

THE DEVELOPMENT AND PRELIMINARY VALIDATION OF A RESEARCH VOCABULARY INVENTORY

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It has often been stated that every teacher is a teacher of reading. As an instructor of graduate classes in research methods in education, the writer has found that this statement is essentially true, especially with regard to vocabulary development. Many beginners in graduate work find the terminology of research to be difficult, and a considerable proportion of instructional time is spent in promoting understanding of basic terms. The present study reports the development and preliminary validation of an inventory of terms used in educational research. The inventory was designed to be a diagnostic and a motivating device.

Purposes

The purposes of the study were (a) to prepare two forms of fifty multiple-choice items based on standard definitions of basic research terms; (b) to determine reliability of these forms as based on Kuder-Richardson Formula 21, as well as the Spearman-Brown split-half (odd-even) formula; (c) to determine validity as based on correlations with subject-matter tests, end-of-course grades, and a selected measure of critical thinking; and (d) to determine the significance of differences between means of alternate forms administered to six different groups at the first class meeting and at the end of the course.

Method

Subjects

The subjects were 397 students enrolled in a graduate course entitled Methods of Applied Research in Education at the University of Georgia. Forms A and B of the research inventory were prepared and administered to 158 students in four classes. Difficulty and discrimination indices were prepared, and Forms C and D representing equivalent forms (on the basis of discrimination and difficulty indices)

were then prepared and administered to six groups totalling 239 students. Approximately 80 per cent of the students were beginning graduate students and 20 per cent had completed the master's degree and were enrolled for their second year of graduate work. The six groups included three summer school classes, two classes in the regular academic year, and one class which met on Saturdays throughout the academic year.

Courses Taught

The course in research methods which is required of all graduate students majoring in education has as its broad objective the development of insights, skills, and competencies needed to become effective producers and consumers of educational research, with special reference to applied research. Among the more specific objectives are an increased awareness of the need for applying research methods to the solution of problems, a clear conception of applied research as a means of solving problems, some knowledge of the more widely used methods and tools of research in education, increased competence in interpreting the results of research and in reporting research findings. Among the procedures employed are lecture-discussions, presentations by students of proposed projects, and critiques by instructor and students of studies reported in the literature.

Criteria for Validation

The Test of Critical Thinking in Social Science was prepared to assess the competence of college students in the use of certain skills believed to be basic to critical thinking within the context of the social studies. The test was developed by the Intercollege Committee on General Education sponsored by the American Council on Education. Among the critical abilities sampled in the test are the abilities (a) to identify central issues; (b) to recognize underlying assumptions; (c) to evaluate evidence of authority, and (d) to draw warranted conclusions. Reliability as reported in the Instructor's Manual varies from .69 to .84 for various groups. The manual also provides information about concurrent validity with other measures of critical thinking, intelligence, reading comprehension, etc., as well as correlations with marks and a description of the basis for logical validity.*

*Instructor's Manual for the Test of Critical Thinking in social Science, Committee on Measurement and Evaluation, American Council on Education. This test was used by permission of Dr. Paul L. Dressel, Michigan State University.

In addition to the Test of Critical Thinking in Social Science (CTSS), a fifty-item multiple-choice test based on the subject matter of research methodology representing a greater variety of cognitive outcomes than definition was administered. This test consisted of items which had previously been tried out and been found to discriminate at a satisfactory level. The Kuder-Richardson reliability of this test was .76.

Procedure

The items comprising the preliminary Forms A and B of the Research Vocabulary Inventory (RVI) were based on definitions given in Good's Dictionary of Education, Second Edition (1959), English and English, Dictionary of Psychological and Psychoanalytical Terms (1958), and Webster's New International Dictionary. It was recognized that definitions vary in context, but wherever a term had equivocal meanings the stem of the item gave clues to indicate the appropriate meaning and the options permitted only one acceptable response. Analysis of the individual items was based on the upper and lower 27 per cent of the 158 individuals in the trial groups. The two revised forms consisted of fifty items each. Mean difficulty percentage was 48 per cent, based on end-of-course test performance. In each form, thirty-nine of fifty items discriminated significantly between upper and lower groups according to criteria listed by Ross and Stanley (4).

Reliability of the two RVI tests was determined as follows: Form C, Kuder-Richardson Formula 21, .71; split-half, .75; Form D, Kuder-Richardson Formula 21, .76; split-half, .78.

During the first class meeting of the course, either Form C or Form D was administered to the class. On the second or third day, the test was reviewed and each person had an opportunity to learn how well he performed. The course then proceeded in the usual fashion. At the end of the course the alternate form was administered along with the research subject-matter test and the CTSS. The mark received in the course was based upon performance on the subject-matter test and on evaluation of proposed research designs and five (or more) critiques of research literature.

Results

Table 1 shows the means, standard deviations, differences in means, and "t" ratios on the pretest and posttest for the six trial

groups. All differences were significant at the .01 level. Table 2 gives intercorrelations of the two forms of the RVI, the research subject-matter test and the CTSS. All correlations were moderately to markedly positive and highly significant.

Table 1
Comparison of Pretest and Posttest Performance
on Research Vocabulary Inventory

Section	N	Pretest		Posttest		SE Diff.	<u>t</u>
		Mean	SD	Mean	SD		
1	49	23.9	4.8	31.1	5.9	.94	7.66*
2	47	21.5	4.1	34.5	5.6	.78	16.67*
3	38	23.1	4.3	31.2	5.4	1.01	8.02*
4	33	24.1	4.8	31.7	5.7	.89	8.48*
5	34	23.0	4.8	30.8	4.9	1.03	7.54*
6	38	25.6	5.7	33.8	7.0	.89	9.25*

*Significant at .01 level.

Sections 1, 2, 3 had Form C as pretest, Form D as posttest.

Sections 4, 5, 6 had Form D as pretest, Form C as posttest.

Table 2
Intercorrelations of Research Vocabulary Inventory, Forms C and D,
End of Course Marks, Research Subject-Matter Tests, and
Test of Critical Thinking in Social Science*

Test (N=239)	RVI-C	RVI-D	End-of- Course Mark	Research Subject- Matter Test	CTSS
RVI-C		.646	.414	.429	.541
RVI-D			.611	.480	.528
End-of-Course Marks				.504	.612
Research Subject- Matter Test					.548
CTSS					

*All correlations significant beyond .01 level.

Summary

Alternate forms of research vocabulary inventories were constructed by means of item analysis procedures. The forms were administered at the first and final meetings of six sections of a course in educational research methods. Significant mean gains were made by all sections. Correlations of both forms of the vocabulary inventory were moderately to markedly positive and significant. It might also be stated that student reaction to the use of these procedures was uniformly favorable. The findings of this study suggest that preparation and use of vocabulary inventories is a worthwhile teaching and motivating device.

References

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5. Webster's New International Dictionary. Revised. Springfield, Massachusetts: G. & C. Merriam Co., 1959.