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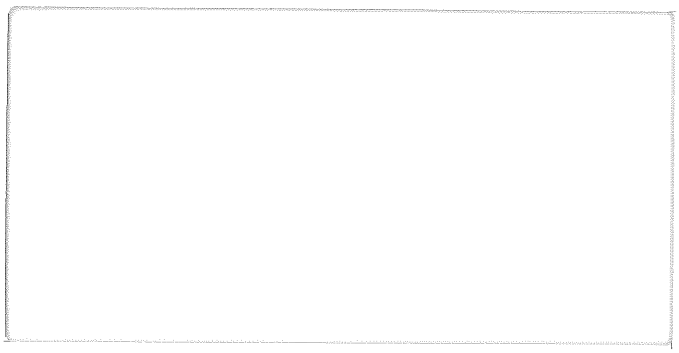
MINNESOTA EDUCATIONAL ASSESSMENT

Division of Special Services

State of Minnesota Department of Education



MINNESOTA STATEWIDE EDUCATIONAL

ASSESSMENT IN ART

1981-82

Minnesota Department of Education
Assessment Section
Elementary/Secondary Section

May, 1984

FOREWORD

Members of the Assessment Section and the Elementary and Secondary Education Section would like to thank the many art teachers and others who helped to make the Minnesota Art Assessment a successful endeavor. Individuals gave willingly of their time and energy in all aspects of the assessment, and it is our hope that these efforts will lead to improved learning opportunities for all students in art education.

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ASSESSMENT OVERVIEW

INTRODUCTION

During the 1981-82 school year a statewide assessment in art was conducted at grades four, eight, and eleven. A total of 8,997 students was tested, which included 2,805 fourth graders, or six percent of the fourth grade public school population; 3,163 eighth graders, or six percent of the eighth grade public school population; and 3,029 eleventh graders, or five percent of the eleventh grade public school population. Enrollment data was furnished by the Statistics Section of the Minnesota Department of Education. Students in the sample were selected from six categories of school districts based on district size and type. The size of the sample and the random nature of the selection means that generalizations from the data can be made to each district category as well as the total population of students with a high degree of confidence.

In the Minnesota assessment program, eighth graders are tested in the fall, fourth graders in the winter, and eleventh graders in the spring. The testing pattern corresponds with the one established by the National Assessment of Educational Progress (NAEP) and allows relevant comparisons to be made between Minnesota and national students.

A description of the Minnesota Educational Assessment Program, including purposes, instrument development, and testing procedures is contained in Appendix I.

ART ASSESSMENT

This was the first time an art assessment was conducted in Minnesota. The art test, like all instruments in the Minnesota Assessment Program, was criterion-referenced. That is, questions were developed to measure student performance relative to specified goals and objectives. The goals and objectives for the art assessment are identified in the publication, Some Essential Learner Outcomes in Art (SELO's), developed by subject specialists for the Department of Education (Fall, 1980). The Art SELO's include three major areas: (1) Perceiving/Knowing/Understanding; (2) Producing; and (3) Valuing/Judging. Most of the test covered SELO areas one and three. A few questions dealt with techniques of producing art, but because of the difficulty of administering and scoring, students were not asked to produce any art. A separate test was used at grade four, but eighth and eleventh graders were given the same test.

ORGANIZATION OF REPORT

The major purpose of this report is to provide the reader with an analysis of the assessment data, including conclusions and recommendations for improving student performance. Chapter two contains data from the fourth grade assessment; Chapter three provides an analysis of the eighth grade assessment; Chapter four contains results from the assessment at grade eleven. Chapter five provides an overall summary of assessment results including trends, observations, conclusions, and recommendations.

An appendix is also included which contains descriptive information about the assessment.

CHAPTER TWO

GRADE FOUR

CHAPTER TWO

GRADE FOUR

INTRODUCTION

The fourth grade assessment was conducted in February, 1982, and included 2,805 students, or about six percent of the fourth grade public school population. Enrollment data was furnished by the Statistics Section of the Minnesota Department of Education. Students were selected by means of a random sampling plan from six categories of school districts. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of fourth graders with a high degree of confidence. A more complete description of the assessment program, including purposes, instrument development, and testing procedures is contained in Appendix I.

ASSESSMENT RESULTS

Performance Relative to Criteria

One method of analyzing data from an assessment is to compare student performance with criteria established by subject specialists. For this assessment a group of art teachers was asked to review test items and determine a range (generally ten points) within which performance would be considered acceptable. In establishing criteria, subject specialists consider the importance of the skill, the difficulty of the skill, the construction of the item, the time of year testing was done, as well as other variables which could affect student performance.

Once ranges were established for items, results were provided and performance was rated on a five-point scale of strength, potential strength, acceptable, potential need, or need.

Fourth grade performance relative to criteria is displayed in Table 1. On the five subobjectives in the fourth grade assessment, performance on four was below a level considered acceptable. Three needs, and one potential need were identified. Subobjective IC, which includes perceiving and understanding design qualities, such as identifying characteristics of line, shape, color, texture, value, and space was identified as a potential strength.

TABLE 1
PERFORMANCE RELATIVE TO CRITERIA
GRADE 4

Subobjective	Number of Items	Average Percent Correct	Evaluation
IA Perceiving and Understanding Art in Daily Life	6	64.1%	Potential Need
IB Knowing and Understanding Cultural and Historic Context	5	41.5%	Need
IC Perceiving and Understanding Design Qualities	17	69.8%	Potential Strength
IIIA Valuing and Appreciating Art (Affective Items)	29	54.7%	Need
IIIB Making Critical Judgments	2	33.4%	Need

PERFORMANCE BY SCHOOL DISTRICT CATEGORY

Following a pattern established in previous assessments, the sample for the art assessment was selected from six categories of school districts based on district size and type. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of fourth graders with a high degree of confidence.

Table 2 contains data showing student performance by school district category. As displayed in Table 2, the highest relative performance was within the seven-county metropolitan area (district category two), while the lowest relative performance was in district category six. District categories one and five also had relatively low performance, while district categories three and four scored close to the state average.

While students in district category one scored relatively low overall, their score on subobjective IB, knowing and understanding cultural and historical context, was considerably above that of other district categories. Students in district category three scored relatively low on subobjective IB compared to their performance on other subobjectives. Students in district category six scored relatively well on objective IIIB compared to their overall score.

Differences in performance that appear across district categories may warrant additional study as planning and developmental activities are carried forward.

TABLE 2
PERFORMANCE BY SCHOOL DISTRICT CATEGORY
GRADE 4

Subobjective/Descriptor	# Of Items	All MN Students	School District Categories					
			1 Cities of 1st Class	2 7-County Metro Area	3 2,000+ Students	4 1,000-1,999	5 500-999 Students	6 1-499 Students
IA Perceiving and Understanding Art in Daily Life	6	64.1%	Even	+0.5%	Even	Even	-0.6%	+0.7%
IB Knowing and Understanding Cultural and Historic Context	5	41.5%	+5.0%	+0.5%	-1.5%	+0.9%	-1.8%	-2.7%
IC Perceiving and Understanding Design Qualities	17	69.8%	-3.9%	+2.6%	+1.0%	-1.2%	-2.0%	-3.5%
IIIB Making Critical Judgments	2	33.4%	-2.0%	-1.6%	+0.3%	-1.6%	-0.7%	+1.2%
OVERALL		61.5%	-1.5%	+1.8%	+0.4%	-0.6%	-1.6%	-2.2%

MINNESOTA AND NATIONAL PERFORMANCE

Sixteen items in the fourth grade assessment were selected from the National Assessment of Educational Progress (NAEP), and thus enable comparisons to be made between Minnesota and national students. Most of these items pertained to valuing and appreciating art. As displayed in Table 3, Minnesota, national, and Central U.S. students scored at an essentially equivalent level, with less than one percent separating their overall scores. However, the difference that did appear shows a disadvantage for Minnesota students compared to the Central U.S. group.

TABLE 3
MINNESOTA AND NATIONAL PERFORMANCE
GRADE 4

Number of Items	Minnesota	National	Central U.S.	Minnesota Advantage Over National	Central U.S.
16	54.1%	54.0%	54.7%	+0.1%	-0.6%

PERFORMANCE OF BOYS AND GIRLS

Displayed in Table 4 is the performance of fourth grade boys and girls. As shown by the data, girls outperformed boys on three of the four subobjectives and displayed an overall performance advantage of 0.5%. Boys displayed a 2.8% performance advantage on subobjective IB, knowing and understanding cultural and historical context.

TABLE 4
PERFORMANCE OF BOYS AND GIRLS
GRADE 4

	Subobjective/Descriptor	Boys	Girls	Girls Advantage
IA	Perceiving and Understanding Art in Daily Life	63.8%	64.4%	+0.6%
IB	Knowing and Understanding Cultural and Historic Context	42.9%	40.1%	-2.8%
IC	Perceiving and Understanding Design Qualities	69.1%	70.5%	+1.4%
IIIB	Making Critical Judgments	33.1%	33.8%	+0.7%
	OVERALL	61.3%	61.8%	+0.5%

CHAPTER THREE

GRADE EIGHT

CHAPTER THREE

GRADE EIGHT

CHAPTER THREE

GRADE EIGHT

INTRODUCTION

The eighth grade assessment was conducted in October, 1981, and included 3,163 students, or six percent of the eighth grade public school population. Enrollment data was furnished by the Statistics Section of the Minnesota Department of Education. Students were selected by means of a random sampling plan from six categories of school districts. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of eighth graders with a high degree of confidence. A more complete description of the assessment program, including purposes, instrument development, and testing procedures, is contained in Appendix I.

ASSESSMENT RESULTS

Performance Relative to Criteria

One method of analyzing data from an assessment is to compare student performance with criteria established by subject specialists. For this assessment, a group of art teachers was asked to review test items and determine a range (generally ten points) within which performance would be considered acceptable. In establishing criteria, subject specialists consider the importance of the skill, the difficulty of the skill, the construction of the item, the time of year testing was done, as well as other variables which could affect student performance.

Once ranges were established for items, actual results were provided and performance was rated on a five-point scale of strength, potential strength, acceptable, potential need, or need.

Eighth grade performance relative to criteria is displayed in Table 5. On the six subobjectives in the assessment, student performance was below the criterion established by subject specialists in every instance and was labeled a need. This means that in the judgment of subject specialists, there is a great need for improvement in all areas of art covered by the assessment.

TABLE 5
PERFORMANCE RELATIVE TO CRITERIA
GRADE 8

Subobjective	Number of Items	Average Percent Correct	Evaluation
IA Perceiving and Understanding Art in Daily Life	7	58.2%	Need
IB Knowing and Understanding Cultural and Historic Context	15	46.4%	Need
IC Perceiving and Understanding Design Qualities	21	55.3%	Need
IIB Producing Representational Qualities	3	51.1%	Need
IIE Developing Skills in Using Art Materials Tools and Forming Processes	6	50.0%	Need
IIIB Making Critical Judgments	11	43.1%	Need

PERFORMANCE BY SCHOOL DISTRICT CATEGORY

Following a pattern established in previous assessments, the sample for the art assessment was selected from six categories of school districts based on district size and type. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of eighth graders with a high degree of confidence. A more complete description of the assessment program, including sample selection, is contained in Appendix I.

Table 6 displays student performance by school district category. As displayed in the table, scores across district categories varied from 3.2 percent above the state average to six percent below, indicating a considerable range in performance on subobjective knowledge and skills. Only one district category scored consistently above the state on all subobjectives, District Category Two, Seven-County Metropolitan Area. The lowest relative performance was recorded by district categories five and six, the two smallest district categories in the sample.

Performance differences on subobjectives and on overall scores may warrant additional study by subject specialists to determine possible implications for subject matter development.

TABLE 6
PERFORMANCE BY SCHOOL DISTRICT CATEGORY
GRADE 8

	Subobjective/Descriptor	# Of Items	All MN Students	School District Categories					
				1 Cities of 1st Class	2 7-County Metro Area	3 2,000+ Students	4 1,000-1,999	5 500-999 Students	6 1-499 Students
IA	Perceiving and Understanding Art in Daily Life	7	58.2%	+0.5%	+0.3%	+0.2%	-1.5%	+0.1%	-0.1%
IB	Knowing and Understanding Cultural and Historic Context	15	46.4%	Even	+2.1%	-2.5%	+0.2%	Even	-2.7%
IC	Perceiving and Understanding Design Qualities	21	55.3%	+0.9%	+1.1%	+0.1%	+0.7%	-2.2%	-1.3%
IIB	Producing Representational Qualities	3	51.1%	-2.1%	+3.2%	-1.4%	-3.6%	-2.0%	-2.9%
IIE	Developing Skills in Using Art Materials Tools and Forming Processes	6	50.0%	-1.3%	+1.0%	+3.2%	+1.7%	-5.0%	-6.0%
IIIB	Making Critical Judgments	11	43.1%	-0.2%	+1.2%	-0.8%	-1.0%	-0.6%	+0.6%
	OVERALL	63	50.7%	-0.6%	+1.3%	-0.5%	-0.1%	-1.4%	-1.5%

MINNESOTA AND NATIONAL PERFORMANCE

A total of forty-seven items in the eighth grade test were selected from the National Assessment of Educational Progress (NAEP), allowing comparisons to be made between Minnesota and national groups of students. Of the forty-seven items selected from NAEP, nineteen tested cognitive skills and twenty-eight measured student attitudes. Minnesota and national comparisons are contained in Table 7. As shown in Table 7, Minnesota students displayed a 2.5 percent and a 2.8 percent advantage respectively over their national and Central U.S. counterparts on cognitive items. Minnesota students scored slightly below national students on attitudinal items, but for purposes of analysis the scores can be considered essentially equivalent.

TABLE 7
MINNESOTA AND NATIONAL PERFORMANCE
GRADE 8

Type	Items	Minnesota	National	Central U.S.	Minnesota Advantage Over National	Central U.S.
Cognitive	19	52.3%	49.8%	49.5%	+2.5%	+2.8%
Attitude	28	48.1%	49.5%	49.8%	-1.4%	-1.7%
Combined	47	49.8%	49.6%	49.7%	+0.2%	+0.1%

PERFORMANCE OF BOYS AND GIRLS

Table 8 contains a comparison of the performance of boys and girls on the assessment. As the data indicate, girls outperformed boys on five of six subobjectives, and had an overall performance advantage of 1.7 percent. Boys displayed a performance advantage of 1.5 percent on subobjective IB, knowing and understanding cultural and historical context.

TABLE 8
PERFORMANCE OF BOYS AND GIRLS
GRADE 8

	Subobjective/Descriptor	Boys	Girls	Girls Advantage
IA	Perceiving and Understanding Art in Daily Life	57.8%	58.6%	+0.8%
IB	Knowing and Understanding Cultural and Historic Context	47.1%	45.6%	-1.5%
IC	Perceiving and Understanding Design Qualities	53.9%	56.8%	+2.9%
IIB	Producing Representational Qualities	50.2%	52.1%	+1.9%
IIE	Developing Skills in Using Art Materials Tools and Forming Processes	48.6%	51.5%	+2.9%
IIIB	Making Critical Judgments	41.4%	44.9%	+3.5%
	OVERALL	49.8%	51.5%	+1.7%

CHAPTER FOUR

GRADE ELEVEN

CHAPTER FOUR

GRADE ELEVEN

INTRODUCTION

The eleventh grade assessment was conducted in May, 1982, and included 3,029 students, or five percent of the eleventh grade public school population. Enrollment data was furnished by the Statistics Section of the Minnesota Department of Education. Students were selected by means of a random sampling plan from six categories of school districts. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of eleventh graders with a high degree of confidence. A more complete description of the assessment program, including purposes, instrument development, and testing procedures is contained in Appendix I.

ASSESSMENT RESULTS

Performance Relative to Criteria

One method of analyzing data from an assessment is to compare student performance with criteria established by subject specialists. For this assessment, a group of art teachers was asked to review test items and determine a range (generally ten points) within which performance would be considered acceptable. In establishing criteria, subject specialists consider the importance of the skill, the difficulty of the skill, the construction of the item, the time of year testing was done, as well as other variables which could affect student performance.

Once ranges were established for items, results were provided and performance was rated on a five-point scale of strength, potential strength, acceptable, potential need, or need.

Eleventh grade performance relative to criteria is displayed in Table 9. On the six subobjectives in the assessment, student performance was below the criterion established by subject specialists in every instance and was labeled a need. Thus, in the judgment of subject specialists, there is a need for improvement in all the areas of art covered by the assessment.

TABLE 9
PERFORMANCE RELATIVE TO CRITERIA
GRADE 11

Subobjective	Number of Items	Average Percent Correct	Evaluation
IA Perceiving and Understanding Art in Daily Life	7	63.3%	Need
IB Knowing and Understanding Cultural and Historic Context	15	51.7%	Need
IC Perceiving and Understanding Design Qualities	21	59.8%	Need
IIB Producing Representational Qualities	3	57.2%	Need
IIE Developing Skills In Using Art Materials Tools and Forming Processes	6	54.8%	Need
IIIB Making Critical Judgments	11	51.9%	Need

PERFORMANCE BY SCHOOL DISTRICT CATEGORY

Following a pattern established in previous assessments, the sample for the art assessment was selected from six categories of school districts based on district size and type. The size of the sample and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of eleventh graders with a high degree of confidence. A more complete description of the assessment program, including sample selection, is contained in Appendix I.

Student performance by school district category is displayed in Table 10. In general, scores show relatively little deviation from the state average. In twenty-eight of thirty-six instances (78%), scores in district categories showed less than a two percent deviation from the state average. A generally positive directionality from the state average was displayed in district categories two and three, while in contrast, a generally negative directionality was displayed in district categories four through six, and in selected areas of district category one.

MINNESOTA AND NATIONAL PERFORMANCE

Forty items in the eleventh grade assessment were selected from items released by the National Assessment of Educational Progress (NAEP). Items were selected which met Minnesota objectives, and this process allows for comparisons to be made between Minnesota and national groups of students. Of the forty NAEP items, twenty-two tested cognitive skills and eighteen measured student attitudes. Minnesota and national comparisons are displayed in Table 11. As shown in Table 11, scores on cognitive and attitudinal items were essentially equivalent for Minnesota, national, and Central U.S. students.

TABLE 10
PERFORMANCE BY SCHOOL DISTRICT CATEGORY
GRADE 11

	Subobjective/Descriptor	# Of Items	All MN Students	School District Categories					
				1 Cities of 1st Class	2 7-County Metro Area	3 2,000+ Students	4 1,000-1,999	5 500-999 Students	6 1-499 Students
IA	Perceiving and Understanding Art in Daily Life	7	63.3%	+1.7%	+0.7%	+2.4%	-1.9%	-3.3%	-4.1%
IB	Knowing and Understanding Cultural and Historic Context	15	51.7%	-2.2%	+1.2%	+1.1%	-0.9%	-1.8%	-2.5%
IC	Perceiving and Understanding Design Qualities	21	59.8%	-3.3%	+0.7%	+1.3%	-1.3%	-1.2%	-0.6%
IIB	Producing Representational Qualities	3	57.2%	-0.5%	+1.7%	-0.3%	-0.9%	-0.2%	-3.1%
IIE	Developing Skills In Using Art Materials Tools and Forming Processes	6	54.8%	-1.6%	+1.6%	+1.4%	-4.3%	-1.9%	Even
IIIB	Making Critical Judgments	11	51.9%	+0.4%	+0.5%	+0.5%	-0.5%	-1.6%	-1.1%
	OVERALL	63	56.3%	-1.5%	+0.9%	+1.1%	-1.4%	-1.6%	-1.6%

TABLE 11
MINNESOTA AND NATIONAL PERFORMANCE
GRADE 11

Type	Items	Minnesota	National	Central U.S.	Minnesota Advantage Over National	Central U.S.
Cognitive	22	60.1%	60.5%	59.0%	-0.4%	+1.1%
Attitude	18	59.1%	58.3%	59.2%	+0.8%	-0.1%
Combined	40	59.7%	59.5%	59.1%	+0.2%	+0.6%

PERFORMANCE OF BOYS AND GIRLS

A comparison of the performance of boys and girls is contained in Table 12. As shown in Table 12, girls outperformed boys on four of six subobjectives, and performance on another was even. Boys displayed a slight performance advantage on subobjective IB, knowing and understanding cultural and historical context. Girls displayed an overall performance advantage of 2.4%

TABLE 12
PERFORMANCE OF BOYS AND GIRLS
GRADE 11

	Subobjective/Descriptor	Boys	Girls	Girls Advantage
IA	Perceiving and Understanding Art in Daily Life	63.3%	63.3%	Even
IB	Knowing and Understanding Cultural and Historic Context	51.9%	51.4%	-0.5%
IC	Perceiving and Understanding Design Qualities	57.7%	62.0%	+4.3%
IIB	Producing Representational Qualities	56.7%	57.7%	+1.0%
IIE	Developing Skills In Using Art Materials Tools and Forming Processes	53.6%	56.1%	+2.5%
IIIB	Making Critical Judgments	49.6%	54.4%	+4.8%
	OVERALL	55.1%	57.5%	+2.4%

CHAPTER FIVE

PERFORMANCE OVERVIEW

CHAPTER FIVE

PERFORMANCE OVERVIEW

INTRODUCTION

This chapter contains a summary of the major findings of the art assessment, as well as recommendations in light of results. Recommendations are based on expectations and standards established by art educators at the state and national levels. There are four major sections in this chapter. Section one contains the major findings across grades four, eight, and eleven. Section two contains a summary of knowledge, skills, and attitudes across grades relative to criteria established by art teachers; section three displays a comparison of performance across school district categories; and section four contains Minnesota, national, and Central U.S. performance comparisons. The tables which are included are intended to provide support for the major findings which follow.

SECTION ONE: MAJOR FINDINGS

1. Performance at all grade levels generally falls below criteria established by subject specialists for acceptability. On seventeen subobjectives, performance on sixteen was considered to be below an acceptable level (Table 13).
2. Results by size and type of district indicate that the highest relative performance was generally in District Category Two, Seven-County Metropolitan Area. The lowest relative performance was in district categories five and six, those districts in the sample with the smallest school enrollments (Table 14).

TABLE 13
PERFORMANCE RELATIVE TO CRITERIA

Subobjective/Descriptor		Evaluation		
		Grade 4	Grade 8	Grade 11
IA	Perceiving and Understanding Art in Daily Life	Potential Need	Need	Need
IB	Knowing and Understanding Cultural and Historic Context	Need	Need	Need
IC	Perceiving and Understanding Design Qualities	Potential Strength	Need	Need
IIB	Producing Representational Qualities	----	Need	Need
IIE	Developing Skills in Using Art Materials Tools and Forming Processes	----	Need	Need
IIIA	Valuing and Appreciating Art (Affective Items)	Need	----	----
IIIB	Making Critical Judgments	Need	Need	Need

TABLE 14
PERFORMANCE BY SCHOOL DISTRICT CATEGORY

Grade	State	School District Categories					
		1 Cities of 1st Class	2 7-County Metro Area	3 2,000+ Students	4 1,000-1,999	5 500-999 Students	6 1-499 Students
4	61.5%	-1.5%	+1.8%	+0.4%	-0.6%	-1.6%	-2.2%
8	50.7%	-0.6%	+0.3%	-0.5%	-0.1%	-1.4%	-1.5%
11	56.3%	-1.5%	+0.9%	+1.1%	-1.4%	-1.6%	-1.7%

TABLE 15
MINNESOTA AND NATIONAL PERFORMANCE

Grade	Type	# of Items	Average Percent Correct MN	Nat'l	Central U.S.	MN Advantage Over: National	Central U.S.
4	All	16	54.1%	54.0%	54.7%	0.1%	0.6%
8	Cognitive	19	52.3%	49.8%	49.5%	+2.5%	+2.8%
	Attitude	28	48.1%	49.5%	49.8%	-1.4%	-1.7%
	Combined	47	49.8%	49.6%	49.7%	+0.2%	+0.1%
11	Cognitive	22	60.1%	60.5%	59.0%	-0.4%	+1.1%
	Attitude	18	59.1%	58.3%	59.2%	+0.8%	-0.1%
	Combined	40	59.7%	59.5%	59.1%	+0.2%	+0.6%

TABLE 16
PERFORMANCE OF BOYS AND GIRLS

Grade	Boys	Girls	Advantage
4	61.3%	61.8%	+0.5%
8	49.8%	51.5%	+1.7%
11	55.1%	57.5%	+2.4%

3. Minnesota performance at grade four was essentially equivalent to that of national and Central U.S. students, with less than one percent separating overall performance. On cognitive items, Minnesota students at grade eight displayed a 2.5 percent and a 2.8 percent advantage respectively over their national and Central U.S. counterparts. Scores on attitudinal items were essentially equivalent. At the eleventh grade, scores for Minnesota, national, and Central U.S. groups were essentially equivalent (Table 15).

4. Girls displayed an advantage over boys at all grade levels ranging from 0.5 percent at grade four to 2.4 percent at grade eleven. On sixteen subobjectives over grades four, eight, and eleven, girls outscored boys twelve times, and the scores on another were equal. The only subobjective where boys outscored girls, and they did it at every grade level, was on subobjective IB, Knowing and Understanding Cultural and Historical Context (Table 16).

SECTION TWO: KNOWLEDGE, SKILLS, AND ATTITUDES ACROSS GRADES

A. Knowledge of Art

Summary of Findings

School art programs in the past twenty years have typically emphasized the production of art, and have put little emphasis on learning about art or learning to make critical judgments about art. Current trends indicate a movement towards more balance between the three areas, but most school art programs are in transition at the present time.

Knowledge of art as it was tested in the assessment incorporated three subobjectives: IA, perceiving and understanding art in daily life, such as the role that art and artists play in contemporary society and the influence of advertising on society; IB, knowing and understanding the cultural and historical context of art, such as learning about past and present cultures through the study of the art of those cultures; and IC, perceiving and understanding design qualities such as the line, color, and rhythm, portrayed by art. Performance on these subobjectives relative to criteria established by art teachers is displayed in Table 13. On subobjective IA which deals with the role of art and artists in the daily life of all people, performance was judged a need at grades eight and eleven by art teachers, while performance at grade four was judged a potential need. Fourth graders, in general, did not know that artists design useful objects like appliances, clothing, or cars. They did, however, understand the purpose of a cereal or toy advertisement.

Student performance on subobjective IB pertaining to knowledge of art history and the relationship of art to the culture in which it is produced was judged by subject specialists to be a need at all three grade levels. Only two questions dealt with names of individual artists--Leonardo da Vinci and Alexander Calder, the inventor of moving sculptures called mobiles. Even though the making of mobiles is a popular art project at all grade levels, only 5% of fourth graders and 14% of eighth and eleventh graders could correctly identify Calder as the creator of a pictured mobile. Students did somewhat better when asked to identify the geographical origin of pictured works of art. They also demonstrated a good understanding about the original purpose of an African mask or an

Eskimo sculpture. Most eighth and eleventh graders could not correctly identify major movements of western art.

Fourth grade performance was considered a potential strength on subobjective IC, perceiving and understanding design qualities. This was the only subobjective where performance was considered acceptable or above in the Minnesota art assessment. This subobjective tests knowledge about the elements of line, shape, color, texture, value, and space; and the ability to recognize subject matter and themes in works of art. Performance on this subobjective is consistent with current art education trends in Minnesota. Where elementary programs are in place, the major emphasis is usually placed on learning about and using the elements of art. Where art history is included, stress is most commonly placed on learning to "read" or interpret the major theme or subject matter in painting reproductions. The only art element which fourth graders had difficulty with was the concept of "value," the lightness or darkness of an object or visual image.

Two additional, more difficult subobjectives were included in the eighth and eleventh grade tests: knowledge about the art principles of rhythm, movement, balance, contrast, emphasis, proportion, unity, variety, and tension (IIB); and knowledge of relationships in visual form (IIE). Student performance for both eighth and eleventh grade students was considered to be an area of need by subject specialists. Students had difficulty identifying complementary colors and tactile texture, and explaining why a particular color appears to be closer in a pictured painting. They also had difficulty identifying art principles.

In summary, according to the judgments of art teachers, students at grades four, eight, and eleven are weak in knowledge about art. They are

not learning about the everpresent role of art and artists in contemporary society. They are learning little about the understanding or appreciation of artwork in history, such as how art parallels historical events, and what art tells us about the culture and people who produced it. While fourth graders show acceptable performance in knowledge of design qualities, eighth and eleventh grade performance was judged to be a need.

Recommendations For Improving Student Performance On Objective I, Knowledge Of Art

1. Students need to be able to study the role of art in our contemporary culture, i.e., art careers, understanding advertising function and power, the visual impact of ugliness, and understanding why humans produce visual art.
2. Students need to have assignments dealing with functional art, i.e., poster design, automobile design, architecture.
3. Art teachers need to move beyond their fine arts training which emphasized individual expression and teach more functional art such as commercial design.
4. Elementary classroom teachers have the unique opportunity to integrate the concept of art in daily life into other elementary subject matter areas, such as the social studies and reading curriculum. They may need additional training in order to accomplish this.
5. The study of art history needs to be increased at all levels. Specific learner outcomes to which students are held accountable should be established.

B. Art Skills

Summary of Findings

Art skills, identified in the SELO under "producing," incorporates five subobjectives: IIA, producing imaginative and expressive visual images, IIB, producing representational qualities (learning to draw realistically), IIC, employing design qualities (i.e., consciously using design elements to achieve a specific meaning or effect), IID, experimenting with art materials (the first step in developing skills), and IIE, developing skills in using art materials, tools, and forming processes.

Students were not asked to produce art in the assessment test because of the difficulty of scoring such items. Therefore, subobjectives IIA and IIC were not tested. Knowledge of one aspect of subobjective IIB, techniques of showing depth in a painting, was included in the eighth and eleventh grade test, but students had difficulty identifying the correct answer.

On subobjectives IID and IIE, students indicated what art materials they have worked with, as well as materials with which they would like to become more proficient. Eighth and eleventh graders demonstrated knowledge of safe use of tools but did less well on identifying correct art processes from a picture of an art object, and on identifying the correct vocabulary used in those same processes.

Student use of drawing materials and water colors runs in the 80th and 90th percentile in all grades while use of other paint media was somewhat lower. Use of clay is very high at all levels, with 79 percent of fourth graders indicating usage, to 90 percent in grade eleven. Students also indicated a desire to gain more proficiency in the use of clay. This high usage probably reflects the number of good college

ceramics programs, and also the large numbers of professional potters in the state. It is interesting to compare this high use of a material to produce functional art objects (most school clay units involve making pottery rather than sculpture), with the low scores in knowing about the use of art in our daily lives. A pottery unit would be an ideal place to emphasize the values of handmade functional art objects and the corresponding role and value of artists in contemporary society.

The use of other three-dimensional art materials, such as wire, wood, and plaster is much lower in all grades, indicating that except for the use of clay, most school art projects are flat and two-dimensional rather than three-dimensional.

In summary, the art assessment test results have given us information on what materials students are using to produce art products, the materials in which they wish to develop more skills, but not how successful they are in using the materials.

Scores on knowledge about art processes are mixed: students know safety rules but lack vocabulary on tools and processes commonly taught in school programs.

Recommendations For Improving Student Performance On Objective II, Producing Skills

1. Art teachers need to stress proper vocabulary in all art units. Students need such vocabulary in order to learn how to value and judge works of art.
2. Students need to recognize and use the many ways of portraying depth in two-dimensional art.
3. Art programs should include a wide variety of three-dimensional materials in addition to two-dimensional materials.

4. There is need for more depth in art projects and units, so that students can develop greater skills in the use of art media.
5. Art teachers should develop their own tests to measure student skill proficiency, and to report the results to the district and community.

C. Attitudes About Art

Summary of Findings

Attitudes about art incorporate two subobjectives: IIIA, valuing and appreciating art (a feeling that art has some influence and importance in our lives); and IIIB, making critical judgments. In order for children to learn how to make valid critical judgments about art as adults, they must learn the four steps of judgment making: perceiving, analyzing, interpreting, and judging. Teaching these four steps should be a component of every K-12 district art program. Results of the art assessment suggest that students have minimal exposure to these skills. Students at all levels had difficulty using valid criteria to judge a piece of art.

The valuing questions in the tests did not necessarily have a right or wrong answer, but attempted to determine the open-mindedness of students to a variety of art forms and artistic styles, and whether the student felt that art and artists are important in society.

Fourth grade scores in this area indicate a need, as determined by subject specialists. Acceptance of modern furniture and modern building styles ran high, but appreciation of non-traditional drawings and paintings was low. Standards were not established for eighth and eleventh grade tests, but since those scores were only slightly higher than the fourth graders and followed the same general patterns, it can be assumed that a need is evidenced in these grades also. An encouraging sign is that as students get older they tend to increase their belief that artists are important to society.

Although students increased in their ability to use valid criteria for judging art from fourth to eighth and eleventh grade, subject specialists felt the performance indicated a need at each level. Most fourth graders thought a Henry Moore sculpture was good either because it depicted a family or because it would have taken a long time to make. About half of the eighth and eleventh graders correctly identified the appropriate answer pertaining to rounded shapes, but more secondary students admitted they didn't know the answer than did fourth graders. This would appear to suggest that the older students realized that their beliefs were inadequate, but that they have not yet learned appropriate criteria with which to judge art.

In order to learn how to evaluate and judge art, students need experiences in looking at and describing visual images and works of art. Statistical data collected by the test indicate that students are not receiving those experiences. For example, as displayed in Figure 1, more than two-thirds of eighth and eleventh graders reported that there were no art class critiques or only one critique during the year.

FIGURE 1
ART CLASS CRITIQUES

A good way to learn about art is to talk about your own work and the work of others in a class discussion or critique. Think of one art class you have taken. In that class how many times were there class critiques?

Grade 8	Grade 11	
46.7%	46.8%	a. Never
22.5%	20.2%	b. Once during the year
18.1%	18.2%	c. About five times
7.0%	7.2%	d. About ten times or more
4.8%	7.3%	e. I have never taken an art class.

Visiting art museums and galleries is another method used to teach students to appreciate and evaluate art. Yet as displayed in Figure 2, many students have never been on a school-sponsored field trip to an art museum. About one quarter have had one such field trip. Many students are apparently attending art museums with parents however, since another question revealed that only about one quarter of all students had never visited an art museum.

FIGURE 2
ART MUSEUM VISITS

The works of artists are shown in art museums and art galleries. How often have you visited art museums or art galleries?

	Grade 4	Grade 8	Grade 11
a. Never	48.2%	43.5%	37.2%
b. One time	25.4%	23.5%	24.5%
c. About five times	18.1%	22.7%	27.9%
d. About ten times	6.1%	8.1%	9.1%
e. Fifteen or more times	1.9%	2.1%	1.2%

In summary, results show that students generally are not openminded about unusual and experimental art, and that they tend to judge art on personal likes rather than valid artistic criteria.

Recommendations For Improving Student Performance On Objective III, Attitudes

1. School field trips to museums or galleries should be built into the K-12 art curriculum at least once each in elementary, junior high, and high school.
2. Teachers need to allow time for class critiques in each art unit, beginning in the primary grades. Attention needs to be given to teaching the four steps of critical judgment.
3. Learner outcomes pertaining to valuing and judging need to be written into all art units.

4. Community resource people such as artists and "picture people" should be brought into the classroom.

SECTION THREE: KNOWLEDGE, SKILLS, AND ATTITUDES ACROSS SIX CATEGORIES OF MINNESOTA SCHOOL DISTRICTS

Summary of Findings

When student performance is compared across six categories of school districts (Table 17), the highest relative performance is evident in district category two, Seven-county Metro Area schools, while the lowest relative performance is in district categories one, five, and six. In assessments in other subjects, the best performance is usually in district category two, the least relative performance in cities of the first class, and the majority of the other districts are relatively homogeneous. In the visual arts assessment, suburban perfomance is still best, but the two smallest district categories join the cities of the first class in having relatively low performance. In fact, if one compares suburban performance with cities of the first class and district categories five and six, one sees that the poorest performance in the state is actually in the smallest district categories. This is the first time that this has ever happened on any assessment.

Further analysis of scores in categories one, five, and six shows that while overall scores are essentially equal, students in category one scored higher on subobjectives IA and IB, knowing about art in daily life and art history. This may reflect greater cultural opportunities available in cities of the first class. It could also indicate that students in metropolitan areas are learning about art history outside of the classroom, perhaps on field trips sponsored for other reasons. There is

TABLE 17
ACROSS GRADE PERFORMANCE BY
SCHOOL DISTRICT CATEGORY

Subobjective/Descriptor	Grade	# Of Items	MN Perf.	School District Categories					
				1 Cities Of 1st Class	2 7-County Metro Area	3 2,000+ Students	4 1,000-1,999	5 500-999 Students	6 1-499 Students
IA Perceiving and Understanding Art In Daily Life	4	6	64.1%	Even	+0.5%	Even	Even	-0.6%	+0.7%
	8	7	58.2%	+0.5%	+0.3%	+0.2%	-1.5%	+0.1%	-0.1%
	11	7	63.3%	+1.7%	+0.7%	+2.4%	-1.9%	-3.3%	-4.1%
IB Knowing and Understanding Cultural and Historic Context	4	5	41.5%	+5.0%	+0.5%	-1.5%	+0.9%	-1.8%	-2.7%
	8	15	46.4%	Even	+2.1%	-2.5%	+0.2%	Even	-2.7%
	11	15	51.7%	-2.2%	+1.2%	+1.1%	-0.9%	-1.8%	-2.5%
IC Perceiving and Understanding Design Qualities	4	17	69.8%	-3.9%	+2.6%	+1.0%	-1.2%	-2.0%	-3.5%
	8	21	55.3%	+0.9%	+1.1%	+0.1%	+0.7%	-2.2%	-1.3%
	11	21	59.8%	-3.3%	+0.7%	+1.3%	-1.3%	-1.2%	-0.6%
IIB Producing Representational Qualities	4	NOT TESTED							
	8	3	51.1%	-2.1%	+3.2%	-1.4%	-3.6%	-2.0%	-2.9%
	11	3	57.2%	-0.5%	+1.7%	-0.3%	-0.9%	-0.2%	-3.1%
IIE Developing Skills In Using Art Materials Tools and Forming Processes	4	NOT TESTED							
	8	6	50.0%	-1.3%	+1.0%	+3.2%	+1.7%	-5.0%	-6.0%
	11	6	54.8%	-1.6%	+1.6%	+1.4%	-4.3%	-1.9%	Even
IIIB Making Critical Judgments	4	2	33.4%	-2.0%	-1.6%	+0.3%	-1.6%	-0.7%	+1.2%
	8	11	43.1%	-0.2%	+1.2%	-0.8%	-1.0%	-0.6%	+0.6%
	11	11	51.9%	+0.4%	+0.5%	+0.5%	-0.5%	-1.6%	-1.1%
Overall	4	30	61.5%	-1.5%	+1.8%	+0.4%	-0.6%	-1.6%	-2.2%
	8	63	50.7%	-0.6%	+1.3%	-0.5%	-0.1%	-1.4%	-1.5%
	11	63	56.3%	-1.5%	+0.9%	+1.1%	-1.4%	-1.6%	-1.6%

also evidence of students attending art museums with families or in other non-school-sponsored ways.

Another possible reason for low scores in district categories five and six is the general lack of comprehensive art programs in schools of this size. Very few small districts employ elementary art teachers, and many have no senior high programs. At the junior high level, the one hundred districts out of compliance with minimum State Board of Education rules concerning art programs fall across all size categories, but an inadequate junior high art program is even more serious in districts with no elementary or senior high programs. In addition, art teachers in small districts are more apt to be teaching in more than one discipline and may not have fulfilled a major in art education in their college training.

A comparison of scores on "Producing" subobjectives IIB and IIE pertaining to producing representational qualities and developing skills in using art materials, tools, and forming processes, indicates relatively low performance in district categories one, five, and six. Reasons cited above pertaining to lack of programs in smaller schools offer one possible explanation. Of perhaps greater significance is the financial support given to art programs. While complete information is difficult to obtain, informal investigations have indicated per-pupil art allocations to be significantly lower in district categories one, five, and six. It is extremely difficult to teach basic art concepts such as color theory without adequate supplies of good quality paint and tools, and without good audio visual resources such as slides and reproductions.

Analysis of scores pertaining to attitudes: IIIA, Valuing Art and IIIB, Making Critical Judgments, indicate that there is little variance

across district categories, but in the judgment of art teachers there is need for improvement in this area at all levels and in all district categories.

Recommendations For Improving Student Performance Across District Categories

1. Sequential K-12 art curricula need to be developed by all districts.
2. Teachers should take advantage of local art resources to improve student learning in valuing and judging.
3. School districts in categories five and six should investigate alternative ways to provide art instruction by licensed art teachers, such as sharing teachers, pairing, alternate year programs, etc.
4. School districts need to adequately fund art programs at all levels.

SECTION FOUR: MINNESOTA AND NATIONAL PERFORMANCE COMPARISONS

Summary of Findings

The performance of Minnesota students on the art assessment was essentially equivalent to that of students in both the nation and the Central U.S. Minnesota students did not lead the nation in knowledge of art as they have in most other subject areas.

Minnesota eighth graders scored somewhat above national and Central U.S. scores on knowledge of cognitive items. Eleventh graders were essentially equal.

Fewer Minnesota teenagers could identify a Leonardo da Vinci drawing than could students nationwide or in the Central U.S. Minnesota secondary students did better than national or regional groups in dating the development of the Impressionism art style.

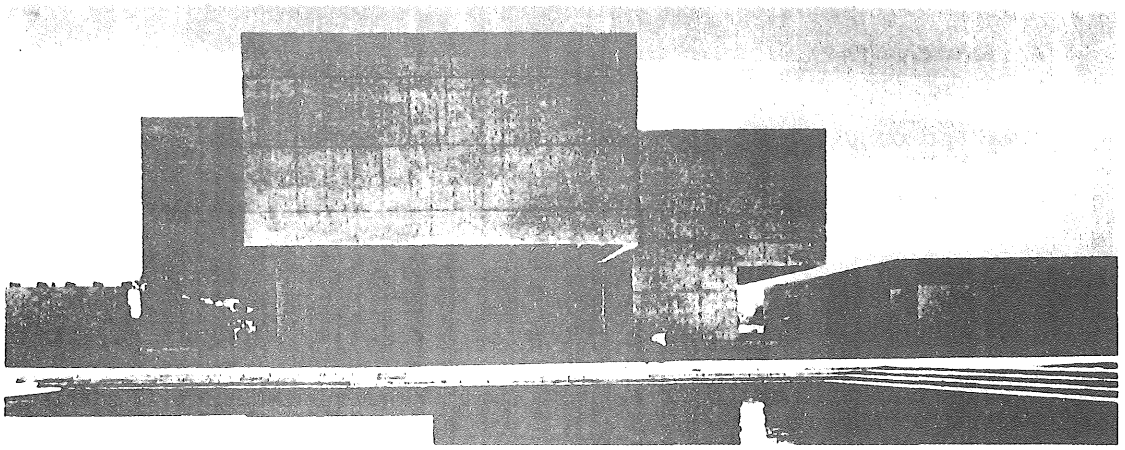
Most of the NAEP items used in the Minnesota test pertained to valuing art or making appropriate judgments about art. In these areas,

Minnesota students, like students nationwide, show an unwillingness to accept all kinds of art. They tend to judge art more on its subject matter or pleasant appearance than upon its artistic merit.

Sizable numbers of students nationwide demonstrated an acceptance of modern buildings, and Minnesota scores are even higher. One example of a question on building styles is displayed in Figure 3. Tolerance for unconventional art such as a Picasso drawing was significantly lower however at all levels, and particularly in Minnesota. Only 16 percent of fourth graders, 39 percent of eighth graders, and 45 percent of eleventh graders disagreed with a statement stating that the world would be better off without such art. Figure 4 displays student responses to a question on one of Picasso's drawings. Students at all levels tend to judge works of art on criteria such as subject matter, realism, and attractiveness. Minnesota fourth graders scored only slightly higher than fourth graders in other areas of the country. Eighth and eleventh graders scored essentially the same. It appears that students are not learning the four steps of making critical judgments about visual images and works of art: perceiving, analyzing, interpreting, and judging.

In general, the performance of Minnesota students at all grade levels was essentially equivalent to the performance of students in the nation and the Central U.S. In this respect, the results of the Minnesota Art Assessment test must be characterized as "atypical." In previous testing of reading, math, etc., when Minnesota scores are compared with the nation and the Central U.S. scores, we typically show a major advantage over the nation and a lesser but significant advantage over the students in the Central U.S. This was not the case in visual arts, however. Art scores of Minnesota students were essentially

FIGURE 3
BUILDING STYLES



It's all right for buildings to look like this.

Grade 8	Grade 11	
26.0%	26.5%	a. Strongly agree
57.3%	56.7%	b. Agree
8.6%	8.8%	c. Undecided
5.6%	6.2%	d. Disagree
2.4%	1.7%	e. Strongly disagree

FIGURE 4
PICASSO DRAWING

The world would be better off without art like this.

Grade 4	Grade 8	Grade 11	
----	16.0%	12.2%	a. Strongly agree
49.6%	20.0%	15.7%	b. Agree
18.4%	25.2%	27.2%	c. Undecided
31.5%	29.2%	35.5%	d. Disagree
----	9.4%	9.5%	e. Strongly disagree

equivalent with students in both the nation and the Central U.S. Our students did not lead the nation in knowledge of art as they have in other subject areas.

When the results for the national art assessment were reported two years ago, there was a great deal of dissatisfaction with the national results. Art educators who analyzed the scores felt that students should have scored much higher. The conclusion one could draw from that is that the national performance isn't very strong and Minnesota scores were no better or no worse than either the nation or the Central U.S.

In addition to our students not surpassing, but in fact scoring essentially the same as, their national counterparts, national scores were considered to be unacceptable by authors of the NAEP Art Assessment Report. The NAEP conclusions state that the results are indicative of the low priority given to art instruction in the schools. The performance of students would be higher if greater attention was paid to art as a subject which students must study, learn about, and master. Art time in Minnesota schools, as well as throughout the country, is too often treated as a release from other "more difficult" subjects. It is essential that art join other subject areas of the schools as a discipline which has clearly defined goals to be taught, with specified outcomes for students to attain.

OVERALL RECOMMENDATIONS FOR IMPROVEMENT OF ART EDUCATION

The performance of Minnesota students on the art assessment is disappointingly low. It is clear that art instruction in public schools must be improved both in quantity and quality. Most of the recommendations in previous chapters dealt with improving quality and should be

addressed. Below is a broader list of recommendations, many of which address quantity.

1. A higher value must be placed on the importance of art instruction in the schools, and deficiences identified by the assessment must be addressed.
2. A sequential K-12 art curriculum incorporating agreed-upon goals, objectives, and learner outcomes should be developed by every district in order to ensure continuity and comprehensiveness in art learning for students.
3. Elementary art programs should include the following components:
   - A time allocation of 8-10 percent of total school time (about 2 hours per week) as recommended by the Minnesota Department of Education.
   - Teaching of art objectives, as specified by the Art SELO, by a licensed art teacher.
   - Extensive inservice training in teaching art objectives for elementary classroom teachers if a licensed art teacher is not employed by the school.
   - Integration of art into other curricular areas by the classroom teacher.
4. Junior high art programs should include at least one year of required art classes as well as elective courses.
5. High schools should offer at least two year-long art courses, as well as opportunities for independent study, taught by licensed art teachers.
6. Art programs at all levels need to incorporate a balance of production, knowledge about art, and critical analysis.

7. Students must be held accountable for attaining specified learner outcomes. They should not view art as an easy course which has no requirements.

8. Districts should use the data and recommendations of this report to improve the performance of art knowledge, skills, and attitudes of Minnesota districts. Minnesota is a leader in supporting arts organizations in the community. There is no reason why our students should not lead the nation in knowledge about art.

In conclusion, it is perhaps important to consider what the role of art should be. In commenting on art education in schools, author Brent Wilson observed: "I'm concerned because the visual arts are such important sources of knowledge. That is to say, art provides an incredible range of graphic and plastic models of humanness (ideal and otherwise) and of the world past, present, and future. The possibility of achieving a life of the highest quality is dependent upon having anticipated or imagined what that life might be. Art activities provide even the youngest students with a means for developing a private visual model for a 'good life.' I'm afraid, however, that the schools have not been very helpful in assisting students to 'read' the information contained in works of art, nor have they provided students with the necessary insights and skills to make their own visual models for themselves and their worlds."

APPENDIX I

MINNESOTA EDUCATIONAL ASSESSMENT PROGRAM

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INTRODUCTION

The Minnesota Educational Assessment Program provides a means to collect and evaluate information on student achievement over a broad range of curriculum areas. Information which is gathered on student performance is useful for curriculum analysis and in focusing and facilitating purposeful instructional change.

The assessment program serves a number of purposes and needs. Major purposes include:

- providing valid and reliable data on the knowledge, skills, and attitudes of Minnesota students in various subject areas;
- providing a means to evaluate curriculum strengths and needs;
- providing a means to focus developmental activities to improve student learning;
- measuring change in student performance over time;
- providing materials, data, and technical assistance to local school districts engaging in curriculum evaluation through the Local Assessment (Piggyback) Option;
- providing a relevant means for local school districts to meet P.E.R. requirements.

INSTRUMENT DEVELOPMENT

Minnesota assessment tests are criterion-referenced. That is, questions are developed to measure student performance relative to specific goals and objectives considered important for Minnesota students. To ensure that an assessment reflects current educational

goals and priorities, large numbers of Minnesota educators are involved in the various steps of an assessment. In the initial stages, subject specialists are brought together to identify the goals and objectives of teaching and learning in the subject area, and this process forms the basis for test development. Subject specialists are also integral in establishing criteria for performance as well as interpreting data, preparing reports, and formulating recommendations for improvement. As a result, each assessment provides data which are based on priorities established by Minnesota educators and which can help target and facilitate reasoned instructional change.

In developing an assessment, the primary source for item development is the goal statements in the Some Essential Learner Outcomes (SELO's) publications, developed in the Division of Instruction. Results are essentially reported against these SELO's. The coordination of assessment procedures with Division of Instruction activities provides a systematic approach which enhances subject matter development.

Sample Selection

The sample for an assessment is selected from the following six categories of school districts:

Category 1: Cities of the First Class - St. Paul, Minneapolis, Duluth.

Category 2: Seven-County Metropolitan Area (Developmental Region 11), excluding districts in Category 1.

Districts not included in categories 1 and 2 with the following K-12 enrollments:

Category 3: 2,000 and Over Students.

Category 4: 1,000-1,999 Students.

Category 5: 500-999 Students.

Category 6: 1-499 Students.

The sample size for an assessment and the random nature of the selection process means that generalizations from the data can be made to each district category as well as to the total population of students at each grade level with a high degree of confidence.

Testing

Subject assessments are repeated on a four-year cycle. Minnesota follows the National Assessment of Educational Progress (NAEP) testing pattern which allows comparisons to be made between Minnesota and national students. As a result, eighth grade students are tested in the fall, fourth grade students in the winter, and eleventh grade students in the spring.

In conducting an assessment, intact classrooms are selected for testing. Since the purpose of the assessment is curriculum analysis rather than the reporting of individual student performance, a random sample of students is selected from across the state.

An audio tape with timed pauses is used for test administration. This standardizes administration procedures and minimizes reading as a testing variable. Paid test administrators give tests, further standardizing test administration procedures as well as minimizing the demands placed on school staff. Testing time for any one student is limited to approximately 45 minutes. The following groups of students are not included in the statewide sample:

a. E.M.R. students;

b. physically handicapped students; and

c. limited English speaking students.

Types of Comparisons

Each assessment report provides a number of comparisons for analysis. As each test is developed, items from the National Assessment of Educational Progress (NAEP) are included, which allows for comparisons between Minnesota students and their national counterparts. Performance of students by school district category is analyzed, as is performance relative to criteria established by subject specialists. The performance of boys and girls is included, and, if applicable, an analysis of performance over time.

OUTCOMES

Following an assessment, teachers and other education personnel assist in the interpretation of results, including the development of conclusions and recommendations.

Reports are developed and disseminated to:

a. legislators;

b. State Board of Education members;

c. newspapers and other media;

d. educators and other interested citizens; and

e. colleges and universities.

From an analysis of results, relative strengths and weaknesses in student performance are identified. These provide a focus for a variety of activities including the development of materials for classroom use, the convening of statewide task forces to study problems and issues, and workshops and other inservice activities for teachers.

Statewide subject-interest groups are invited to participate in the various developmental and dissemination activities. In this way such

organizations are involved in activities aimed most directly at improving student learning.

SCHOOL DISTRICT TESTING

State assessment materials and services are made available to Minnesota school districts to use in their own testing programs for curriculum analysis as well as for performance comparisons with state groups, districts of a similar size and type, and with national groups. For many districts this "piggyback" program is cost-effective, and it provides districts with student performance data on objectives considered important for Minnesota students. All subjects where there has been a statewide assessment are available for the Piggyback program.