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ABSTRACT

A field test was designed and conducted to examine the effectiveness of Arizona-designed career education units, particularly to examine the units' success in terms of their ability to affect positively students' cognitive, affective, and psychomotor behavior according to expressed performance and behavioral objectives. Eleven career education units in nine projects were field tested. Data were gathered through UNIVAL and a teacher monitoring system, with approximately 4,900 students and 152 teachers included in the study. Of the students, 50 percent were female, 69 percent were Anglo, and 31 percent from minority groups. Of the teachers, 31 were male and 121 were female. Teacher attitude toward career education was very positive and moderately positive toward the particular units. Student response to the units was positive, and learner performance (overall percent of correct scores) was a high 83 percent. Measures of unit effectiveness were calculated, based on teacher attitude, learner attitude, and learner performance. Student demographic data were subjected to an ethnic profile. It was concluded that all 11 units in the field set were sufficiently satisfactory to be included in the 1975-1976 statewide implementation program. Additional data and the UNIVAL questionnaire are appended. (BP)

FIELD TEST REPORT
Vol. 1

ALL UNITS

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

ONE OF A SERIES IN THE
ARIZONA STATEWIDE FIELD TEST 1974-76

Conducted by
THE DEPARTMENT OF RESEARCH AND EVALUATION
Mesa Public Schools

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THE ARIZONA STATE DEPARTMENT OF EDUCATION

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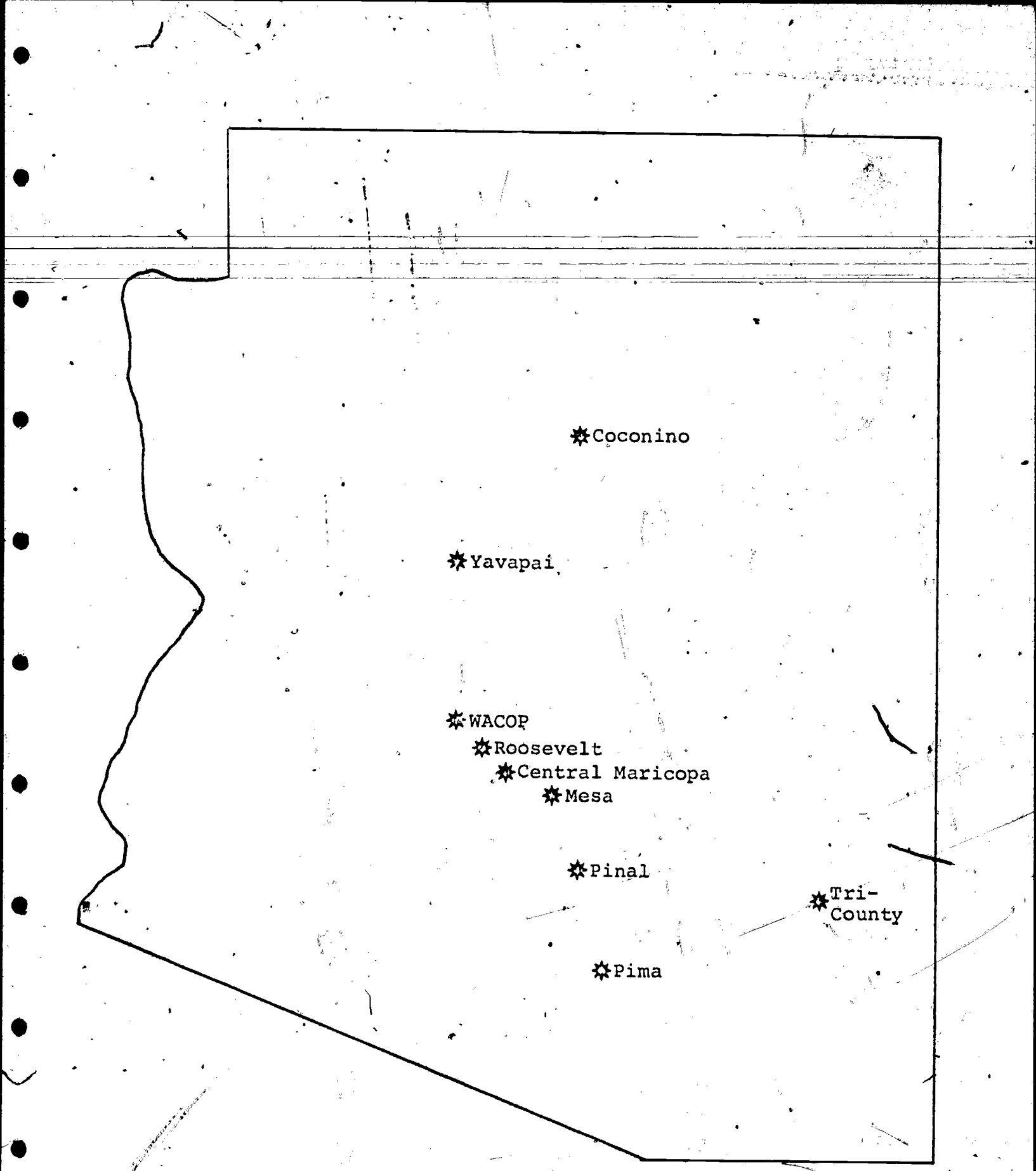
Coconino
Yavapai
WACOP
Roosevelt
Central Maricopa
Mesa
Pinal
Tri-
County
Pima

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

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Data Reduction

PREFACE

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

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.

Objectives

In an effort to examine the effectiveness of Arizona career education units, a field test was designed and conducted. The field test examined the success of the units in terms of the unit's ability to affect positively, students' cognitive, affective and psychomotor behavior according to expressed performance and behavioral objectives.

The field test of the 11 career education curriculum units was conducted across the state in the following nine projects:

Central Maricopa	Roosevelt
Coconino	Tri-County
Mesa	WACOP
Pima	Yavapai
Pinal	

Approach

Basic unit data was collected by the use of UNIVAL, an instrument designed to garner student/teacher demographic information, student/teacher attitude, and student unit performance. Another evaluation strategy, teacher monitoring, was used to gather in-depth unit refinement data. The data analyzed was from approximately 4,900 students and 152 teachers with the following general results.

Results

1. A total of approximately 4,900 learners were exposed to the units in the 9 participating projects. Fifty percent of the learners were

female, and sixty-nine percent of the learners were Anglo.

2. Of the 152 teachers that presented the units 121 were female. The median years of experience was between 6-10 years and 93 had previously taught or developed a career education unit or program. This was more than double last year's total of teachers who had previously taught a career education unit.
3. Teacher attitude toward career education was very high (3.98 on a scale where 5 was the highest possible response). Of the 304 possible responses, 83% were positive, 11% were of no opinion, and only 7% negative.
4. Teacher attitude toward the units--the teachers were moderately positive overall toward the units (3.59). Of the possible 456 responses, 68% were positive, 12% were of no opinion and 20% were negative.
5. Teachers that had a high positive attitude toward career education appeared also to favor the units ($r = 0.42$).
6. Learner attitude was positive toward all units across all projects (2.6 on a scale where 3 was the highest possible response). Sixty-eight (68) percent of the 27,879 student responses were positive toward the units, 22% no opinion, and 10% were negative toward the units.

7. Learner performance on the units--the overall percent of correct scores for all the units by all the projects was a high 8[illegible]. There was little variation across projects.
8. Measures of unit effectiveness, based on Teacher Attitude toward the unit, Learner Attitude toward the unit, and Learner Performance on criterion referenced lesson imbedded items, were calculated for each unit. A ranking of the units in terms of unit effectiveness is presented in the body of this report.
9. Student demographic data from the field test site were subjected to an ethnic profile. The units' effectiveness was ranked in relation to ethnic profile, so that districts with comparable ethnic profiles could use the information for implementation and/or dissemination decisions.

Recommendations

1. All 11 units which were field tested are satisfactory enough to be included in the 1975-76 statewide implementation program.
2. It is recommended that an attachment containing suggestions for refinements, listed in the individual unit reports, be attached to the appropriate units for use by the implementation teachers.

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INTRODUCTION

The major purpose of most innovative programs such as career education is to affect positively students' cognitive, affective, and psychomotor behavior according to expressed performance objectives.

The present field test was designed to determine the extent to which the performance objectives have been met by the Arizona-produced career education units. A secondary purpose of the field test was to provide data which could be used to refine the units and assist in determining implementation strategies. This information is intended for the curriculum staff at both the State Department and participating sites which ultimately will be chosen to implement the units.

Mesa Public Schools Department of Research and Evaluation, as the Field Test Management team, was responsible for the development of the field test instrument package and the general monitoring/managing of the field test. The major responsibility of the Field Test Management team was to reduce and analyze all data received from those projects field testing career education units. Other responsibilities included conducting a

workshop for the local field test coordinators, and monitoring visits with instructors, administrators and coordinators.

SELECTING THE UNITS, INSTRUMENTATION, AND THE DETERMINATION OF THE SAMPLING FRAMEWORK

The State Department (through the Research Coordinating Unit) utilized a unit selection procedure (criterion checklist) which resulted in the selection of 11 career units, plus 6 special education units.

In conjunction with representatives of the State Department, units were distributed to the nine sites using the following instruments to reflect proper sampling and to take into account the project's preference:

a. Field test site goal description

b. Project preference sheet

c. Random selection procedures (constrained by geographical distributions)

FIELD TEST INSTRUMENT DEVELOPMENT

Field test instruments were developed by Mesa's Department of Research and Evaluation, sending working copies to the State Department for review and critique. A Unit Evaluation Instrument package (UNIVAL) was completed soliciting demographic, impact, and assessment data.

Sites across the state were chosen to field test selected units. The following projects were involved in that effort:

1. Coconino
2. Central Maricopa
3. Mesa (non-funded)
4. Pima
5. Pinal
6. Roosevelt
7. Tri-County
8. WACOP
9. Yavapai

The following list presents the titles and grade levels of the units field tested.

UNIT	GRADE LEVEL	TITLE
1	1	Grocery Store Occupations
2	1	Parents Are Community Workers Too
3	3	We Need One Another
4	4	Yearnings and Earnings
5	5	The Workers World
6	5	Sailing With Sales
7	6	Ranching
8	6	What Does A Secretary Do?
9	6	Learn To Earn
10	6	General Job Requirements
11	7	Construction Industry Related Math

MESA'S MANAGEMENT ROLE IN THE FIELD TEST

In order to insure the efficient, timely and orderly flow of the field test a milestone chart outlining activities and parallelisms was constructed and served as the basic management instrument for the conduct of the field test (Figure 1).

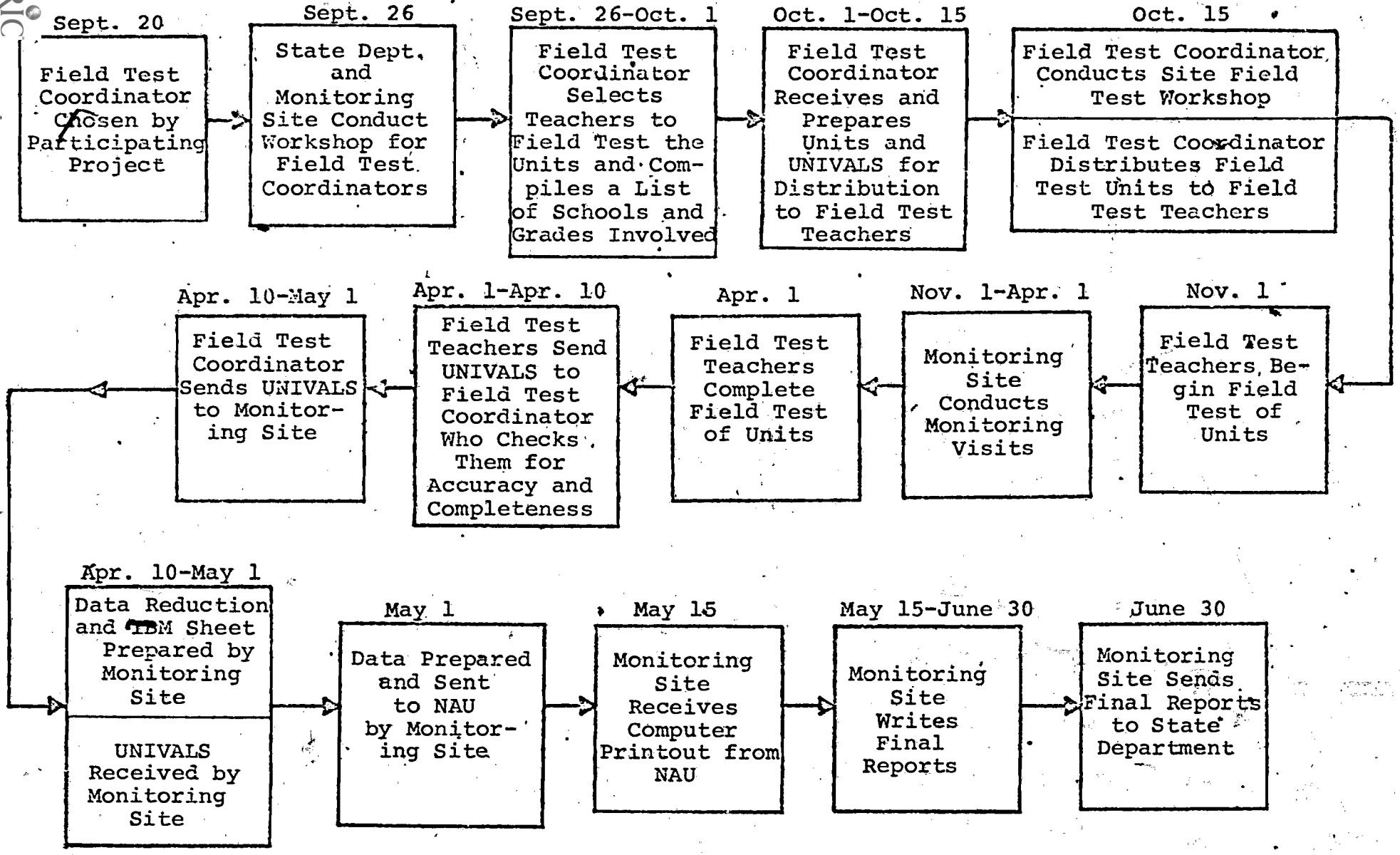


Figure 1

FIELD TESTING

MILESTONE CHART

FIELD TEST COORDINATORS' WORKSHOP AND MANUAL DEVELOPMENT

On September 26, a Field Test Coordinators' Workshop was held covering the following topics:

Introduction--State's Purpose of Field Testing	Dr. Beverly Wheeler
Role of the Field Test Manager	Frank Vicino
Data Collection in 1973-74	Dr. James DeGracie
Role of the Monitoring Site, Discussion of PERT, Teacher Workshops and Coordinators' Manual	Charles Small
Examination of a Sample Unit, Discussion of Kits and Special Education Units	Beverly Potter
Workshop Evaluation Discussion and Questions	All

The major document used in the Field Test Coordinators' Workshop was the Mesa-developed Field Test Coordinators' Manual. The workshop covered the various role demands of the field test, instrument usage, and instruction for inservicing field test teachers at the various sites.

EVALUATION OF WORKSHOP

An instrument to evaluate the workshop was designed by Mesa's Department of Research and Evaluation and administered to the field test coordinators. The results of the

evaluation were presented to the State Department in a previous report. To summarize the report:

...The workshop participants felt they had attained the major objectives of the workshop.

...The procedures used by the presenters assisted the participants in attaining the objectives.

...The objectives were important.

UNIT DISTRIBUTION

During the period from October, 1974, to April, 1975, eleven career education curriculum units were field tested. The following listing shows the number of classrooms and corresponding units tested in each project.

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	*NUMBER OF CLASSROOMS COMPLETED
Central Maricopa	1	3
	2	3
	3	3
	4	3
	5	3
	7	7
		Total= 22
Coconino	2	2
	3	1
	5	3
	8	2
	9	1
	10	2
	11	1
		Total= 12
Mesa (nonfunded project)*	1	3
	2	2
	3	8
	4	1
	5	2
	6	2
	7	2
	9	1
	8	Total= 21

*As of May 1, 1975

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Pima	2	4
	3	4
	4	2
	5	3
	7	2
	9	1
		Total= 16
Pinal	1	3
	3	4
	11	3
		Total= 10
Roosevelt	1	3
	5	3
	6	3
	8	4
	10	3
	11	3
		Total= 19

STATEWIDE UNIT DISTRIBUTION

PROJECT	UNIT TESTED	NUMBER OF CLASSROOMS COMPLETED
Tri-County	1	3
	2	3
	4	3
	5	3
	9	3
	10	3
	11	3
		Total= 21
WACOP	4	5
	6	4
	8	2
	9	2
	10	3
		Total= 16
Yavapai	1	6
	2	1
	3	3
	6	2
	8	1
	10	2
		Total= 15

20 OVERALL TOTAL= 152

DATA COLLECTION AND ANALYSIS

The field test is a large-scale multi-purpose use of the units, generating data to guide product installation and further refinements. The following list of objectives is presented as an indication of some of the major objectives guiding this field test:

1. To examine product performance under large-scale conditions.
2. To show under what conditions the product does or does not perform.
3. To establish whether a product works without the supervision of its developers.
4. To determine amount of time necessary for the product to achieve its objectives.
5. To determine training requirements for school staff.
6. To determine whether the product is worthy of further investment.
7. To provide product refinement data.
8. To facilitate eventual widespread dissemination of the product.

In an effort to answer as many of these outlined objectives as operationally and logistically possible the audience and/or contributors to career education were defined. The two major population categories were defined: Learners, and, of course, Teachers (Fig.2).

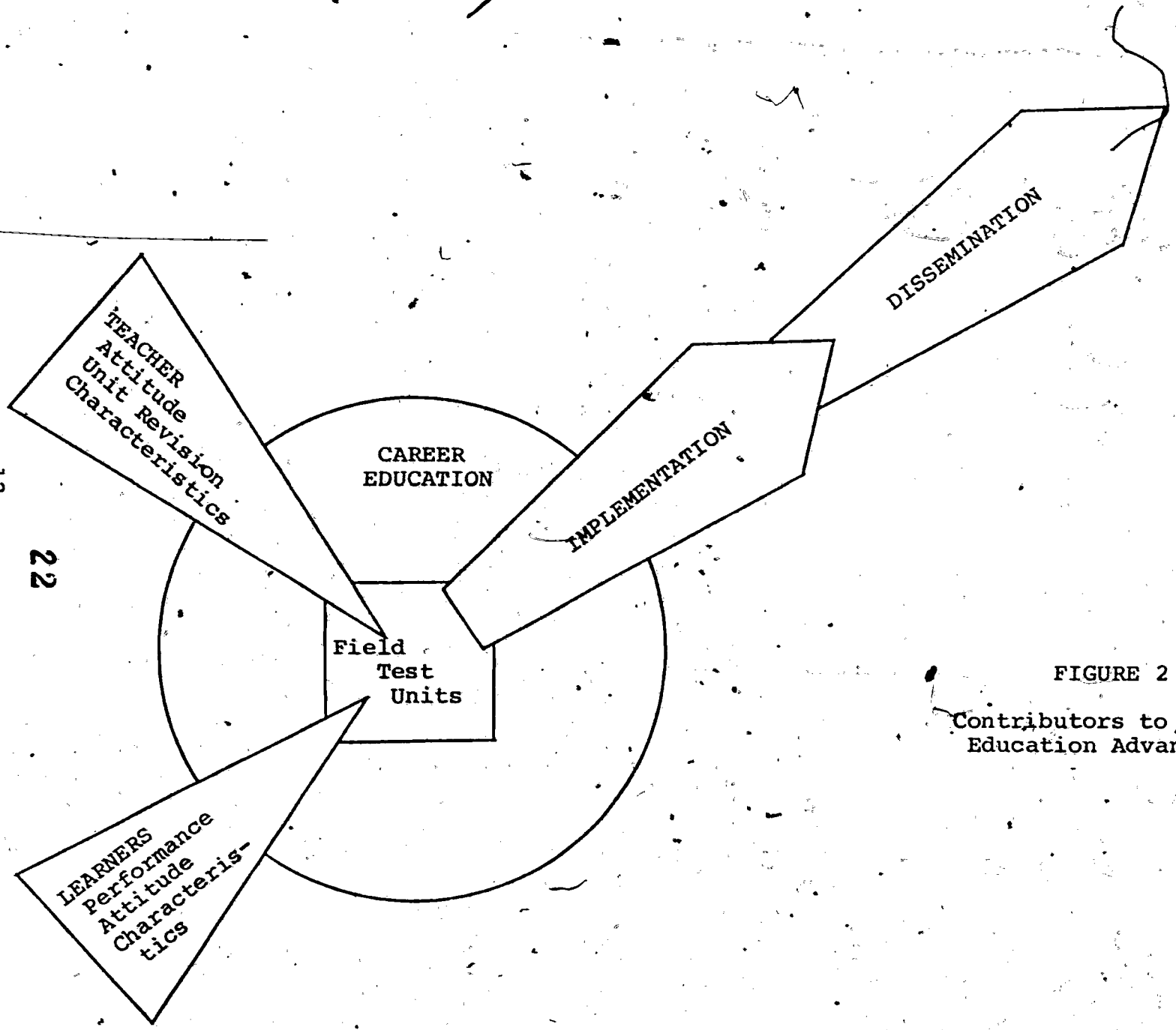


FIGURE 2

Contributors to Career Education Advancement

Career education, in order to be a viable and eventually a permanent entry into the education system, must solicit input from these populations.

From the learner, performance on the unit's objectives should be examined. In addition, it would be extremely important in order to determine placement of the unit, to examine the characteristics of the students in relation to the unit's success.

Learner Attitude toward the unit, unfortunately rarely sought systematically by product developers, should be examined as early in development as possible. High student interest or opposition should serve as a cue to developers that the product has hit the mark or needs major revisional work.

At the classroom teacher's level is where acceptability, ease of use, curriculum conformance, vocabulary, and effectiveness with various kinds of students can be examined prior to implementation.

The following information includes the kinds of data the teacher can generate and supply concerning the unit's effectiveness.

1. Teacher Attitude toward the unit
2. Teacher Attitude toward career education
3. Unit refinement information--classroom teacher comments concerning unit activities, objectives, evaluation items, etc. If general feelings about the unit are shared consistently by many teachers this will lead to unit refinement.

4. Teacher characteristics--here the intent is to see if there is any relationship between teacher characteristics, such as teacher experience, education, age, and success with career education units.

UNIVAL

An instrument, UNIVAL, which was included within the curriculum unit package was designed to assist in gathering the basic data concerning the unit and lessons directly (Appendix II).

The unit and UNIVAL booklet containing the evaluation instrument for the unit was delivered by the field test coordinator to the classroom teacher in conjunction with an inservice session on the use of the unit and completion of the UNIVAL.

The following data was collected within the UNIVAL:

1. Learner Unit Performance (Lesson Imbedded Test Items)
2. Learner Attitude Toward Unit
3. Learner Characteristics
4. Teacher Attitude Toward Unit
5. Teacher Attitude Toward Career Education
6. Teacher Characteristics

UNIVAL data was collected from approximately 4,900 students and 152 teachers.

PROJECT MONITORING

Monitoring visits to each of the participating sites were conducted during the duration of the field testing.

The first monitoring visit to each of the projects was conducted in mid-November and the first week of December, 1974.

The second monitoring visit to each project was conducted during the month of February, 1975.

Monitoring instruments were developed to conduct uniform interviews with the coordinators, project staff and teachers. Also, adherence to the schedule of the milestone chart was examined as well as adherence to the requirements of the goals and state requirements of the RFP. The interviews provided an opportunity to familiarize the monitoring site staff with the general features and operation of the local career education project.

Since the first visit was rather early in the year, the teachers in most projects had not started to field test the units in the classroom.

On the second visit, two days were set aside to visit as many schools and teachers as possible.

The data collected on each visit was analyzed and presented in a preliminary report to the State Department.

FIELD TEST RESULTS

OVERALL UNIT REVIEW

This section of the report presents the overall data summary and analysis for the field test.

Significant summary statistics will be presented and discussed in the Field Test Results section of this report. Detailed statistical summaries for each unit are presented in separate reports. An outline of this section follows:

A. A description of the field test including demographic characteristics of both participating teachers and students.

B. Attitudinal data from both teachers and students concerning the units.

C. Learner performance data on the lesson specific items.

D. Unit analysis data.

DESCRIPTION OF THE PARTICIPANTS

Table 1 presents the exact number of classrooms on which data was available in time for analysis. Originally it was anticipated that each unit would be presented in 15 classrooms throughout the state. As in any large-scale

field test, however, the projects encountered the usual number of problems completing some of the units on time. The resulting number, however, was sufficient to form the basis for valid decisions concerning the units.

TABLE 1

UNIT TITLES AND FIELD TEST CLASSROOMS

UNIT	TITLE	NUMBER OF CLASSROOMS
1	Grocery Store Occupations	21
2	Parents Are Community Workers Too	15
3	We Need One Another	23
4	Yearnings and Earnings	14
5	The Workers World	17
6	Sailing With Sales	16
7	Ranching	11
8	What Does A Secretary Do?	9
9	Learn To Earn	8
10	General Job Requirements	13
11	Construction Industry Related Math	10

1. Learners

Table 2 presents demographic information on the learners that were exposed to the career education units in the field test. A total of 4,914 learners were exposed to the 11 curriculum units throughout the state. From Table 2 it can be noted that the learners' demographic characteristics represented the state fairly well. There was approximately a 50/50 split on male-female learners. The ethnic composition included slightly more minority representatives than the state population. The equivalent state figures are 20% Spanish, 70% Anglo, 4% Black, 6% American Indian.

TABLE 2

NUMBER OF LEARNERS EXPOSED BY
SELECTED DEMOGRAPHIC CHARACTERISTICS

	SEX		ETHNIC COMPOSITION										
PROJECT	MALE	FEMALE	AMERICAN INDIAN	%	BLACK	%	SPANISH SURNAME	%	ANGLO WHITE	%	OTHER	%	TOTAL NUMBER
Coconino	210	209	264	[illegible]	1	0.2	12	3	139	33	3	0.7	419
Central Maricopa	394	396	2	0.3	22	3	89	11	675	[illegible]	2	0.3	790
Mesa	403	400	34	4	4	0.5	77	10	691	[illegible]	7	0.9	803
Pinal	205	131	2	0.6	8	2	111	33	214	[illegible]	1	0.3	336
Roosevelt	275	278	6	1	102	18	275	[illegible]	168	30	2	0.4	553
Pima	202	243	11	3	16	4	79	18	337	[illegible]	2	0.4	445
Tri-County	263	354	65	11	6	1	129	21	416	[illegible]	1	0.2	617
WACOP	307	285	3	0.5	5	0.8	133	22	449	[illegible]	2	0.3	592
Yavapai	183	156	6	2	0	0	39	12	291	[illegible]	3	0.9	339
Total	2442	2452	393		164		944		3380		23		4914
Percent	50	50	8		3		19		69		0.5		

Out of the students tested, 1,524 (31%) were representative of the minority backgrounds [944 (19%) Spanish Surname, 164 (3%) Black, 393 (8%) Indian, 23 classified as Other], and the remaining 3,380 (69%) were Anglo.

When the ethnic composition or profile of the various sites in the field test population are examined we find varying patterns. The following table (Table 3) exhibits an ethnic profile of each of the project's field test participants in terms of the distribution of the ethnic groups.

TABLE 3

LEARNER ETHNIC COMPOSITION PROFILE

	Indian	Black	Spanish	Anglo
Central Maricopa	-	0	-	+
Coconino	+	-	-	-
[illegible]sa	-	-	-	+
Pima	-	0	0	+
Pinal	-	0	+	-
Roosevelt	-	+	+	-
Tri-County	0	-	0	0
WACOP	-	-	0	+
Yavapai	-	-	-	+

+significantly above field test mean
-significantly below field test mean
0 no different from field test mean

Tri-County's ethnic profile was closer to the average of the group with, however, a less than average number of Black students.

Coconino showed a high profile in Indian students. Pinal showed a greater profile of Spanish rather than Indian and Anglo learners. Roosevelt exhibited a higher profile of Spanish and Black than Indian and Anglo learners. Pima had a greater profile of Anglo learners with lower than average Indian and near average Black and Spanish populations.

Central Maricopa had a greater profile of Anglo with lower than average Indian and Spanish. WACOP exhibited nearly the same profile but with near average Spanish and below average Black populations.

The diversity of profiles throughout the field test augurs well for learners' ethnic representation in the field test. This diversity can also assist other Arizona districts contemplating the use of the field tested career education units in implementation. Administrators from other districts could subject their district to the same technique of ethnic profiling as employed in this report, and by examining the various units' success in similarly profiled projects, could list priorities of unit implementation. This will be discussed further in the section on unit effectiveness.

2. Teachers

Table 4 presents the total number and selected demographic characteristics of the teachers participating in the field test.

It can be noted from Table 4 that there were nearly four times as many female teachers presenting the units as male teachers. This is probably best explained by the fact that 10 out of the 11 units were elementary units. The median number of years of teaching experience fell between 6-10 years.

The teachers that presented the units in the field test appear fairly sophisticated concerning career education. Of the 152 teachers, 140 were familiar with career education, and of the 140, 56 previously taught a career education unit or program, and 37 had experience in developing 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 included two questions concerning attitudes toward career education in general, and 3 questions concerning the teacher's attitude toward the specific unit (see Appendix II).

TABLE 4

NUMBER OF INSTRUCTORS BY SELECTED DEMOGRAPHIC CHARACTERISTICS

	SEX		YEARS OF EXPERIENCE					CAREER EDUCATION EXPERIENCE				
PROJECT	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.	HAD NO EXPOS. TO C. ED.
Coconino	5	7	1	5	1	1	4	2	3	0	5	2
Central Maricopa	2	20	0	4	7	6	5	9	4	3	6	0
Mesa	4	17	3	6	4	2	6	6	11	0	3	1
Pinal	3	7	1	5	2	1	1	1	5	0	4	0
Roosevelt	3	16	1	5	4	6	3	3	11	3	2	0
Pima	3	13	1	2	3	5	5	4	6	3	2	1
Tri-County	6	15	2	9	3	2	5	6	4	2	6	3
WACOP	4	12	1	11	1	3	0	1	8	2	3	2
Yavapai	1	14	3	4	2	2	4	5	4	2	1	3
Total	31	121	13	51	27	28	33	37	56	15	32	12

a. Teacher Attitude Toward Career Education

When the teacher's general attitude is examined toward career education (Table 5) we find that the mean response across questions, units, and projects was a high 3.98, on a scale where 5 is the highest possible positive response. Of the 304 possible responses 82% (250) were positive towards career education, 11% (34) were of no opinion, and only 7% (20) were negative. There was little variability across projects.

b. Teacher Attitude Toward the Units

Table 6 summarizes the teacher attitudes toward the units in the field test.

The overall response to the units was a moderately positive 3.59. Of the possible 456 responses, 68% (311) were positive, 12% (55) were of no opinion, and 20% (90) were negative.

Teachers that had a high positive attitude toward career education appeared also to favor the units as reflected by Pearson's product moment coefficient correlation of (r = 0.05 level Table 7).

TABLE 5

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

PROJECT	STRONGLY POSITIVE N	%	POSITIVE N	%	NO OPINION N	%	NEGATIVE N	%	STRONGLY NEGATIVE N	%	MEAN
Coconino	2	8	18	75	2	8	1	4	1	4	3.79
Central Maricopa	4	9	33	75	4	9	3	7	0	0	3.86
Mesa	12	29	20	48	6	14	4	9	0	0	3.95
Pinal	3	15	15	75	0	0	2	100	0	0	3.95
Roosevelt	21	55	13	34	4	10	0	0	0	0	4.44
Pima	8	25	18	56	4	12	2	6	0	0	4.00
Tri-County	11	26	25	59	4	9	2	5	0	0	4.07
WACOP	5	16	24	75	2	6	1	3	0	0	4.03
Yavapai	5	17	13	43	8	27	4	13	0	0	3.63
Total	71	23	179	59	34	11	19	.6	1	0.3	3.98

TABLE 6

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

PROJECT	STRONGLY POSITIVE N	%	POSITIVE N	%	NO OPINION N	%	NEGATIVE N	%	STRONGLY NEGATIVE N	%	MEAN
Coconino	3	8	22	61	3	8	5	14	3	8	3.47
Central Maricopa	5	8	44	67	9	14	8	12	0	0	3.70
Mesa	10	16	27	43	8	13	14	22	4	6	3.40
Pinal	5	17	11	37	2	7	12	40	0	0	3.30
Roosevelt	14	25	33	58	3	5	4	7	3	5	3.89
Pima	4	8	25	52	12	25	5	10	2	4	3.50
Tri-County	4	6	39	62	8	13	10	16	2	3	3.52
WACOP	7	15	24	50	7	15	9	19	1	2	3.56
Yavapai	12	27	22	49	3	7	6	13	2	4	3.80
Total	64	14	247	55	55	12	73	16	17	4	3.59

TABLE 7

MEAN INSTRUCTOR ATTITUDE TOWARD THE UNIT BY INSTRUCTOR ATTITUDE TOWARD CAREER EDUCATION

PROJECT	INSTRUCTOR UNIT ATTITUDE (QUES. 3-5)	INSTRUCTOR ATTITUDE CAREER ED. (QUES. 1,2)
Coconino	3.47	3.79
Central Maricopa	3.70	3.86
Mesa	3.40	3.95
Pinal	3.30	3.95
Roosevelt	3.89	4.44
Pima	3.50	4.00
Tri-County	3.52	4.07
WACOP	3.56	4.03
Yavapai	3.80	3.63

r= 0.42

2. Learner Attitude.

When learner attitude toward the unit is examined (Table 8), a fairly high positive feeling toward all units across all projects is seen. Sixty-eight percent of the 27,879 student responses were positive toward the unit, 22% no opinion, and 10% were negative toward the units.

LEARNER PERFORMANCE

In order to examine the learners' performance on the units, cumulative scores over all the lesson items were examined. Table 9 presents the total learner scores in percentages for all the units by each project.

The overall percent of correct scores for all the units by all the projects was a high 83%. There was little variability across projects. This variability appears to be more related to the different units that were field tested rather than dependent on project site.

Examining the relationship between Learner Attitude and Learner Performance (Table 10), it can be noted that a positive relationship exists between the two ($r = 0.24$). This correlation, although not high, is significant at the $\alpha = 0.05$ level. Turning to the relationship between

TABLE 8

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

	YES/HAPPY		I DON'T CARE/OK		NO/SAD		
PROJECT	N	%	N	%	N	%	MEAN
Coconino	1412	57	639	26	407	17	2.41
Central Maricopa	3335	67	1203	24	414	8	2.59
Mesa	3535	78	595	13	404	9	2.69
Pinal	1186	75	289	18	112	7	2.68
Roosevelt	2437	69	791	22	290	8	2.61
Pima	1010	71	312	22	101	7	2.64
Tri-County	2555	69	826	22	339	9	2.60
WACOP	2117	57	1168	31	444	12	2.45
Yavapai	1266	65	464	24	228	12	2.53
Total	18853	68	6287	22	2739	10	2.58

TABLI 9

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	1642	1321	80
Central Maricopa	3759	3064	81
Mesa	4725	3999	85
Pinal	1115	953	85
Roosevelt	2888	2293	79
Pima	798	684	86
Tri-County	2243	1874	83
WACOP	3574	2865	80
Yavapai	1831	1646	90
Total	22575	18699	83

Teacher Attitude toward the unit and Learner Performance, no correlation was found ($r = 0.01$). This is not significant at the $\alpha = 0.05$ level (Table 10).

TABLE 10

MEAN INSTRUCTOR ATTITUDE TOWARD THE UNIT BY MEAN LEARNER ATTITUDE

PROJECT	INSTRUCTOR UNIT ATTITUDE A	LEARNER ATTITUDE B	*LEARNER PERFORMANCE C
Coconino	3.47	2.41	80
Central Maricopa	3.70	2.59	82
Mesa	3.40	2.69	85
Pinal	3.30	2.68	85
Roosevelt	3.89	2.61	79
Pima	3.50	2.64	86
Tri-County	3.52	2.60	84
WACOP	3.56	2.45	80
Yavapai	3.80	2.53	90

Correlation Coefficient
rAC = 0.01
rAB = 0.28
rBC = 0.24

*Percent of students attaining unit objectives

Various other data was collected from the teachers involved in the field test of the units. This data was compiled and examined and is presented below.

The data collected included the following information:

1. Teachers indicated whether they had experience in jobs other than teaching and whether this information helped in teaching the unit. It was found that 93 of the 152 teachers (61%) had previous experience in a job other than teaching. Of these 93, 75 indicated that the previous experience helped in teaching the unit. (Tables 11 and 12)
2. The teachers were asked how many guest speakers they used. Sixty-six of the 152 teachers (43%) did not use guest speakers. A total of 145 guest speakers were used in the 152 classrooms. (Table 13)
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. Ninety-four (62%) teachers taught the unit in the afternoon while 58 (38%) taught the unit in the morning. (Tables 14 and 15)
4. The teachers were also asked what kind of classroom or method of teaching they used. One hundred eleven (73%) of the classrooms were self-contained, 24 (16%) were open classroom and 17 (11%) were team taught. (Table 16)

TABLE 11

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

PROJECT	SOCIAL SCIENCE N	%	PHYSICAL SCIENCES N	%	CHEMICAL SCIENCES N	%	BUSINESS N	%	TECHNI-CAL N	%	CONSTRUC-TION N	%	INDUSTRY N	%	OTHER N	%	NONE N	%	TOTAL NO.
Coconino	0	0	0	0	0	0	3	25	0	0	0	0	0	0	3	25	6	50	12
Central Maricopa	1	4	0	0	0	0	7	32	0	0	1	4	0	0	6	27	7	32	22
Mesa	0	0	0	0	0	0	5	24	0	0	3	14	0	0	3	14	10	48	21
Pinal	0	0	0	0	0	0	2	20	0	0	2	20	1	10	1	10	4	40	10
Roosevelt	0	0	0	0	0	0	9	47	1	5	0	0	1	5	5	26	3	16	19
Pima	1	6	0	0	0	0	5	31	0	0	1	6	0	0	2	12	7	44	16
Tri-County	0	0	0	0	0	0	8	38	0	0	2	9	1	5	4	19	6	29	21
WACOP	0	0	0	0	0	0	8	50	0	0	1	6	1	6	0	0	6	37	16
Yavapai	0	0	0	0	0	0	4	27	0	0	0	0	0	0	1	7	10	67	15
Total	2	1	0	0	0	0	51	33	1	6	10	7	4	3	25	16	59	39	152

TABLE 12

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

PROJECT	YES N	YES %	NO N	NO %	NO PREVIOUS EXPERIENCE N	NO PREVIOUS EXPERIENCE %	TOTAL NUMBER
Coconino	4	33	2	17	6	50	12
Central Maricopa	13	59	2	9	7	32	22
Mesa	8	38	3	14	10	48	21
Pinal	4	40	2	20	4	40	10
Roosevelt	15	79	1	5	3	16	19
Pima	6	37	3	19	7	44	16
Tri-County	14	67	1	5	6	29	21
WACOP	9	56	1	6	6	37	16
Yavapai	2	13	3	20	10	67	15
Total	75	49	18	12	59	39	152

TABLE 13

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

	0		1		2		3		4		
PROJECT	N	%	N	%	N	%	N	%	N	%	TOTAL NUMBER
Coconino	8	67	3	25	1	8	0	0	0	0	12
Central Maricopa	6	27	13	59	2	9	1	4	0	0	22
Mesa	5	24	13	62	2	9	0	0	1	5	21
Pinal	7	70	1	10	1	10	1	10	0	0	10
Roosevelt	7	37	4	21	5	26	1	5	2	10	19
Pima	6	37	2	12	2	12	1	6	5	31	16
Tri-County	9	43	8	38	0	0	2	9	2	9	21
WACOP	8	50	8	50	0	0	0	0	0	0	16
Yavapai	10	67	3	20	1	7	0	0	1	7	15
Total	66	43	55	36	14	9	6	4	11	7	152

TABLE 14

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

PROJECT	LESS THAN 1 HR. N	%	1-2 HRS. N	%	2-3 HRS. N	%	3-5 HRS. N	%	MORE THAN 5 HRS. N	%	TOTAL NUMBER
Coconino	0	0	4	33	2	17	3	25	3	25	12
Central Maricopa	1	4	7	32	9	41	3	14	2	9	22
Mesa	3	14	9	43	5	24	4	19	0	0	21
Pinal	1	10	3	30	0	0	4	40	2	20	10
Roosevelt	1	5	4	21	8	42	5	26	1	5	19
Pima	6	37	0	0	7	44	3	19	0	0	16
Tri-County	0	0	8	38	8	38	4	19	1	5	21
WACOP	1	6	8	50	4	25	3	19	0	0	16
Yavapai	0	0	5	33	6	40	4	27	0	0	15
Total	13	8	48	32	49	32	33	22	9	6	152

TABLE 15

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

PROJECT	AM N	AM %	PM N	PM %	TOTAL NUMBER
Coconino	3	25	9	75	12
Central Maricopa	6	27	16	73	22
Mesa	9	43	12	57	21
Pinal	2	20	8	80	10
Roosevelt	11	58	8	42	19
Pima	4	25	12	75	16
Tri-County	12	57	9	43	21
WACOP	6	37	10	62	16
Yavapai	5	33	10	67	15
Total	58	38	94	62	152

TABLE 16

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

PROJECT	OPEN CLASSROOM N	OPEN CLASSROOM %	SELF CONTAINED N	SELF CONTAINED %	TEAM TAUGHT N	TEAM TAUGHT %
Coconino	2	17	8	67	2	17
Central Maricopa	2	9	14	64	6	27
Mesa	6	29	11	52	4	19
Pinal	2	20	7	70	1	10
Roosevelt	1	5	18	95	0	0
Pima	3	19	11	69	2	12
Tri-County	4	19	16	76	1	5
WACOP	3	19	12	75	1	6
Yavapai	1	7	14	93	0	0
Total	24	16	111	73	17	11

UNIT ANALYSIS

When the major unit measures of effectivness are examined they reduce to three major factors: Teacher Attitude toward the unit, Learner Attitude toward the unit, and Learner Performance in the form of lesson imbedded test items.

1. Unit Effectiveness

The following model was employed to combine the major measures of unit effectiveness to arrive at an overall unit value determination (Fig.2).

These three measures yield a good look at the effectiveness of the unit--in both the cognitive and affective modes. The units were then ranked in relation to this measure of effectiveness.

This effectiveness ranking could be utilized by school district administrators to assist them in choosing units to be implemented in this districts. The prospective users can examine the unit's effectiveness in projects with similar demographic characteristics as his own. In this way he can choose units that have a high probability of successful implementation and local acceptance.

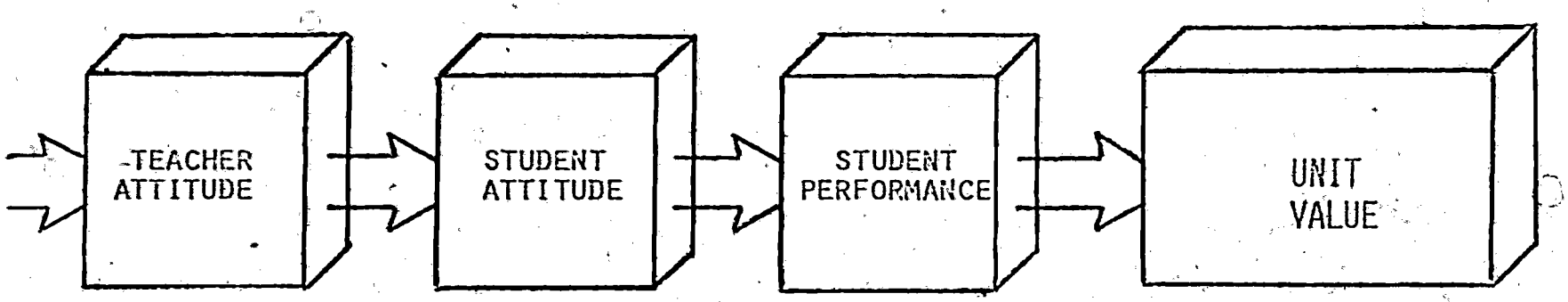


Figure 2

Unit Value Model

The overall effectiveness ranking, along with rankings across units for Teacher Attitude, Learner Attitude and Learner Performance are presented in Table 17.

2. Effectiveness and Ethnic Profile

In an effort to assist future users of the unit, in terms of implementing units with higher probabilities of success within their own district, the following unit effectiveness rankings were also computed for the various ethnic profiles represented in the field test (Tables 18 through 25).

It must be noted at this time that not all units were tested within all projects. Therefore, a unit may not be ranked within a particular ethnic profile because it was not tested within that specific profile. In that case no data exists concerning that unit's performance within the specific ethnic profile. This is not to say that it would not be successfully implemented in such a district. The data here is presented only as a guide to implementation, and should not be used without examining the specific unit and the associated individual unit report recommendations.

TABLE 17

OVERALL EFFECTIVENESS RANKING BY TEACHER ATTITUDE TOWARD THE UNITS, LEARNER ATTITUDE TOWARD THE UNITS, AND LEARNER PERFORMANCE

UNIT	GRADE LEVEL	RANKING OF TEACHER ATTITUDE TO UNIT	RANKING OF LEARNER ATTITUDE TO UNIT	RANKING OF LEARNER PERFORMANCE	OVERALL EFFECTIVENESS RANKING
Grocery Store Occupations	1	1	1	8	1
Parents Are Community Workers, Too!	1	2	8	1.5*	2
What Does a Secretary Do?	6	9	2	1.5*	3
Yearnings and Earnings	4	4	6	5	4
Cattle Ranching	6	3	4	9	5
The Workers World	5	5	5	7	6
We Need One Another	3	6	10.5*	3.5*	7
Learn to Earn	6	8	10.5*	3.5*	8
General Job Requirements	6	10	3	10	9
Sailing with Sales	5	7	7	11	10
Construction Industry Related Mathematics	7	11	9	6	11

*Tied ranks

TABLE 19 ALL UNITS

CENTRAL MARICOPA

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	0	-	+

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
2	1	5	1	1
3	4	1.5*	2	2
4	5	1.5*	3	3
1	2.5*	3.5*	5	4
7	2.5*	6	4	5
5	6	3.5*	6	6

*Tied ranks

TABLE 22 ALL UNITS

COCONINO

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	+	-	-	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
8	2	2	4.5*	1
2	1	7	1	2
9	7	1	2	3
10	3	3	7	4.5*
5	5	5	3	4.5*
3	4	5	4.5*	6
11	6	5	6	7

*Tied ranks

TABLE 18 ALL UNITS

MESA, YAVAPAI

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	-	-	+

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
7	2.5*	3	6	1
8	8	2	2	2
5	1	7	5	3
1	2.5*	4	8	4
9	6	7	3.5*	5
10	9	7	1	6.5*
2	5	5	7	6.5*
3	7	9	3.5*	8
4	10	1	9	9
6	4	10	10	10

*Tied ranks

TABLE 25 ALL UNITS

PIMA

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	0	0	+

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
	2	2	2	1
	1	5	1	2
7	4	3	4	3
3	3	6	3	4
4	No Data	4	No Data	-
9	No Data	1	No Data	-

TABLE 23 ALL UNITS

PINAL

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	0	+	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
1	1	1	3	1
3	2	2	2	2
11	3	3	1	3

TABLE 24 ALL UNITS

ROOSEVELT

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	+	+	-

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
5	1.5 *	3	2	1
10	1.5 *	1	5	2
8	4	6	1	3.5*
1	3	5	3	3.5*
11	6	3	4	5
6	5	3	6	6

*Tied ranks

TABLE 21

ALL UNITS

TRI-COUNTY

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	0	-	0	0

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
2	2	1	3	1
1	3	3	3	2
10	4	5.5*	1	3
4	1	5.5*	6	4
11	6	3	5	5
9	5	7	3	6
5	7	3	7	7

*Tied ranks

TABLE 20 ALL UNITS

WACOP

	A.I.	B.	S.S.	A.
ETHNIC PROFILE	-	-	0	+

UNITS	STUDENT ATTITUDE (SA)	TEACHER ATTITUDE (TA)	STUDENT PERFORMANCE	EFFECT. RANK
6	1	2	4	1.5*
8	5	1	1	1.5*
4	2	4	3	3
9	3	5	2	4
10	4	3	5	5

*Tied ranks

SUMMARY

1. A total of approximately 4,900 learners were exposed to the units in the nine participating projects. Fifty percent of the learners were female and sixty-nine percent of the learners were Anglo.
2. Of the 152 teachers that presented the units, 121 were female. The median years of experience was between 6-10 years and 93 had previously taught or developed a career education unit or program.
3. Teacher attitude toward career education was fairly high (3.98 on a scale where 5 was the highest possible response). Of the 304 possible responses, 83% were positive, 11% were of no opinion, and only 7% were negative.
4. Teacher attitude toward the units--the teachers were moderately positive overall toward the units (3.59). Of the possible 456 responses, 68% were positive, 12% were of no opinion and 20% were negative.
5. Teachers that had a high positve attitude toward career education appeared also to favor the units ($r = 0.42$).

6. Learner attitude was positive toward all units across all projects (2.6 on a scale where 3 was the highest possible response). Sixty-eight (68) percent of the 27,879 student responses were positive toward the unit, 23% no opinion, and 10% were negative toward the unit.

7. Learner performance on the unit--the overall percent of correct scores for all the units by all the projects was a high 83%. There was little variation across projects.

8. Measures of unit effectiveness based on Teacher Attitude toward the unit, Learner Attitude toward the unit, and Learner Performance on criterion referenced lesson imbedded items were calculated for each unit. A ranking of the units in terms of unit effectiveness is presented in the report.

9. Student demographic data from the field test site were subjected to an ethnic profile. The units' effectiveness were ranked in relation to ethnic profile, so that districts with comparable ethnic profiles could use the information for implementation decisions.

RECOMMENDATIONS

1. All 11 units which were field tested are satisfactory enough to be included in the 1975-76 statewide implementation program.
2. It is recommended that an attachment containing suggestions for refinements, listed in the individual unit reports, be attached to the appropriate units for use by the implementation teachers.

APPENDIX I

Non-Significant Data

TABLE I

OVERALL
MEAN STUDENT ATTITUDE BY TIME OF DAY UNIT TAUGHT

PROJECT	STUDENT ATTITUDE	TIME OF DAY 1=PM 2=AM MEAN
Coconino	2.41	1.25
Central Maricopa	2.59	2.27
Mesa	2.69	1.43
Pinal	2.68	1.20
Roosevelt	2.61	1.58
Pima	2.64	1.25
Tri-County	2.60	1.57
WACOP	2.45	2.38
Yavapai	2.53	1.33

r= 0.01

TABLE II

OVERALL

MEAN STUDENT PERFORMANCE BY TIME OF DAY UNIT TAUGHT

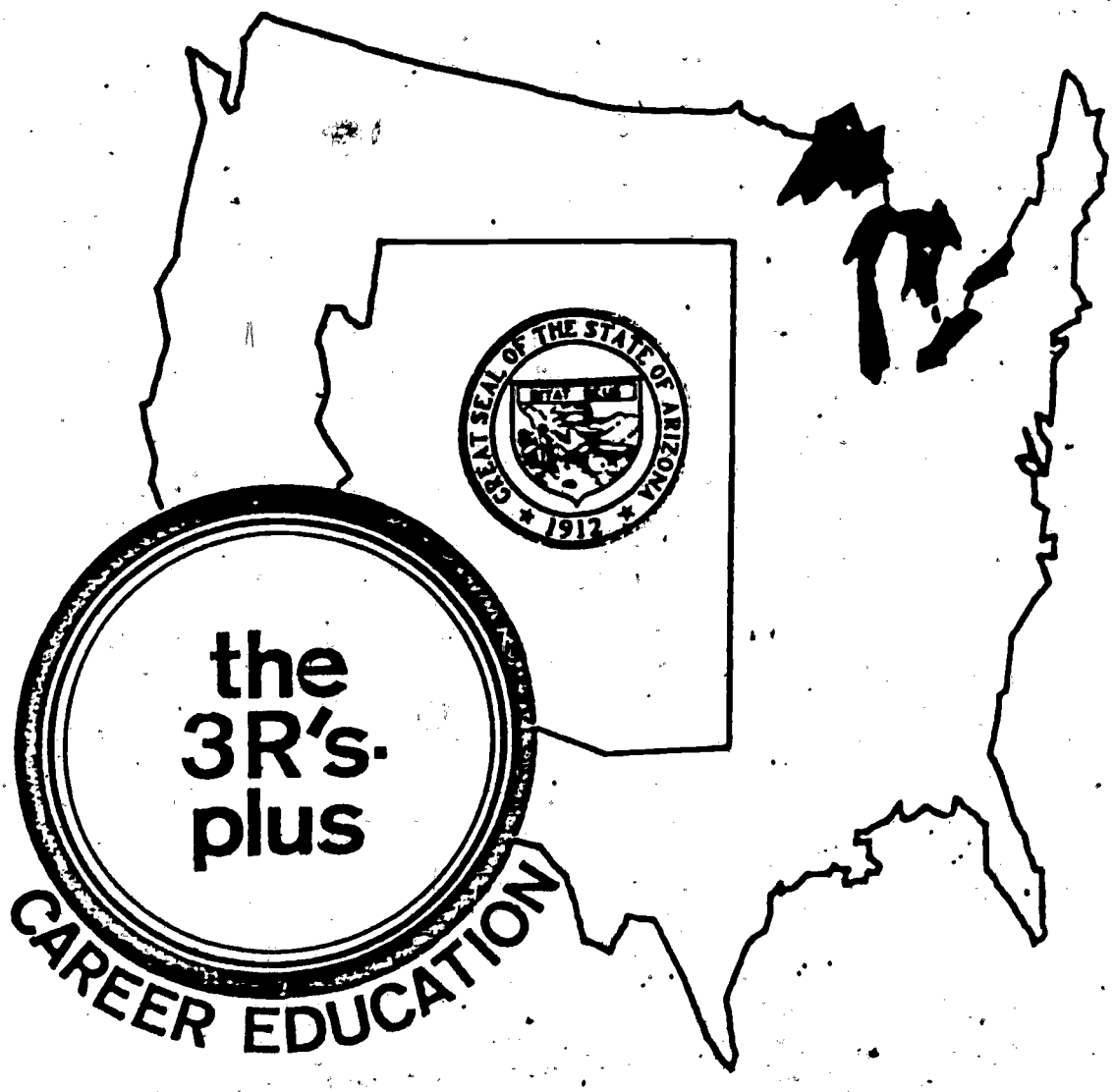
PROJECT	*LEARNER PERFORMANCE	TIME OF DAY 1=PM 2=AM MEAN
Coconino	80	1.25
Central Maricopa	82	1.27
Mesa	85	1.43
Pinal	85	1.20
Roosevelt	79	1.58
Pima	86	1.25
Tri-County	84	1.57
WACOP	80	1.38
Yavapai	90	1.33

r= -0.17

*Percent of students attaining unit objectives

APPENDIX II

UNIVAL



Unit Evaluation
UNIVAL

LEARN TO EARN

GRADE LEVEL: 6

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

b. Physical sciences

c. Chemical sciences

d. Business

e. Technical

f. Construction

g. Industry

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
						Minimum of 8 correct
1	p. 25					
						Minimum of 4 correct
2	p. 67					
						Minimum of 6 correct
3	p. 87					
						Minimum of 3 correct
4	p. 110					
5	p.138-139					

PART III

Instructor Attitudinal Data

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

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

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.			
2.			
3.			
4.			

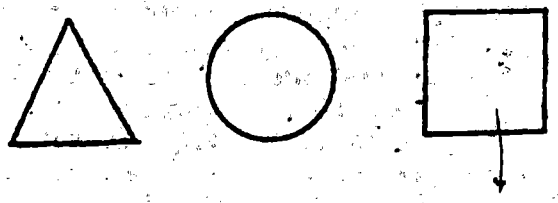
	HAPPY	OK	SAD
5.			
6.			
7.			

PART III (cont'd)

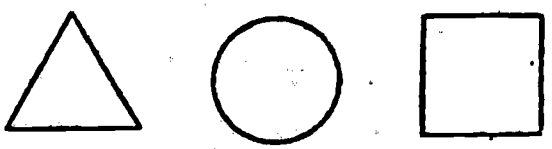
LEARNER ATTITUDINAL FORM NAME _____

YES I DON'T CARE NO

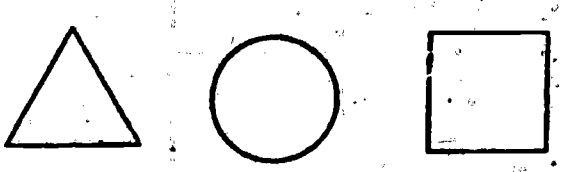
1. Would you want to know more about what we have learned in these lessons?



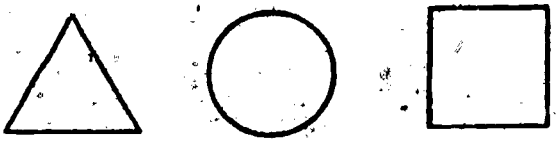
2. Do you know more now about these lessons than before?



3. Were the lessons interesting to you?

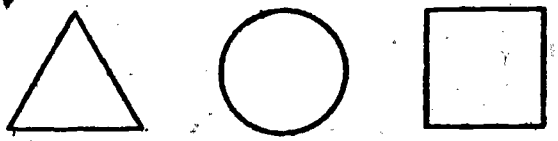


4. Do you think that next year's class should be given these lessons?

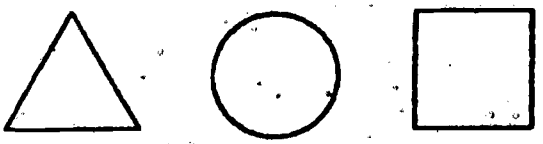


HAPPY OK SAD

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?