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ABSTRACT

Summaries of results are presented for student achievement on art exercises from a national art assessment program conducted during 1974-75. Two technical reports document the results of the national assessment. Exercise-by-exercise results are reported in the "Art Technical Report: Exercise Volume" (see TM 006 981). This report, a companion to the Exercise Volume, summarizes results across sets of exercises for various groups of students. The introduction explains how national percentages and differences from the national percentage were derived. Chapter one offers summary statistics on students' achievement on art knowledge exercises. Males' achievement levels were significantly higher than the national average. Blacks performed below the national level, and whites performed slightly above it at all ages. Chapter two reviews affective response summary data. Questions on this part of the assessment dealt with students' attitudes toward art and their open-mindedness toward different styles of art. Whites showed slightly more positive responses than did blacks. In general, degree of participation in art activities influenced degree of positive responses. Chapter three shows a juxtaposition of achievement levels for art knowledge and art affective responses by age groups. For example, it is shown that at age nine, more males than females were positively oriented toward art, but neither males nor females performed significantly differently from the national average on art knowledge. (AV)

ART TECHNICAL REPORT

SUMMARY VOLUME

Selected Results From the First National Assessment of Art

Art Report No. 06-A-21

by the
National Assessment of Educational Progress

Education Commission of the States
Suite 700, 1860 Lincoln Street
Denver, Colorado 80295

June 1978

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U.S. Department of Health, Education, and Welfare
Joseph A. Califano Jr., *Secretary*

Education Division
Mary F. Berry, *Assistant Secretary for Education*

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This report is made pursuant to contract No. OEC-0-74-0506. The amount charged to the Department of Health, Education, and Welfare for the work resulting in this report (inclusive of the amounts so charged for any prior reports submitted under this contract) is . The names of persons, employed or retained by the contractor, with managerial or professional responsibility for such work, or for the content of the report are as follows: Roy Forbes (see Acknowledgments).

The cost figure cited above represents the total amount of money expended since late 1973 on assessments in art, career and occupational development, reading, writing, social studies/citizenship, science, basic life skills, mathematics and consumerism, resulting, to date, in numerous reports, papers, articles, presentations and assessment materials, many of which are used in state and local assessment programs. A complete list of all such materials is available upon request.

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FOREWORD

When the U.S. Office of Education was chartered in 1867, one charge to its commissioners was to determine the nation's progress in education. The National Assessment of Educational Progress (NAEP) was initiated a century later to address, in a systematic way, that charge.

Each year since 1969, National Assessment has gathered information about levels of educational achievement across the country and reported its findings to the nation. NAEP surveys the educational attainments of 9-year-olds, 13-year-olds, 17-year-olds and adults (ages 26-35) in 10 learning areas: art, career and occupational development, citizenship, literature, mathematics, music, reading, science, social studies and writing. Different learning areas are assessed every year, and all areas are periodically reassessed in order to measure change in educational achievement. National Assessment has interviewed and tested more than 550,000 young Americans since 1969.

Learning area assessments evolve from a consensus process. Each assessment is the product of several years of work by a great many educators, scholars and lay persons from all over the nation. Initially, these people design objectives for each subject area, proposing general goals they feel Americans should be achieving in the course of their education. After careful reviews, these objectives are given to exercise (item) writers, whose task it is to create measurement tools appropriate to the objectives.

When the exercises have passed extensive reviews by subject-matter specialists, measurement experts and lay persons, they are administered to probability samples. The people who comprise those samples are chosen in such a way that the results of their assessment can be generalized to an entire national population. That is, on the basis of the performance of about 2,500 9-year-olds on a given exercise, we can generalize about the probable performance of all 9-year-olds in the nation.

After assessment data have been collected, scored and analyzed, National Assessment publishes reports to disseminate the results as widely as possible. Not all exercise results are released for publication. Because NAEP will administer some of the same exercises again in the future to determine whether the performance level of Americans has increased or decreased, it is essential that they not be released in order to preserve the integrity of the study.

Other reports in the area of art are: Design and Drawing Skills, Report No. 06-A-01; Knowledge About Art, Report No. 06-A-02; Attitudes Toward Art, Report No. 06-A-03; Art Technical Report: Exercise Volume, Report No. 06-A-20.

ACKNOWLEDGMENTS

Many people have made substantial contributions to the art assessment, from the beginning of the National Assessment of Educational Progress (NAEP) in 1964 through the completion of the reporting phase of the first assessment of art. Unfortunately, it is not possible to acknowledge them all here, and an apology is due to those whose names have been omitted.

The preparation of the objectives and exercises for the art assessment was done by Educational Testing Service, Princeton, New Jersey, and Dr. Brent Wilson. These materials were reviewed by dozens of consultants, including educators and interested lay persons.

The administration of the art assessment was conducted by the Research Triangle Institute, Raleigh, North Carolina, and the Measurement Research Center (MRC), Iowa City, Iowa. Ms. Susan Worthen of MRC provided invaluable assistance in refining the guidelines used in scoring the exercises and monitoring the scoring process.

The preparation of this report was a collaborative effort of the National Assessment staff. The analyses and design for the report were planned by Sarah Knight. William Ankeny and Susan Sullivan, Data Processing Department, managed data files and provided the programming support; Ava Powell, Development, Analysis and Research Department, helped assemble and check the accuracy of all materials; Marci Reser and Jessica Grant, Publications Department, assisted in the production of the report. The report was prepared by Sarah Knight.

Roy H. Forbes
Director

INTRODUCTION

The first assessment of art, conducted during the 1974-75 school year, assessed five broad art objectives. In particular, it was designed to discover how many 9-, 13- and 17-year-olds perceive and respond to various aspects of art, value art, produce artworks, possess knowledge about art and can make and justify judgments about the aesthetic quality of works of art. Nine-, 13- and 17-year-olds[1] all responded to questions related to these objectives. Reports have already been published in the areas of design and drawing skills, knowledge about art and attitudes toward art. A techuical report, which presents detailed results of every aspect of the assessment except the design and drawing skills exercises, is also available. This report presents summaries of results across sets of art exercises for various subpopulations of youngsters.

Two technical reports document the results of the first assessment in detail. Exercise-by-exercise results for all released[2] exercises are reported in the Art Technical Report: Exercise Volume. This report, the companion piece to the exercise volume, includes summaries of results across sets of exercises for various subpopulations.

Summary Statistics and Standard Errors

Summary statistics used in this report are mean national percentages and mean differences from national percentages for various subpopulations. All statistics are presented with corresponding standard errors.

A national percentage is an estimate of the percentage of persons of a given age who would give a specified response to an item. The estimate is based on the percentage of persons in the sample who gave the specified response

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[1]Data for 17-year-olds are given for those who were attending school when the assessment was conducted -- that is, the in-school 17-year-olds -- and for the national population of 17-year-olds. The latter group includes members of the age level no longer attending school as well as the in-school 17-year-olds. It is referred to as the "all 17-year-olds" age level.

[2]About one-half of the exercises used in an assessment are released by National Assessment for public use. The other unreleased half are kept secure and administered again to assess changes in achievement.

and the probability that those persons would be selected for the sample. Mean national percentages for clusters of items are calculated by averaging the national percentages of all items in the cluster.

Differences from the national percentage for various subpopulations are estimates of the difference between the performance of the subpopulation and the nation for each age. Estimates are based on the sample subpopulation percentage and the probability of selection for sample members. The mean difference from the nation for a cluster of items is an average of differences between the subpopulation performance and the nation's performance for each item in the cluster.

Estimates of percentages, mean percentages, differences in percentages and mean differences are subject to two general kinds of errors: sampling and nonsampling. Sampling errors occur because responses are obtained from a sample, not the entire population. Nonsampling errors may be attributed to many sources -- for example, the way items are sequenced, assessment administration variability, the willingness of respondents to give honest answers and the variability among scorers responsible for categorizing open-ended exercises. The accuracy of a survey is determined by the effects of both sampling and nonsampling errors.

The sampling precision of an estimated mean percentage or mean difference percentage is measured by its standard error. Conceptually, the standard error is an estimate of the standard deviation of the distribution of means obtained from all possible samples using the given sample design.

The National Assessment sample design is a complex, stratified multistage design that does not provide for direct, unbiased, simple and inexpensive computation of sampling errors. A reasonably good approximation to standard error estimates of percentage may be obtained by applying the jackknife procedure[3] to first-stage sampling units (PSUs) within strata, using the method of successive differences and pooling across strata. Let

$\hat{Y}_{ijhk}$ = sum of weights for respondents in subgroup i (e.g., Northeast, males or low metro) who chose response category j (e.g., correct foil) in PSU k of stratum h.

$\hat{M}_{i.hk}$ = sum of weights for respondents in subgroup i of PSU k of stratum h. Note that $M_{i.hk} = \sum_j \hat{Y}_{ijhk}$.

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[3]R.G. Miller Jr., "A Trustworthy Jackknife," Annals of Mathematical Statistics, No. 35 (1964), pp. 1594-1705; R.G. Miller Jr., "Jackknifing Variances," Annals of Mathematical Statistics, No. 39 (1968), pp. 567-582; F. Mosteller and J.W. Tukey, "Data Analysis Including Statistics," in Handbook of Social Psychology (second ed.), eds. E. Aronson and G. Lindzey (Reading, Mass.: Addison-Wesley, 1968).

Then

$\hat{Y}_{ij..} = \sum_{h=1}^{H} \sum^{n_h}_{k=1} \hat{Y}_{ijhk}$, the estimated number of respondents in subgroup i who chose response category j,

$\hat{M}_{i...} = \sum_{h=1}^{H} \sum^{n_h}_{k=1} \hat{M}_{i.hk}$, the estimated number of respondents in subgroup i

and

$\hat{P}_{ij} = \frac{\hat{Y}_{ij..}}{\hat{M}_{i...}}$, the estimated proportion of respondents in subgroup i who chose response category j.

In the above formulae, H = the number of strata and n_h = the number of PSUs in stratum h. The jackknifed estimate of the standard error of $\hat{P}_{ij}$ is as follows:

$$s\hat{e}.\hat{}_{P_{ij}} = \left\{ 1/8 \sum_{h=1}^{H} \sum^{n_h}_{k=1} \left[\left(\frac{\hat{Y}_{ij..} - \hat{Y}_{ijhk} + \hat{Y}_{ijh,k+1}}{\hat{M}_{i...} - \hat{M}_{i.hk} + \hat{M}_{i.h,k+1}} \right) - \left(\frac{\hat{Y}_{ij..} + \hat{Y}_{ijhk} - \hat{Y}_{ijh,k+1}}{\hat{M}_{i...} + \hat{M}_{i.hk} - \hat{M}_{i.h,k+1}} \right) \right] 2 \right\}^{\frac{1}{2}}$$

where, for $k = h_n$

$\hat{Y}_{ijh,k+1} \equiv \hat{Y}_{ijh,1}$

and

$\hat{M}_{i.h,k+1} \equiv \hat{M}_{i.h,1}$.

Multiplying $\hat{P}_{ij}$ by 100 yields percentages. Multiplying $s.e.\hat{}_{p_{ij}}$ by 100 yields the estimated standard errors of those percentages.

In general, the jackknifed standard errors of percentages will be larger than the simple random sampling formula $(pq/n)^{\frac{1}{2}}$. The difference reflects, largely, the loss of precision due to cluster sampling of schools and students.

The project had adopted the convention that if an obtained difference from the national percentage is at least twice as large as the estimate of its standard error, then the difference is statistically significant at the 5% level. (A difference as large as this would be expected to happen by chance in

less than 5% of all samples of this size.) The significant differences are indicated in the tables by asterisks.

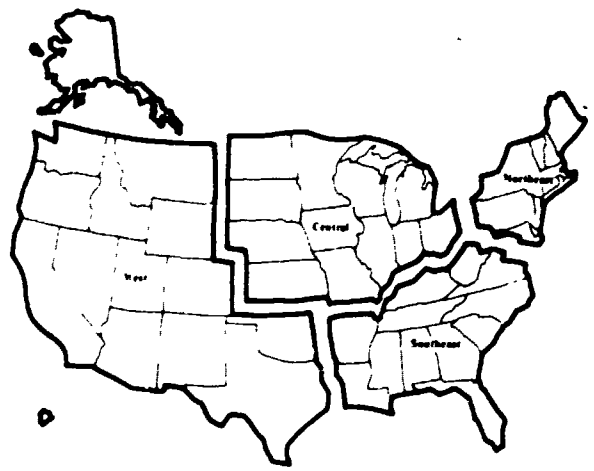
Reporting Group Subpopulations

In addition to national results for 9-year-olds, 13-year-olds and 17-year-olds (including high school dropouts and early graduates), National Assessment provides data about various subpopulations. Variables used for this analysis for all three age groups are region of the country, sex, size and type of community, race, level of parental education. For 9-year-olds, 13-year-olds and 17-year-olds in school, artwork done outside of school, visits to art museums or galleries and attendance at a school where art is taught are also reported. Additional variables concerning taking art classes and collecting artworks are reported for 13- and 17-year-olds in school. Definitions of all variables follow.

Region

Results are reported for four regions -- Southeast, Northeast, Central and West -- as shown in Exhibit 1.

EXHIBIT 1. National Assessment Geographic Regions



Sex

Results are reported separately for males and females.

Size and Type of Community

The groups within this variable are defined by the size of the community in which a respondent lives and an occupational profile of the area. All

population sizes are based on data from the U.S. Bureau of the Census (1970). The following groups are reported.

Extreme rural. These schools are in areas where a high proportion of the residents are farmers or farm workers. At least some of the enrollment is from open country or places with populations of less than 2,500; no enrollment is from places with populations greater than 10,000, and none is from suburbs of medium or large cities.

Low metro (low-socioeconomic or impoverished urban communities). Areas in or around cities with a population greater than 200,000 where a high proportion of the residents are on welfare or are not [illegible]y employed.

High metro (high-socioeconomic or affluent urban and suburban communities). Areas in or around cities with a population greater than 200,000 where a high proportion of the residents are in professional or managerial positions.

Main big city. Respondents in this group live in big cities greater than 200,000 that are not included in either the low-metro or high-metro groups.

Urban fringe. These respondents live in the metropolitan areas of big cities greater than 200,000 that are not included in either the low-metro or high-metro groups.

Medium city. These respondents live in cities with populations between 25,000 and 200,000 that are not urbanized areas of big cities.

Small places. Respondents in this group live in open country or in places with populations of less than 25,000, excluding those in the rural group.

Race

Results are reported for blacks and whites.

Parental Education

These groups are classified by the highest level of education attained by either parent, from no high school through post high school. The respondents reported how much school both their parents completed; the highest level attained by either parent is reported. The following groups are reported.

No high school. Neither parent completed schooling beyond the eighth grade.

Some high school. At least one parent completed some schooling in grades 9 through 12; neither completed high school.

Graduated high school. At least one parent graduated from high school; neither participated in post high school education.

Post high school. At least one parent had some education beyond high school.

Art Done Outside of School

Respondents at all ages were asked if they did certain kinds of artwork outside of school. Nine-year-olds were asked if they drew, painted, made collages or carved (sculpted). Thirteen- and 17-year-olds were asked if they drew, painted, made collages, carved, made prints, made pottery, did weaving or needlework, made photographs, made jewelry or created designs for clothes, houses, etc.

The number of kinds of art done outside of school is reported as:

1. No art done, or "none" (all ages).
2. One to two kinds (all ages).
3. Three to four kinds (all ages).
4. Five to ten kinds (13- and 17-year-olds only).

Art Taught

Principals of schools participating in the art assessment were asked if art was taught in their school. Their responses are reported as "yes" and "no."

Art Museums

Respondents at all ages were asked how often they had visited art museums or art galleries. The frequency of museum/gallery visits is reported as "never," "one time" and "five or more times."

Learn Art (Art Classes Taken in School)

Older respondents (13- and 17-year-olds) were asked if they were currently enrolled in an art class. Thirteen-year-olds were also asked if they had taken an art class during the previous school year. Seventeen-year-olds were asked if they had taken an art class in any grade from the seventh through their present grade.

The number of art classes taken is reported as:

1. No classes taken.
2. One class taken.
3. Two classes taken (13-year-olds) or two to three classes (17-year-olds).
4. Four or more classes taken (17-year-olds only).

Collect Art

Thirteen- and 17-year-olds were asked if they collected reproductions of artworks or originals. Seventeen-year-olds were also asked if they collected antiques. The number of types of art collected is reported as:

1. None.
2. One type.
3. Two types.
4. Three types (17-year-olds only).

From Exercises to Summaries

National Assessment will not report results for each art objective. Because of an unavoidable curtailment of the art assessment coverage just prior to its administration, some objectives lack sufficient measures to provide adequate estimates of average national performance. With the exception of the drawing and design skills report, summary data reflect topics that are aggregates of objectives.

To put the assessment in perspective, the following list, Exhibit 2, displays each assessment exercise according to its reporting topic and objective membership. Exercises are described by a number,[4] a brief statement of content and the national level of performance of each age level at which the exercise was administered. Unreleased exercises are included in the list, but their content is not described. Several items in the list are complex and require handscoring. They are not released and have not yet been scored. To minimize differences in hand scorers as a source of nonsampling error, these items will only be scored when responses from first and second administrations of them can be scored simultaneously.

Reporting the Data

Summary data for achievement on knowledge exercises, responses to affective exercises and comparisons between the two are presented in the succeeding three chapters of this report. Chapter 1 contains information on knowledge achievement; Chapter 2, affective responses; and Chapter 3, affective and knowledge comparisons.

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[4]Exercise numbers encode information on release status, objective and subobjective membership and age levels at which an exercise was administered. For example, U101005-123 means that the exercise is unreleased, U101005-123 means the exercise belongs to Objective I, U101005-123 means it reflects subobjective A, U101005-123 is a number assigned only to this exercise within the subject area of art and U101005-123 means that it was administered to 9-, 13- and 17-year-olds.

EXHIBIT 2. Exercises Used in the 1974-75 Art Assessment

1. Knowledge about art. This topic covers exercises originally included under three separate objectives. The exercises are listed below with the objectives they reflect.

Exercise Number	Exercise Description	National Level of Acceptable Performance (Percentage)		
		Age 9	Age 13	Age 17 (in school)
	A. Perceive and respond to aspects of art.			
U101005-123	Unreleased		Not Scored	
U101006-23	Unreleased		61.02	69.92
R101013-23	Historical Event in Painting: Socrates' Death		39.73	50.61
U101019-123	Unreleased	56.39	62.79	67.00
R101025-23	Drawing 'Memento Mei' Main Idea: Death		57.96	58.48
R101034-23	Meaning of Warrior in Guernica: Death		34.76	30.96
R101034-23	Meaning of Broken Sword in Guernica: Defeat		42.41	54.13
R101034-23	Meaning of Flower in Guernica: Hope		42.88	64.02
R101041-3	Meaning of 'Saint George and the Dragon': Good/Evil			62.10
R102016-23	Which Picture Shows the Most Movement: 'City Rises'		87.72	93.11
U102024-23	Unreleased		55.14	70.20
R102032-3	Triangles: Percent With at Least One Acceptable Response			21.68
U102041-23	Unreleased		79.52	86.83
U102061-123	Unreleased	26.61	51.22	66.94
	B. Know about art.			
R401001-12	Which Painting is Most Well Known: Mona Lisa	79.21	92.70	
U401004-123	Unreleased	17.01	24.75	30.37
U401005-123	Unreleased	31.25	62.59	67.65
U401016-23	Unreleased		29.46	29.92
U401019-123	Unreleased	38.21	40.02	48.33
R401021-23	Historical Importance of Calder Sculpture		17.68	21.44
R402002-23	Works with Similar Characteristics: Same Style		47.38	59.54
R402011-23	Name of Style Done After 1950: Pop		37.80	45.66
U402012-23	Unreleased		12.62	27.05
R402027-3	Five Examples of Pop Art, General Characteristics			15.34
R403004-23	Three Paintings: Which is Oldest and Which is Newest		41.17	49.71
R403034-23	This Work is an Example of What Style: Cubism		12.05	14.92
U403036-23	Unreleased		43.82	48.32
U403037-23	Unreleased		9.94	15.75
R403043-23	This Work is an Example of What Style: Impressionism		10.49	20.53
R403046-23	This Work is an Example of What Style: Gothic		24.22	34.20
U403054-3	Unreleased			65.14
R403060-3	Chinese Pot Shows Use of More Advanced Methods			36.44
R403060-3	Chinese Pot More Advanced Because Turned and Glazed			13.59
U403068-3	Unreleased			51.94
U403081-3	Unreleased			43.45
U403083-3	Unreleased			49.67
U403090-123	Unreleased	34.84	64.24	75.72
U403096-3	Unreleased			79.19
R403097-3	Of Four Sculptures, Which One Influenced Which Other			50.15
R404001-23	Which Work by Same Artist as This Moses		44.48	45.99
R404004-23	Which Work by Same Artist as This Self Portrait		4.37	7.92
R405005-3	Which Work Done at Same Time as Music Can-Can			35.27
R405014-3	Compare/Contrast Group of Egyptian and American Art			12.15
	C. Make and justify judgments about the aesthetic merit and quality of works of art.			
R501011-123	Newer Building Better Designed	79.50	94.38	96.21
R501011-123	Newer Building Better Designed: Elements Integrated	14.11	13.21	11.51
U501012-123	Unreleased		Not Scored	
R503005-123	Art Work Judged Good: Integration of Rounded Shapes	11.50	41.10	56.77
U503014-123	Unreleased	27.99	45.18	55.36
R503018-23	Art Work Judged Good: Graceful Line/Form		50.49	62.55
R503026-23	Art Work Judged Good: Effective Use of Medium		12.63	23.35
U503043-3	Unreleased			66.74
U504008-123	Unreleased	33.71	61.57	71.79

EXHIBIT 2 *(continued)*. Exercises Used in the 1974-75 Art Assessment

2. Affective responses to art. All exercises are drawn from the objective concerned with valuing art and have been further classified in this list by their subobjectives within the major objective.

Exercise Number	Exercise Description	National Level of Acceptable Performance (Percentage)		
		Age 9	Age 13	Age 17 (in school)
A. Be affectively oriented toward art.				
R201001-123	Affective Exercise	58.40	42.75	42.65
R201004-123	Affective Exercise	66.06	65.22	74.04
U201011-123	Unreleased	25.39	36.56	44.53
U201013-123	Unreleased	34.11	50.99	44.61
R201016-123	Affective Exercise	30.85	48.50	56.29
R201019-123	Affective Exercise	59.29	75.81	79.03
U201021-123	Unreleased	27.87	38.47	40.22
R201022-123	Affective Exercise	30.11	38.30	41.11
U201026-123	Unreleased	43.52	52.32	51.94
R201028-123	Stammtisch, Total Points	5.87	14.71	21 97
U201029-123	Unreleased	47.47	44.51	40.41
U201031-123	Unreleased	30.49	39.52	36.81
B. Express reasonably sophisticated conceptions and positive attitudes toward art and artists.				
U203009-23	Unreleased		59.59	77.72
U203010-23	Unreleased		52.60	70.31
R203011-123	Affective Exercise	71.89	56.63	42.93
U203012-23	Unreleased		79.67	86.55
R203014-123	Affective Exercise	79.81	71.92	76.42
R203017-123	Affective Exercise	76.25	75.92	83.57
R203021-123	Affective Exercise	8.85	38.66	47.18
R203024-23	Affective Exercise		17.36	35.49
R203036-23	Affective Exercise		21.56	35.82
U203039-23	Unreleased		25.91	36.75
U203046-123	Unreleased	19.84	25.78	32.65
U203047-123	Unreleased	44.79	42.73	51.62
U203048-123	Unreleased	12.07	51.21	68.59
U203050-123	Unreleased	29.06	35.17	38.60
R203055-23	Affective Exercise		42.79	39.38
C. Demonstrate an open-mindedness toward different forms and styles of art.				
R204001-123	Affective Exercise	37.84	54.26	57.09
R204002-123	Affective Exercise	64.24	71.04	75.51
R204004-123	Affective Exercise	19.84	50.61	55.81
R204005-123	Affective Exercise	33.02	43.75	55.34
U204007-123	Unreleased	34.73	62.08	72.47
U204008-123	Unreleased	51.85	45.99	43.98
R204009-123	Affective Exercise	28.41	56.16	68.25
U204010-123	Unreleased	32.95	44.59	45.13
U204011-123	Unreleased	61.50	87.83	91.44
R204012-123	Affective Exercise	31.12	53.93	69.06
R204015-123	Affective Exercise	33.61	40.95	45.88
R204017-123	Affective Exercise	58.89	62.66	56.97
U204021-123	Unreleased	77.92	92.42	93.63
R204022-123	Affective Exercise	73.58	80 31	87.84
U204024-123	Unreleased	32.89	62.94	73.47
U204030-123	Unreleased	46.01	69 19	77.35
D. Demonstrate an open-mindedness toward artistic experimentation.				
R205001-123	Affective Exercise	41.03	72 22	75 53
R205002-123	Affective Exercise	38.21	68.08	72.95
R205004-123	Affective Exercise	32.03	47.18	50.50
R205009-123	Affective Exercise	34.04	55.01	63.62
R205011-123	Affective Exercise	27.00	51.24	53.87
U205012-123	Unreleased	45.31	64.31	77.02
U205018-123	Unreleased	36.58	63.43	76.34
R205020-123	Affective Exercise	57.20	76.81	67.67

EXHIBIT 2 *(continued)*. Exercises Used in the 1974-75 Art Assessment

3. Drawing and design skills. All exercises are drawn from the art production objective. They are further classified by their subobjective membership in this list. Note that inclusion of unreleased (and presently unscored) exercises broadens the scope of the topic beyond just drawing skills. These items are not included in the summaries of this report.

Exercise Number	Exercise Description	National Level of Acceptable Performance (Percentage)		
		Age 9	Age 13	Age 17 (in school)
	A. Produce original and imaginative works of art.			
U301008-123	Unreleased		Not Scored	
	B. Express visual ideas fluently.			
U302006-123	Unreleased		Not Scored	
	C. Produce works of art with a particular composition, subject matter, expressive character, or expressive content.			
R303001-123	Bedroom Wall: Total Acceptable Points	39.88	54.95	61.22
R303021-123	Table: Total Points	22.91	41.93	50.88
U303042-23	Unreleased		Not Scored	
	D. Produce Works of Art that Contain Various Visual Conceptions.			
R304001-1	Playground: Acceptable Response	42.59		
R304011-12	Running Person: Total Acceptable Points	20.74	38.28	
U304014-23	Unreleased		Not Scored	

4. Miscellaneous. Exercises in this category were not included in any of the previous exercise groups. They are not included as exercises in any summary statistics in this report.

Exercise Number	Exercise Description	National Level of Acceptable Performance (Percentage)		
		Age 9	Age 13	Age 17 (in-school)
	A. Participate in activities related to art.			
R202001-123	Visited art museum at least one time.	61.13	73.07	80.93
R202002-23	Art Done: At least two kinds done.		86.63	74.47
R202003-23	Collect Art: At least one type collected.		42.96	49.59
R202005-1	Art Done: At least one kind done.	65.38		
	B. Curriculum survey; exercises have no specific objective referent.			
R000001-3	Take art in school. Currently enrolled in art class			16.94
R000002-2	Art class taken in school: this year.		51.92	

Bar graphs are used to display data in each of the chapters. On the graphs, each heavy black or patterned bar is the mean difference from the nation for a selected subpopulation reporting group. A narrow white bar is centered at each mean difference from the nation. The length of the white bar is four times the standard error of the mean difference, so the upper end of the bar is the mean difference plus two standard errors, and the lower end is the mean difference minus two standard errors. Mean differences and the corresponding standard errors are shown below the bars on each graph.

The white bars indicate 95% confidence intervals around the mean differences. The size of the interval is determined so that of all the possible samples that could have been obtained, 95% of them would include the true mean difference. Confidence intervals can also be used to test whether a mean difference is significantly different from zero. If the white bar fails to include zero, the reporting group percentage is significantly different from the national percentage. Note that these graphs only display confidence in differences between groups and the nation, not between different groups.

CHAPTER 1

KNOWLEDGE ABOUT ART

Exhibits 3 through 5 display the summary statistics concerning students' achievement on art knowledge exercises. Each age level responded to a different number of exercises in the realm of art knowledge. Exhibit 3 shows mean percentages for the nation at each age level, computed on all exercises given to that age. The exhibits also show the number of knowledge exercises for each age and the difference between national and reporting group performance for each age and reporting group. Standard errors associated with the mean national percentages and mean differences from the nation are given either immediately beside or below the relevant means.

In many other learning areas, it has been found that males' achievement levels are significantly higher than the national average, with the corollary that females lag behind. The third exhibit shows that neither males nor females are significantly different from the national average at any age level in knowledge about art.

It is also common in other learning areas to find substantial differences between black respondents' achievement levels and the national level of performance. This difference is also found in the art knowledge exercises. On these items blacks performed below the national level, and whites performed slightly above it at all ages.

In general, individuals who participated in art-related activities demonstrated a broader knowledge of art. The rate of increase varies by age and type of participation, but the same pattern appears at all ages and for all art-related activities.

Exhibits 4 and 5 allow comparisons of achievement of the three age groups within selected reporting groups. The data are based on 11 exercises common to all the ages. Exhibit 4 demonstrates that the percentages for males and females are not significantly different from the national average at any age, that the Southeastern region lags behind the national performance levels of all three ages and that 9-year-olds attending school where art is not taught perform at a somewhat lower rate than others.

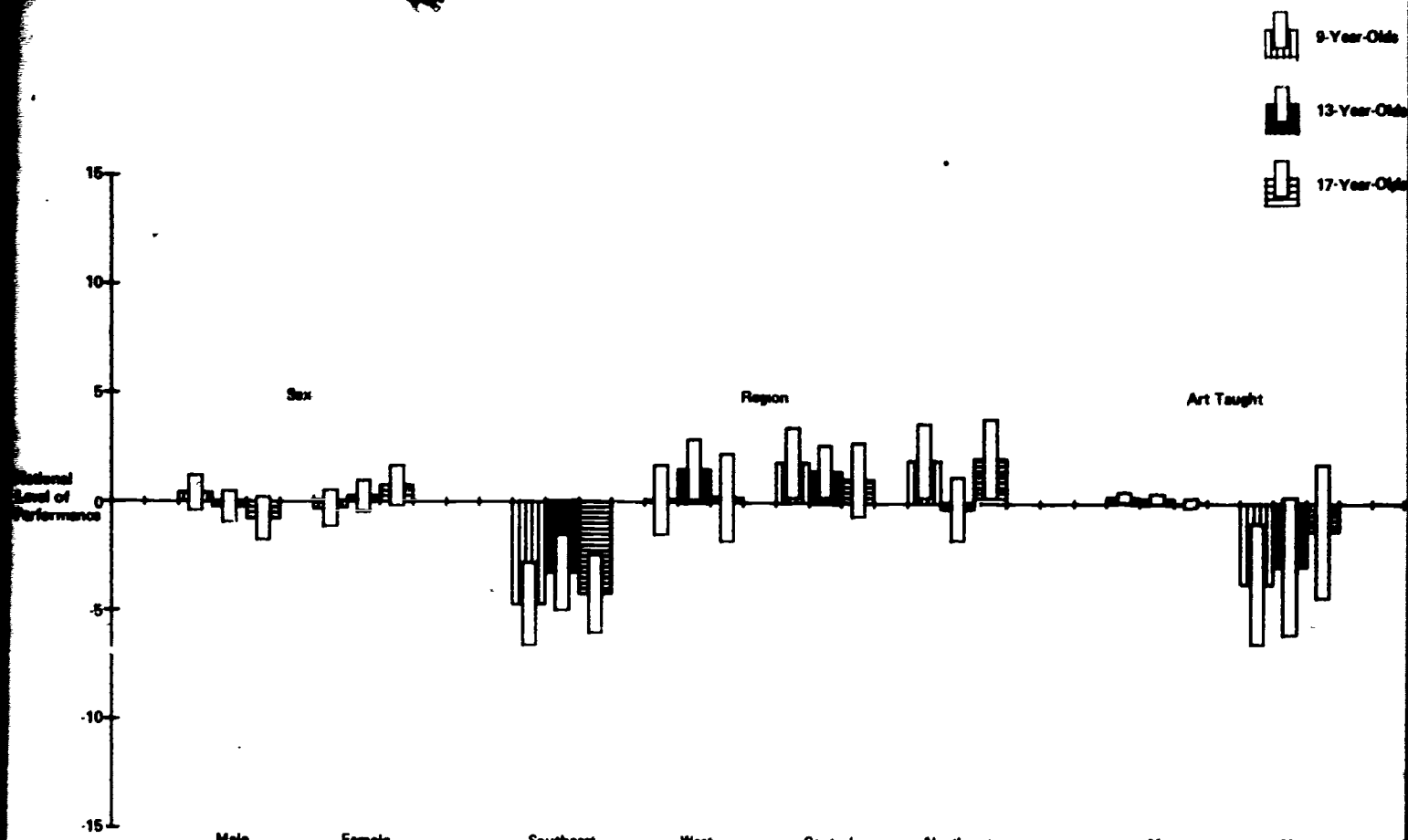
Exhibit 5 displays performance on knowledge items by participation in art-related activities. All age levels show consistent, significant mean differences in performance at the extreme levels of participation. For example, compared with the nation, fewer of those who have never been to an art museum know about art, and more of those who create many different kinds of art outside of school know about art.

EXHIBIT 3. Mean Differences From National Percentages for Standard and Art-Related Subpopulations and Mean National Percentages of Correct Responses to Art Knowledge Exercises: 9-, 13-, In-School 17-Year-Olds and All 17-Year-Olds

	9-Year-Olds		13-Year-Olds		In-School 17-Year-Olds		All 17-Year-Olds	
Number of exercises	12		36		49		49	
National mean p-value	37.53		43 15		47.06		47.09	
Standard error of mean p	0.46		0 26		0.35		0 34	
Reporting Groups	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference
Region								
Southeast	-5.03*	0.94	-1 67*	0.54	-3 41*	0.69	-3.34*	0.62
West	-0.12	0 78	0.23	0 45	0 34	0.72	0.28	0.74
Central	1 77*	0.75	1 18*	0 38	1 49*	0.52	;.63*	0.52
Northeast	2.49*	0 77	-0 06	0 48	0.73	0.52	0 66	0.49
Sex								
Male	0.41	0 38	0 10	0.20	-0 17	0.21	-0.32	0.21
Female	-0.33	0 38	-0 09	0 19	0.16	0 20	0 30	0.20
Race								
Black	-8 34*	0 91	-6 70*	0 55	-8 66*	0.53	-8.57*	0.56
White	1 82*	0.22	1 29*	0 14	1.50*	0.16	1.45*	0.14
Parental education								
Unknown	-3.21*	0.51	-4 48*	0 62	-7 68*	0 80	-7.28*	0.80
No high school	-5 64*	1 72	-5 36*	0 82	-6.44*	0 74	-7 23*	0.87
Some high school	-4.02*	1 35	-3 26*	0 58	-4 51*	0.47	-5.91*	0.43
Graduated high school	-0 72	0 68	-0 62*	0 28	-0.8;*	0 32	-0 71*	0.35
Post high school	5 27*	0 56	3 19*	0 27	3 50*	0.24	3.92*	0.24
Size and type of community								
Low metro	-8 29*	1 50	-4 53*	0 84	-3.39*	0.72	-3 50*	0.82
Extreme rural	-1.51	1 26	-3 10*	0 61	-3 22*	0.96	-3 14*	0.93
Small places	-0.74	0 66	0 36	0 38	-0 40	0.39	-0 43	0.38
Medium city	-0.50	1.06	-0 35	0 69	0 26	0 62	0 17	0.64
Main big city	-2.29	1 52	-1 75	0 98	-0 76	0 98	-0 73	0 92
Urban fringe	3 63*	1 53	1 98*	0 48	2 59*	0 76	2 29*	0 73
High metro	6 62*	1 41	3 23*	0 64	4.14*	1.02	4 77*	0 99
Art taught in school								
Yes	0 29*	0 10	0 22*	0 07	0 16	0 09		
No, no response, or I don't know	-3 82*	1 36	-3 61*	0 75	-4 02*	1.24		
What kinds of art								
None	-5 57*	0 52	-6 13*	1 01	-4 20*	0 55	-4 40*	0 58
One or two kinds	0 42	0 46	-1 77*	0 38	-1 74*	0 28	-1 82*	0 32
Three or four kinds	6 26*	0 79	-0 24	0 24	0 35	0 31	0.42	0 34
Five to ten kinds			1 94*	0 22	3 45*	0 32	3 63*	0 35
Visit art museum								
Never	-1 63*	0 44	-2 02*	0 30	-5 12*	0 37	-5 03*	0 36
Once	-0 20	0 41	0 83*	0 31	-2 85*	0 34	-2 94*	0 39
Often	2 14*	0 47	87*	0 22	3 42*	0.19	3 55*	0 21
Do you collect art								
Zero types			1 76*	0 1	-2 81*	0.28	-3.07*	0 27
One type			0 68*	0 32	-0 38	0 33	-0 32	0 34
Two types			2 79*	0 43	2 06*	0 39	2 45*	0 40
Three types					3 86*	0 44	4 21*	0 44
Art classes taken								
Zero			-1 27*	0 36	-3 20*	0 44		
One			0 01	0 32	-1 47*	0 45		
Two or three			0 64*	0 28	0 77*	0 23		
Four to six					4 39*	0 64		

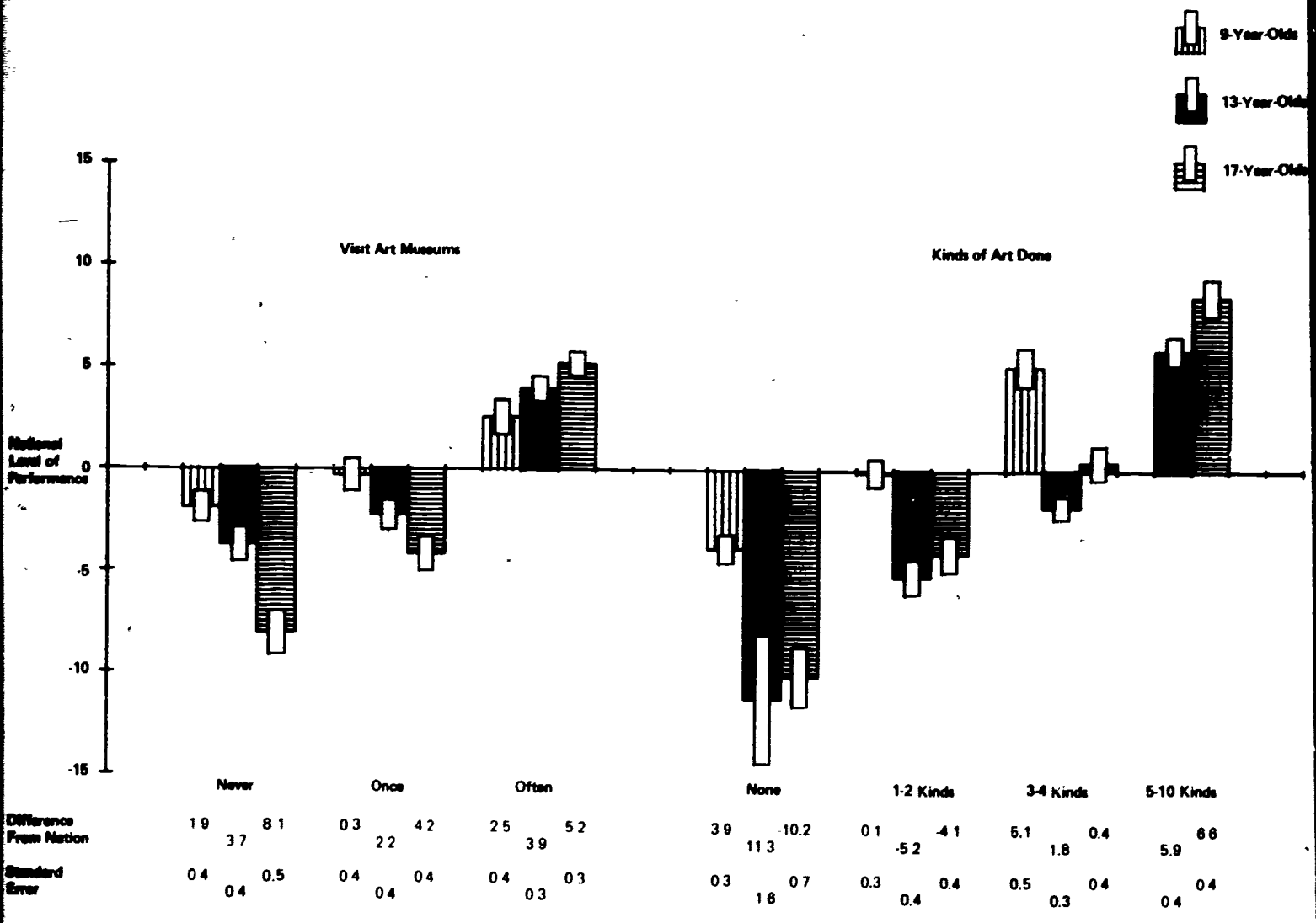
*Indicates mean percentages significantly different from the national mean.

EXHIBIT 4. Mean Differences From National Percentages of Correct Responses to Art Knowledge Exercises by Sex, Region and Art Exposure: 9-, 13- and In-School 17-Year-Olds



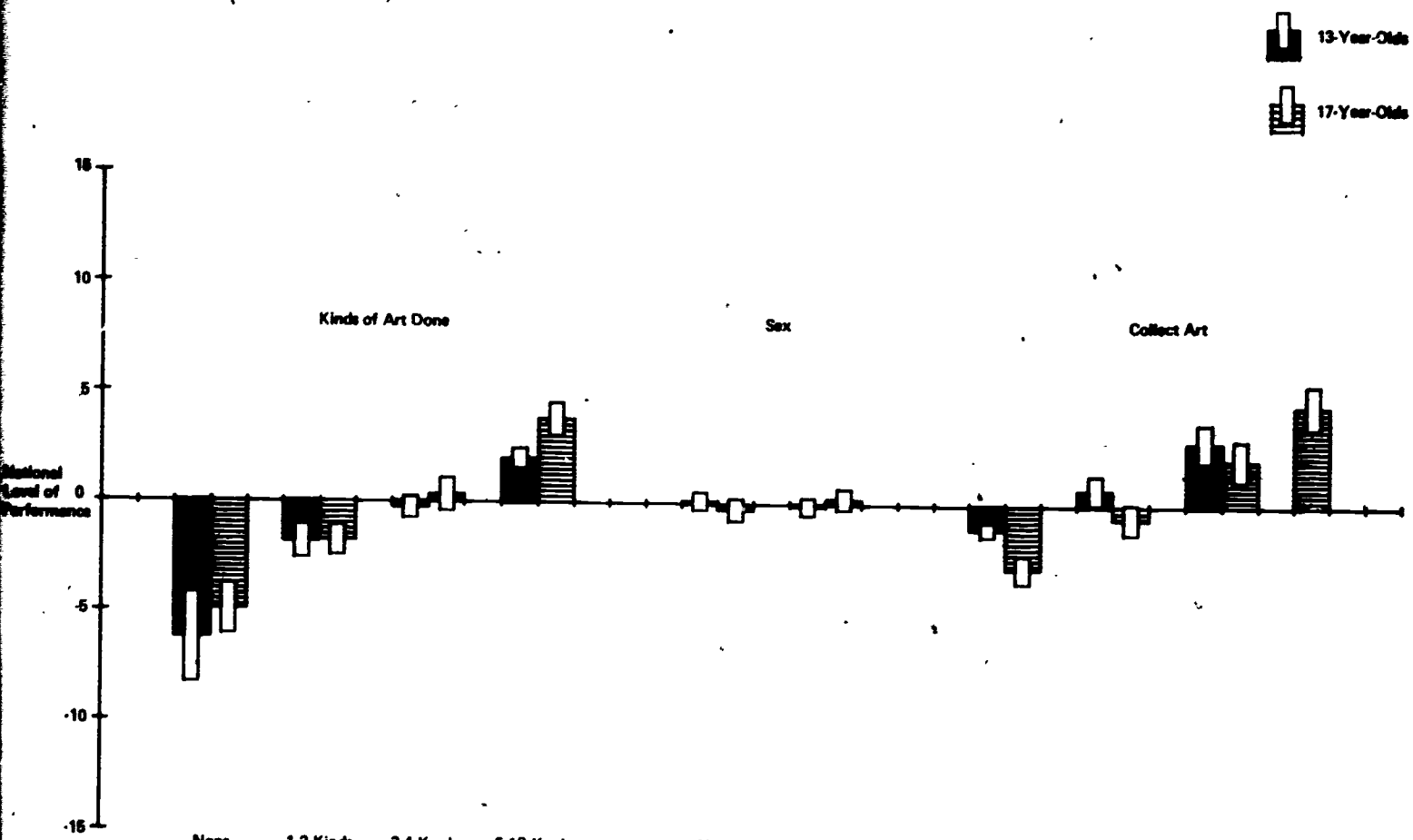
	Male		Female		Southeast		West		Central		Northeast		Yes		No	
Difference From Nation	0.4	-0.8	-0.3	0.7	-4.7	-4.2	0.1	0.2	1.8	1.1	1.9	2.1	0.3	0.1	-3.7	-1.2
	0.2		0.2		3.2		1.5		1.4		-0.3		0.2		2.9	
Standard Error	0.4	0.5	0.4	0.5	0.9	0.9	0.8	1.0	0.8	0.8	0.8	0.9	0.1	0.1	1.4	1.5
	0.4		0.4		0.9		0.7		0.6		0.7		0.1		1.6	

EXHIBIT 5. Mean Differences From National Percentages of Correct Responses to Art Knowledge Exercises by Museum Visitation and Art Activity: 9-, 13- and In-School 17-Year-Olds



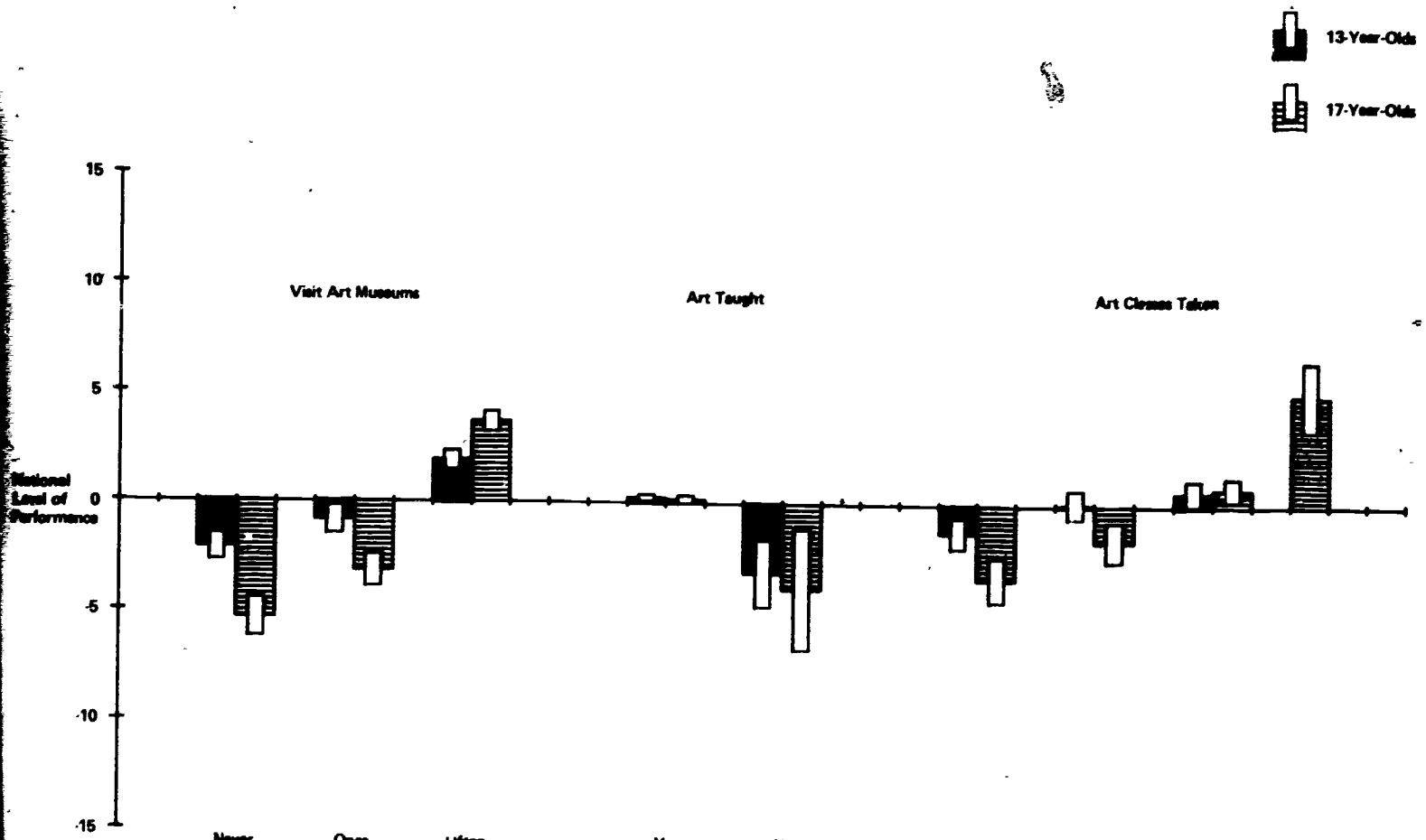
Comparisons of 13- and 17-year-old achievement within selected reporting groups can be made on the basis of Exhibits 6 and 7. Summary data for these figures are based on the 24 knowledge exercises taken by both 13- and 17-year-olds. As was noted for the exercises taken by all three ages, there are no clear male-female differences from the nation at either age; and there is a significantly negative difference when art is not taught in the student's school at both ages. Both ages show consistent, significant differences in performance at extreme levels of participation in art-related activities.

EXHIBIT 6. Mean Differences From National Percentages of Correct Responses to Art Knowledge Exercises by Art Activity, Sex and Collecting Activity: 13- and In-School 17-Year-Olds



	None	1-2 Kinds	3-4 Kinds	5-10 Kinds	Male	Female	None	1 Type	2 Types	3 Types
Difference From National	-6.2 -4.9	-1.8 1.8	-0.2 0.3	2.0 3.8	0.1 -0.3	0.1 0.2	1.1 2.9	0.7 -0.6	2.9 2.1	4.5
Standard Error	1.0 0.6	0.4 0.3	0.2 0.4	0.2 0.4	0.2 0.2	0.2 0.2	0.2 0.3	0.3 0.3	0.4 0.5	0.5

EXHIBIT 7. Mean Differences From National Percentages of Correct Responses to Art Knowledge Exercises by Museum Visitation, Art Exposure and Number of Art Classes Taken: 13- and In-School 17-Year-Olds



	Never	Once	Often	Yes	No	None	1 Class	2-3 Classes	4-6 Classes
Difference From Nation	2.1 5.3	-0.8 3.2	1.9 3.7	0.2 0.2	3.2 3.9	-1.3 -3.4	0.1 1.7	0.6 0.8	5.0
Standard Error	0.3 0.4	0.3 0.4	0.2 0.2	0.1 0.1	0.8 1.4	0.4 0.5	0.3 0.5	0.3 0.3	0.8

CHAPTER 2

AFFECTIVE RESPONSES TO ART

Affective response summary data are displayed in both tables and graphs. Exhibit 8 contains data computed for all affective exercises given to each age group. Exhibits 9 and 10 are graphic displays of responses made by the three age groups to 44 exercises administered to all ages.

Male-female differences are apparent in the affective data, although such differences were not present in the knowledge exercises. More male 9-year-olds tended to respond in the desired direction, while more female 13- and 17-year-olds tended to give the desired response. Black-white mean differences are all in the same directions as they were for art knowledge, but they are less extreme. Positive relations between desired responses and degree of participation in art activities appear in the affective area as they did for art knowledge.

The data in Exhibit 9 present the same pattern of mean differences for males and females as mentioned above. Regional differences are apparent only for the Southeast and Northeast at ages 13 and 17. A lack of art classes in the schools is associated with a significant, negative mean difference only at age 17.

Exhibit 10 shows means on the 44 affective items by participation in art-related activities. It can be seen that extreme levels of participation are associated with significant differences in means for all ages.

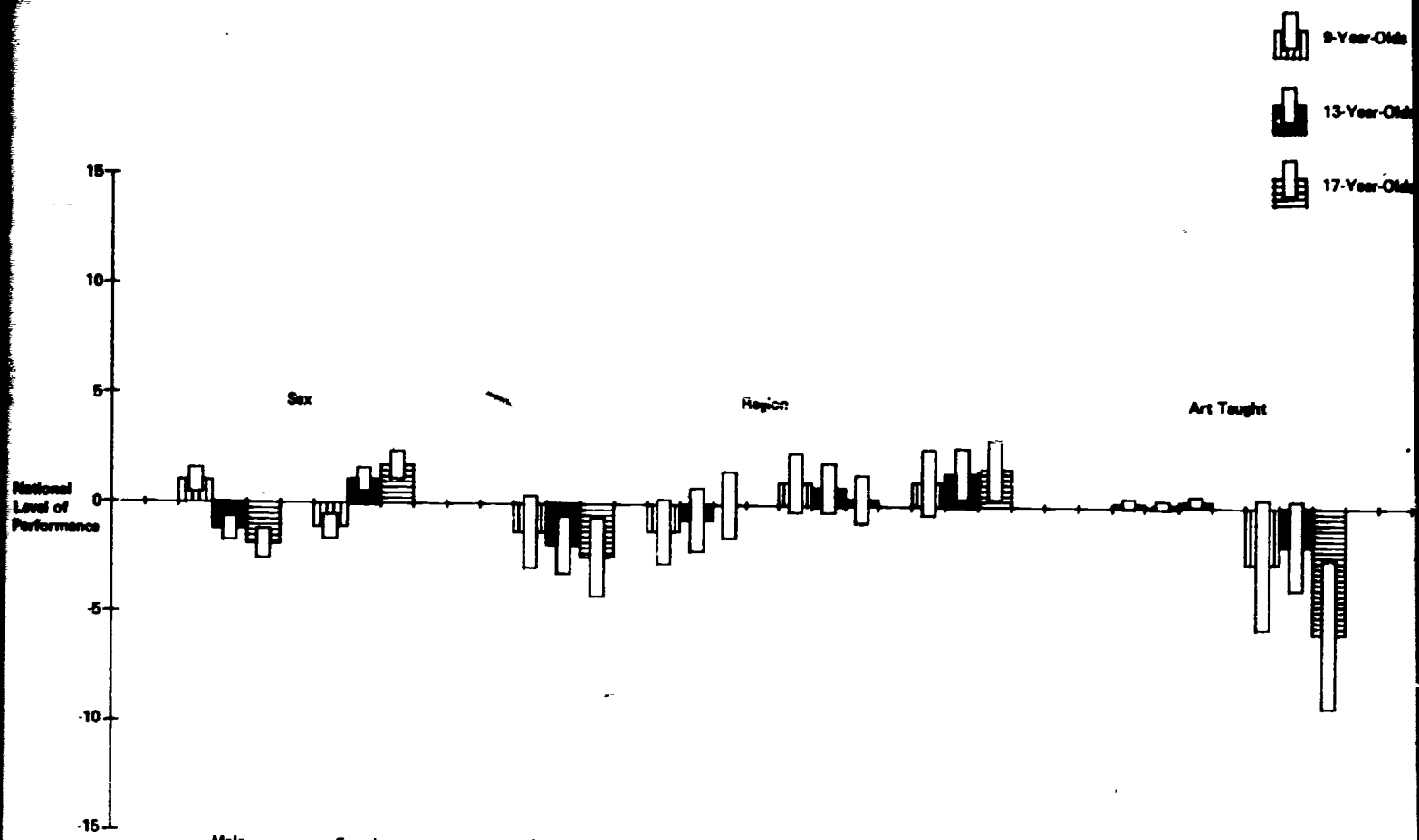
Among those who have never visited an art museum, as the age level increases, the percentage of respondents who gave the desired response decreases. Among the group who say they have visited an art museum five or more times, mean differences are positive and they increase with age.

EXHIBIT 8. Mean Differences From National Percentages for Standard and Art-Related Reporting Subpopulations and Mean National Percentages of Desirable Responses to Affective Art Exercises: 9-, 13-, In-School 17-Year-Olds and All 17-Year-Olds

	9-Year-Olds		13-Year-Olds		In-School 17-Year-Olds		All 17-Year-Olds	
Number of exercises	44		51		51		51	
National mean p-value	41.63		53.38		58.90		58.39	
Standard error of mean p	0.44		0.35		0.39		0.39	
Reporting Groups	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference	Mean Difference	Standard Error of Mean Difference
Region								
Southeast	-1 28	0.82	-1 79*	0 60	-2.48*	0 82	-2.47*	0.83
West	-1.23	0.73	-0 58	0 71	-0 03	0.74	-0.11	0 71
Central	1.04	0.66	0 89	0.55	0.46	0 54	0 67	0 54
Northeast	1.08	0.74	1.21*	0 58	1.62*	0.66	1.4a-	0.72
Sex								
Male	1.04*	0 27	-1 08*	0.25	-1.98*	0 31	-2.05*	0.30
Female	-1.05*	0.27	1 03*	0 24	1.89*	0.29	1.94*	0 28
Race								
Black	-2.68*	0 58	-4.10*	0 63	-6 3*	0 86	-6.75*	0 76
White	0.67*	0.14	1 06*	0 13	1 ,3*	0.17	1.30*	0 16
Parental education								
Unknown	-2.78*	0.33	-7 93*	0 58	-11.27*	1.08	-10.94*	1.03
No high school	-3 35*	1.01	-6 14*	0 78	-6 36*	1.16	-7.42*	1 08
Some high school	-0.89	1.05	-3 18*	0 72	-3.58*	0.79	-3.58*	0.76
Graduated high school	-0.25	0 46	-0 95*	0 38	-2.00*	0.41	-1.92*	0 42
Post high school	3.82*	0.32	4 52*	0 33	4 40*	0 28	4.80*	0 27
Size and type of community								
Low metro	-3.38*	1 04	-1 99	1 22	-2.71*	0.88	-2 22*	0 88
Extreme rural	-0 73	1 08	-3 31*	1 38	-2 37*	0.88	-2 12*	0.96
Small places	-0 88*	0 44	-0 22	0 44	-0 70	0.51	-0.84	0 48
Medium city	-0 11	0 86	-0 39	0 72	-0 74	0.83	-0.48	0.85
Main big city	-0 62	1 05	-1 21	1 07	2 22	1 24	1.96	1 21
Urban fringe	1 55	1 02	1 71*	0 74	4 75	1.04	1 31	1 01
High metro	4 07*	0 98	3 60*	1 10	4 07*	1 27	4.42*	1 23
Art taught in school								
Yes	0 20	0 11	3 07	0 08	0 24*	0 10		
No, no response, or I don't know	-2 57	1 49	-0 77	0 97	-4 78*	1 60		
What kinds of art								
None	-3 88*	0 34	-10 50*	1 42	-9.92*	0 70	-9 85*	0 69
One or two kinds	0 09	0 34	-4 89*	0 40	3 93*	0 41	-4 09*	0 40
Three or four kinds	5 12*	0 47	-1 72*	0 27	0.46	0 39	0.58	0 42
Five to ten kinds			5 55*	0 32	8 23*	0 41	8 49*	0 44
Visit art museums								
Never	-1 ..8*	0 38	-3 58*	0 38	-7 93*	0 50	-7 47*	0 49
Once	-0 28	0 39	-1 14*	0 34	-4 05*	0 40	-3 33*	0 45
Often	2 54*	0 42	3 79*	0 30	5 06*	0 27	5 00*	0 29
Do you collect art								
Zero types			1 [illegible]*	0 23	-5 23*	0 38	-5 31*	0 34
One type			2 4 *	0 34	-1 95*	0 42	-1.63*	0 40
Two types			4*	0 60	3 29*	0 47	3 38*	0 46
Three types					10 32*	0 52	10 67*	0 52
Art classes taken								
Zero			-2 33*	0 60	-4 63*	0 60		
One			-0 44	0 37	-2 75*	0 59		
Two or three			1 66*	0 34	1 05*	0 28		
Four to six					7 68*	0 75		

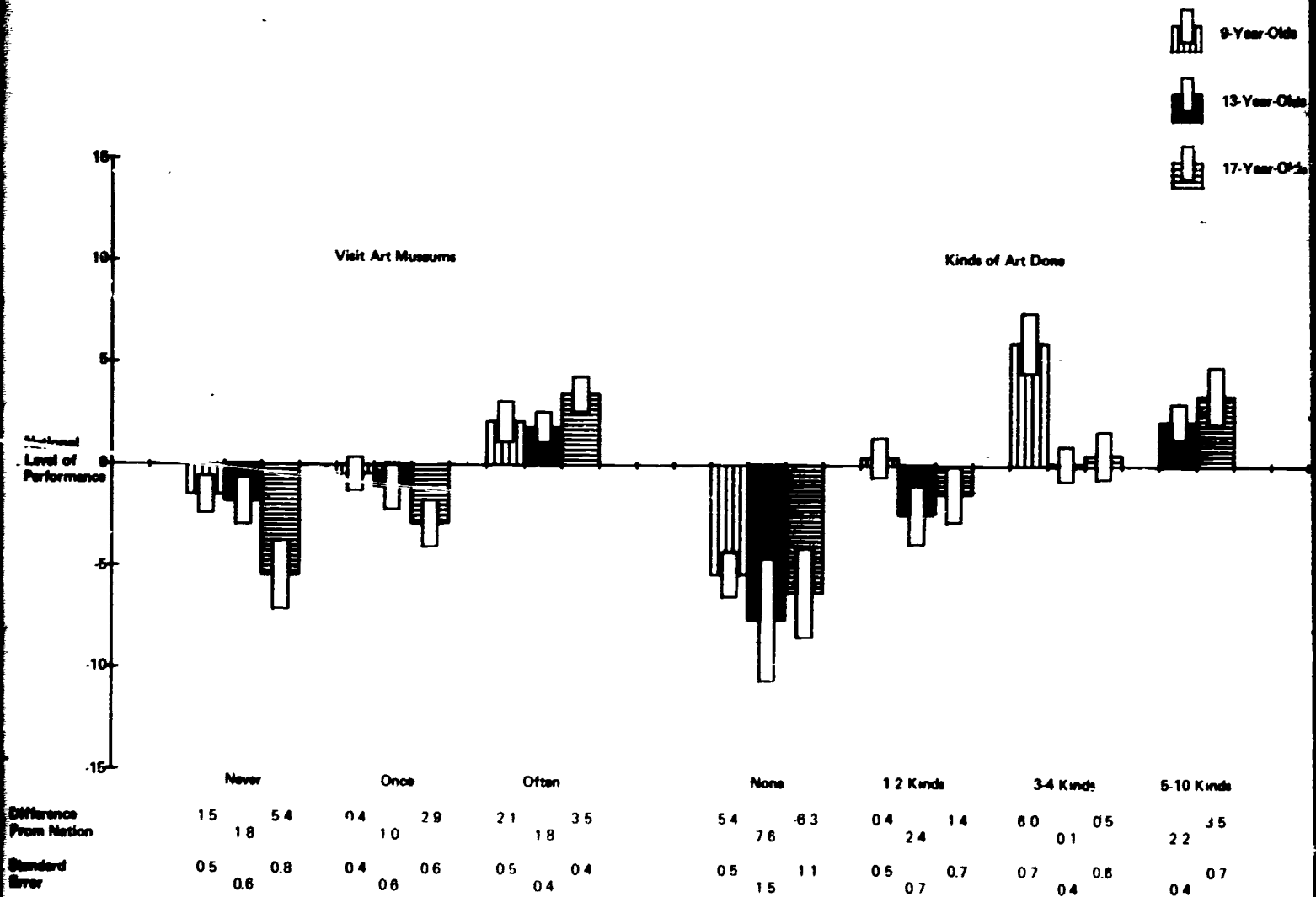
*Indicates mean percentages significantly different from the national mean

EXHIBIT 9. Mean Differences From National Percentages of Desirable Responses to Affective Art Exercises by Sex, Region and Art Exposure: 9-, 13- and In-School 17-Year-Olds



	Male			Female			Southeast			West			Central			Northeast			Yes			No		
Difference From Nation	10	11	18	11	11	18	13	18	24	12	-07	00	10	0.8	0.3	11	15	17	02	01	03	26	7	58
Standard Error	02	03	03	03	03	03	08	07	09	07	07	08	07	0.6	05	07	06	07	01	0.1	0.1	15	10	17

EXHIBIT 10. Mean Differences From National Percentages of Desirable Responses to Affective Art Exercises by Museum Visitation and Art Activity: 9-, 13- and In-School 17-Year-Olds



CHAPTER 3

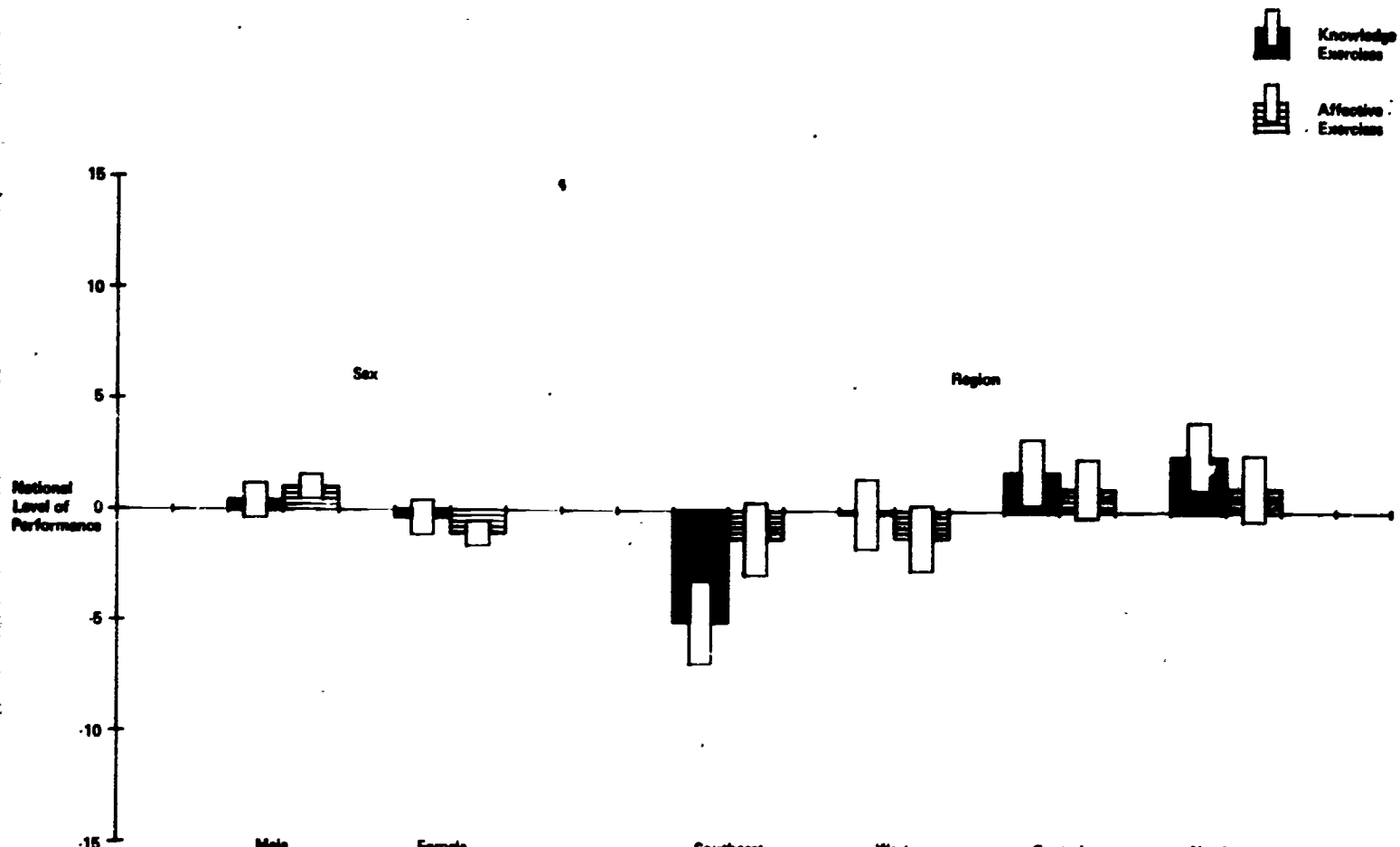
ART KNOWLEDGE AND ART AFFECTIVE ORIENTATION

Achievement levels for art knowledge and art affective responses are juxtaposed in this chapter. Exhibits 11 and 12 display the information for 9-year-olds, Exhibits 13 and 14 apply to 13-year-olds and Exhibits 15 and 16 deal with 17-year-old in-school responses.

At age 9, more males than females demonstrate a positive orientation toward art, while neither males nor females perform significantly differently from the nation on art knowledge. Across other reporting group subpopulations, the spread of mean differences associated with art knowledge tends to be greater than the spread of mean differences associated with affective responses.

Patterns of mean differences from the nation for 13- and 17-year-olds are much alike, as can be seen in Exhibits 13 through 16. More females than males demonstrate a positive orientation toward art, but neither group gave a superior performance on the art knowledge exercises. Participation in art-related activities shows a more pronounced relationship with affective responses than with knowledge responses.

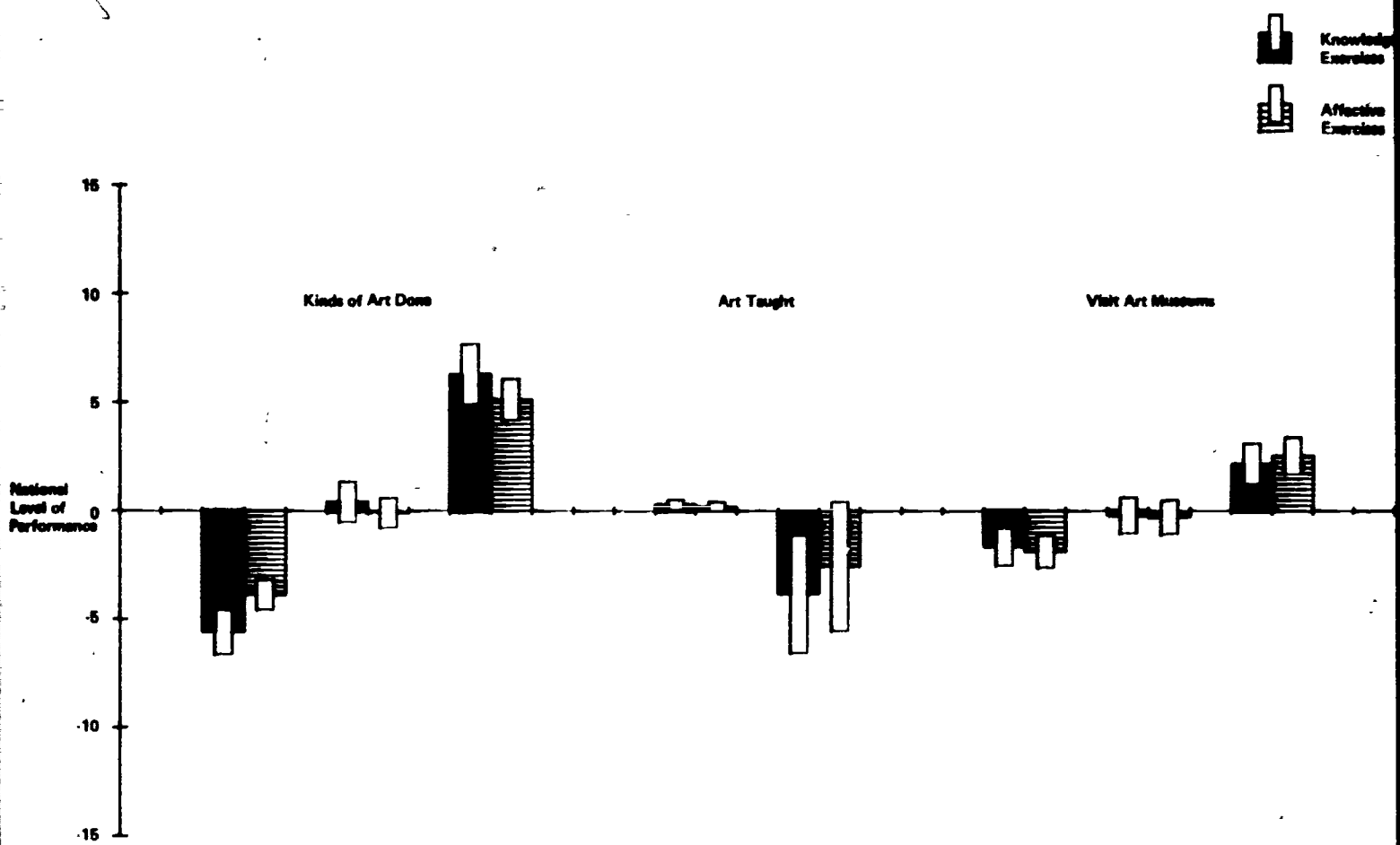
EXHIBIT 11. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Sex and Region: 9-Year-Olds



	Male	Female	Southeast	West	Central	Northeast
Difference From Nation	0.4	0.3	-5.0	-0.1	1.8	2.5
	1.0	1.1	-1.3	1.2	1.0	1.1
Standard Error	0.4	0.4	0.9	0.8	0.7	0.8
	0.3	0.3	0.8	0.7	0.7	0.7

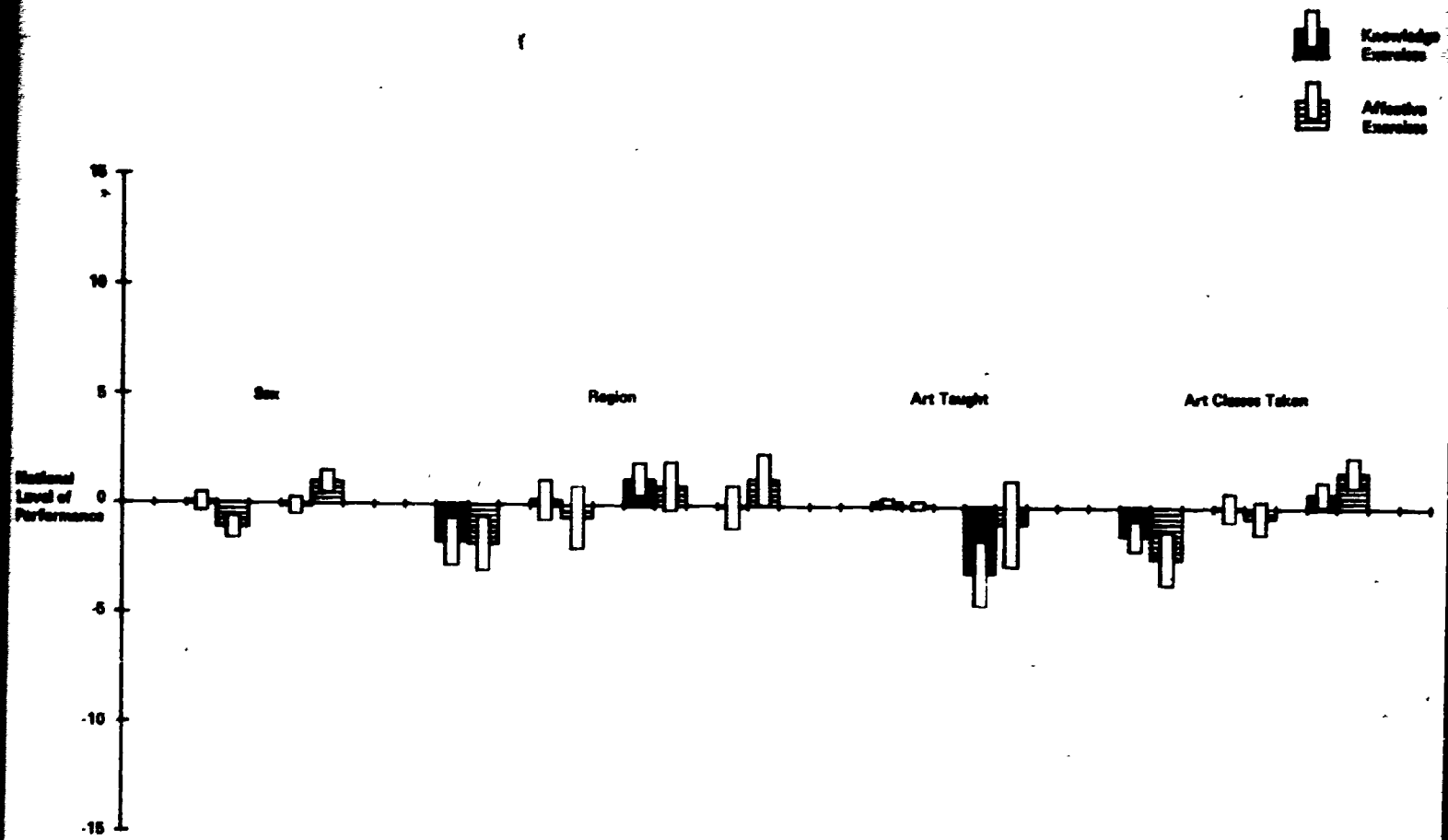
Error

EXHIBIT 12. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Art Participation, Art Exposure and Museum Visitation: 9-Year-Olds



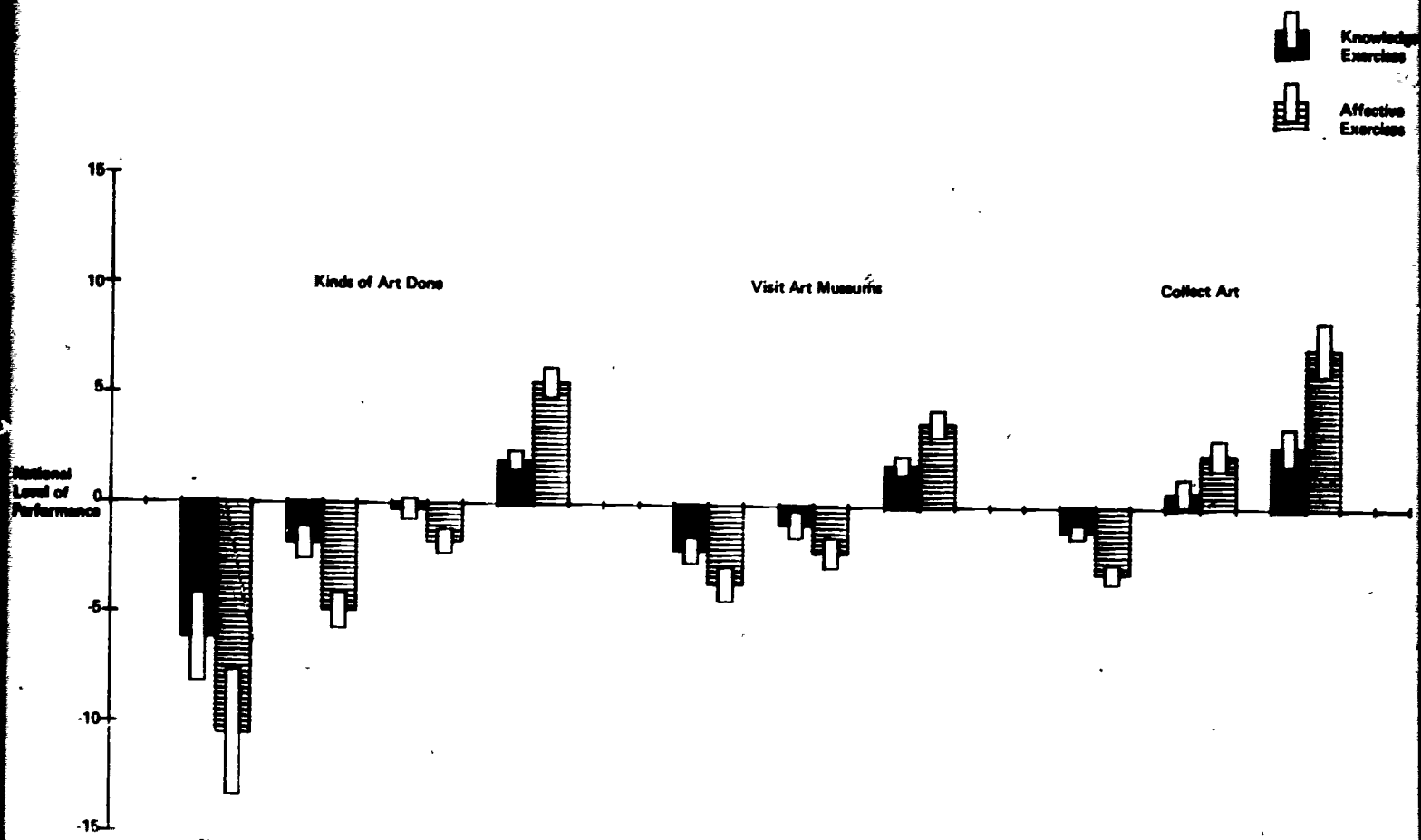
	None	1-2 Kinds	3-4 Kinds	Yes	No	Never	Once	Often
Difference From Nation	5.6 -3.9	0.4 0.1	6.3 5.1	0.3 0.2	-3.8 2.6	1.6 -1.9	-0.2 -0.3	2.1 2.5
Standard Error	0.5 0.3	0.5 0.3	0.7 0.5	0.1 0.1	1.4 1.5	0.4 0.4	0.4 0.4	0.5 0.4

EXHIBIT 13. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Sex, Region, Art Exposure and Art Classes Taken: 13-Year-Olds



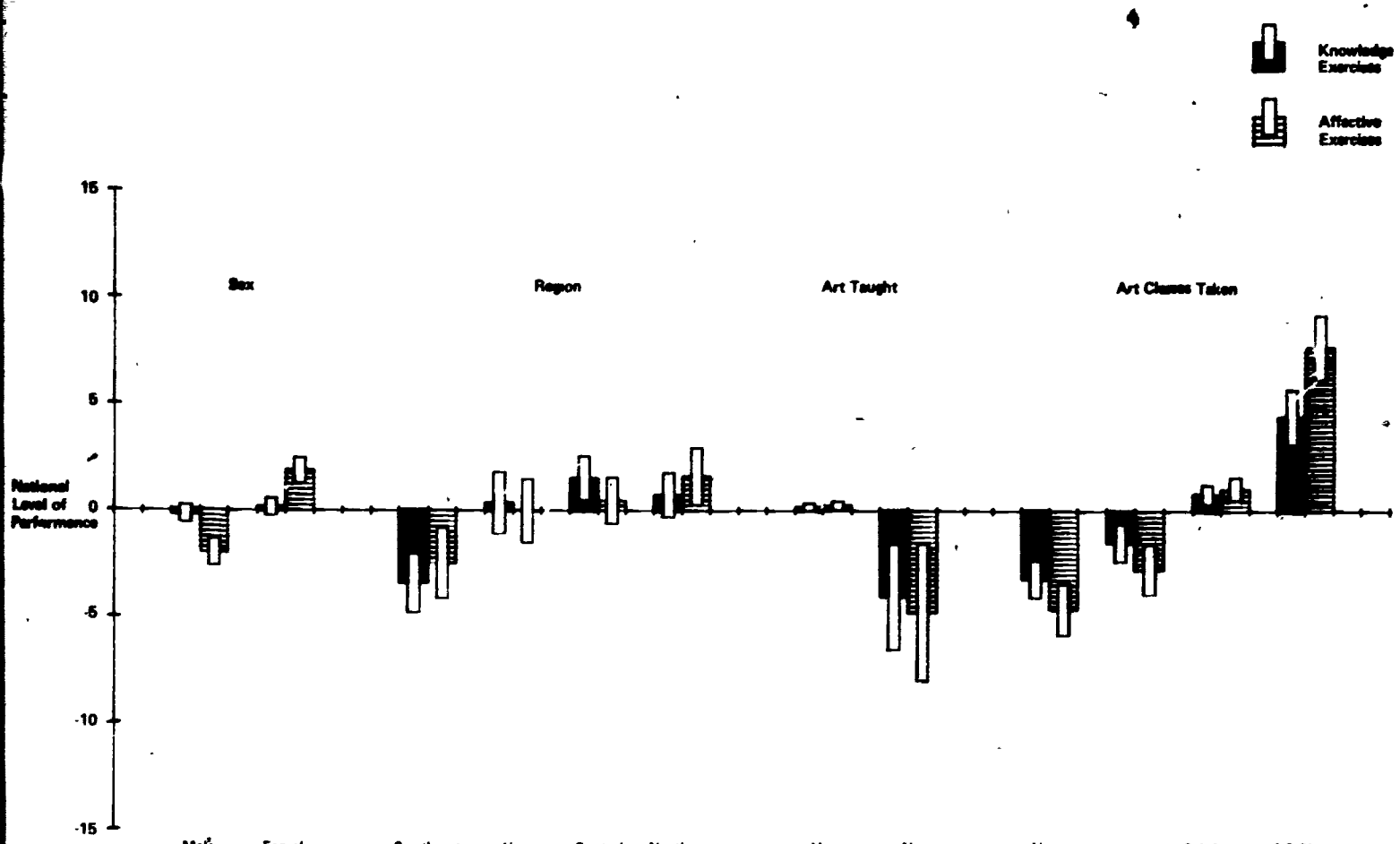
	Male	Female	Southeast	West	Central	Northeast	Yes	No	None	1 Class	2 Classes
Difference From Nation	0.1 -1.1	-0.1 1.0	1.7 1.8	0.2 -0.6	1.2 0.9	-0.1 1.2	0.2 0.1	-3.0 -0.8	-1.3 -2.3	0.0 -0.4	0.6 1.7
Standard Error	0.2 0.2	0.2 0.2	0.5 0.6	0.5 0.7	0.4 0.5	0.5 0.6	0.1 0.1	0.8 1.0	0.4 0.6	0.3 0.4	0.3 0.3

EXHIBIT 14. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Art Activity, Museum Visitation and Art Collection: 13-Year-Olds



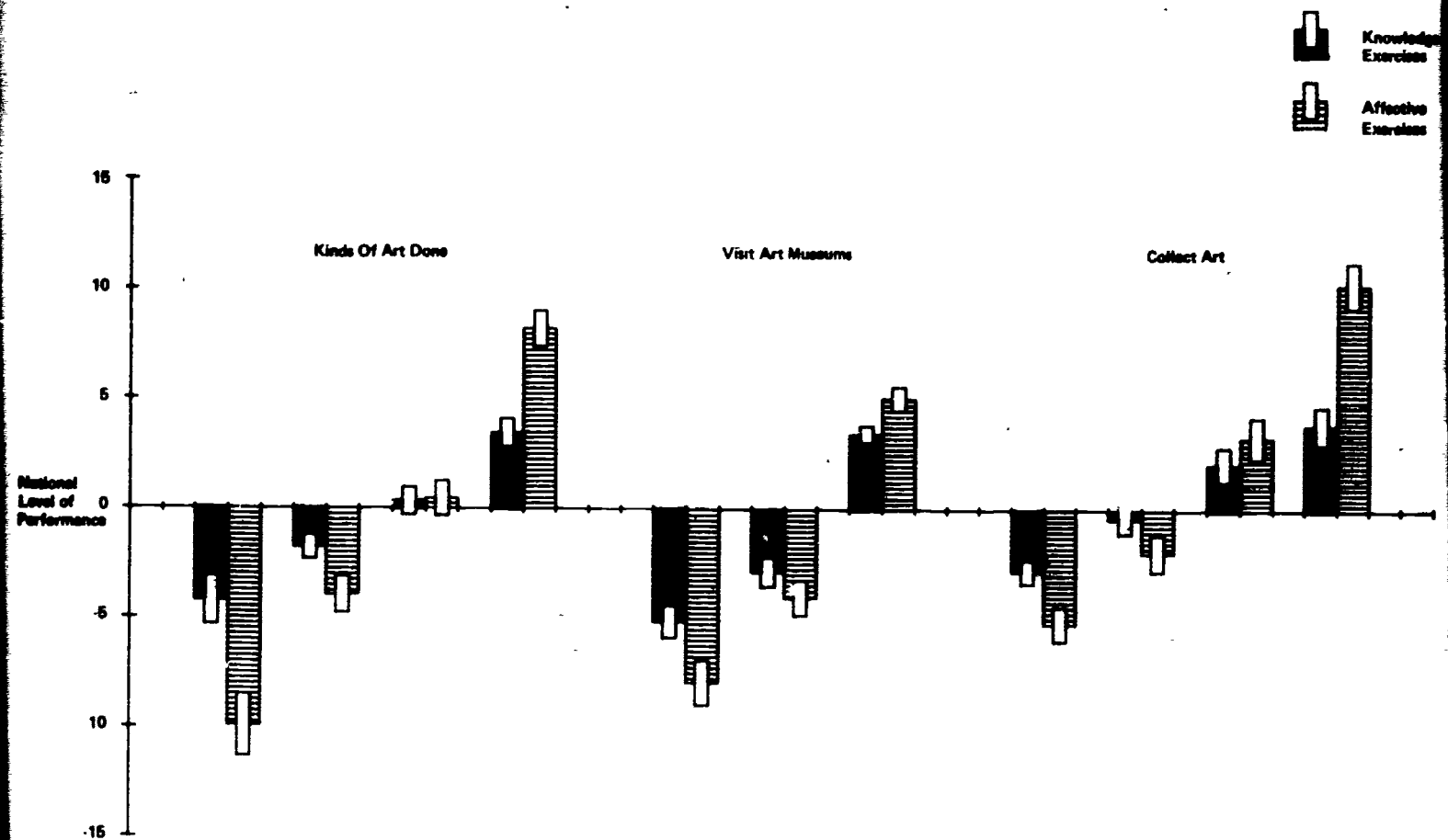
	None	1-2 Kinds	3-4 Kinds	5-10 Kinds	Never	Once	Often	None	1 Type	2 Types
Difference From Nation	6.1 10.5	-1.8 4.9	0.2 1.7	1.9 5.5	2.0 3.6	0.8 2.1	1.9 3.8	1.1 -3.0	0.7 2.4	2.8 7.3
Standard Error	1.0 1.4	0.4 0.4	0.2 0.3	0.2 0.3	0.3 0.4	0.3 0.3	0.2 0.3	0.2 0.2	0.3 0.3	0.4 0.6

EXHIBIT 15. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Sex, Region, Art Exposure and Art Classes Taken: 17-Year-Olds



	Male	Female	Southeast	West	Central	Northeast	Yes	No	None	1 Class	2-3 Classes	4-6 Classes
Difference From Nation	02 20	02 19	34 25	03 00	15 05	07 16	02 02	40 48	32 46	15 28	08 10	44 77
Standard Error	02 03	02 03	07 08	07 07	05 05	05 07	01 01	12 16	04 06	04 06	02 03	06 08

EXHIBIT 16. Mean Differences From National Percentages of Correct or Desirable Responses to Art Knowledge and Art Affective Exercises by Art Activity, Museum Visitation and Art Collection: 17-Year-Olds



	None	1-2 Kinds	3-4 Kinds	5-10 Kinds	Never	Once	Often	None	1 Type	2 Types	3 Types
Difference From Nation	4.2	1.7	0.3	3.4	5.1	2.8	3.4	2.8	-0.4	2.1	3.9
	9.9	-3.9	0.5	8.2	7.9	4.0	5.1	-5.2	2.0	3.3	10.3
Standard Error	0.6	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.4
	0.7	0.4	0.4	0.4	0.5	0.4	0.3	0.4	0.4	0.5	0.5

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