing | <input type="checkbox"/> Wholesale Trade |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Retail Trade |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Services |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Finance, insurance, and real estate | <input type="checkbox"/> Homemaker |
| <input type="checkbox"/> Transportation, communications, electric, gas, and sanitary services | <input type="checkbox"/> Nonclassifiable |

98. Please mark the box that represents your total annual household income during the previous year (January 1 to December 31, 2000), before taxes:

- Less than \$50,000 \$50,000 or more

Thank you for taking the time to complete and return this survey.

McREL NATIONAL STANDARDS SURVEY QUESTIONNAIREQuestionnaire 4

Thank you for agreeing to take the time to participate in a study to identify those national content standards that Montana School Board Trustees believe are most essential for Montana students to learn prior to high school graduation. The Mid-continent Regional Educational Laboratory (McREL) has created a comprehensive national subject-matter content standards database that includes the most valid and thorough accounting to date of what national subject-matter specialists and educational organizations believe students should know and be able to do in each of the traditional subject-matter areas. Those national content standards are what appear in this survey questionnaire.

The survey you have received includes four subjects: Geography, the Arts, and Historical Understanding. Each subject-matter area includes all the national content standards contained in the McREL national content standards database for that subject. You are being asked to indicate if you believe each content standard in each subject is definitely, probably, probably not or definitely not necessary for Montana students to know or be able to do by the time they graduate from high school.

Please complete and return this important survey questionnaire as soon as reasonably possible.

1. Please return the survey directly to your district Superintendent so it may be included with your colleagues in a self-addressed and stamped envelope.
2. No individual responses will be reported and no attempt will be made to identify individual respondents.
3. Your individual responses will be kept strictly confidential, so express your opinions freely.
4. Your responses should not be influenced by your own level of knowledge. Your responses should be based on what you believe Montana high school graduates should know and be able to do today.
5. You can give the same or a different response to each national content standard as you move from one content standard to the next.

Directions: For each proposed national content standard please indicate by marking the appropriate box if you believe the national content standard is either:

1. ***Definitely*** necessary for Montana students to learn prior to high school graduation.
2. ***Probably*** necessary for Montana students to learn prior to high school graduation.
3. ***Probably not*** necessary for Montana students to learn prior to high school graduation.
4. ***Definitely not*** necessary for Montana students to learn prior to high school graduation.

SUBJECT I: GEOGRAPHY

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 1. Understands the characteristics and uses of maps, globes, and other geographic tools and technologies, including the advantages and disadvantages of using different types of maps. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Knows the approximate location of different countries, major urban centers, and main geographic features in the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Knows the approximate geographic boundaries of major contemporary and historical events, such as the boundaries of the recent Soviet Union and the spread of the bubonic plague in the 14th century. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Knows the ways in which "mental maps" influence human decisions about location, settlement, and public policy, such as locating houses in areas with scenic views and decisions to migrate based on television programs and movies or newspaper and magazine advertisements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Understands how various factors in physical space, such as the distance between two places and the type of routes connecting them, account for patterns of movement in space, such as trade routes, migration patterns, and the number of people traveling to a given work location. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 6. Know characteristics such as age, sex, employment, and income level affect the way people perceive and use space, such as the greater use of public transit by lower-income workers and the greater distances traveled on vacations by higher-income people. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Knows how social, cultural, and economic factors--such as the values people hold, population growth, urbanization, and technological development--shape the features and appearance of places around the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8. Knows the locational advantages and disadvantages of using places for different activities based on their physical characteristics, such as flood plain, forest, tundra, earthquake zone, river crossing, and coastal flood zone. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Understands the social, environmental, economic, and political factors that change regional boundaries, such as wars and shifts in population, and the factors that contribute to the dynamic nature of regions, such as new technology and capital investment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10. Understands ways in which the concept of a region can be used to simplify the complexity of the Earth's space, such as arranging areas into sections to help understand particular topics or problems. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 11. Knows different ways in which regional systems are structured, such as hub-and-spoke airline operations and postal service zip codes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. Understands why places and regions are important to individual human identity and as symbols for unifying or fragmenting society, such as Jerusalem as a holy city for Muslims, Christians and Jews. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. Knows ways in which peoples' changing views of places and regions reflect cultural change, such as rural settings becoming attractive as recreation areas to people living in densely populated cities and old mining ghost towns becoming tourist attractions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. Knows the dynamics of key components of the Earth's physical systems, such as the atmosphere, ocean circulation, and landforms, and how they interact and affect different regions of the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. Knows how the Earth-Sun relationship creates the cycles of the seasons. | | | | |
| 16. Understands how relationships between soil, climate, and plant and animal life affect the distribution of ecosystems, such as the effects of solar energy and water supply on the nature of plant communities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 17. Knows about the productivity and biodiversity of ecosystems and their potential value as sources of oxygen, food, and raw materials to all living things. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Knows the effects of both physical and human changes in ecosystems, such as how acid rain resulting from air pollution affects water bodies and forests and how the depletion of the atmosphere's ozone layer through the use of chemicals may affect the health of humans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Knows global population issues and government policies concerning them, such as ongoing policies around the world to limit population growth. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Understands that international migrations are shaped by push and pull factors, such as political and economic conditions, religious values, and family ties. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. Understands the impact of human migrations on physical and human conditions, such as the social and environmental impact of the Dust Bowl, the environmental impact of European settlement, and the impact of migration to suburbs on transportation and housing in present American society. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. Understands how human characteristics make specific regions of the world distinctive, such as the effects of early Spanish settlement in the southwestern United States and the impact of Buddhism on cultures in Southeast Asia. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 23. Understands that the historical movement patterns of people and goods are related to economic activity, such as the patterns of trade routes in the era of sailing ships. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Understands the relationship between settlement patterns, economic activity, and land values, such as the effect that the location of particular types of industries and companies have on the value of land. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. Understands the distribution of different types of economies around the world, such as Singapore's market economy and North Korea's command economy, and their relative merits in terms of the social welfare and productivity of workers. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 26. Understands the advantages and disadvantages of international economic patterns, such as how land values in an area may change due to the investment of foreign capital and the consequences of an international debt crisis. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. Understands ways in which cities today differ from towns and cities in earlier times, including greater diversity and availability of producers and services today. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. Understands the physical and human impact of emerging urban forms in the present day world, such as the rise of the megalopolis, edge cities, and the increasing number of ethnic enclaves in urban cities. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 29. Knows the similarities and differences between settlement characteristics in developed and developing nations, such as how cities expand, their transportation patterns, and the types of services offered. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. Knows how cooperation and conflict among humans can affect the shape of political, social, and economic boundaries, such as those of countries, planning commissions, and school districts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. Understands the causes of boundary conflicts and internal disputes between cultural groups, such as those causing the friction between the Spanish majority and the Basque minority in Spain, and the civil war between the Hutus and Tutsis in Rwanda. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. Understands how external forces can conflict economically and politically with internal interests in a region, such as the consequences of the French colonization of Indo-China in the 19th century and the friction between Hindus and Moslems in the Indian subcontinent. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. Understands how the concepts of synergy, feedback loops, carrying capacity, and thresholds relate to the limitations of the physical environment to absorb the impacts of human activity, such as levee construction on a flood plain and logging in an old-growth forest. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 34. Understands the role of human beings in decreasing the plant and animal life in a region, including when acid rain falls on rivers and forests and when toxic materials are dumped in oceans. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. Understands the ways in which human-induced changes in the physical environment in one place can cause changes in other places, such as the effects of a factory's airborne emissions on air quality in communities located downwind. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. Understands how humans use technology and culture to overcome the "limits to growth" imposed by the physical environment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. Understands how people who live in naturally hazardous regions adapt to the environment, such as erecting sea walls to protect coastal areas subject to severe storms and constructing earthquake-resistant housing in areas subject to earthquakes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. Understands programs and positions related to the use of resources locally and globally, such as community regulations for water usage during drought periods and different points of view regarding uses of the world's rain forests. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. Knows issues related to the use and recycling of resources, such as those involved with the recycling of waste and the storing of toxic material. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 40. Understands how geography is used to interpret the past, such as how changes in transportation affected the American West and the impact of resources and Markets on the industrialization of England. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. Understands why policies designed to guide the use and management of the Earth's resources should reflect multiple points of view, such as the views of both developed and developing countries. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 42. Understands the concept of sustainable development and its effects in a variety of situations, such as overcutting and subsequent destruction of the rain forests in Indonesia because of demand for lumber in foreign market. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. Knows common factors that affect mental maps, such as how differences in culture, life experiences, age, and gender influence people's housing preferences or their view of public life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. Understands the principles of location, such as the merits in retailing of locating in malls rather than in dispersed locations and the advantages of building factories where the geographic and economic factors (terrain, labor and transportation costs, etc.) are optimal. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 45. Understands how site, climatic and tectonic processes, settlement and migration patterns, and situation components have an influence on physical and cultural characteristics in different parts of the world. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. Understands the distribution of different types of climate (such as marine climate or continental climate) that are produced by processes such as air-mass circulation, temperature, and moisture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. Knows how cultures influence the characteristics of a region, such as its traditions, social institutions, and level of technological achievement. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT II: THE ARTS

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 48. Understands connections among various art forms and other subjects. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 49. Identifies and demonstrates movement elements and skills in performing dance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 50. Understands the principles behind dance arrangements. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 51. Understands dance as a way to create and communicate meaning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 52. Applies critical and creative thinking skills in dance. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 53. Understands dance in various cultures and historical periods. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 54. Understands connections between dance and healthful living. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 55. Is able to sing, alone and with others, different types of music. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 56. Performs on instruments, alone and with others, different types of music. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 57. Improvises musical melodies, variations, and accompaniments. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 58. Composes and arranges music within specified guidelines. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 59. Reads music that contains moderate technical demands, expanded ranges, and varied interpretations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 60. Knows and applies appropriate criteria to music and music performances, such as technical musical terms and what affects the quality of musical performances. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 61. Understands the relationships among music and history and culture. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 62. Demonstrates competence in writing scripts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 63. Develops and uses acting skills. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 64. Designs and produces informal and formal theater productions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 65. Directs acting scenes and organizes and conducts rehearsals for informal and formal theater productions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 66. Understands how informal and formal theater, film, television, and electronic media productions create and communicate meaning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 67. Understands the context in which theater, film, television, and electronic media are performed today as well as in the past. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 68. Applies media, techniques and processes visual arts (drawing, painting, etc.) with sufficient skill, confidence, and sensitivity that one's intentions are carried out in the artwork. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 69. Understands how the characteristics and structures of visual art are used to accomplish commercial, personal, community, and other artistic intentions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 70. Knows a range of subject matter, symbols and potential ideas in the visual arts. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 71. Understands the visual arts in relation to history and cultures. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 72. Understands the characteristics and merits of one's own artwork and the artwork of others. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

SUBJECT III: HISTORICAL UNDERSTANDING

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 73. Knows how to identify the time structure and connections disclosed in historical narratives. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 74. Understands alternative systems of recording time--such as European, Egyptian, Indian, Mayan, Muslim, and Jewish--and the astronomical systems on which they are based, including solar, lunar, and semilunar. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 75. Understands historical continuity and change related to particular development or theme, such as the themes underlying the Industrial Revolution or the evolution of democracy in the U.S. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 76. Understands the organizing principles that are used when defining major historical periods. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 77. Analyzes the values held by major figures who have influenced history and the role their values played in influencing history. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 78. Analyzes the influences specific ideas and beliefs had on a period of history and understands how events might have been different in the absence of those ideas and beliefs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 79. Analyzes the effects that specific "chance events" had on history and understands how things might have been different in the absence of those events. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 80. Analyzes the effects specific decisions had on history and understands how things might have been different in the absence of those decisions. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 81. Understands that the consequences of human intentions are influenced by the available means of carrying them out. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 82. Understands that change and continuity (that is, non-change) are equally probable and likely. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 83. Knows how to avoid seizing upon particular lessons of history as cures for present ills. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 84. Understands the irrational, such as the assassination of John F. Kennedy or Archduke Ferdinand, and the accidental, such as the discovery of America by Christopher Columbus, have affected past events. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 85. Analyzes how specific historical events would be interpreted differently based on newly uncovered records and information. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 86. Understands how the past affects our private lives and society in general. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 87. Knows how to perceive past events within the context of the culture and meaning of things at the time. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 88. Evaluates the validity and credibility of different historical interpretations. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|---|--------------------------|--------------------------|--------------------------|---------------------------|
| 89. Uses historical maps to understand the relationships between historical events and geography. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 90. Knows how to evaluate the credibility and authenticity of historical sources. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

V: GOAL OF EDUCATION

DIRECTIONS: For each of the following statements please indicate with an in the appropriate box if you believe the statement should:

- * definitely be a main goal of education
- * probably be a main goal of education
- * probably not be a main goal of education
- * definitely not be a main goal of education

| | <u>Definitely</u> | <u>Probably</u> | <u>Probably Not</u> | <u>Definitely Not</u> |
|--|--------------------------|--------------------------|--------------------------|---------------------------|
| 91. A main goal of education should be to provide knowledge that helps individual students obtain meaningful employment. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 92. A main goal of education should be to provide knowledge that helps individual students have a well-rounded, productive life. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 93. A main goal of education should be to provide knowledge that allows our country to acquire and maintain a competitive edge. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

VI: DEMOGRAPHICS

DIRECTIONS: The following demographic questions are for classification purposes only, and as with all your previous responses, will be kept confidential.

94. Please mark the box indicating your gender: Male Female

95. Please mark the box that corresponds to your age:

18-24 25-34 35-44 45-54 55-64 65+

96. Please mark the box that indicates how many years you have been a Montana School Board Trustee (include the current school year: 2000-01):

0-3 4-6 7-10 11+

97. Please mark the box indicating the highest level of formal education you have completed:

8th grade or less

Some high school

High school graduate

Trade, Technical or Vocational Training Beyond High School

Some college, including Community and Junior College

Undergraduate College Work or Undergraduate University Degree

Graduate School Work or Graduate University Degree

98. Please mark the box that best describes your primary occupation:

- | | |
|--|--|
| <input type="checkbox"/> Agricultural, forestry, and fishing | <input type="checkbox"/> Wholesale Trade |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Retail Trade |
| <input type="checkbox"/> Construction | <input type="checkbox"/> Services |
| <input type="checkbox"/> Manufacturing | <input type="checkbox"/> Public Administration |
| <input type="checkbox"/> Finance, insurance, and real estate | <input type="checkbox"/> Homemaker |
| <input type="checkbox"/> Transportation, communications, electric, gas, and sanitary services | <input type="checkbox"/> Nonclassifiable |

99. Please mark the box that represents your total annual household income during the previous year (January 1 to December 31, 2000), before taxes:

- Less than \$50,000 \$50,000 or more

Thank you for taking the time to complete and return this survey.

APPENDIX C

COVER LETTER AND RECOMMENDATION/SUGGESTION FORMS USED
DURING THE FIELD TESTING OF THE McREL SURVEY QUESTIONNAIRES

March 20, 2001

Dear :

I hope this short letter finds you in good spirits and enjoying the final months of this challenging yet exciting school year. The spring weather is always a welcome sight after a Montana winter.

When I spoke to you several days ago you indicated you would be willing to assist me in my doctoral study by field testing several survey questionnaires. Montana school board trustees are being asked to identify which of the content standards found in the McREL comprehensive national content standards database they perceive are essential for all Montana students to master prior to high school graduation. I need to have the survey questionnaires randomly distributed to your trustees and completed and returned to you. When you have collected them, please return them to me in the self-addressed and stamped envelope. Along with the individual survey questionnaires, I have also included a recommendation/suggestion form for both you and your trustees to complete. This valuable information will provide feedback about the nature of the survey questionnaires and the survey process. This feedback will allow me make any modifications or adjustments to the survey questionnaires and/or survey process prior to distributing survey questionnaires to 161 Montana K-12 school districts in April.

Again, thank you for your time and efforts on my behalf. I deeply appreciate your support.

Sincerely,

Michael M. Smith

Enclosure: McREL Survey Questionnaires and Suggestion/Recommendation Form

FIELD TEST

- Superintendent Recommendations and Suggestions -

Dear _____ :

You are being asked to randomly distribute four survey questionnaires to your school board trustees and asking them to complete and return them to you in a timely manner so you can return them to me in the enclosed self-addressed and stamped envelope. The survey questionnaires seek to identify which of the content standards found in the McREL comprehensive national content standards database Montana school board trustees perceive are essential for all Montana students to master prior to high school graduation. The survey questionnaires will be sent to 925 Montana school board trustees in 161 K-12 public school districts. Your recommendations and suggestions regarding possible modifications or changes in the survey questionnaires or survey process is deeply appreciated. Please return the recommendations and suggestions form with the completed trustee survey questionnaires.

Again, thank you for agreeing to field test the survey questionnaires.

Cover Letter

Does the cover letter clearly describe the purpose of the survey study?

Yes _____ No _____

Does the cover letter addressed to school district superintendents clearly explain what is being asked of them? Yes _____ No _____

Do you have any recommendations or suggestions?

FIELD TEST

- School Board Trustee Recommendations and Suggestions -

Dear Montana School Board Trustee:

You are being asked to complete a survey questionnaire that I will be using in a doctoral study. The survey questionnaire is asking you to identify which of the content standards found in the McREL comprehensive national content standards database you perceive are essential for all Montana students to master prior to high school graduation. The survey questionnaires will be sent to 925 Montana school board trustees in 161 K-12 public school districts. Your recommendations and suggestions regarding possible modifications or changes in the survey questionnaires or survey process is deeply appreciated. Please return the recommendations and suggestions form with your completed survey questionnaire to your school superintendent so he/she may return all of your school district's completed survey questionnaires to me.

Again, thank you for agreeing to field test the survey questionnaires.

Cover Letter

Does the cover letter clearly describe the purpose of the survey study?

Yes _____ No _____

Does the cover letter addressed to school board trustees clearly explain what is being asked of them? Yes _____ No _____

Do you have any recommendations or suggestions?

Survey Questionnaires

Approximate time to complete: _____ minutes.

Clarity of instructions: Excellent____ Good____ Poor____ Didn't Understand____

Recording Procedures (i.e., definitely, probably, probably not, and definitely not)

Excellent____ Good____ Poor____ Didn't Understand____

Did you have any concerns regarding completing any item in the demographic section of the survey questionnaire? Yes _____ No _____ If you did, please explain.

Do you have any recommendations or suggestions regarding the nature of the survey questionnaire that you were asked to complete?

Thank you for taking the time to complete the survey questionnaire and the recommendation and suggestion form and returning both to your school superintendent.

APPENDIX D

INITIAL COVER LETTER TO PARTICIPATING
MONTANA SCHOOL DISTRICT SUPERINTENDENTS

March 12, 2001

Dear _____ :

I hope this letter finds you in good spirits and enjoying another exciting and challenging school year. Your dedication and commitment to your school and community is to be commended and your professional leadership a reason why the people of Montana can be proud of their public schools.

The purpose of this letter is to solicit your help. I am currently completing my doctoral dissertation at Montana State University and am requesting you consider distributing the enclosed surveys to each one of your school board trustees. The study is being conducted to determine the essential national content standards that Montana school board trustees perceive are most important for Montana students to attain prior to high school graduation.

The debate over national standards is controversial and confrontational, with their future acceptance and integration into state and local curriculums uncertain. I believe the results of this study can help state educational officials, school boards, administrators, teachers and parents better understand the nature and role of national content standards.

I have chosen to include all Montana school board trustees in K-12 school districts that employ a full-time superintendent. I will be using the Mid-continent Regional Educational Laboratory (McREL) national content standards self-report survey questionnaires to collect valuable data and information. I have enclosed a self-report survey questionnaire for each of your trustees. Because there are four different survey questionnaires covering different content areas, only one or two of your trustees may receive a similar survey questionnaire.

Would you please assist me by randomly distributing the enclosed self-report survey questionnaires to your school board trustees prior to your next school board meeting so they might be collected and returned to me in the enclosed self-addressed and stamped envelope before April 20, 2001. In order that the results of the study truly represent the beliefs of Montana school board trustees, it is important that all survey questionnaires are completed and returned.

You may be assured that all survey questionnaires will be confidential. The return envelope has your school district name on it for the sole purpose of disaggregating the data by school district size and so I can record having received your survey questionnaires. The findings from this study will be forwarded to the Montana Board of Public Education, Montana Office of Public Instruction, and those school districts who participate in the study.

I would be happy to answer any questions you may have regarding this study. I can be reached at 646-7617 (work)/646-4307 (home).

Again, thank you for your time and efforts.

Sincerely,

Michael M. Smith

Enclosure: McREL Self-Report Survey Questionnaires
Return Self-Addressed and Stamped Envelope

APPENDIX E

COVER LETTER TO PARTICIPATING
MONTANA SCHOOL BOARD TRUSTEES

March 12, 2001

Montana School Board Trustee:

The public debate concerning what American students should know and be able to do prior to high school graduation has received a great deal of national, state, and local attention during the past several years. Efforts by national subject-matter specialists and professional organizations to identify and define the essential content knowledge and skills they believe all American students should learn prior to high school graduation has resulted in the development of national content standards in each of the various academic subjects.

The national content standards movement has been instrumental in assisting many states and local school districts to improve the teaching and learning process. The need for individuals who are responsible for curriculum planning to identify rigorous and challenging content has never been greater. A rapidly changing and technologically interconnected global economy necessitates that all American students gain the essential knowledge and skills they will need to succeed in life, economically and socially.

A problem associated with integrating national content standards into both state and local school district curriculums is the total number of national content standards that have been identified. There simply is not enough time during a student's thirteen years of schooling to learn all the subject-matter content that national content specialists and professional organizations identify as being essential. School districts will need to decide which of the national content standards are deemed more essential than others.

The purpose of this letter is to request your help. I am currently completing my doctoral dissertation at Montana State University. My research study is seeking to determine which of the national content standards Montana school board trustees perceive as being definitely necessary for Montana students to learn prior to high school graduation. I am requesting you consider completing the enclosed self-report survey questionnaire and returning it to you school district superintendent.

I believe the findings of this study can help the Montana Board of Public Education, Montana Office of Public Instruction, and local school districts in better understanding the nature and role that national content standards can play when considering the development and adoption of world class content standards.

In order for the results of this study to truly represent the beliefs of trustees in the state of Montana, it is important that every survey questionnaire be completed and returned. I genuinely hope you will take the time to complete the attached survey questionnaire and return it to your school superintendent so it may be included with those of your colleagues. You may be assured that your survey questionnaire will be confidential.

I would be happy to answer any questions you may have regarding this study. I can be reached at 646-7617 (work)/646-4307 (home).

Thank you for your time and efforts.

Sincerely,

Michael M. Smith

APPENDIX F

FINAL FOLLOWUP COVER LETTER TO
MONTANA SCHOOL DISTRICT SUPERINTENDENTS

June 1, 2001

Dear :

A little more than a week ago, I spoke to you about the study I am currently conducting that seeks to identify what subject-matter content knowledge and skills Montana school board trustees perceive to be essential for all Montana students to master prior to high school graduation. Survey questionnaires are being used to collect the information needed to complete the study. I had mailed survey questionnaires to you in April after you indicated to me your willingness to assist me in randomly distributing the survey questionnaires to your trustees and collecting and returning them to me as soon as possible.

As of this date, I still have not received a completed trustee survey questionnaire from your school district. Because my study is entirely dependent on trustee responses, I need to receive as many completed survey questionnaires as possible if my findings and conclusions are to be valid and truly reflect the beliefs of Montana school board trustees as a whole.

I have enclosed two additional survey questionnaires with this letter and am asking you to identify two of your trustees who you believe might still be inclined to complete a survey questionnaire and return it to you. If at all possible, could you return any completed survey questionnaires to me by June 15.

Once again, I would be happy to answer any questions you may have regarding this study. I can be reached at 646-7617 (work)/646-4307 (home).

Thank you for your time and efforts.

Sincerely,

Michael M. Smith

Enclosure: McREL Survey Questionnaires
Return Self-Addressed and Stamped Envelope

APPENDIX G

RANKING OF McREL SUBJECT-MATTER CONTENT STANDARDS
BASED ON MONTANA SCHOOL BOARD TRUSTEE RATINGS

Relative Importance Of McREL Comprehensive National Subject-matter Content

Standards As Determined by Montana School Board Trustees Ratings

| Rank | Subject-matter area | McREL subject-matter content standard number and description. |
|------|---------------------|---|
| 1 | Mathematics | 4 Understands and applies basic and advanced properties of the concepts of measurement. |
| 2 | U.S. History | 13 Understands the causes of the Civil War, |
| 3 | Technology | 2 Knows the characteristics and uses of computer software programs. |
| 4 | World History | 41 Understands the causes and global consequences of World War II. |
| 5 | Language Arts | 3 Uses grammatical and mechanical conventions in written compositions. |
| 6 | Health | 9 Understands aspects of substance use and abuse. |
| 7 | Civics | 4 Understands the concept of a constitution, the various purposes that constitutions serve, and the conditions that contribute to the establishment and maintenance of constitutional government. |
| 8 | Life Work | 3 Manages money effectively. |
| 9 | Science | 1 Understands the basic features of the Earth. |
| 10 | Health | 3 Understands the relationship of family health to individual health. |
| 11 | Geography | 1 Understands the characteristics and uses of maps, globes, and other geographic tools and technologies. |
| 12 | Civics | 24 Understands the meaning of citizenship in the United States, and knows the requirements for citizenship and naturalization. |
| 13 | U.S. History | 6 Understands the causes of the American Revolution, the ideas and interests involved in shaping the revolutionary movement, and reasons for the American victory. |

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| 14 | Life Work | 4 | Pursues specific jobs. |
| 15 | Mathematics | 3 | Uses basic and advanced procedures while performing the processes of computation. |
| 16 | Technology | 1 | Knows the characteristics and uses of computer hardware and operating systems. |
| 17 | Mathematics | 9 | Understands the general nature and uses of mathematics. |
| 18 | Civics | 5 | Understands the major characteristics of systems of shared powers and of parliamentary systems. |
| 19 | World History | 40 | Understands the search for peace and stability throughout the world in the 1920s and 1930s. |
| 20 | Life Work | 7 | Displays reliability and a basic work ethic. |
| 21 | Life Work | 8 | Operates effectively within organizations. |
| 22 | U.S. History | 23 | Understands the causes of the Great Depression and how it affected American society. |
| 23 | Civics | 15 | Understands how the United States Constitution grants and distributes power and responsibilities to national and state government and how it seeks to prevent the abuse of power. |
| 24 | Science | 7 | Understands how species depend on one another and on the environment for survival. |
| 25 | U.S. History | 25 | Understands the causes and course of World War II, the character of the war at home and abroad, and its reshaping of the U.S. role in world affairs. |
| 26 | Mathematics | 1 | Uses a variety of strategies in the problem-solving process. |
| 27 | Civics | 3 | Understands the sources, purposes, and functions of law and the importance of the rule of law for the protection of individual rights and the common good. |
| 28 | Thinking and Reasoning | 5 | Applies basic trouble-shooting and problem-solving techniques. |
| 29 | U.S. History | 7 | Understands the impact of the American Revolution on politics, economy, and society. |

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| 30 | World History | 43 | Understands how post-World War II reconstruction occurred, new international power relations took shape, and colonial empires broke up. |
| 31 | World History | 44 | Understands the search for community, stability, and peace in an interdependent world. |
| 32 | Health | 4 | Knows how to maintain mental and emotional health. |
| 33 | Civics | 9 | Understands the importance of Americans sharing and supporting certain values, beliefs, and principles of American constitutional democracy. |
| 34 | World History | 39 | Understands the causes and global consequences of World War I. |
| 35 | World History | 42 | Understands the major global trends from 1900 to the end of World War II. |
| 36 | Language Arts | 7 | Demonstrates competence in the general skills and strategies for reading a variety of informational texts. |
| 37 | Life Work | 5 | Makes general preparation for entering the work force. |
| 38 | Geography | 7 | Knows the physical processes that shape the patterns on the Earth's surface. |
| 39 | Civics | 1 | Understands ideas about civic life, politics, and government. |
| 40 | Language Arts | 1 | Demonstrates competence in the general skills and strategies of the writing process. |
| 41 | Working With Others | 1 | Contributes to the overall effort of a group. |
| 42 | Civics | 8 | Understands the central ideas of American constitutional government and how this form of government has shaped the character of American society. |
| 43 | Life Work | 6 | Makes effective use of basic life skills. |
| 44 | Working With Others | 4 | Displays effective interpersonal communication skills. |

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| 45 | Language Arts | 2 | Demonstrates competence in the stylistic and rhetorical aspects writing. |
| 46 | Health | 8 | Knows essential concepts about the prevention and control of disease. |
| 47 | Economics | 6 | Understands the roles government plays in the United States economy. |
| 48 | Self- Regulation | 6 | Restrains impulsivity. |
| 49 | Health | 6 | Understands essential concepts about nutrition and diet. |
| 50 | Health | 7 | Knows how to maintain and promote personal health. |
| 51 | Language Arts | 4 | Gathers and uses information for research purposes. |
| 52 | Civics | 16 | Understands the major responsibilities of the national government for domestic and foreign policy, and understands how government is financed through taxation. |
| 53 | Science | 5 | Understands the genetic basis for the transfer of biological characteristics from one generation to the next. |
| 54 | Health | 1 | Knows the availability and effective use of health services, products, and information. |
| 55 | World History | 46 | Understands long-term changes and recurring patterns in world history. |
| 56 | Working With Others | 3 | Works with diverse individuals and in diverse situations. |
| 57 | World | 33 | Understands the causes and consequences of the agricultural history and industrial revolutions from 1700 to 1850. |
| 58 | World History | 26 | Understands how the transoceanic interlinking of all major regions of the world between 1450 and 1600 led to global transformations. |
| 59 | World History | 35 | Understands patterns of nationalism, state-building, and social reform in Europe and the Americas from 1830 to 1914. |

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| 60 | Economics | 3 | Understands the concepts of prices and interaction of supply and demand in a market economy. |
| 61 | Health | 5 | Knows essential concepts and practices concerning injury prevention and safety. |
| 62 | Science | 8 | Understands the cycling of matter and flow of energy through the living environment. |
| 63 | Geography | 8 | Understands the characteristics of ecosystems on the Earth's surface. |
| 64 | Self-Regulation | 3 | Considers risks. |
| 65 | Self-Regulation | 1 | Sets and manages goals. |
| 66 | Civics | 18 | Understands the role and importance of law in the American constitutional system and issues regarding the judicial protection of individual rights. |
| 67 | U.S. History | 8 | Understands the institutions and practices of government created during the revolution and how these elements were revised between 1787 and 1815 to create the foundation of the American political system based on the U.S. Constitution and the Bill of Rights. |
| 68 | Working With Others | 2 | Uses conflict-resolution techniques. |
| 69 | Civics | 28 | Understands how participation in civic and political life can help citizens attain individual and public goals. |
| 70 | Civics | 29 | Understands the importance of political leadership, public service, and a knowledgeable citizenry in American constitutional democracy. |
| 71 | Life Work | 1 | Makes effective use of basic tools. |
| 72 | World History | 36 | Understands patterns of global change in the era of Western military and economic domination from 1850 to 1914. |
| 73 | Health | 2 | Knows environmental and external factors that affect individual and community health. |

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| 74 | U.S. History | 4 | Understands how political, religious, and social institutions emerged in the North American colonies. |
| 75 | Self-Regulation | 5 | Maintains a healthy self-concept. |
| 76 | Science | 3 | Understands essential ideas about the composition and structure of the universe and the Earth's place in it. |
| 77 | World History | 37 | Understands major global trends from 1750 to 1914. |
| 78 | Economics | 7 | Understands savings, investment, and interest rates. |
| 79 | U.S. History | 14 | Understands the course and character of the Civil War and its effects on the American people. |
| 80 | Thinking and Reasoning | 4 | Understands and applies basic principles of hypothesis testing and scientific inquiry. |
| 81 | Thinking and Reasoning | 1 | Understands and applies the basic principles of presenting an argument. |
| 82 | Thinking and Reasoning | 3 | Effectively uses mental processes that are based on identifying similarities and differences (compares, contrasts, classifies). |
| 83 | U.S. History | 2 | Understands cultural and ecological interactions among previously unconnected people resulting from early European exploration and colonization. |
| 84 | U.S. History | 5 | Understands how the values and institutions of European economic life took root in the colonies and how slavery reshaped European and African life in the Americas. |
| 85 | World History | 45 | Understands major global trends since World War II. |
| 86 | U.S. History | 10 | Understands how the industrial revolution, increasing immigration, the rapid expansion of slavery, and the westward movement changed American lives and led to regional tensions. |

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| 87 | U.S. History | 24 | Understands how the New Deal addressed the Great Depression, transformed American federalism, and initiated the welfare state. |
| 88 | Economics | 2 | Understands characteristics of different economic systems, economic institutions, and economic incentives. |
| 89 | Mathematics | 6 | Understands and applies basic and advanced concepts of statistics and data analysis. |
| 90 | U.S. History | 22 | Understands how the United States changed between the post-World War I years and the eve of the Great Depression. |
| 91 | U.S. History | 31 | Understands economic, social, and cultural developments in the contemporary United States. |
| 92 | Self-Regulation | 4 | Demonstrates perseverance. |
| 93 | World History | 38 | Understands reform, revolution, and social change in the world economy in the 20th century. |
| 94 | Civics | 2 | Understands the essential characteristics of limited and unlimited governments. |
| 95 | Science | 6 | Knows the general structure and functions of cells in organisms. |
| 96 | Health | 10 | Understands the fundamental concepts of growth and development. |
| 97 | Physical Education | 4 | Understands how to monitor and maintain a health-enhancing level of physical fitness. |
| 98 | Science | 14 | Understands the nature of scientific knowledge. |
| 99 | Civics | 17 | Understands issues concerning the relationships between state and local governments and the national government and issues pertaining to representation at all three levels of government. |
| 100 | Economics | 5 | Understands unemployment, income, and income distribution in a market economy. |

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| 101 | U.S. History | 21 | Understands the changing role of the United States in world affairs through World War I. |
| 102 | U.S. History | 16 | Understands how the rise of corporations, heavy industry, and mechanized farming transformed American society. |
| 103 | U.S. History | 29 | Understands the struggle for racial and gender equality and for the extension of civil liberties. |
| 104 | Self-Regulation | 2 | Performs self-appraisal. |
| 105 | Language Arts | 5 | Demonstrates competence in the general skills and strategies of the reading process. |
| 106 | Mathematics | 2 | Understands and applies basic and advanced properties of the concepts of numbers. |
| 107 | Working With Others | 5 | Demonstrates leadership skills. |
| 108 | U.S. History | 9 | Understands the United States territorial expansion between 1801 and 1861, and how it affected relations with external powers and Native Americans. |
| 109 | U.S. History | 15 | Understands how various Civil War reconstruction plans succeeded or failed. |
| 110 | U.S. History | 12 | Understands the sources and character of cultural, religious, and social reform movements in the antebellum period. |
| 111 | Science | 2 | Understands basic Earth processes. |
| 112 | U.S. History | 26 | Understands the economic boom and social transformation of post-World War II United States. |
| 113 | Physical | 5 | Understands the social and personal responsibility associated Education with participation in physical activity. |
| 114 | U.S. History | 27 | Understands how the Cold War and conflicts in Korea and Vietnam influenced domestic and international politics. |
| 115 | Civics | 11 | Understands the role of diversity in American life and the importance of shared values, political beliefs in an increasingly diverse American society. |

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| 116 | Life Work | 2 | Uses various information sources, including those of a technical nature, to accomplish specific tasks. |
| 117 | Science | 11 | Understands energy types, sources, and conversions, and their relationship to heat and temperature. |
| 118 | Economics | 4 | Understands basic features of market structures and exchanges. |
| 119 | World History | 34 | Understands how Eurasian societies were transformed in an era of global trade and the emergence of European power from 1750 to 1870. |
| 120 | Science | 4 | Knows about the diversity and unity that characterize life. |
| 121 | Science | 16 | Understands the scientific enterprise. |
| 122 | Language Arts | 8 | Demonstrates competence in speaking and listening as tools for learning. |
| 123 | U.S. History | 11 | Understands the extension, restriction, and reorganization of political democracy after 1800. |
| 124 | Civics | 21 | Understands the formation and implementation of public policy. |
| 125 | Civics | 20 | Understands the roles of political parties, campaigns, elections, and associations and groups in American politics. |
| 126 | Mathematics | 5 | Understands and applies basic and advanced properties of the concepts of geometry. |
| 127 | Science | 9 | Understands the basic concepts of the evolution of species. |
| 128 | Civics | 6 | Understands the advantages and disadvantages of federal, confederal, and unitary systems of government. |
| 129 | Economics | 1 | Understands that scarcity of productive resources requires choices that generate opportunity costs. |
| 130 | Language Arts | 6 | Demonstrates competence in general skills and strategies for reading a variety of literary texts. |
| 131 | Economics | 9 | Understands how the Gross Domestic Product and inflation and deflation provide indications of the state of the economy. |

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| 132 | Behavioral Studies | 2 | Understands various meanings of social group, general implications of group membership, and different ways that groups function. |
| 133 | The Arts: Music | 14 | Understands the relationship between music and history and culture. |
| 134 | World History | 29 | Understands the economic, political, and cultural interrelations among peoples of Africa, Europe, and the Americas between 1500 and 1750. |
| 135 | U.S. History | 20 | Understands how Progressives and others addressed problems of industrial capitalism, urbanization, and political corruption. |
| 136 | Behavioral Studies | 1 | Understands that group and cultural influences contribute to human development, identity, and behavior. |
| 137 | Thinking and Reasoning | 6 | Applies decision-making techniques. |
| 138 | Thinking and Reasoning | 2 | Understands and applies basic principles of logic and reasoning. |
| 139 | Economics | 8 | Understands basic concepts of United States fiscal policy and monetary policy. |
| 140 | Civics | 25 | Understands issues regarding personal, political, and economic rights. |
| 141 | Civics | 26 | Understands issues regarding the proper scope and limits of rights and the relationships among personal, political, and economic rights. |
| 142 | Science | 10 | Understands basic concepts about the structure and properties of matter. |
| 143 | Science | 15 | Understands the nature of scientific inquiry. |
| 144 | World History | 27 | Understands how European society experienced political, economic, and cultural transformations in an age of global intercommunication between 1450 and 1750. |
| 145 | Historical Understanding | 2 | Understands the historical perspective. |

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| 146 | Science | 12 | Understands motion and the principles that explain it. |
| 147 | Science | 13 | Knows the kinds of forces that exist between objects and within atoms. |
| 148 | Civics | 7 | Understands alternative forms of representation and how they serve the purposes of constitutional government. |
| 149 | Civics | 10 | Understands the roles of volunteerism and organized groups in American social and political life. |
| 150 | Geography | 10 | Understands the nature and complexity of Earth's cultural mosaics. |
| 151 | Historical Understanding | 1 | Understands and knows how to analyze chronological relationships and patterns. |
| 152 | Geography | 4 | Understands the physical and human characteristics of place. |
| 153 | Mathematics | 8 | Understands and applies basic and advanced properties of functions and algebra. |
| 154 | U.S. History | 3 | Understands why the Americas attracted Europeans, why they brought enslaved Africans to their colonies, and how Europeans struggled for control of North America and the Caribbean. |
| 155 | Behavioral Studies | 4 | Understands conflict, cooperation, and interdependence among individuals, groups, and institutions. |
| 156 | Geography | 14 | Understands how human actions modify the physical environment. |
| 157 | Geography | 16 | Understands the changes that occur in the meaning, use, distribution, and importance of resources. |
| 158 | Geography | 17 | Understands how geography is used to interpret the past. |
| 159 | U.S. History | 28 | Understands domestic policies in the post-World War II period. |
| 160 | U.S. History | 18 | Understands the rise of the American labor movement and how political issues reflected social and economic changes. |

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| 161 | Behavioral Studies | 3 | Understands that interactions among learning, inheritance, and physical development affect human behavior. |
| 162 | World History | 32 | Understands the causes and consequences of the agricultural and industrial revolutions from 1700 to 1850. |
| 163 | Mathematics | 7 | Understands and applies basic and advanced concepts of probability. |
| 164 | Geography | 18 | Understands global development and environmental issues. |
| 165 | Civics | 22 | Understands how the world is organized politically into nation-states, how nation-states interact with one another, and issues surrounding U.S. foreign policy. |
| 166 | Geography | 2 | Knows the location of places, geographic features, and patterns of the environment. |
| 167 | U.S. History | 30 | Understands the developments in foreign and domestic policies between the Nixon and Clinton presidencies. |
| 168 | Civics | 23 | Understands the impact of significant political and nonpolitical developments on the United States and other nations. |
| 169 | Physical Education | 2 | Uses movement concepts and principles in the development of motor skills. |
| 170 | Physical Education | 3 | Understands the benefits and costs associated with participation in physical activity. |
| 171 | Technology | 5 | Understands the nature and operation of systems. |
| 172 | The Arts: Connections | 1 | Understands connections among the various art forms and other disciplines. |
| 173 | World History | 31 | Understands major global trends from 1450 to 1770. |
| 174 | World History | 9 | Understands how major religious and large-scale empires arose in the Mediterranean Basin, China, and India from 500 BCE to 300 CE. |
| 175 | World History | 11 | Understands major global trends from 1000 BCE to 300 CE. |

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| 176 | U.S. History | 19 | Understands federal Indian policy and United States foreign policy after the Civil War. |
| 177 | Technology | 4 | Understands the nature of technology design. |
| 178 | Economics | 10 | Understands basic concepts about international economics. |
| 179 | The Arts: Visual | 24 | Understands the visual arts in relation to history and cultures. |
| 180 | Foreign Language | 5 | Recognizes that different languages use different patterns to communicate and applies this knowledge to the native language. |
| 181 | World History | 8 | Understands how Aegean civilization emerged and how interrelations developed among peoples of the eastern Mediterranean and Southwest Asia from 600 to 200 BCE. |
| 182 | World History | 5 | Understands the political, social, and cultural consequences of population movements and militarization in Eurasia in the second millennium BCE. |
| 183 | Geography | 6 | Understands that culture and experience influence people's perceptions of places and regions. |
| 184 | U.S. History | 17 | Understands massive immigration after 1870 and how new social patterns, conflicts, and ideas of nationality developed amid growing cultural diversity. |
| 185 | Civics | 12 | Understands the relationships among liberalism, republicanism, and American constitutional democracy. |
| 186 | Civics | 19 | Understands what is meant by "the public agenda," and how it is set, and how it is influenced by public opinion and the media. |
| 187 | Geography | 11 | Understands the patterns and networks of economic interdependence on the Earth's surface |
| 188 | Geography | 9 | Understands the nature, distribution, and migration of human populations on the Earth's surface. |
| 189 | Technology | 3 | Understands relationships among science, technology, society, and the individual. |

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| 190 | Geography | 15 | Understands how physical systems affect human systems. |
| 191 | World History | 2 | Understands the processes that contributed to the emergence of agricultural societies around the world. |
| 192 | Civics | 14 | Understands issues concerning the disparities between ideals and reality in American political and social life. |
| 193 | The Arts: Music | 11 | Compose and arranges music within specified guidelines. |
| 194 | Foreign Language | 1 | Uses the target language to engage in conversations, express feelings and emotions, and exchange opinions and information. |
| 195 | World History | 28 | Understands how large territorial empires dominated much of Euroasia between the 16th and 18th centuries. |
| 196 | Geography | 5 | Understands the concept of regions. |
| 197 | Foreign Language | 4 | Demonstrates knowledge and understanding of traditional ideas and perspectives, institutions, professions, literary and artistic expressions, and other components of the target culture. |
| 198 | U.S. History | 1 | Understands the characteristics of societies in the Americas, Western Europe, and Western Africa that increasingly interacted after 1450. |
| 199 | The Arts: Theater | 20 | Understands the context in which theater, film, television, and electronic media are performed today as well as in the past. |
| 200 | Civics | 27 | Understands how certain character traits enhance citizens' ability to fulfill personal and civic responsibilities. |
| 201 | Geography | 13 | Understands the forces of cooperation and conflict that shape the divisions of the Earth's surface. |
| 202 | The Arts: Visual | 23 | Knows a range of subject matter, symbols, and potential ideas in the visual arts. |
| 203 | The Arts: Visual | 22 | Knows how to use the structures (e.g., sensory qualities, organizational principles, expressive features) and functions of art. |

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| 204 | World History | 15 | Understands the political, social, and cultural redefinitions in Europe from 500 to 1000 CE. |
| 205 | World History | 3 | Understands the major characteristics of civilization and the development of civilizations in Mesopotamia, Egypt, and the Indus Valley. |
| 206 | World History | 6 | Understands major trends in Eurasia and Africa from 4000 to 1000 BCE. |
| 207 | Geography | 3 | Understands the characteristics and uses of spatial organization of the Earth's surface. |
| 208 | World History | 4 | Understands how agrarian societies spread and new states emerged in the third and second millennia BCE. |
| 209 | The Arts: Theater | 19 | Understands how informal and formal theater, film, television, and electronic media productions create and communicate meaning. |
| 210 | World History | 1 | Understands the biological and cultural processes that shaped the earliest human communities. |
| 211 | Civics | 13 | Understands the character of American political and social conflict and factors that tend to prevent or lower its intensity. |
| 212 | World History | 24 | Understands the expansion of states and civilizations in the Americas between 1000 and 1500 CE. |
| 213 | World History | 25 | Understands major global trends from 1000 to 1500 CE. |
| 214 | World History | 23 | Understands patterns of crisis and recovery in Afro-Eurasia between 1300 and 1450. |
| 215 | World History | 20 | Understands the redefinition of European society and culture from 1000 to 1300 CE. |
| 216 | World History | 12 | Understands the Imperial crises and their aftermath in various regions from 300 to 700 CE. |
| 217 | World History | 10 | Understands how early agrarian civilizations arose in Mesoamerica. |

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| 218 | World History | 17 | Understands the rise of centers of civilization in Mesoamerica and Andean South America in the first millennium CE. |
| 219 | The Arts: Visual | 25 | Understands the characteristics and merits of one's own artwork and the artwork of others. |
| 220 | The Arts: Visual | 21 | Understands and applies media, techniques, and processes related to the visual arts. |
| 221 | The Arts: Music | 8 | Sings, alone and with others, a varied repertoire of music. |
| 222 | World History | 18 | Understands the global trends from 300 to 1000 CE. |
| 223 | World History | 13 | Understands the causes and consequences of the development of Islamic civilization between the 7th and 10th centuries. |
| 224 | Geography | 12 | Understands the patterns of human settlement and their causes. |
| 225 | World History | 21 | Understands the rise of the Mongol empire and its consequences for Euroasia peoples from 1200 to 1350 CE. |
| 226 | Physical Education | 1 | Uses a variety of basic and advanced movement forms. |
| 227 | The Arts: Music | 9 | Performs on instruments, alone and with others, a varied repertoire of music. |
| 228 | The Arts: Dance | 4 | Understands dance as a way to create and communicate meaning. |
| 229 | The Arts: Dance | 6 | Understands dance in various cultures and historical periods. |
| 230 | World History | 7 | Understands technological and cultural innovation and change from 1000 to 600 BCE. |
| 231 | The Arts: Dance | 7 | Understands connections between dance and healthful living. |

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|-----|----------------------|----|---|
| 232 | The Arts: Dance | 5 | Applies critical and creative thinking skills in dance. |
| 233 | World History | 30 | Understands transformations in Asian societies in the era of European expansion. |
| 234 | World History | 14 | Understands major developments in East Asia and Southeast Asia in the era of the Tang Dynasty from 600 to 900 CE. |
| 235 | The Arts: Music | 12 | Reads and notates music. |
| 236 | The Arts: Music | 13 | Knows and applies appropriate criteria to music and music performances. |
| 237 | Foreign Language | 2 | Comprehends and interprets written and spoken language on diverse topics from diverse media. |
| 238 | The Arts: Music | 10 | Improvises melodies, variations, and accompaniments. |
| 239 | World History | 19 | Understands the maturation of an interregional system of communication, trade, and cultural exchange during a period of Chinese economic power and Islamic expansion. |
| 240 | World History | 16 | Understands the development of agricultural societies and new states in tropical Africa and Oceania. |
| 241 | Foreign Language | 3 | Presents information, concepts, and ideas to an audience of listeners or readers on a variety of topics. |
| 242 | The Arts: Theater | 16 | Uses acting skills. |
| 243 | The Arts: Dance | 2 | Identifies and demonstrates movement elements and skills in performing dance. |
| 244 | World History | 22 | Understands the growth of states, towns, and trade in Sub-Saharan Africa between the 11th and 15th centuries. |
| 245 | The Arts: Theater | 17 | Designs and produces informal and formal productions. |
| 246 | The Arts: Theater | 15 | Demonstrates competence in writing scripts. |

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|-----|----------------------|----|--|
| 247 | The Arts: Dance | 3 | Understands choreographic principles, processes, and structures. |
| 248 | The Arts: Theater | 18 | Directs scenes and productions. |

APPENDIX H

RESULTS OF T-TEST FOR TWO INDEPENDENT SAMPLES AND ONE-WAY
ANALYSIS OF VARIANCE FOR THE DEMOGRAPHIC VARIABLES
AND SUBJECT-MATTER AREAS

T-Test For Two Independent Samples When Demographic Variable Is Trustee Gender

| Subject-matter area | t | df | Significance (two-tailed) |
|-----------------------------|---------|----|------------------------------|
| World History | - 2.203 | 61 | .031* |
| Health | - 2.255 | 62 | .028* |
| Mathematics | - 1.486 | 62 | .142 |
| Foreign Language | - 2.172 | 62 | .034* |
| US History | .268 | 66 | .789 |
| Physical Education | - .980 | 66 | .331 |
| Science | - 1.382 | 66 | .172 |
| Behavioral Studies | - 1.913 | 66 | .060 |
| Technology | - 1.775 | 66 | .080 |
| Civics | - 2.675 | 58 | .010* |
| Language Arts | - 1.590 | 58 | .117 |
| Life Skills | - 2.147 | 58 | .036* |
| Economics | - .746 | 58 | .459 |
| Geography | - 3.107 | 50 | .003* |
| The Arts | - 2.761 | 50 | .008* |
| Historical Understanding | - 2.090 | 50 | .042* |

Note. *Significant difference.

T-Test For Two Independent Samples When Demographic Variable Is Trustee Income Level

| Subject-matter area | t | df | Significance (two-tailed) |
|---------------------|---------|----|------------------------------|
| World History | - 3.184 | 58 | .002* |
| Health | - .851 | 59 | .398 |
| Mathematics | - 1.229 | 59 | .224 |
| Foreign Language | - .766 | 59 | .447 |
| US History | 1.095 | 64 | .278 |
| Physical Education | 1.248 | 64 | .217 |
| Science | .276 | 64 | .783 |
| Behavioral Studies | - .078 | 64 | .938 |
| Technology | 2.275 | 64 | .026* |
| Civics | - 1.738 | 60 | .087 |
| Language Arts | - .209 | 60 | .835 |
| Life Skills | - .784 | 60 | .436 |
| Economics | - 1.583 | 60 | .119 |
| Geography | .357 | 50 | .722 |
| The Arts | - 1.117 | 50 | .907 |
| Historical | - 1.378 | 50 | .174 |
| Understanding | | | |

Note. *Significant difference.

One-Way Analysis Of Variance When Demographic Variable Is School District Classification

| Subject-matter area | F | df | Significance |
|--------------------------|-------|----|--------------|
| World History | .841 | 2 | .436 |
| Health | .609 | 2 | .547 |
| Mathematics | 1.388 | 2 | .257 |
| Foreign Language | 2.707 | 2 | .074 |
| US History | .576 | 2 | .565 |
| Physical Education | .298 | 2 | .743 |
| Science | .718 | 2 | .492 |
| Behavioral Studies | .963 | 2 | .387 |
| Technology | 1.314 | 2 | .276 |
| Civics | .425 | 2 | .656 |
| Language Arts | .450 | 2 | .640 |
| Life Skills | .406 | 2 | .668 |
| Economics | .269 | 2 | .765 |
| Geography | .956 | 2 | .391 |
| The Arts | .245 | 2 | .784 |
| Historical Understanding | .297 | 2 | .744 |

One-Way Analysis Of Variance When Demographic Variable Is School Trustee Age

| Subject-matter area | F | df | Significance |
|--------------------------|-------|----|--------------|
| World History | .531 | 3 | .663 |
| Health | 1.544 | 3 | .212 |
| Mathematics | .769 | 3 | .516 |
| Foreign Language | 1.237 | 3 | .304 |
| US History | .427 | 4 | .789 |
| Physical Education | .930 | 4 | .452 |
| Science | 1.616 | 4 | .181 |
| Behavioral Studies | .952 | 4 | .440 |
| Technology | 1.236 | 4 | .305 |
| Civics | .764 | 4 | .553 |
| Language Arts | .763 | 4 | .554 |
| Life Skills | .450 | 4 | .772 |
| Economics | .882 | 4 | .517 |
| Geography | .597 | 4 | .667 |
| The Arts | 1.114 | 4 | .361 |
| Historical Understanding | .314 | 4 | .860 |

One-Way Analysis Of Variance When Demographic Variable is School Trustee Years Of School Board Experience

| Subject-matter area | F | df | Significance |
|--------------------------|-------|----|--------------|
| World History | 1.676 | 3 | .182 |
| Health | 3.955 | 3 | .012* |
| Mathematics | 1.723 | 3 | .172 |
| Foreign Language | .838 | 3 | .478 |
| US History | .766 | 3 | .517 |
| Physical Education | .698 | 3 | .557 |
| Science | .038 | 3 | .990 |
| Behavioral Studies | .366 | 3 | .778 |
| Technology | 1.357 | 3 | .264 |
| Civics | .528 | 3 | .665 |
| Language Arts | .678 | 3 | .569 |
| Life Skills | 1.730 | 3 | .170 |
| Economics | .367 | 3 | .777 |
| Geography | .986 | 3 | .407 |
| The Arts | 1.580 | 3 | .206 |
| Historical Understanding | .703 | 3 | .555 |

Note. *Significant difference.

One-Way Analysis Of Variance When Demographic Variable Is School Trustee Educational Level

| Subject-matter area | F | df | Significance |
|--------------------------|-------|----|--------------|
| World History | 1.225 | 4 | .310 |
| Health | .394 | 4 | .812 |
| Mathematics | .275 | 4 | .893 |
| Foreign Language | 1.300 | 4 | .280 |
| US History | 3.261 | 4 | .017* |
| Physical Education | 3.270 | 4 | .017* |
| Science | 6.332 | 4 | .000* |
| Behavioral Studies | 2.266 | 4 | .072 |
| Technology | 1.032 | 4 | .398 |
| Civics | .796 | 5 | .557 |
| Language Arts | .285 | 5 | .920 |
| Life Skills | .999 | 5 | .427 |
| Economics | .713 | 5 | .616 |
| Geography | .314 | 5 | .902 |
| The Arts | .726 | 5 | .608 |
| Historical Understanding | 1.206 | 5 | .322 |

Note. *Significant difference.

One-Way Analysis Of Variance When Demographic Variable Is School Trustee Occupation

| Subject-matter area | F | df | Significance |
|--------------------------|-------|----|--------------|
| World History | .805 | 10 | .625 |
| Health | .691 | 10 | .728 |
| Mathematics | .129 | 10 | .712 |
| Foreign Language | 1.751 | 10 | .093 |
| US History | .784 | 10 | .644 |
| Physical Education | .774 | 10 | .653 |
| Science | .688 | 10 | .731 |
| Behavioral Studies | 1.080 | 10 | .393 |
| Technology | 1.790 | 10 | .084 |
| Civics | .631 | 11 | .794 |
| Language Arts | .379 | 11 | .958 |
| Life Skills | .734 | 11 | .701 |
| Economics | .388 | 11 | .954 |
| Geography | 1.096 | 9 | .387 |
| The Arts | 1.206 | 9 | .318 |
| Historical Understanding | 1.535 | 9 | .169 |

APPENDIX I

RESULTS OF T-TEST FOR TWO INDEPENDENT SAMPLES AND ONE-WAY
ANALYSIS OF VARIANCE FOR THE DEMOGRAPHIC VARIABLES
AND MAIN EDUCATIONAL GOAL AREAS

Educational Goals: T-Test For Two Independent Samples Among Questionnaire Groups
When The Demographic Variable Is Trustee Gender

| Educational Goals | Questionnaire group | t | df | Significance (two-tailed) |
|--|------------------------|---------|----|------------------------------|
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | 1.610 | 50 | .114 |
| | Q 2 | - 1.264 | 65 | .211 |
| | Q 3 | 1.095 | 57 | .278 |
| | Q 4 | 1.610 | 50 | .114 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .573 | 50 | .570 |
| | Q 2 | - 1.862 | 66 | .067 |
| | Q 3 | .000 | 58 | 1.000 |
| | Q 4 | .573 | 50 | .570 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | - .307 | 50 | .760 |
| | Q 2 | - 1.114 | 65 | .270 |
| | Q 3 | .018 | 57 | .986 |
| | Q 4 | - .307 | 50 | .760 |

Educational Goals: T-Test For Two Independent Samples Among Questionnaire Groups
When The Demographic Variable Is Trustee Income Level

| Educational Goals | Questionnaire group | t | df | Significance (two-tailed) |
|--|------------------------|--------|----|------------------------------|
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | - .425 | 49 | .673 |
| | Q 2 | 1.088 | 63 | .281 |
| | Q 3 | - .816 | 56 | .418 |
| | Q 4 | - .425 | 49 | .673 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .831 | 49 | .410 |
| | Q 2 | .798 | 64 | .428 |
| | Q 3 | - .807 | 57 | .423 |
| | Q 4 | .831 | 49 | .410 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | .504 | 49 | .617 |
| | Q 2 | - .004 | 63 | .965 |
| | Q 3 | - .821 | 56 | .415 |
| | Q 4 | .504 | 49 | .617 |

Educational Goals: One-Way Analysis Of Variance Among Questionnaire Groups When
The Demographic Variable Is School District Classification

| Educational Goal | Questionnaire | | | |
|--|---------------|-------|----|--------------|
| | group | F | df | Significance |
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | .179 | 2 | .836 |
| | Q 2 | 8.783 | 2 | .000* |
| | Q 3 | .634 | 2 | .534 |
| | Q 4 | .116 | 2 | .891 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .008 | 2 | .992 |
| | Q 2 | 7.088 | 2 | .002* |
| | Q 3 | .965 | 2 | .387 |
| | Q 4 | 1.313 | 2 | .278 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | 3.722 | 2 | .030* |
| | Q 2 | 5.447 | 2 | .007* |
| | Q 3 | 1.256 | 2 | .292 |
| | Q 4 | 1.115 | 2 | .891 |

Note. *Significant difference.

Educational Goals: One-Way Analysis Of Variance Among Questionnaire Groups When
The Demographic Variable Is Trustee Age

| Educational Goal | Questionnaire group | F | df | Significance |
|--|------------------------|-------|----|--------------|
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | .333 | 3 | .801 |
| | Q 2 | .331 | 4 | .856 |
| | Q 3 | .484 | 4 | .748 |
| | Q 4 | 1.141 | 4 | .349 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .486 | 3 | .694 |
| | Q 2 | .688 | 4 | .603 |
| | Q 3 | .912 | 4 | .464 |
| | Q 4 | 1.380 | 4 | .255 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | 1.184 | 3 | .323 |
| | Q 2 | 1.032 | 4 | .398 |
| | Q 3 | .749 | 4 | .563 |
| | Q 4 | 1.353 | 4 | .265 |

Educational Goals: One-Way Analysis Of Variance Among Questionnaire Groups When
The Demographic Variable Is Trustee Years Of School Board Experience

| Educational Goal | Questionnaire group | F | df | Significance |
|--|------------------------|-------|----|--------------|
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | .903 | 3 | .445 |
| | Q 2 | .167 | 3 | .918 |
| | Q 3 | .343 | 3 | .794 |
| | Q 4 | 3.938 | 3 | .014* |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .748 | 3 | .528 |
| | Q 2 | 1.190 | 3 | .321 |
| | Q 3 | .631 | 3 | .598 |
| | Q 4 | .746 | 3 | .530 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | 1.017 | 3 | .392 |
| | Q 2 | .539 | 3 | .657 |
| | Q 3 | .060 | 3 | .980 |
| | Q 4 | 4.311 | 3 | .009* |

Note. *Significant difference.

Educational Goals: One-Way Analysis Of Variance Among Questionnaire Groups When The Demographic Variable Is Trustee Educational Level

| Educational Goal | Questionnaire | | | |
|--|---------------|-------|----|--------------|
| | group | F | df | Significance |
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | 1.184 | 4 | .327 |
| | Q 2 | .402 | 4 | .807 |
| | Q 3 | 2.619 | 5 | .034* |
| | Q 4 | 2.307 | 5 | .060 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | .436 | 4 | .782 |
| | Q 2 | .588 | 4 | .673 |
| | Q 3 | 4.743 | 5 | .001* |
| | Q 4 | .454 | 5 | .808 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | 1.064 | 4 | .382 |
| | Q 2 | .508 | 4 | .730 |
| | Q 3 | 2.415 | 5 | .047* |
| | Q 4 | 2.007 | 5 | .096 |

Note. *Significant difference.

Educational Goals: One-Way Analysis Of Variance Among Questionnaire Groups When
The Demographic Variable Is Trustee Occupation

| Educational Goal | Questionnaire group | F | df | Significance |
|--|------------------------|-------|----|--------------|
| 1. Provide knowledge that helps individual students have a well-rounded and productive life. | Q 1 | 1.714 | 10 | .102 |
| | Q 2 | .946 | 10 | .499 |
| | Q 3 | .596 | 11 | .822 |
| | Q 4 | .872 | 9 | .558 |
| 2. Provide knowledge that helps individual students obtain meaningful employment. | Q 1 | 1.023 | 10 | .437 |
| | Q 2 | .901 | 10 | .538 |
| | Q 3 | 2.076 | 11 | .042* |
| | Q 4 | 1.068 | 9 | .408 |
| 3. Provide knowledge that helps our country to acquire and maintain a competitive edge. | Q 1 | 1.282 | 10 | .265 |
| | Q 2 | .947 | 10 | .499 |
| | Q 3 | .642 | 11 | .784 |
| | Q 4 | .695 | 9 | .709 |

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