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ABSTRACT

The purpose of the tenth grade limited pilot project of the 1975-76 Michigan Educational Assessment Program is to perfect instruments, testing, and reporting procedures for a future statewide assessment at the tenth grade level. The development of assessment materials for the grade ten assessment program began with the selection of performance objectives to be measured; the 25 reading performance objectives from the Communication Skills booklet were selected for use in item writing, and the Mathematics objectives were drawn up by representatives of the Michigan Council of Teachers of Mathematics. Four districts provided teachers and specialists to write test items. A pretest was given from the tryout items and the final form of the test will depend on the pretest results. It will then be administered to tenth graders in volunteer schools. A list of performance objective test items is attached. (Author/DEP)

MICHIGAN EDUCATIONAL ASSESSMENT PROGRAM
GRADE 10 LIMITED PILOT PROJECT

Introduction

The purpose of the tenth grade limited pilot project of the 1975-76 Michigan Educational Assessment Program is to perfect instruments and testing and reporting procedures for a future statewide assessment at the tenth grade level. This project description also relates the complementary roles of the Department and participating high schools.

Considerable work has already been done by the Department which builds a foundation for a tenth grade assessment. This includes:

1. Conducting the fourth and seventh grade assessments from 1969-70 to 1974-75.
2. Conducting a statewide pilot assessment at grade one in 1974-75.
3. Coordinating the development of minimal performance objectives for grades K-9.
4. Coordinating the writing and first stage prestesting of test questions in mathematics and reading to measure objectives in the seventh to ninth grade range.

These four tasks have produced as a by-product skills and knowledge that will be useful as the work on the tenth grade project progresses this year.

Additionally, most, if not all of the participating high schools have staff with skills and experiences which complement those of Department staff and will be helpful to the project. For example, the use of a variety of teacher-made instructional tests and commercial norm-referenced tests constitutes useful experience. Also, the experience of teachers, counselors and administrators who have direct and continuing contact with the 10th grade students is an exceedingly helpful ingredient.

Development of Materials for the Grade Ten Assessment Program

The development of assessment materials for the grade ten educational assessment program began in July, 1974, with the selection of the performance objectives to be measured. All of the performance objectives selected were taken from the sets of grade one through nine objectives published by the Department. All twenty-five of the Reading performance objectives appropriate for grades 7-9 from the Communication Skills booklet were selected for use in item writing. Because of the large number of Mathematics performance

objectives for grades 7-9 (there are over 155), a group of representatives of the Michigan Council of Teachers of Mathematics (MCTM) were utilized to select 75 performance objectives to be measured first. A complete list of mathematics and reading objectives selected for use in item writing is attached.

Four school districts (Detroit, Gwinn, Pontiac, and Waterford) provided teachers and specialists to write test items. Westinghouse Learning Corporation was chosen to edit the items, prepare materials for tryouts, process the tryout data and prepare the final test copy. The teachers wrote items during September through November last year. After a review and selection meeting, Westinghouse reworked the items into tryout booklets, which now have been administered in the four school districts. Westinghouse is currently processing the tryout data.

When the final test copy has been prepared it is planned to administer the tests in a pilot assessment in a group of volunteer high schools. This pilot program will focus on disseminating information to school staff about the Michigan Educational Assessment Program, trying out various test administration procedures, and disseminating information on various methods of utilizing objective-referenced test information. The staff of the assessment program will be conducting training for secondary school staffs in administering the tests and in utilizing the information that they provide. Results will be reported to each participating high school; however, no data will be released publicly.

The approximately ninety objectives will be divided up into two tests of about forty-five objectives each. Only multiple-choice test items will be utilized in this pilot program. The tests should take students about three hours to complete. All tenth grade students in each volunteer school will participate and will take the same tryout booklet containing measuring approximately thirty-five mathematics and ten reading performance objectives.

Program Components

Basically, this tenth grade project embodies five main components:

1. Orientation of high school staff persons to the assessment program.
2. The tryout in a practical high school setting of test administration directions and procedures.
3. The tryout with sizable groups of high school students of the test questions, and use of the collected responses for the selection or refinement of these questions for use in the final test instruments.
4. The preparation of a report of overall results for the participant sample on all objectives tested.
5. The determination of teacher and student reactions to the objectives, the test questions, the test administration procedures, and the form and usefulness of the results.

In order to insure that the procedures and instruments are suitable for widespread use, an effort will be made to attract volunteer high schools of all sizes and circumstances. But to keep the project within resource constraints it will be necessary to limit participation. In case the Department is unable to accept for participation every high school that volunteers, selections will be made according to the order of application within each stratum of high schools. All high schools have been stratified according to size (10th grade enrollment) and district achievement level (according to 4th and 7th grade attainment rates on the 1974-75 state assessment). A quote will be set for each stratum, and applications accepted up to that quota.

MDE Responsibilities

In the conduct of this tenth grade pilot project, the Department of Education will have the following responsibilities:

1. Develop and print test administration manuals, test booklets, answer sheets, and related materials.

2. Develop procedures for transmittal of test materials to the school and for the collection and return of used materials at Department expense.

3. Conduct a briefing session for school staff member to receive, distribute and administer the materials.

4. Conduct an information session and provide materials to school officials to foster the "awareness" of high school faculty.

5. Transmit the resulting data to the participating schools.

6. Provide assistance in the interpretation of the results.

Note: The Department of Education is not in a position to pay any expenses incurred by a school through its participation in the project.

Local High School Responsibilities

The participating high schools will be expected to:

1. Send appropriate staff to information sessions conducted by the Department.

2. Receive and handle the assessment materials according to the procedures outlined by the Department.

3. Provide suitable staff and facilities for the administration of the material.

4. Secure the cooperation of the school staff and students.

5. Distribute, collect and return the assessment materials as provided in the directions.

6. Administer the tests and other instruments according to the directions provided.

7. Gather and furnish to the Department student responses and anecdotal and opinion information as needed.

8. Receive and disseminate the results of the pilot assessment.

All tenth grade students in a school are to be included in the testing, which will require about three hours of working time. The tests are to be given in the early fall, as soon after school begins as feasible. They should be completed and returned to the processor by mid October.

The participation of each high school in the pilot assessment is voluntary.

Indications of interest in participation are now being received. In May a meeting of interested schools will be held after which a statement of district and school commitment will be requested.

Mathematics Performance Objectives

Grades 7-9*

AR-II-D-19	Determine the quotient for a two-, three, or four digit dividend and a two digit divisor - with or without remainders.
AR-II-D-20	Given a problem involving division of whole numbers, the learner will determine the dividend, divisor and solve for the quotient and the remainder.
AR-III-A-22	Given a fraction the learner will write a set of equivalent fractions with or without the use of fractional cut-outs.
AR-III-A-23	Given the fractional numbers 1/2, 1/3, and 1/4 the learner will write them in order from the least to greatest, with or without the use of fractional cut-outs or numberline.
AR-III-A-24	Given two fractional numbers with unlike denominators, the learner will tell which one is greater (denominators of 2, 3, 4, 6 or 8) with or without the use of aids.
AR-III-B-10	Given two (proper) fractional numbers with unlike denominators of 2, 4, and 8 - or 2, 3, and 6 - the learner will write the sum.
AR-III-B-11	Given two mixed numbers with unlike denominators of 2, 4, and 8 - or 2, 3, and 6 - the learner will write the sum, with or without the use of fractional parts.
AR-III-B-12	Given two mixed numbers with like or unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - the learner will find the sum, with or without the use of aids.
AR-III-C-10	Given two fractions with unlike denominators of 2, 3 and 6 - or 2, 4, and 8 - the learner will subtract with or without the use of aids.
AR-III-C-11	Given two mixed numbers with unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - where no regrouping is necessary, the learner will find the difference.
AR-III-C-12	Given two mixed numbers with unlike denominators of 2, 3, and 6 - or 2, 4, and 8 - the learner will find the difference.
AR-III-D-5	Given two proper fractions with denominators less than 5, the learner will construct and shade a region to represent the product.
AR-III-D-6	Given two (proper) fractions with denominators less than 7, the learner will compute the product.
AR-III-D-8	Given a whole number less than 5 and a proper fraction with denominator less than 7, the learner will compute the product.

AR-III-D-9	Given a whole number less than 5 and a mixed number less than 5 and a denominator less than 7, the learner will compute the product.
AR-III-D-10	Given verbal problems involving fractional numbers, the learner will: a) identify the necessary operation to be used. b) write an arithmetic sentence for the situation. c) determine the desired result.
AR-IV-A-8	Given a numeral with no more than three decimal places, the learner will round to the nearest whole number, tenths or hundredths as requested.
AR-IV-A-10	Given a common fraction whose decimal equivalent terminates in three (3) places or less, the learner will rename the common fraction as a decimal fraction.
AR-IV-A-11	Given a set of decimal fractions of no more than three (3) places, the learner will arrange the fractions in order from greatest to least or least to greatest as instructed.
AR-IV-C-7	Given two two-place decimal fractions both less than 1, the learner will convert both decimal fractions to their common fraction form (with denominators of 100), multiply the fractions and write the product in its decimal form and find the product.
AR-IV-C-8	Given a decimal fraction and a whole number of 10 or a power of 10 (100, 1000, and so on), the learner will find the product by changing the value of the decimal number by placing the decimal point in the appropriate place value position.
AR-IV-C-10	Given two one-place decimal fractions greater than 1, but less than 100, the learner will compute the product.
AR-IV-C-11a	Given two two-place decimal fractions greater than 1, but less than 100, the learner will estimate the product.
AR-IV-C-11b	Given two two-place decimal fractions greater than 1, but less than 100, the learner will compute the product.
AR-IV-D-4	Given a division exercise of the form decimal number ÷ decimal number (up to four digits divided by up to two digits), the learner will change the divisor to a whole number by multiplying both divisor and dividend by the same number (10, 100, 1,000 and so on).
AR-IV-D-6	Given any two decimal numbers (up to four digits divided by up to two digits), the learner will find the quotient.
AR-V-1	Given a set of integers and a numberline, the learner can locate the integers by pointing at the correct location on a numberline. (Using either a horizontal or vertical number line.)
AR-V-2	Given two integers, the learner can correctly name the sum of any two integers.
AR-VI-19	Given sets of objects paired in a (a) one-to-one, (b) many-to-one, or (c) one-to-many ratio and part of another pair, the learner will complete that pair to maintain the pattern.

AR-VI-20 Given a picture of two sets or a subdivided region, the learner will write a ratio describing the indicated conparison.

AR-VI-25 Given a table of more than two equivalent ratios with (a) one value missing or (b) more than one value missing, the learner will complete the table.

AR-VI-26 Given a problem that can be solved by ratio and proportion techniques, the learner will solve the problem by making a table or ratios.

AR-VI-32 Given a written statement involving proportionality, the learner will write equivalent ratios by supplying the missing whole number.

AR-VI-33 Given a fraction and a "hundred square", the learner will shade the appropriate area to represent the equivalent fraction and name the whole number percent involved.

AR-VI-35 Given a partially completed table involving fractions with denominators of multiples of two and five, decimals and percents, the learner will complete the tables.

AR-VI-37 Given a whole number percent and a number, the learner will determine that percentage of the given number.

AR-VI-38 Given a simple written problem involving finding a percentage of a number, the learner will solve it.

M-I-A-14 Given rulers specially scaled in 1/16", 1/10", 1 cm. or 1 mm. the learner will measure objects to the nearest unit as requested.

M-I-A-15 Given a meter stick, the learner will measure objects to the nearest centimeter or meter upon request.

M-I-A-17 Given a meter stick for conversion, the learner will state the relationships among meter, centimeter, and millimeter, and convert among the units.

M-I-A-18 Given the following figures, the learner will find the perimeter of:
1) A rectangle (lengths of sides indicated) - formula may or may not be given.
2) A general polygon (lengths indicated).
3) A circle (diameter or radius indicated - formula and value of π provided).

M-I-A-20 Given a length, expressed entirely in terms of one unit, the learner will multiply or divide the length by a whole number.

M-I-A-21 Given word problems involving standard units of measure, the learner will solve the problems with or without aids.

M-I-A-24 Given a map with coordinates, the learner will locate places designated by pairs of coordinates.

M-I-A-25 Given a map, the learner will determine the straight-line distance between 2 points, using a ruler and the map scale.

M-I-A-26 Given a table of data in common use, the learner will be able to locate items in the table.

M-I-B-11 Given a rectangle, (formula to be known), the learner will measure to the nearest whole unit and use the formula to find its area.

M-I-B-12 Given a triangle, (formula to be supplied), the learner will measure it to the nearest unit and find its area.

M-I-B-14 Given a circle, the learner will approximate its area by covering the region with a grid.

M-I-B-16 Given word problems involving areas of rectangles (square included), triangles, and circles and the formulas for the triangle and circle (also the value of π), the learner will solve them.

M-I-C-10 Given a retangular box and the formula for the volume of a rectangular box, the learner will measure the box to the nearest inch and will use the formula to compute the volume.

M-II-A-13 Given two times to the nearest half hour, the learner will find the time interval.

M-II-B-10 Given a list of items with their price, the learner will select those items he could buy with a certain amount of money.

M-II-B-11 Given an expressed amount of money, the learner will multiply or divide the given amount by a positive integer.

M-II-B-12 Given $100 and purchases totaling $100 or less, the learner will make change for the $100.

G-I-A-5 Given a square, a rectangle, a parallelogram and a triangle, the learner will describe the properties of each.

G-I-A-6 Given a circle and its related parts, the learner will identify the center, radius, diameter, semicircle and circumference.

G-I-C-1 Given pairs of congruent and non-congruent line segments or angles, the learner will be able to identify them as congruent or not congruent.

G-I-C-2 Given pairs of congruent and non-congruent triangles or polygons, the learner will identify them as congruent or not congruent.

G-I-D-2 Given a variety of symmetrical plane figures, the learner will identify lines and points of symmetry in each figure.

A-11 Given an equation involving addition, subtraction, multiplication, or division of whole numbers and involving a variable, the learner will find the value of the variable.

A-13 Given a linear equation of the form $ax \pm b, = c$, where a, b, c, and x are whole numbers, and the solution is a whole number, the learner will be able to find the solution.

A-15 Given an inequality of the form $x < a$ or $x > a$, the learner will find numbers that make the inequality true and graph the numbers on the number line.

A-17 An expression of the form r^n, r is a whole number and n is 2, 3, or 4, the learner will write r^n as r. r. r...r (n factors).

A-22 Given a formula relating two quantities, the learner will make a table and describe how changing one quantity affects the other.

A-24 Given a common algebraic expression representing area, volume, etc., of degree $\leq$ 2 and the value for each of the variables, the learner will evaluate the expression.

A-25 Given a formula and values for all the variables except one, the learner will find the missing value provided that the given values and solution are whole numbers.

A-27 Given a square root table, the learner will be able to find the square route of a specified whole number $\leq$ 100.

A-30 Given a table of values representing a linear relation, the learner will graph the straight line.

P-12 Given a bar graph, the learner will be able to answer questions comparing the data.

P-14 Given a line graph, the learner will be able to answer questions comparing data.

P-15 Given a probabilistic situation, the learner will know that an event can be assigned a numerical probability between 0 to 1, inclusive, and will indicate appropriate probabilities for selected events.

P-17 Given an experiment in probability with all events equally likely, the learner will find the probability of a designated simple event.

P-19 Given the results of an experiment performed a given number of times, the learner will predict the number of times a particular event will occur if the experiment is performed many times.

P-21 Given a set of up to 30 whole numbers, the learner will find the mean (average).

P-22 Given a set of up to 30 whole numbers, the learner will be able to find the median (middle score).

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* These performance objectives were selected for potential use in the Tenth Grade Educational Assessment Program.

Reading Performance Objectives

Grades 7-9*

34. Learners will be able to apply strategies that help them to recognize words in the context of a passage.

35.1 Learners will be able to determine meaning from the context of the passage.

35.2 Learners will be able to apply knowledge of roots and affixes as an aid in understanding words.

35.3 Learners will be able to read specialized words related to everyday functions (e.g., highway signs and symbols, recipes, test instructions, typical institutional forms).

36.1 Learners will be able to tell in their own words, orally or in writing, the major incidents as they occur in a reading passage.

36.2 Learners will be able to select from a series of sentences the one best describing the content of a reading passage.

36.3 Learners will be able to select passages within a reading selection showing causation.

36.4 Learners will be able to select passages within a reading selection showing characterization.

36.5 Learners will be able to select passages within a reading selection showing mood or feeling.

36.6 Learners will be able to choose from three possible conclusions the one best suited to end a reading selection wherein the conclusion has been omitted.

37.1 & 37.2 Learners will be able to select from a number of reading selections those meant to entertain, to persuade, to provide information, to influence the reader's opinion.

37.3 Learners will be able to select from a number of reading passages those appealing to the reader's personal needs, goals, prejudices, and fears.

38.1 Learners will be able to select from a number of phrases the one most appropriate as a title to a topical poster (or still photo, or musical selection).

38.2 Learners will be able to choose from a series of captions the one best suited to a cartoon.

38.3 Learners will be able to tell or write about their feelings regarding a motion picture, a television production, a still photograph, a painting, a musical selection, or a staged dramatic presentation.

39.1 Learners will be able to identify various literary types, subject matter categories, individual selections, authors.

39.2 Learners will be able to discuss the purposes for which people read various types of reading material.

39.3 Learners will be able to discuss the reasons they themselves do or do not read voluntarily.

40.1 Learners will be able to alphabetize randomly chosen words.

40.2 Learners will be able to locate an unfamiliar word in a dictionary and thesaurus, pronounce it correctly and tell its meaning(s).

40.3 Learners will be able to locate an item of information in a reference book, using, as needed, the index and/or table of contents (encyclopedia, telephone book, catalogue).

40.4 Learners will be able to scan sub-headings and relate the general nature of the contents of the material.

40.5 Learners will be able to skim through the items in a given categorical listing to locate the one specified.

40.6 Learners will be able to identify examples of services and products found in the "yellow pages."

41. Learners will be able to use graphs, charts, tables, maps, simple operating instructions, forms, etc.

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