

DOCUMENT RESUME

ED 117 499

CE 006 170

AUTHOR Small, Charles; And Others  
 TITLE [Arizona] Field Test Report. Vol. 12. Construction Industry Related Math. 1974-75.  
 INSTITUTION Mesa Public Schools, Ariz. Dept. of Research and Evaluation.  
 SPONS AGENCY Arizona State Dept. of Education, Phoenix.  
 PUB DATE Jun 75  
 NOTE 48p.; For related documents, see CE 006 159-170; For unit evaluated, see CE 004 725

EDRS PRICE MF-\$0.83 Plus Postage. HC Not Available from EDRS.  
 DESCRIPTORS Career Awareness; \*Career Education; \*Construction Industry; \*Curriculum Evaluation; Evaluation Methods; Grade 7; Job Skills; Junior High Schools; \*Mathematics Instruction; \*Program Attitudes; Questionnaires; Tables (Data); Unit Plan  
 IDENTIFIERS Arizona; \*Field Testing

ABSTRACT

The field test report on the "Construction Industry Related Math" instructional unit for grade 7 is one of a series of reports on the Arizona developed Career Education Curriculum Units. Presented is specific information as to the success of the units in terms of the learner's cognitive, affective, and psychomotor behavior according to expressed performance and behavioral objectives. Cognitive and student and teacher attitudinal data were collected from six sites and projects in Arizona. Following the introduction, a brief description of the unit is given. The body of the document presents and discusses various tables showing field test results in the following areas: (1) information describing the field test, including demographic characteristics of both participating teachers and learners, (2) attitudinal data from both teachers and learners concerning the unit, (3) learner performance data on the lessons' specific items, and (4) teacher recruitment, refinement data, analysis, and comments. Four brief conclusions and recommendations are included. The document concludes with two appendixes: statistics and tabular data on student and teacher attitudes and a sample of the field test instrument package--UNIVAL (forms and questionnaires on student and teacher attitudes and student performance). (Author/BP)

\*\*\*\*\*  
 \* Documents acquired by ERIC include many informal unpublished \*  
 \* materials not available from other sources. ERIC makes every effort \*  
 \* to obtain the best copy available. Nevertheless, items of marginal \*  
 \* reproducibility are often encountered and this affects the quality \*  
 \* of the microfiche and hardcopy reproductions ERIC makes available \*  
 \* via the ERIC Document Reproduction Service (EDRS). EDRS is not \*  
 \* responsible for the quality of the original document. Reproductions \*  
 \* supplied by EDRS are the best that can be made from the original. \*  
 \*\*\*\*\*

ED117499

ARIZONA RESEARCH COORDINATING UNIT  
1535 WEST JEFFERSON  
PHOENIX, ARIZONA 85007

FIELD TEST REPORT  
Vol. 12

CONSTRUCTION INDUSTRY RELATED MATH

Charles Small  
Frank L. Vicino  
Don Peterson  
James S. DeGracie

ONE OF A SERIES IN THE  
ARIZONA STATEWIDE FIELD TEST 1974-75

U.S. DEPARTMENT OF HEALTH,  
EDUCATION & WELFARE  
NATIONAL INSTITUTE OF  
EDUCATION

THIS DOCUMENT HAS BEEN REPRO-  
DUCED EXACTLY AS RECEIVED FROM  
THE PERSON OR ORGANIZATION ORIGIN-  
ATING IT. POINTS OF VIEW OR OPINIONS  
STATED DO NOT NECESSARILY REPRE-  
SENT OFFICIAL NATIONAL INSTITUTE OF  
EDUCATION POSITION OR POLICY

Conducted by  
THE DEPARTMENT OF RESEARCH AND EVALUATION  
Mesa Public Schools

Dr. George N. Smith  
Superintendent

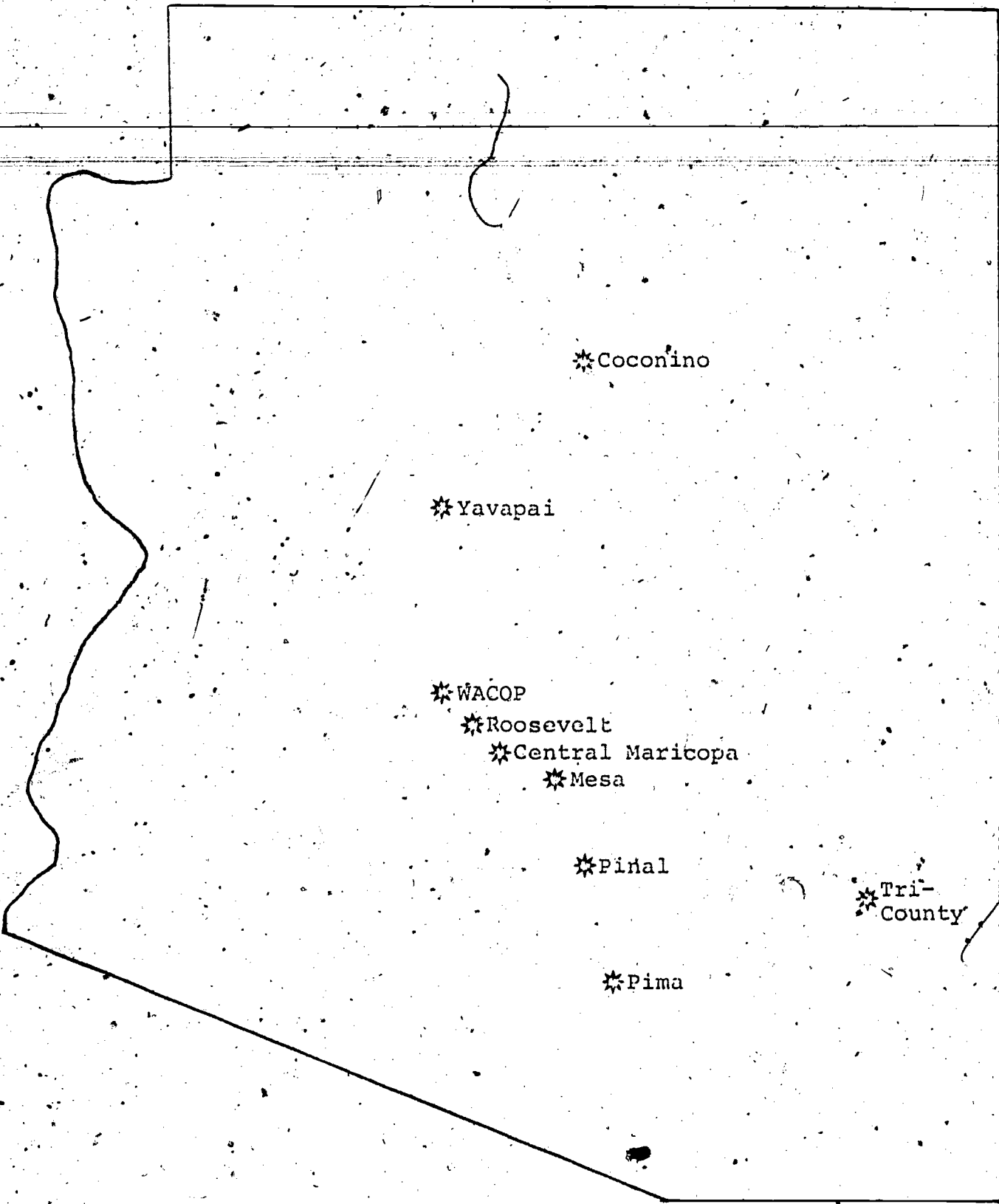
Dr. James K. Zaharis  
Assistant Superintendent  
Educational Services

for  
THE ARIZONA STATE DEPARTMENT OF EDUCATION

Carolyn Warner, Superintendent  
Arizona Department of Education

Eugene L. Dorr  
Associate Superintendent for  
Career Education

CE 006 170



\* Coconino

\* Yavapai

\* WACOP

\* Roosevelt

\* Central Maricopa

\* Mesa

\* Pinal

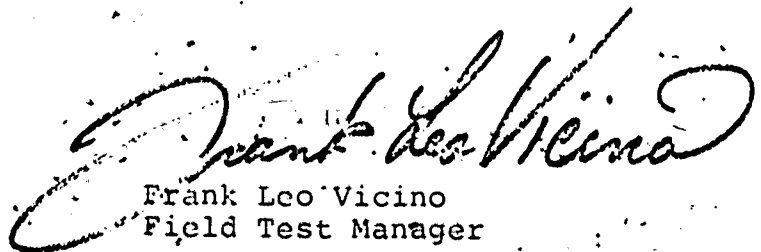
\* Tri-County

\* Pima

## FOREWORD

So many have contributed major input to the field test processes of unit delivery, monitoring and instrument completion, that it is impossible to extract, note, and applaud individual efforts. I am sure that all those involved in this major team effort can see how much has been accomplished and have a positive view of its educational significance for the young people of Arizona. By documenting and analyzing the capabilities of the career education units tested, we all have contributed a positive boost to career education in school districts across the state.

The task of Field Test Manager has been simplified considerably by excellent staff support from the Mesa Public Schools Department of Research and Evaluation, responsive assistance from the State Department of Education, and the effective management shown by the field test coordinators from the respective field test projects.



Frank Leo Vicino  
Field Test Manager

June, 1975

STATEWIDE FIELD TEST TASK FORCE

State Department of Education  
Dr. Beverly Wheeler, Director, Research Coordinating Unit

Mesa Public Schools, Department of Research and Evaluation

Frank Leo Vicino, Director, Evaluation

Dr. James S. DeGracie, Director, Research

Don Peterson, Research Associate

Charles Small, Research Associate

Julie Lindholm, Research Associate

Site Field Test Coordinators

Robert D. Stanton, WACOP

Marilyn Young, Pinal

Stephen McKibben, Tri-County

Bea Langley, Coconino

George O'Reilly, Coconino

Jerry O'Brien, Coconino

Jean E. VanWinkle, Yavapai

Sandra McCarthy, Roosevelt

Charles Small, Mesa

Jean Williamsen, Pima

Jim Harrison, Central Maricopa

Northern Arizona State University

Dr. Sam W. Bliss, Director

Educational Resources Management Center

Data Reduction

## PREFACE

This is one of a series of field test reports on Arizona developed Career Education Curriculum Units. This report presents unit specific field test material. Another report in this series contains information concerning overall field test rationale and compilation of results for all field tested units.

The work presented and reported herein was performed pursuant to contract from the Arizona State Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Arizona State Department of Education and no official endorsement by the Arizona State Department of Education should be inferred.

v.

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
UNIT DESCRIPTION	3
FIELD TEST RESULTS	4
Description of Participants	5
Attitudinal Data	7
Learner Performance	13
Teacher Refinement, Analysis and Comments	22
SUMMARY	24
CONCLUSIONS AND RECOMMENDATIONS	26
APPENDIX I -- Additional Data	
APPENDIX II -- UNIVAL	

## INTRODUCTION

The major purpose of most innovative programs such as career education is to affect positively learners' cognitive, affective, and psychomotor behavior according to expressed performance and behavioral objectives. The present field test of career education curriculum units is designed to examine the success of the unit in terms of the above. Cognitive and attitudinal data have been collected from sites and projects across the state of Arizona. The following projects were involved in the effort of field testing the units: Central Maricopa, Coconino, Mesa, Pima, Pinal, Roosevelt, Tri-County, WACOP, and Yavapai.

Data on the present unit, however, have been collected from the following sites:

Project	Classrooms Requested.	Classrooms Used In Analysis*
Coconino	4	1
Mesa	1	0
Pinal	4	3
Roosevelt	3	3
Tri-County	3	3
Yavapai	3	0
Total	18	10

\*Data received in time for analysis.



Significant statistics are presented and discussed in the Field Test Results section of this report. Other statistics and tabular data are presented in Appendix I of this report.

UNIT DESCRIPTION

CONSTRUCTION INDUSTRY RELATED MATH

Grade 7: Construction Industry Related Mathematics.

This unit is intended to familiarize students with various facets of the construction industry, including the various occupations available and the skills and training necessary to pursue an occupation in the industry. The final set of activities of the unit gives students an opportunity to plan a house and to compute the approximate cost of their "dream house." Opportunity is also provided for the students to work with various construction industry related mathematics problems.

FIELD TEST RESULTS

CONSTRUCTION INDUSTRY RELATED MATH

This section of the report presents the data summary and analysis for the field test of the curriculum unit. An outline of this section follows:

- A. A description of the field test including demographic characteristics of both participating teachers and learners.
- B. Attitudinal data from both teachers and learners concerning the unit.
- C. Learner performance data on the lesson specific items.
- D. Teacher refinement data, analysis and comments.

## DESCRIPTION OF THE PARTICIPANTS

The data in this report was obtained from the projects, teachers, and learners described in the following tables.

### 1. Learners

Table I presents demographic information on the learners that were exposed to the unit in the field test. Examining Table I, it can be seen that the male and female learners are fairly evenly represented. There was strong representation by the minority groups. Out of 402 learners, 50% (199) were from minority backgrounds: 34% (138) Spanish Surname, 8% (31) Black, 7% (28) American Indian, and 0.5% (2) Other.

### 2. Teachers

Table II presents the total number and selected demographic characteristics of the teachers presenting the unit.

It can be noted from Table II that 8 of the 10 teachers that taught this unit were male. This can best be explained by the fact that this is basically an industrial arts unit.

TABLE I

NUMBER OF LEARNERS EXPOSED BY  
SELECTED DEMOGRAPHIC CHARACTERISTICS

PROJECT	SEX		ETHNIC COMPOSITION					TOTAL NUMBER
	MALE	FEMALE	AMERICAN INDIAN	BLACK	SPANISH SURNAMÉ	ANGLO WHITE	OTHER	
Coconino	14	15	27	0	0	1	1	29
Pinal	103	29	0	6	57	69	0	132
Roosevelt	49	67	0	24	61	30	1	116
Tri-County	49	76	1	1	20	103	0	125
Total	215	187	28	31	138	203	2	402
Percent	53	46	7	8	34	50	0:5	

The median years of experience for this group falls between 1-5 years. It should be noted that this group of teachers was quite sophisticated concerning career education. Nine of the teachers were familiar with career education; four had previously taught a career education unit or program and one had developed a career education unit or program.

#### ATTITUDINAL DATA

#### 1. Teacher Attitude

Included in each UNIVAL (Unit Evaluation Instrument) was an Instructor Attitudinal Data Sheet which asked two questions concerning attitudes toward career education in general and three questions concerning the teacher's attitude toward the unit (see Appendix II).

##### a. Teacher Attitude Toward Career Education

Examining the teachers' general attitude toward career education (Table III) it can be seen that the mean response across questions and projects is a very high 4.20; on a scale where 5 is the highest positive response. Of the 20 possible responses, 18 (90%) are positive toward career education, and only 2 (10%) negative.

TABLE II.

NUMBER OF INSTRUCTORS BY SELECTED  
DEMOGRAPHIC CHARACTERISTICS

PROJECT	SEX		YEARS OF EXPERIENCE				CAREER EDUCATION EXPERIENCE				HAD NO EXPOS. TO C. ED.	
	MALE	FEMALE	LESS THAN 1	1-5	6-10	11-15	MORE THAN 15 YRS.	DEV'D. C. ED. UNIT OR PROGRAM	TAUGHT C. ED. UNIT OR PROGRAM	READ A C. ED. UNIT OR PROGRAM		FAMILIAR WITH CAREER ED.
Coconino	1	0	0	1	0	0	0	0	0	0	1	0
Pinal	3	0	0	2	1	0	0	1	1	0	1	0
Roosevelt	2	1	0	1	1	0	1	0	2	1	0	0
Tri-County	2	1	0	1	0	1	1	0	1	0	1	1
Total	8	2	0	5	2	1	2	1	4	1	3	1



TABLE. III

TEACHER ATTITUDE TOWARD CAREER EDUCATION  
(Number, Percent and Mean of Instructor Responses  
to Attitude Items 1 and 2 Combined)

PROJECT	STRONGLY POSITIVE		POSITIVE		NO OPINION		NEGATIVE		STRONGLY NEGATIVE		MEAN
	N	%	N	%	N	%	N	%	N	%	
Coconino	0	0	2	100	0	0	0	0	0	0	4.00
Pinal	2	33	2	33	0	0	0	0	0	0	3.67
Roosevelt	5	83	1	17	0	0	2	33	0	0	4.83
Tri-County	1	17	9	83	0	0	0	0	0	0	4.17
Total	8	40	10	50	0	0	2	10	0	0	4.20





b. Teacher Attitude Toward the Unit

Table IV summarizes the teacher attitudes toward the unit.

The teachers' high positive attitude toward career education seems to have carried over very little to the teachers' attitude toward the unit. The teachers show a slightly 3.37 positive attitude toward the unit. Of the possible 30 responses, 19 (63%) are positive, 3 (10%) are of no opinion, and 8 (27%) negative.

Correlations between the Teacher Attitude toward career education and Teacher Attitude toward the unit were not significant (Appendix I).

2. Learner Attitude

When Learner Attitude toward the unit is examined (Table V), we see a moderately positive feeling toward the unit across all projects. Of the 1856 responses 53% were positive toward the unit, 33% no opinion, and 14% were negative toward the unit.

Correlations between the Teacher Attitude toward the unit and Learner Attitude were not significant (Appendix I).

TABLE IV

TEACHER ATTITUDE TOWARD UNIT  
(Number, Percent and Mean of Instructor Responses  
To Attitude Items 3; 4 and 5 Combined)

PROJECT	STRONGLY POSITIVE		POSITIVE		NO OPINION		NEGATIVE		STRONGLY NEGATIVE		MEAN
	N	%	N	%	N	%	N	%	N	%	
Coconino	0	0	2	67	0	0	1	33	0	0	3.33
Pinal	0	0	2	22	1	11	6	67	0	0	2.56
Roosevelt	0	0	9	100	0	0	0	0	0	0	4.00
Tri-County	0	0	6	67	2	22	1	11	0	0	3.56
Total	0	0	19	63	3	10	8	27	0	0	3.37

TABLE V

LEARNER ATTITUDE TOWARDS UNIT  
(NUMBER, PERCENT AND MEAN OR COMPOSITE  
LEARNER ATTITUDE RESPONSES)

PROJECT	YES/HAPPY		I DON'T CARE/OK		NO/SAD		MEAN
	N	%	N	%	N	%	
Coconino	74	38	93	47	29	15	2.23
Pinal	226	57	135	34	37	9	2.47
Roosevelt	391	55	169	24	153	21	2.33
Tri-County	302	55	208	38	39	7	2.48
Total	993	53	605	33	258	14	2.40

## LEARNER PERFORMANCE

In order to examine learners' performance on the unit, and to assess how well the objectives of the unit are met, cumulative scores over all the lesson items within the unit (total learner scores) were examined. Table VI presents the total learner scores in percentages by projects. This score reflects the unit's overall success concerning delivery of its objectives.

The scores from each project range from a low of 72% at Coconino to a high of 88% at Pinal. These responses appear uniform with no one project varying far from the mean score (83%) thereby exerting a disproportionate influence.

Various other data was collected from the teachers involved in the field test of the units.

The data collected included the following information:

1. Teachers indicated whether they had experience in jobs other than teaching and whether this information helps in teaching the unit. It was found that 8 of the 10 teachers (80%) had previous experience in a job other than teaching. Of these eight, seven indicated that the previous experience helped in teaching the unit (Tables VII and VIII).

TABLE VI

NUMBER AND PERCENT OF CORRECT LEARNER RESPONSES  
TO LESSON IMBEDDED ITEMS FOR A GIVEN UNIT

PROJECT	NUMBER OF RESPONSES	NUMBER OF CORRECT RESPONSES	PERCENT OF CORRECT RESPONSES
Coconino	111	80	72
Pinal	217	190	88
Roosevelt	366	311	85
Tri-County	328	271	83
Total	1022	852	83

TABLE VII

NUMBER AND PERCENT OF INSTRUCTORS THAT TAUGHT EACH UNIT BY OCCUPATION OTHER THAN TEACHING

PROJECT	SOCIAL SCIENCE		PHYSICAL SCIENCES		CHEMICAL SCIENCES		BUSINESS		TECHNICAL		CONSTRUCTION		INDUSTRY		OTHER		NONE	TOTAL NO.	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%			
Coconino	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	100	1
Pinal	0	0	0	0	0	0	0	0	0	0	2	67	0	0	1	33	0	0	3
Roosevelt	0	0	0	0	0	0	1	33	1	33	0	0	1	33	0	0	0	0	3
Tri-County	0	0	0	0	0	0	0	0	0	0	1	33	0	0	1	33	1	33	3
Total	0	0	0	0	0	0	1	10	1	10	3	30	1	10	2	20	2	20	10



TABLE VIII

NUMBER AND PERCENT OF INSTRUCTORS THAT TAUGHT  
EACH UNIT BY WHETHER PREVIOUS EXPERIENCE HELPS  
IN CAREER EDUCATION

PROJECT :	YES		NO		NO PREVIOUS EXPERIENCE		TOTAL NUMBER
	N	%	N	%	N	%	
Coconino	0	0	0	0	1	100	1
Pinal	2	67	1	33	0	0	3
Roosevelt	3	100	0	0	0	0	3
Tri-County	2	67	0	0	1	33	3
Total	<del>7</del> 7	<del>70</del> 70	1	10	2	20	10

2. The teachers were asked how many guest speakers they used. Seven of the 10 teachers (70%) did not use guest speakers. A total of 8 guest speakers were used in the 10 classrooms. (Table IX)
3. The teachers were also asked to indicate the amount of time devoted to the unit per week and what time of day (AM or PM) the unit was primarily taught. The median number of hours spent per week teaching the unit fell between 2-3 hours. Four (40%) teachers taught the unit in the afternoon while 6 (60%) taught the unit in the morning. (Tables X and XI)
4. The teachers were also asked what kind of classroom or method of teaching they used. Eight (80%) of the classrooms were self-contained, and two (20%) were open classrooms. (Table XII)

Correlations were calculated between the above data and Student Attitude, Teacher Attitude and Student Performance. No significant correlations were found.



TABLE IX

NUMBER AND PERCENT OF INSTRUCTORS THAT TAUGHT EACH UNIT BY THE NUMBER OF GUEST SPEAKERS USED

PROJECT	0		1		2		3		4		TOTAL NUMBER
	N	%	N	%	N	%	N	%	N	%	
Coconino	1	100	0	0	0	0	0	0	0	0	1
Pinal	2	67	0	0	1	33	0	0	0	0	3
Roosevelt	2	67	0	0	0	0	1	33	0	0	3
Tri-County	2	67	0	0	0	0	1	33	0	0	3
Total	7	70	0	0	1	10	2	20	0	0	10

TABLE X

NUMBER AND PERCENT OF INSTRUCTORS THAT TAUGHT EACH UNIT  
BY AMOUNT OF TIME DEVOTED TO THE UNIT EACH WEEK

PROJECT	LESS THAN 1 HR.				2-3 HRS.				3-5 HRS.				MORE THAN 5 HRS.		TOTAL NUMBER
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Coconino	0	0	0	0	0	0	1	100	0	0	0	0	1	1	
Pinal	0	0	1	33	0	0	1	33	1	33	1	33	3	3	
Roosevelt	0	0	0	0	2	67	1	33	0	0	0	0	3	3	
Tri-County	0	0	2	67	0	0	1	33	0	0	0	0	3	3	
Total	0	0	3	30	2	20	4	40	1	10	1	10	10	10	



TABLE XI

NUMBER AND PERCENT OF INSTRUCTORS THAT TAUGHT  
EACH UNIT BY TIME TAUGHT

PROJECT	AM		PM		TOTAL NUMBER
	N	%	N	%	
Coconino	0	0	1	100	1
Pinal	1	33	2	67	3
Roosevelt	2	67	1	33	3
Tri-County	3	100	0	0	3
Total	6	60	4	40	10

TABLE XII

NUMBER OF INSTRUCTORS THAT TAUGHT EACH UNIT  
BY TYPE OF CLASSROOM AND METHOD OF TEACHING

PROJECT	OPEN CLASSROOM		SELF CONTAINED		TEAM TAUGHT	
	N	%	N	%	N	%
Coconino	0	0	1	100	0	0
Pinal	1	33	2	67	0	0
Roosevelt	0	0	3	100	0	0
Tri-County	1	33	2	67	0	0
Total	2	20	8	80	0	0

TEACHER REFINEMENT,  
ANALYSIS AND COMMENTS

Specific revision data was obtained by asking the field test teachers to make comments regarding each lesson taught. These comments were solicited in the UNIVAL.

The following list represents a composite of teacher comments regarding the various aspects of the unit, as well as a lesson by lesson critique of the unit. These comments have been analyzed and recommendations for revision presented.

TEACHER COMMENTS

When reading the teacher comments it should be noted that not all teachers respond to the open ended items. Therefore, some of the responses seem inconsistent with the teacher responses to the closed items. The closed items, it is felt, reflect a true attitude toward the unit over the teachers sampled. The teacher comments are from selected teachers that felt strongly enough to take the opportunity to respond. The comments are, therefore, more for curriculum refinement than for overall evaluation of the unit.

Coconino: Teacher and students enjoyed the unit.  
The only problem was the students were weak in math fundamentals.

Pinal: Geared to students on 7th grade level.  
Didn't really show the need for math.  
Metric unit needs to be taught first.

Roosevelt: Need more time for metrics. Enjoyed unit. Well received by students.  
Introduction to metric system needed.  
Probably would be more relevant on 8th grade level.

Tri-County: Good unit -- indicates importance of math. Doesn't really relate to those not interested in construction.

## SUMMARY

The relevant data collected during the field test is summarized below:

1. A total of 402 learners were exposed to this unit in 4 of the 9 participating projects. Fifty-three percent of the learners were male and 50% representatives of minority backgrounds.
2. Of the 10 teachers that presented the unit 8 were male, the median years of experience was between 1-5 years, and 5 had taught or developed career education material.
3. Teachers expressed a very positive attitude toward career education in general (4.20 on a scale where 5 was the highest positive response). Though still positive, the teachers' attitude toward this particular unit was quite a bit lower (3.37).
4. The learners also exhibited a slightly positive attitude toward the unit with 53% of the 1856 responses positive, 33% no opinion, and 14% negative.

5. The learners' overall performance was high (83% correct). There was very little variability across lessons and units.
6. A list of the teachers critical comments and recommendations was presented in the body of this report.



## CONCLUSIONS AND RECOMMENDATIONS

1. Future users of this unit should review the unit in its entirety paying particular attention to the content of each activity noting when during their teaching year it is best to be taught.
2. During installation the teachers, while not constrained by field testing, should be made aware that the lessons as presented are only suggestions and may be modified, resequenced, augmented or reduced as desired.
3. This unit presents a wide range of activity suggestions, many of which may be extracted to constitute an enrichment program in addition to the unit.
4. Learner Attitude (2.40) and Teacher Attitude (3.37) are quite low for this unit. However, Student Performance is a moderately high 83%. It is recommended, however, that this unit be included in the implementation phase of curriculum development. Even though teacher and learner attitudes are low, they are still positive.

APPENDIX I  
Additional Data

Mean Instructor Attitude Toward the Unit by Mean Learner Attitude

Project	Teacher #	Instructor Unit Attitude	Learner Attitude
Coconino	1	3.33	2.23
Pinal	1	2.00	-
	2	3.33	2.47
	3	2.33	-
Roosevelt	1	4.00	2.01
	2	4.00	1.78
	3	4.00	2.64
Tri-County	1	3.67	2.44
	2	3.67	2.52
	3	3.33	2.48

$r = 0.39$

Mean Student attitude by Time of Day Unit Taught

Project	Teachers	Student Attitude	Time of day	
			1=PM	2=AM
Coconino	1	2.23		2
Pinal	1	-		2
	2	2.47		1
	3	-		1
Roosevelt	1	2.01		2
	2	1.78		1
	3	2.64		2
Tri-County	1	2.44		2
	2	2.52		2
	3	2.48		2

r = 0.46

Mean Learners Performance on a Unit by Mean Instructor Attitude  
Toward the Unit

Project	Teacher #	*Learner Performance	Unit Attitude
Coconino	1	72	3.33
Pinal	1	-	2.00
	2	88	3.33
	3	-	2.33
Roosevelt	1	86	4.00
	2	74	4.00
	3	91	4.00
Tri-County	1	77	3.67
	2	79	3.67
	3	95	3.33

$r = 0.07$

\*Percent of students attaining unit objectives

Mean Instructor Attitude Toward The Unit by Instructor Attitude  
Toward Career Education

Project	Teacher #	Instructor Unit Attitude (ques.3-5)	Instructor Attitude Career Ed. (ques.1,2)
Coconino	1	3.33	4.00
Pinal	1	2.00	3.00
	2	3.33	3.00
	3	2.23	4.50
Roosevelt	1	4.00	5.00
	2	4.00	5.00
	3	4.00	4.50
Tri-County	1	3.67	4.00
	2	3.67	4.00
	3	3.33	4.50

$r = 0.55$

Mean Student Performance by Time of Day Unit Taught

Project	Teacher #	*Learner Performance	Time of day 1=pm 2=am
Coconino	1	72	1
Pinal	1	-	2
	2	88	1
	3	-	1
Roosevelt	1	86	2
	2	74	1
	3	91	2
Tri-County	1	77	2
	2	70	2
	3	95	2

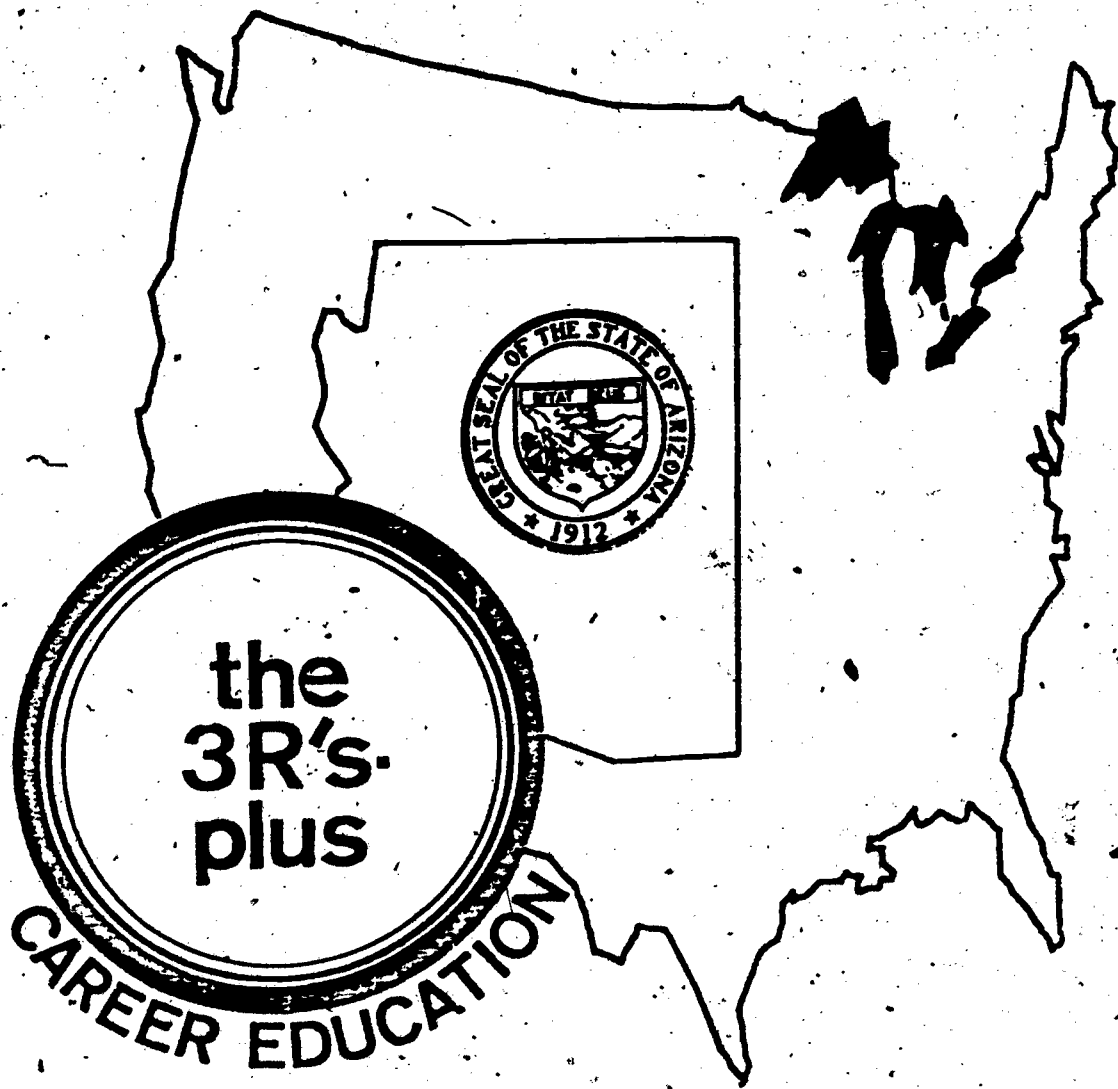
r = 0.32

\*Percent of students attaining unit objectives

APPENDIX II

UNIVAL





# Unit Evaluation UNIVAL

CONSTRUCTION INDUSTRY RELATED MATHEMATICS

GRADE LEVEL: 7

PART I

CAREER EDUCATION FIELD TEST  
PROGRAM INFORMATION

Please print:

Instructor \_\_\_\_\_ School \_\_\_\_\_  
Unit or Kit Title \_\_\_\_\_ District \_\_\_\_\_  
Grade Level \_\_\_\_\_ Project \_\_\_\_\_  
Date unit or Kit introduced in the classroom \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
mo. day year

Student data: (\*the numbers should agree)

\*Total number of students exposed to the unit \_\_\_\_\_

\*Number of students of each sex: a. male \_\_\_\_\_ b. female \_\_\_\_\_

\*Number of students in each ethnic group:

- a. American Indian \_\_\_\_\_ d. Anglo White \_\_\_\_\_  
b. Black \_\_\_\_\_ e. Other \_\_\_\_\_  
c. Spanish Surname \_\_\_\_\_

**DIRECTIONS:** Circle the letter of your answer in each of the following questions.

Teachers:

How many years have you worked in the field of education?

- a. Less than one d. 11-15 years  
b. 1-5 years e. More than 15 years  
c. 6-10 years

Which of the following would best describe your exposure to Career Education (to date)? I have:

- a. Developed a Career Education unit or program  
b. Taught a Career Education unit or program  
c. Read a Career Education unit or program  
d. Had some exposure to Career Education  
e. Had no exposure to Career Education

What is your sex?

- a. Male \_\_\_\_\_
- b. Female \_\_\_\_\_

Is your classroom: (more than one answer may be applicable)

- a. Open \_\_\_\_\_
- b. Self-contained \_\_\_\_\_
- c. Team taught

What time of day were the lessons taught (predominantly)?

- a. AM \_\_\_\_\_
- b. PM \_\_\_\_\_

How much time did you devote to the unit each week?

- a. Less than 1 hour
- b. 1-2 hours
- c. 2-3 hours
- d. 3-5 hours
- e. More than 5 hours

How many guest speakers were used in conjunction with the unit?

- a. 0
- b. 1
- c. 2
- d. 3
- e. 4 or more

Have you had another occupation other than teaching?

- |                      |                 |
|----------------------|-----------------|
| a. Social sciences   | e. Technical    |
| b. Physical sciences | f. Construction |
| c. Chemical sciences | g. Industry     |
| d. Business          | h. _____        |

Did this experience help in teaching the Career Education unit?

a. Yes

b. No

PART II

Learner Performance Data

Directions: Please provide an indication of how well the lessons delivered the performance objectives. The lesson numbers and methods of evaluation for each have been indicated. Page numbers, objective specifications, and item numbers are indicated as appropriate. Please indicate the total number of learners responding. Then record the number that responded correctly. Complete this form as you teach each lesson of the unit.

		Method of Evaluation			Number of Learners	
Lesson Number	Page No. Item No.	Test	Checklist	Instructor Judgment	Responding	Responding Correctly
1	1.1.1.1					
						Minimum of 5 included
2	1.2.1.1					
						Minimum of 8 correct
3	1.3.1.1					
						Minimum of 28 correct
4	1.4.1.1					

Construction Industry Related Mathematics  
Grade Level 7



**PART III**

**Instructor Attitudinal Data**

**Directions:** Read each statement and place a check in the box under the heading that describes your response.

	<b>Strongly Agree</b>	<b>Agree</b>	<b>No Opinion</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
1. <b>Classes in my subject grade level would be more meaningful and relevant if focused around Career Education objectives.</b>					
2. <b>Career Education is just another fad that will soon be forgotten.</b>					
3. <b>After minimal revisions this unit will be ready for statewide distribution.</b>					
4. <b>The learning activities were very effective in helping meet the performance stated.</b>					
5. <b>The content of the unit relates directly to my regular class program.</b>					

Indicate below any further comments concerning the strengths or weaknesses of the unit.

---



---



---



---



---



---



---




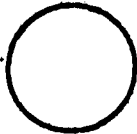


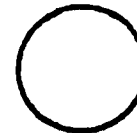


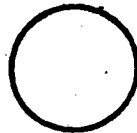
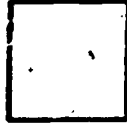

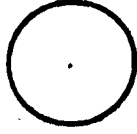
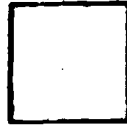

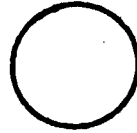
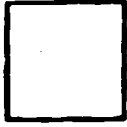

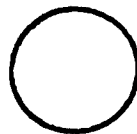
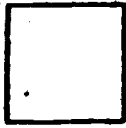
---

PART III (Continued)

Learner Attitudinal Data

On the following page is an attitudinal survey which we would like your learners to respond to. Please remove that page from this instrument and reproduce enough copies for each of your learners. We feel that it would be best if your learners responded to this survey at the completion of the unit. If your learners do not have the needed reading ability to complete the survey, please read and explain the items to them. After the learners have completed the survey, please tally their responses and record the total number of learners responding in each manner of the form provided below.

	YES	I DON'T CARE	NO
1.	<input type="text"/>	<input type="text"/>	<input type="text"/>
2.	<input type="text"/>	<input type="text"/>	<input type="text"/>
3.	<input type="text"/>	<input type="text"/>	<input type="text"/>
4.	<input type="text"/>	<input type="text"/>	<input type="text"/>
	HAPPY	OK	SAD
5.	<input type="text"/>	<input type="text"/>	<input type="text"/>
6.	<input type="text"/>	<input type="text"/>	<input type="text"/>
7.	<input type="text"/>	<input type="text"/>	<input type="text"/>

	YES	I DON'T CARE	NO
1. Would you want to know more about what we have learned in these lessons?			
2. Do you know more now about these lessons than before?			
3. Were the lessons interesting to you?			
4. Do you think that next year's class should be given these lessons?			
	HAPPY	OK	SAD
5. How did you feel about the lessons?			
6. How did most of your other classmates feel about the lessons?			
7. How did your teacher feel about the lessons?	