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ABSTRACT

The purpose of this study was to design, produce, and evaluate testing reports that would be useful and meaningful at the classroom level: reports that would be useful to teachers and informative to parents, without making time demands on teachers in either preparation of the reports or in inservice training in educational measurement. The Iowa Tests of Basic Skills was chosen for the study. Every item of Form 3 of the fourth-grade level test was analyzed by a group of classroom teachers, and the appropriate subject-matter curriculum coordinators of the school system. Also examined was the Modern Mathematics Supplement to the tests. Three reports were designed: a parent report, a teacher report, and a class-summary report. A brief discussion of each of these reports is given. (Author/DB)

COMPUTER-GENERATED VERBAL TESTING REPORTING

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of the American Educational Research Association
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Chicago

While examining the standardized testing program of a medium-sized public school system, it was observed that aside from the reports containing the student scores, all of the testing reports had the school administration as their target audience. A large volume (217 pages) was published annually which contained tables of data and analysis of the performance of the total school system and of each of its 53 schools. This volume had no direct impact on teaching and learning at the student level, and the majority of the members of the teaching staff was not even aware of its existence.

Two testing reports were routinely distributed to each school:

1. a list of students and their test scores for the information of the guidance counselor or classroom teacher, and
2. a gummed label containing the same information for affixation to the cumulative record of each student.

Achievement tests were usually reported in terms of three scores:

1. a percentile rank on local norms,
2. a percentile rank on national norms, and
3. a grade-equivalent score.

These reports provide pertinent statistics. Unfortunately, too many teachers are not able, or do not take the time to analyze the tables of percentiles and grade-equivalent scores. The only information provided to the student and/or the parents of the pupil is what the classroom teacher interprets (or is capable of interpreting under the limitations of time and understanding) to them.

The Purpose

The purpose of this study was to design, produce, and evaluate testing reports that would be useful and meaningful at the classroom level: reports that would be useful to teachers and informative to parents, without making time demands on teacher in either preparation of the reports or in inservice training in educational measurement.

The Approach

The Iowa Tests of Basic Skills, a widely used achievement battery, was chosen for the study. Every item of Form 3 of the fourth-grade level test was analyzed by a group of classroom teachers, and the appropriate subject-matter curriculum coordinators of the school system. Also examined was

the Modern Mathematics Supplement to the Iowa Tests of Basic Skills. Three reports were designed: a parent report, a teacher report, and a class-summary report. A brief discussion of each of these reports follows.

The Parent Report

To provide information to the parents of each pupil, an individual report in a verbal format was generated for each child's performance. The only scores reported to the parent in numerical form were the national and local percentiles for the pupil's total test score. Reports on all of the subscores utilize one of the verbal descriptors (exceptional, very strong, quite strong, near average, rather weak, or very weak). Diagnostic keys in 25 skill areas (e.g., subtraction, using verbs, and solving problems involving money) were printed if a pupil's score in that area was determined to be either proficient or deficient.

Since the mechanical interpretation of a pupil's performance on the test did not take into consideration unique factors in the child's background or indicants of improvement which may be known to the teacher, space on the computer-generated reports was designed for teacher comments.

PARENT REPORT ON INDIVIDUAL PERFORMANCE ON THE IOWA TESTS OF BASIC SKILLS
ADMINISTERED SEPTEMBER 1970
MADISON PUBLIC SCHOOLS
MADISON, WISCONSIN

STUDENT: DANIEL MARSHALL
TEACHER: MRS. FRANKLIN

GRADE: 4
SCHOOL: JEFFERSON

ACCORDING TO THIS TEST, DANIEL'S OVERALL ACHIEVEMENT LEVEL IS AT THE 78 PERCENTILE WHEN COMPARED WITH STUDENTS IN GRADE 4 IN THE MADISON SCHOOL SYSTEM, AND AT THE 84 PERCENTILE WHEN COMPARED WITH A NATIONAL SAMPLE OF GRADE 4 STUDENTS.

THE TEST PROVIDES INFORMATION IN FIVE MAIN AREAS: DANIEL'S VOCABULARY SCORE IS NEAR AVERAGE WHILE HIS READING COMPREHENSION SCORE IS NEAR AVERAGE. IN THE AREA OF LANGUAGE SKILLS HIS SCORE IS QUITE STRONG, AND HIS SCORE IN WORK-STUDY SKILLS IS VERY STRONG. HIS ARITHMETIC SCORE IS EXCEPTIONAL.

THE TEST LOOKED AT FOUR SPECIFIC LANGUAGE SKILLS, AND THIS STUDENT WAS RATED AS FOLLOWS: QUITE STRONG IN SPELLING AND QUITE STRONG IN CAPITALIZATION, VERY STRONG IN PUNCTUATION AND NEAR AVERAGE IN WORD USAGE.

IN THE AREA OF WORK-STUDY SKILLS, THREE SPECIFIC SKILLS WERE TESTED. IN MAP READING, DANIEL SEEMS TO BE QUITE STRONG WHILE HIS IS NEAR AVERAGE IN READING GRAPHS AND TABLES. IN HIS KNOWLEDGE AND USE OF REFERENCE MATERIALS HE IS QUITE STRONG.

IN THE AREA OF ARITHMETIC, HE APPEARS TO BE NEAR AVERAGE IN CONCEPTS AND VERY STRONG IN PROBLEM SOLVING WHILE HE TENDS TO BE EXCEPTIONAL IN THE MODERN MATHEMATICS SUPPLEMENTARY TEST.

DIAGNOSTIC KEYS INDICATE THAT DANIEL IS PROFICIENT IN:

SOLVING PROBLEMS INVOLVING MONEY,
SUBTRACTION,
ADDITION,
UNDERSTANDING THE CONCEPT OF WHOLE NUMBER IN MODERN MATH.

DIAGNOSTICS ALSO INDICATE THAT DANIEL IS DEFICIENT IN:

SPELLING BECAUSE OF PROBLEMS IN VOWEL SUBSTITUTION,
USING THE COMMA,
PUNCTUATION BECAUSE OF OVERPUNCTUATION.

STUDENT PERFORMANCE IS EVALUATED IN SEVERAL WAYS: BY THE TEACHER, BY THE PARENTS OF THE STUDENT AND, OF COURSE, BY THE STUDENT HIMSELF. TEST RESULTS DO NOT REPLACE ANY OF THESE, BUT CAN BE VALUABLE IN THAT THEY ARE ANOTHER SOURCE OF DATA. THIS TEST, LIKE ANY TEST, IS SUBJECT TO ERROR.

COMMENTS ABOUT DANIEL MARSHALL FROM MRS. FRANKLIN :

The Teacher Report

For each pupil, an individual report was generated for the teacher. The report for the teacher was almost identical to the report for the parents with the addition of percentile scores for each of the 15 subscores. The narrative on each set of reports for a pupil was identical; the particular form of each paragraph that was generated was determined by the digits in his student number. Since several alternative narrative forms of each paragraph were available for printing, the value of a specific digit or combination of digits in the pupil's school identification number was used to determine which of the parallel verbal forms of each paragraph was printed.

The teacher report ends with the same caution contained on the parent report: that tests are fallible and are only one way of measuring pupil performance.

TEACHER REPORT ON INDIVIDUAL PERFORMANCE ON THE IOWA TESTS OF BASIC SKILLS
ADMINISTERED SEPTEMBER 1970
MADISON PUBLIC SCHOOLS
MADISON, WISCONSIN

STUDENT: DANIEL MARSHALL
TEACHER: MRS. FRANKLIN

GRADE: 4
SCHOOL: JEFFERSON

ACCORDING TO THIS TEST, DANIEL'S OVERALL ACHIEVEMENT LEVEL IS AT THE 78 PERCENTILE WHEN COMPARED WITH STUDENTS IN GRADE 4 IN THE MADISON SCHOOL SYSTEM, AND AT THE 84 PERCENTILE WHEN COMPARED WITH A NATIONAL SAMPLE OF GRADE 4 STUDENTS.

THE TEST PROVIDES INFORMATION IN FIVE MAIN AREAS: DANIEL'S VOCABULARY SCORE IS NEAR AVERAGE (53 %ILE) WHILE HIS READING COMPREHENSION SCORE IS NEAR AVERAGE (56 %ILE). IN THE AREA OF LANGUAGE SKILLS HIS SCORE IS QUITE STRONG (71 %ILE), AND HIS SCORE IN WORK-STUDY SKILLS IS VERY STRONG (81 %ILE). HIS ARITHMETIC SCORE IS EXCEPTIONAL (91 %ILE).

THE TEST LOOKED AT FOUR SPECIFIC LANGUAGE SKILLS, AND THIS STUDENT WAS RANKED AS FOLLOWS: QUITE STRONG IN SPELLING (72 %ILE) AND QUITE STRONG IN CAPITALIZATION (71 %ILE), VERY STRONG IN PUNCTUATION (87 %ILE) AND NEAR AVERAGE IN WORD USAGE (56 %ILE).

IN THE AREA OF WORK-STUDY SKILLS, THREE SPECIFIC SKILLS WERE TESTED. IN MAP READING, DANIEL SEEMS TO BE QUITE STRONG (73 %ILE) HE IS NEAR AVERAGE IN READING GRAPHS AND TABLES (48 %ILE). IN HIS KNOWLEDGE AND USE OF REFERENCE MATERIALS HE IS QUITE STRONG (71 %ILE).

IN THE AREA OF ARITHMETIC, HE APPEARS TO BE NEAR AVERAGE IN CONCEPTS (57 %ILE) AND VERY STRONG IN PROBLEM SOLVING (83 %ILE) WHILE HE TENDS TO BE EXCEPTIONAL IN THE MODERN MATHEMATICS SUPPLEMENTARY TEST (93 %ILE).

DIAGNOSTIC KEYS INDICATE THAT DANIEL IS PROFICIENT IN:

SOLVING PROBLEMS INVOLVING MONEY.
SUBTRACTION.
ADDITION.
UNDERSTANDING THE CONCEPT OF WHOLE NUMBER IN MODERN MATH.

DIAGNOSTICS ALSO INDICATE THAT DANIEL IS DEFICIENT IN:

SPELLING BECAUSE OF PROBLEMS IN VOWEL SUBSTITUTION.
USING THE COMMA.
PUNCTUATION BECAUSE OF OVERPUNCTUATION.

STUDENT PERFORMANCE IS EVALUATED IN SEVERAL WAYS: BY THE TEACHER, BY THE PARENTS OF THE STUDENT AND, OF COURSE, BY THE STUDENT HIMSELF. TEST RESULTS DO NOT REPLACE ANY OF THESE, BUT CAN BE VALUABLE IN THAT THEY ARE ANOTHER SOURCE OF DATA. THIS TEST, LIKE ANY TEST, IS SUBJECT TO ERROR.

The Class Report

The third type of report that was generated was designed for the use of the teacher. This report began with five paragraphs of text that were similar in design to those already described for the parent report and the teacher report, but the narrative describes the performance of the class as a whole. Both verbal descriptors and mean percentile ranks were used to describe the group's performance on each test, and totals were given for the number of students that were either deficient or proficient in each of the 25 diagnostic areas.

For each of ten areas that were tested by the Iowa Tests of Basic Skills battery, practical suggestions were designed by classroom teachers in conjunction with subject matter coordinators. For each area in which the class mean was below the mean of the school system in that area, a list of suggestions was printed on the class report. If the class mean was not below the district mean in at least one area, the discriminatory percentile rank was raised by ten points until at least one set of suggestions was printed. The class report ended with a listing of human resources that were available to the teacher from the central administrative offices, particularly subject-matter consultants.

REPORT ON CLASS PERFORMANCE ON THE IOWA TESTS OF BASIC SKILLS
 ADMINISTERED SEPTEMBER 1970
 MADISON PUBLIC SCHOOLS
 MADISON, WISCONSIN

TEACHER: MRS. HAMILTON

GRADE: 4

SCHOOL: FALK

THE MEAN ACHIEVEMENT LEVEL OF THE STUDENTS IN YOUR CLASS IS AT THE 54 PERCENTILE WHEN THEIR TEST SCORES ARE COMPARED TO THE OTHER FOURTH-GRADE STUDENTS IN THE MADISON PUBLIC SCHOOL SYSTEM. THE MEAN ACHIEVEMENT LEVEL OF YOUR STUDENTS IS AT THE 55 PERCENTILE WHEN COMPARED WITH A NATIONAL SAMPLE OF FOURTH-GRADE STUDENTS.

THIS TEST PROVIDES INFORMATION IN FIVE MAIN AREAS: IN VOCABULARY, THE MEAN OF THIS CLASS IS NEAR AVERAGE (56 %ILE), WHILE IT IS NEAR AVERAGE IN READING COMPREHENSION (47 %ILE). THE CLASS MEAN IS NEAR AVERAGE IN LANGUAGE SKILLS (55 %ILE) AND NEAR AVERAGE IN WORK-STUDY SKILLS (53 %ILE). THE MEAN SCORE OF THIS GROUP IS NEAR AVERAGE IN ARITHMETIC SKILLS (50 %ILE).

LOOKING A LITTLE CLOSER AT THIS CLASS' LANGUAGE SKILLS, THEY TEND TO BE NEAR AVERAGE IN SPELLING (57 %ILE) AND NEAR AVERAGE IN CAPITALIZATION (61 %ILE). THERE ARE INDICATIONS THAT THIS CLASS IS NEAR AVERAGE IN PUNCTUATION (57 %ILE) AND NEAR AVERAGE IN WORD USAGE (50 %ILE).

IN THE AREA OF WORK-STUDY SKILLS, THIS GROUP, AS A WHOLE, APPEARS TO BE NEAR AVERAGE IN MAP READING (54 %ILE), NEAR AVERAGE IN READING GRAPHS AND TABLES (55 %ILE), AND NEAR AVERAGE IN KNOWLEDGE AND USE OF REFERENCE MATERIALS (55 %ILE).

WITH REGARD TO THE ARITHMETIC SKILLS OF YOUR STUDENTS, THE CLASS MEAN SHOWS THEM TO BE NEAR AVERAGE IN ARITHMETIC CONCEPTS (55 %ILE) WHILE THEY APPEAR TO BE NEAR AVERAGE IN PROBLEM SOLVING (50 %ILE). ON THE MODERN MATHEMATICS SUPPLEMENT THE SCORES OF THE STUDENTS SEEM TO BE NEAR AVERAGE (57 %ILE).

FOLLOWING ARE THE NUMBERS OF STUDENTS IN YOUR CLASS OF 19 WHO WERE RATED EITHER PROFICIENT OR DEFICIENT IN THE VARIOUS DIAGNOSTIC AREAS:

PROF.	DEF.	DIAGNOSTIC AREA
1	2	RECOGNIZING AND UNDERSTANDING IMPORTANT FACTS AND DETAILS.
2	2	RECOGNIZING AND UNDERSTANDING IMPLIED FACTS AND RELATIONSHIPS.
0	4	SPELLING BECAUSE OF PROBLEMS IN VOWEL SUBSTITUTION.
2	9	USING VERBS.
5	7	USING VERB FORMS.
4	10	USING THE COMMA.
5	8	USING THE PERIOD.
2	10	USING INTERNAL PUNCTUATION IN A SENTENCE.
3	7	USING TERMINAL PUNCTUATION IN A SENTENCE.
4	9	USING LETTER-WRITING PUNCTUATION.
0	5	USING TOO MUCH PUNCTUATION.
14	1	USING CAPITALIZATION IN LETTER WRITING.
10	5	CAPITALIZATION OF GEOGRAPHIC TERMS.
8	6	CAPITALIZATION OF HUMAN NAMES AND REFERENCES TO HUMANS.
0	4	LOCATING PLACES ON MAPS AND GLOBES.
11	2	ALPHABETIZING.
3	6	USING AN INDEX.
0	16	USING A DICTIONARY.

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| 3 | 12 | USING GENERAL REFERENCE MATERIALS. |
| 4 | 6 | UNDERSTANDING THE CONCEPT OF WHOLE NUMBER. |
| 1 | 8 | WORKING PROBLEMS USING WHOLE NUMBERS. |
| 6 | 7 | SOLVING PROBLEMS INVOLVING MONEY. |
| 2 | 7 | SUBTRACTION. |
| 7 | 5 | ADDITION. |
| 2 | 6 | UNDERSTANDING THE CONCEPT OF WHOLE NUMBER IN MODERN MATHEMATICS. |

(• PROFICIENCY IS NOT MEASURED IN THIS AREA.)

TEST RESULTS NEVER REPLACE TEACHER JUDGMENTS; THEY ARE ONLY A HELP TO THE TEACHER IN FORMING MORE RELIABLE JUDGMENTS. THIS TEST, LIKE ANY TEST, IS SUBJECT TO ERROR.

FOLLOWING ARE PRACTICAL SUGGESTIONS FOR IMPROVING THE ACHIEVEMENT LEVELS OF YOUR STUDENTS IN THE AREAS THAT YOUR CLASS AVERAGE WAS BELOW THE MEAN OF ALL THE FOURTH-GRADE PUPILS IN THE MADISON PUBLIC SCHOOLS; (SUGGESTIONS IN OTHER AREAS ARE AVAILABLE FROM THE PROJECT DIRECTOR.)

***SUGGESTIONS FOR IMPROVING READING COMPREHENSION**

SUGGESTIONS FOR DEVELOPING ABILITY TO RECOGNIZE AND UNDERSTAND STATED OR IMPLIED FACTUAL DETAILS AND RELATIONSHIPS

FROM THE BEGINNING GRADES ON, READING FOR THOUGHT MUST BE EMPHASIZED. CHILDREN DO NOT SUDDENLY LEARN TO READ WITH COMPREHENSION IN THE SIXTH GRADE; THOUGHTFUL READING AT THAT LEVEL IS THE RESULT OF A LONG PERIOD OF GROWTH BEGINNING IN THE FIRST GRADE. NO AMOUNT OF DRILL AT THE HIGHER LEVELS CAN MAKE UP FOR A LACK OF ATTENTION TO READING AS A THOUGHT-GETTING PROCESS IN THE MIDDLE OR LOWER GRADES. MANY OF THE FOLLOWING SUGGESTIONS THEREFORE, SHOULD BE OF VALUE TO TEACHERS AT THE LOWER AS WELL AS THE HIGHER GRADE LEVELS.

(CIRCLE ONE)

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| I USUALLY DO.
I DON'T USUALLY. | 1. WHEN ASKING QUESTIONS, AVOID THE TERMINOLOGY OF THE CONTEXT. ASK QUESTIONS WHICH CANNOT BE ANSWERED WITH 'YES' OR 'NO'; ASK QUESTIONS WHICH REQUIRE SOME THOUGHT HAVE PUPILS EXPLAIN 'HOW' AND 'WHY' INSTEAD OF ASKING THEM 'WHO,' 'WHEN,' 'WHAT,' 'WHERE,' OR 'HOW MANY.' |
| I USUALLY DO.
I DON'T USUALLY. | 2. USE BOTH OBJECTIVE AND SUBJECTIVE TECHNIQUES IN ASKING DIRECT FACTUAL QUESTIONS ABOUT 'SIGNIFICANT' DETAILS. |
| I USUALLY DO.
I DON'T USUALLY. | 3. ASK PUPILS TO FIND DETAILS WHICH SUPPORT A GIVEN TOPIC SENTENCE OR MAIN IDEA. |
| I USUALLY DO.
I DON'T USUALLY. | 4. ASK PUPILS TO IDENTIFY IRRELEVANT DETAILS WHICH DO NOT CONTRIBUTE TO THE MAIN POINTS OF THE SELECTION. |
| I USUALLY DO.
I DON'T USUALLY. | 5. FREQUENTLY GIVE DIRECTIONS FOR LESSONS IN WRITTEN FORM SO THAT CHILDREN WILL LEARN TO FOLLOW PRINTED DIRECTIONS. |
| I USUALLY DO.
I DON'T USUALLY. | 6. IN CONSIDERING NEW WORDS, EMPHASIZE MEANINGS AND USE IN CONTEXT RATHER THAN THE PHONICS OF THE WORDS. |
| I USUALLY DO.
I DON'T USUALLY. | 7. IN NO CASE, FROM THE FIRST GRADE ON, PERMIT VERBALISM, THE MERE READING OF WORDS. INSIST THAT CHILDREN KNOW WHAT THEY ARE READING ABOUT. |
| I USUALLY DO.
I DON'T USUALLY. | 8. EMPLOY QUESTIONS WHICH REQUIRE THE PUPILS TO DRAW CONCLUSIONS AND MAKE INFERENCES IN ORDER TO ARRIVE AT ANSWERS WHICH ARE NOT DEFINITELY STATED IN THE CONTEXT. |

•SUGGESTIONS FOR DEVELOPING SKILL IN DISCERNING THE PURPOSE OR MAIN IDEA OF A PARAGRAPH OR SELECTION

(CIRCLE ONE)

I USUALLY DO.
I DON'T USUALLY.

1. USE OBJECTIVE EXERCISES IN WHICH THE PUPILS IDENTIFY THE TOPIC SENTENCE OF A SINGLE PARAGRAPH. IF NECESSARY BEGIN WITH PARAGRAPHS IN WHICH THE TOPIC SENTENCE IS REASONABLY APPARENT.

I USUALLY DO.
I DON'T USUALLY.

2. HAVE CHILDREN PROVIDE ORALLY OR IN WRITING THEIR OWN STATEMENTS OF THE TOPIC SENTENCE OF SINGLE PARAGRAPHS.

I USUALLY DO.
I DON'T USUALLY.

3. PROVIDE MULTIPLE-CHOICE EXERCISES IN WHICH PUPILS IDENTIFY THE MAIN IDEA OR IDEAS OF PARAGRAPHS OR LONGER SELECTIONS IN WHICH THERE ARE NO CLEAR-CUT STATEMENTS OF THE CENTRAL IDEA.

I USUALLY DO.
I DON'T USUALLY.

4. HAVE PUPILS STATE IN THEIR OWN WORDS THE MAIN IDEA OF IDEAS OF PARAGRAPHS OR LONGER SELECTIONS WHICH DO NOT CONTAIN A DEFINITE TOPIC SENTENCE. AS PUPILS DEVELOP SKILL IN DISCERNING THE MAIN IDEA, THEY SHOULD BE GIVEN EXERCISES IN WHICH THE CENTRAL IDEAS ARE LESS OBVIOUS.

I USUALLY DO.
I DON'T USUALLY.

5. ASK QUESTIONS SUCH AS 'WHAT WAS THE AUTHOR'S PURPOSE IN WRITING THIS ARTICLE?' OR 'WHAT IS THE ONE MOST IMPORTANT THING TO REMEMBER FROM THE SELECTION?'

PLEASE FREELY CONSULT YOUR BUILDING READING RESOURCE TEACHER AND MATHEMATICS CADRE MEMBER ABOUT FURTHER DIAGNOSTIC TESTS THAT ARE AVAILABLE, AND ABOUT SPECIFIC MATERIALS THAT CAN BE MADE AVAILABLE TO YOU FOR USE IN YOUR CLASSROOM. ALSO AVAILABLE TO GIVE YOU SUPPORT IN THESE AREAS ARE:

YOUR REMEDIAL READING CONSULTANT: MRS. ALICE BENN,
YOUR DEVELOPMENTAL READING CONSULTANT: MRS. KATHLEEN HARTY,
YOUR ENGLISH-LANGUAGE ARTS COORDINATOR: MR. LEE HANSEN,
YOUR MATHEMATICS COORDINATOR: MR. PETER CHRISTIANSEN,
YOUR SOCIAL STUDIES COORDINATOR: MR. OMAR KUSSOW.

THEY MAY BE CONTACTED AT THE ADMINISTRATION BUILDING BY CALLING 257-9561.

IF YOU HAVE ANY QUESTIONS OR COMMENTS ABOUT THESE REPORTS, PLEASE CALL MR. MATHEWS, THE PROJECT DIRECTOR, AT 257-9561 EXTENSION 252. WE HOPE THESE REPORTS ARE HELPFUL TO YOU.

The Evaluation

On a random basis, 52 teachers from 17 schools in the school system received either the traditional or experimental testing reports for their classes. The teachers were asked to evaluate the reports that they received for each of three uses: (1) the information that it provided to the teacher on individual pupil performance, (2) the summary information that was provided to the teacher on the performance of the class as a whole, and (3) the information that it provided to the teacher for use at a parent-teacher meeting. To gather data on each of these three questions, six scales were used, namely: clear, useful, meaningful, valuable, sufficient, and accurate. On 15 of the 18 comparisons between the mean ratings of the traditional and experimental reports, the experimental reports were rated significantly higher ($p < .01$).