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ABSTRACT

A project was undertaken to implement the employability, reading, and math skills of disadvantaged students in vocational education. Included in the project were the following activities: (1) field tests, evaluation, and dissemination of a mathematics skills curriculum guide for disadvantaged learners; (2) field tests and revision of guidelines for establishing, operating, and evaluating co-op and mainstream programs for the disadvantaged; and (3) implementation of a series of small-group workshops for teachers of disadvantaged students on implementing employability, reading, and mathematics skills in vocational programs. Separate mathematics, employability, and reading skills curriculum guides and an administrator's manual for planning, developing, and implementing mainstream, self-contained, or co-op programs for the disadvantaged were developed during the course of the project. An independent review by a third-party evaluator indicated that all objectives had been satisfactorily completed by the project staff. Recommendations were made calling for widespread dissemination of project-developed materials, funding to facilitate such a dissemination effort, and implementation of an impact study to determine the extent of the utilization of the project materials. (The above-mentioned administrator's guide is available separately--see note.) (MN)

FINAL REPORT

IMPLEMENTING EMPLOYABILITY SKILLS, READING SKILLS, AND MATH SKILLS IN VOCATIONAL EDUCATION

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Bureau of Vocational Education
(Project No. 86-0009)

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ABSTRACT

Introduction

The Division of Occupational and Vocational Studies of The Pennsylvania State University received funding through the Pennsylvania Department of Education, Bureau of Vocational Education to undertake a project entitled: "Implementing Employability Skills, Reading Skills, and Math Skills in Vocational Education." The project focused on the further expansion of resources and services for teachers of disadvantaged learners and marked the culmination of a four-stage, four-year endeavor. Among the outcomes of this project were the field-testing and further refining of the Mathematics Skills Curriculum Guide (MSCG) - supplement to the Employability Skills Curriculum Guide (ESCG) and Reading Skills Curriculum Guide (RSCG), each for disadvantaged learners, and the field-testing and refining of the Administrator's Manual for Planning, Developing, and Implementing Mainstream, Self-Contained, or Co-Op Programs for the Disadvantaged. A dissemination phase involved twenty-one small group interactions in the field where both sets of materials and information were transmitted to vocational educators and administrators concerned with disadvantaged students.

The field-testing of the MSCG involved the efforts of ninety-two participants and 12,258 students in a total of 1262 testing activities. Some twenty-six administrators evaluated the field-test draft of the Administrator's Manual . . .

The materials developed, and the inservice strategies employed received comments of commendation in respect to both the completion of objectives and the completion of the whole endeavor.

Objectives

1. To field-test, evaluate and disseminate the Mathematics Skills Curriculum Guide for disadvantaged learners;

2. To field-test and revise the program guidelines for the establishment, operation, and evaluation of co-op and mainstream programs for the disadvantaged;

3. To conduct a series of small group workshops for teachers of disadvantaged students on implementing employability skills, reading skills, and mathematics skills in vocational programs.

Copies of the MSCG and the Administrator's Manual . . are available under separate cover.

DISCLAIMER

This activity was supported in whole or in part by the United States Department of Education, through the Pennsylvania Department of Education (PDE), Bureau of Vocational Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the United States Office of Education, Pennsylvania Department of Education (PDE), or the Bureau of Vocational Education and no official endorsement should be inferred.

ACKNOWLEDGEMENTS

The project staff would like to thank the many individuals who were instrumental in providing direction and professional assistance to this project. Genuine and continuing interest in the success of the endeavor has been maintained by the Pennsylvania Department of Education, in particular by Dr. Jerry C. Olson, Director, Bureau of Vocational Education; Mr. Wayne L. Grubb, Coordinator, Vocational Programs Operations Division; and Mrs. Clara Gaston, Consultant, Disadvantaged and Handicapped Programs. This on-going interest has also been maintained by Dr. Mary M. Dupuis of the Division of Curriculum and Instruction, The Pennsylvania State University, who extended both collaboration and advice; and by Dr. Catherine Batsche, of Illinois State University, who has served as a third-party evaluator throughout the four-year, four-phase development of the project of which this is the culmination, and whose considered professional input is sincerely respected and welcomed.

Also, appreciated is the work of the graduate students and office personnel who shared in the preparation and revision of the Mathematics Skills Curriculum Guide and the Administrator's Manual for Planning, Developing, and Implementing Mainstream, Self-Contained, or Co-Op Programs for the Disadvantaged.

Finally, special recognition must be given to those teachers, curriculum specialists, math specialists, coordinators, administrators, and others who shared their time and professional expertise in the field-test

evaluation of the materials and during the dissemination activities of the project. Without the interest, time, patience, and cooperation of these many individuals, this venture would not have been a success.

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CHAPTER I

INTRODUCTION

Statement of the Problem

In January, 1978, the Division of Occupational and Vocational Studies at The Pennsylvania State University received funding, through the Pennsylvania Department of Education, for a project to meet the needs of teachers of programs for the disadvantaged in the state. Subsequent to this initial project, two follow-up projects were funded in July, 1978 and July, 1979. As an outcome of these activities, many products were disseminated. However, the greatest impact on the field of vocational education would result from the successful implementation of the products.

The Employability Skills Curriculum Guide, the Reading Skills Curriculum Guide, and a draft of the Mathematics Skills Curriculum Guide, developed during these earlier projects, were three such products. In order that vocational education could be better served by these products, vocational personnel needed to be exposed to the materials available, and they needed to receive instruction in the adaptation and implementation of such materials relevant to their professional field.

The intent of this project, therefore, was to further expand the resources and services for the teachers of disadvantaged learners. The disadvantaged were defined as those persons who have academic or economic disadvantages and who require special services and assistance to enable them to succeed in vocational programs (Federal Register, 1977, p53851). The Division of Vocational and Technical Education in the Department of Health, Education, and Welfare (HEW) provided in the Federal Register,

Volume 42, Number 191, Section 104 804, a further interpretation be defining academic disadvantage as including a person who "(1) lacks reading and writing skills, (2) lacks mathematical skills, or (3) performs below grade level," (RESURGE '79, p.5).

In conjunction with the expansion of resources and services, there was a need to further refine, through field-testing and evaluation, the mathematics skills materials and the administrator's manual developed during "Phase III - Meeting the Needs of Teachers of Disadvantaged Programs in Pennsylvania," the project conducted in 1979-80.

This present project adhered to Governor Richard Thornburgh's commitment to mobilize the Commonwealth's resources to solve citizens' problems in the following ways:

1. The implementation of employability skills, reading skills, and mathematics skills should assist vocational graduates in the transition from school to work and should thereby reduce job search and job replacement problems of disadvantaged youth.

2. The improvement of job skills, work values, attitudes, as well as the basic skills of reading and mathematics, should assist disadvantaged youth in securing and retaining needed employment and, therefore, in reducing the number of disadvantaged youth dependent on economic assistance.

3. The improvement of employability skills, reading skills, and mathematics skills should do much to resolve the inequality between various ethnic and racial groups in securing equal employment opportunities in the Commonwealth.

Statement of the Objectives

Based on the statement of the problem, the objectives of the project were as follows:

1. To field-test, evaluate, and disseminate the Mathematics Skills Curriculum Guide for disadvantaged learners;

2. To field-test and revise the program guidelines for the establishment, operation, and evaluation of co-op and mainstream programs for the disadvantaged;

3. To conduct a series of small group workshops for teachers of disadvantaged students on implementing employability skills, reading skills, and mathematics skills in vocational programs.

Priority Areas

The project aligned itself with goals VII and VIII, specifically subgoals 7.5, 7.6, 8.1, 8.2, 8.3, and 8.4 of the Pennsylvania State Plan (Fiscal Year 1979) for Vocational Technical Education Programs.

Personnel

Project Director was Jerry L. Wircenski, Ph.D., who had previously directed four PDE projects in the area of disadvantaged learners, including Phase One, Phase Two, and Phase Three of the projects referred to above.

Graduate Research Assistant and Project Facilitator was Peter A. Irvin, M.Ed., who has well-founded and broadly based work experiences, certification, and experience in teaching secondary level disadvantaged students and careers advising and teaching.

CHAPTER II

REVIEW OF LITERATURE

The importance of mathematics in everyday life has been recognized by, among others, Long (1979, 1980) who described mathematics as "a skill essential for optimum efficiency in social, consumer, ecomomic, and occupational endeavors." (1980, p1). Long et al (1973, 1975) suggest, more specifically, that mathematics education has a vital role in the vocational and occupational education curriculum. In this same context Braunfield (1975) considered mathematics to be a basic tool because:

> 1. Mathematics is a tool for everyday life.
> 2. Mathematics is a preparation for a variety of future careers.
> 3. Mathematics is a vehicle for generating and exercising critical thinking and problem-solving abilities. (p23)

It appears, however, that in an average eleventh grade classroom there can be a surprisingly wide range of student ability levels. Felder et al (1978) made use of a formula provided by Burmeister (1974) and concluded that "the average classroom of eleventh graders will have students with abilities as low as 6th grade and as high as beginning graduate school." This paradox is accentuated, it is suggested, by textbooks having readability levels "considerably higher than the levels for which they were designed." (p2)

Problems facing both educators and students must be further compounded when students are from among the disadvantaged population. Loretan and Umans (1966) acknowledged that:

> The disadvantaged youngster . . . lives now, not in the future . . . When the disadvantaged youngster acts, it is usually in response to an immediate stimulus." (p4)

Disadvantaged students both need and like a structured, concrete approach to learning (Riessman, 1962; Ausubel, 1965), and they are found to make greater progress in learning when the materials are highly interesting to them, (Bond and Tinker, 1967; Dutton, 1964; Speigler, 1964). Some difficulties experienced by average students (Felder et al., 1978, which might be expected to be compounded among disadvantaged students include such "traps" as percents, estimates, tables, and graphs, particularly line graphs.

Earlier reviews of literature (Wircenski et al, 1978; Wircenski and 1979; Wircenski, McPherson, Feng, and Irvin, 1980) have revealed and highlighted several aspects of the needs of disadvantaged students. In none of these reviews was there any suggestion that potential or actual "traps" or difficulties should be excluded from the curriculum. On the contrary, there was a consistent attitude which is best summarized by Felder et al., (1978) in the addage "those who do, learn."

Ruschmeier and Rockwell (1974) listed a number of terminal objectives for high school students of arithmetic. These were written originally about an EMR Curriculum Guide, but this reference ought not to be taken to imply that disadvantaged students are necessarily EMR by classification. Rather, it can be viewed as indicating a set of objectives which build upon skills attainable at high school (or earlier) and which might be aspired to by disadvantaged students seeking to equip themselves for the work world - 'life after school.' The students could later extend their skills, as necessity and motivation directs them, beyond the ability to:

1. Have a vocationally related arithmetic sight vocubulary.
2. Write number words - one through one hundred with 90% accuracy.
3. Know number place value and read and write numbers to one thousand.

4. Expand addition and subtraction skills.
5. Expand multiplication and division skills.
6. Use functional arithmetic in other curriculum and vocational areas.
7. Count money and make change.
8. Be aware of services banks render.
9. Maintain checking and savings accounts.
10. Compute sales tax.
11. Understand percent.
12. Budget money in simulated situation on the basis of weekly pay.
13. Read Roman numerals on clock and watch faces.
14. Identify time written in a.m. and p.m.
15. Read timetables.
16. Write the days of the week and months of the year.
17. Understand the relationship of time, work and wages.
18. Identify and draw the fractional parts of one-half, one-fourth, one-third, one-fifth and one-eighth on geometric shapes.
19. Measure accurately using all ordinary measuring devices such as ruler, scale, thermometer.
20. Understand and use all ordinary units of measure, such as inch, foot, pint, quart, ounce, pound, plus the usual abbreviations of these units of measure.
21. Convert measure from small to large and vice versa.
22. Estimate size.

The Mathematics Skills Curriculum Guide for disadvantaged learners and the Administrator's Manual ... were prepared as a step towards the attainment of these objectives by students, and as an aid for educators at all levels of vocational education who strive to address and to meet the needs of disadvantaged learners.

CHAPTER III

PROCEDURES

Since the procedures for the project were designed to accomplish the three objectives outlined in Chapter I, each of the objectives will be stated and will be followed by a discussion of the procedures employed.

Objective 1 -- To field-test, evaluate, and disseminate the Mathematics Skills Curriculum Guide for disadvantaged learners.

A Mathematics Skills Curriculum Guide (MSCG) was developed to supplement the Employability Skills Curriculum Guide (ESCG) and Reading Skills Curriculum Guide (RSCG) previously developed by the Division of Occupational and Vocational Studies at The Pennsylvania State University. The MSCG was designed to provide disadvantaged students with practice in basic mathematical skills necessary for survival in everyday life. Forty-eight mathematical lessons were designed to correspond to the forty-eight lessons contained within the ESCG and RSCG, and the same section/unit titles were used, namely Socialization Skills, Communications Skills, Financial Management Skills, Values Clarification Skills, and Job Procurement and Rentention Skills. The target population for the curriculum was ninth through twelfth grade disadvantaged students with skill levels ranging from third through sixth grade.

Three methods were used to obtain volunteers to participate in the MSCG field-test activities:

1. On October 24, 1980, a letter of invitation was sent to teachers who had participated in the ESCG and RSCG field-test activities (Appendix A-1).

2. On October 24, 1980, a letter of invitation was sent to Directors of the Area Vocational Technical Schools in Pennsylvania encouraging them to submit names of staff members who might be willing to serve as a field-test participant (Appendix A-2).

3. An announcement was published in the "For Your Information" section of the November 3-17, 1980, issue of the Pennsylvania Education tabloid (Appendix A-3).

A confirmation letter was sent to all interested parties on January 30, 1981 (Appendix A-4). The letter detailed what would be expected of the field-test participants and requested a confirmation of intent to participate in the activities. On Feburary 6, 1981, a field-test package was sent to all participants who had returned a positive confirmation form (Appendix A-5). The field-test package included: (1) 20 evaluation forms, (2) 2 Activities Rejected forms, (3) 20 reply-paid addressed envelopes, (4) the 48 math activities, and(5) a set of instructions (Appendix A-6). The instructions specified that the field-test participant was to select a minimum of 20 math activities to implement with one or more students. An evaluation form was requested for each activity utilized (Appendix A-7). In addition, participants were requested to submit an Activities Rejected form listing any activities that would not be used and the reason for rejection (Appendix A-8). Participants were asked to complete and return the evaluation forms by April 15, 1981.

Taking account of a recommendation noted in an earlier report (Wircenski, McPherson, Feng, and Irvin, 1980, p. 28), the lessons in the binders were prepared with the five sections in revolving sequences (i.e. 1,2,3,4,5; 2,3,4,5,1; 3,4,5,1,2; 4,5,1,2,3; 5,1,2,3,4). The binders were

assigned at random to field-test participants, even where there was more than one participant at one test-site. It was hypothesised that the revolving sequence would result in a more balanced distribution of use of the forty-eight activities.

Follow-up correspondence was sent to field-test participants throughout the implementation stages:

February 9	Letter to Principals/Directors (Appendix A-9)
March 13	Clarification/Reminder Letter to field-test teachers (Appendix A-10)
April 13	Letter to field-test teachers from whom there has been no response (Appendix A-11)
April 22	Appreciation Letter to Completers (Appendix A-12)

Upon receipt of the math activity evaluation sheets, field-test participants were sent a letter (Appendix A-13) with an overall Field-Test Evaluation Form (Appendix A-14), a Summary Checklist (Appendix A-15), and a Release Form (Appendix A-16). It was requested that these forms be returned by May 15, 1981.

Several teachers had expressed interest in participating in field-test activities after the field-test was in progress. These teachers were sent a letter thanking them for their interest along with the explanation that their response had been received too late for inclusion (Appendix A-17).

Objective 2 -- To field-test and revise the program guidelines for the establishment, operation, and evaluation of co-op and mainstream programs for the disadvantaged.

During the 1979-80 project year, a manual was written to assist administrators to improve the services provided to disadvantaged students in vocational education. Entitled An Administrator's Manual for Planning, Developing, and Implementing Mainstream, Self-Contained or Co-Op Programs for the Disadvantaged, the manual was submitted to local educators in

Pennsylvania for field-testing and review during the 1980-81 project year.

On April 6, 1981, letters were sent to 85 directors of vocational education in Pennsylvania. The list of directors' names was compiled from the Pennsylvania Vocational Education Personnel Directory (1977, revised). The purpose of the letter was to explain the evaluation and review process and to obtain confirmation from administrators of their willingness to participate in the field-test activities (Appendix B-1).

On April 20, 1981, a copy of the manual was sent to each of the administrators who had agreed to be field-test participants (Appendix B-2). An evaluation form was included with the manual, and administrators were asked to return the manual between May 1 - 8, 1981 (Appendix B-3).

In addition, manuals were sent to the five program specialists at the Pennsylvania Department of Education (Appendix B-4).

Pilot-Test The evaluation instrument was submitted to a pilot-test prior to its utilization in the field-test review. Fifteen members of the faculty at The Pennsylvania State University and the York County Area Vocational School were asked to review the manual and to critique the evaluation instrument (Appendices B-5 & B-6).

Objective 3 -- To conduct a series of small group workshops for teachers of disadvantaged students on implementing employability skills, reading skills, and mathematical skills in vocational programs.

The primary goal associated with Objective 3 was the dissemination of the ESCG, RSCG, and MSCG products. Although a series of ten workshops was originally proposed, the project staff determined that the workshop series would not be the most appropriate method of dissemination. The workshops would have had to be scheduled in the Spring of 1981 to accommodate

the project timeline, and it was anticipated that teachers would have difficulty being released for travel to workshops during the latter part of the school year. Therefore, a joint decision was made, between the funding agency and project staff, to substitute a more suitable method of dissemination. A series of on-site presentations was substituted for the workshop series to accomplish the dissemination goal.

Each of the twenty-one Area Vocational-Technical School (AVTS) in the Centre Region of the State was contacted by telephone, inviting their cooperation in serving as a host for an on-site presentation. Details of the project activities were outlined to familiarize (reacquaint) the AVTS directors with the ESCG, RSCG, and MSCG materials. Schools in Western and Eastern Pennsylvania, wherein the curriculum materials had been field-tested, also communicated interest in inservicing related to the guides. Follow-up phone calls were made to all sites in the Centre Region, and times were arranged for presentations at the respective cooperating sites. In addition, a letter was sent to school representatives requesting a list of names of potential participants in the dissemination of materials (Appendix C-1).

Additional dissemination methods included:

1. A one-day workshop at the Harrisburg-Steelton-Highspire AVTS (Summer 1980).
2. Direct mailing of copies of ESCG and RSCG to:

   Field-test participants (Appendix C-2)

   AVTS Directors, and Directors of Intermediate Units (Appendix C-3).

3. Honoring, to the extent that supplies were avilable, all telephoned and mailed requests for the guides.

4. Lodging of the documents with the Vocational Education Information Network, (VEIN), Millersville; Pennsylvania, and with the National Center for Research in Vocational Education, The Ohio State University, Columbus, Ohio.

5. Exhibiting at meetings, namely:

Pennsylvania Vocational Education Conference (PVEC);

Pennsylvania Association for Vocational Education Special Needs Personnel (PAVESNP) Mid-Winter Conference;

Pennsylvania Coordinators Conference;

National Academy Workshop, Baltimore, Maryland.

CHAPTER IV

FINDINGS

Introduction

The report of the findings of this project is in two sections, the first being the results corresponding to the three objectives, the second being the respective comments of the third-party evaluation.

Objective 1 was: To field-test, evaluate and disseminate the Mathematics Skills Curriculum Guide for disadvantaged learners.

Field-Test Selection: The request for field-test participants generated 131 responses from educators in Pennsylvania and twelve responses from out-of-state educators. Ninety-two respondents, of whom six were out-of-state, confirmed their intent to participate as a result of the January 30, 1981, letter to intending participants. The ninety-two respondents represented seventy-five different locations as follows:

Type of Agency	Number
High Schools	20
School Districts	14
Intermediate Units	5
Vocational-Technical Schools	23
Community Colleges	1
Correctional Facilities	2
Special Schools/Projects/Centers	10
	75

These seventy-five locations were distributed fairly evenly across the three geographic regions of Pennsylvania:

	Number	Percent
Western Region	16	21.3
Centre Region	29	38.6
Eastern Region	24	32.0
Out-of-State	6	8.0

The ninety-two field-test participants represented ninety-six different subject/service areas. Specific areas, as reported by the participants, are shown in Appendix A-18. A summary of the areas is contained in Table 1, which lists nine major teaching areas and the number of participants representing those areas. Forty and one-half percent (40½%) of the field-test participants described their job as a teacher of math, including remedial math, developmental math, vocational math, and consumer math. Thirteen and one-half percent (13½%) of the participants were responsible for cooperative education or a similar type of related class experience. Twelve and one-half percent (12½%) of the respondents indicated that they were special education teachers, such as teachers of the mentally retarded or emotionally disturbed.

TABLE 1

SUMMARY OF SUBJECT/SERVICE AREAS REPRESENTED IN FIELD-TEST

Teaching Responsibility	Number of Participants
Developmental/Remedial Math	39
Occupational Related Class/Co-Op	13
Special Education	12
Industrial Occupations	9
Business, Management, Marketing	5
Home Economics	1
Horticulture	1
Administrators	3
Other Service Areas	13
	96*

*Although 92 persons participated in the study, 96 responses are recorded because some participants held teaching responsibilities in more than one area.

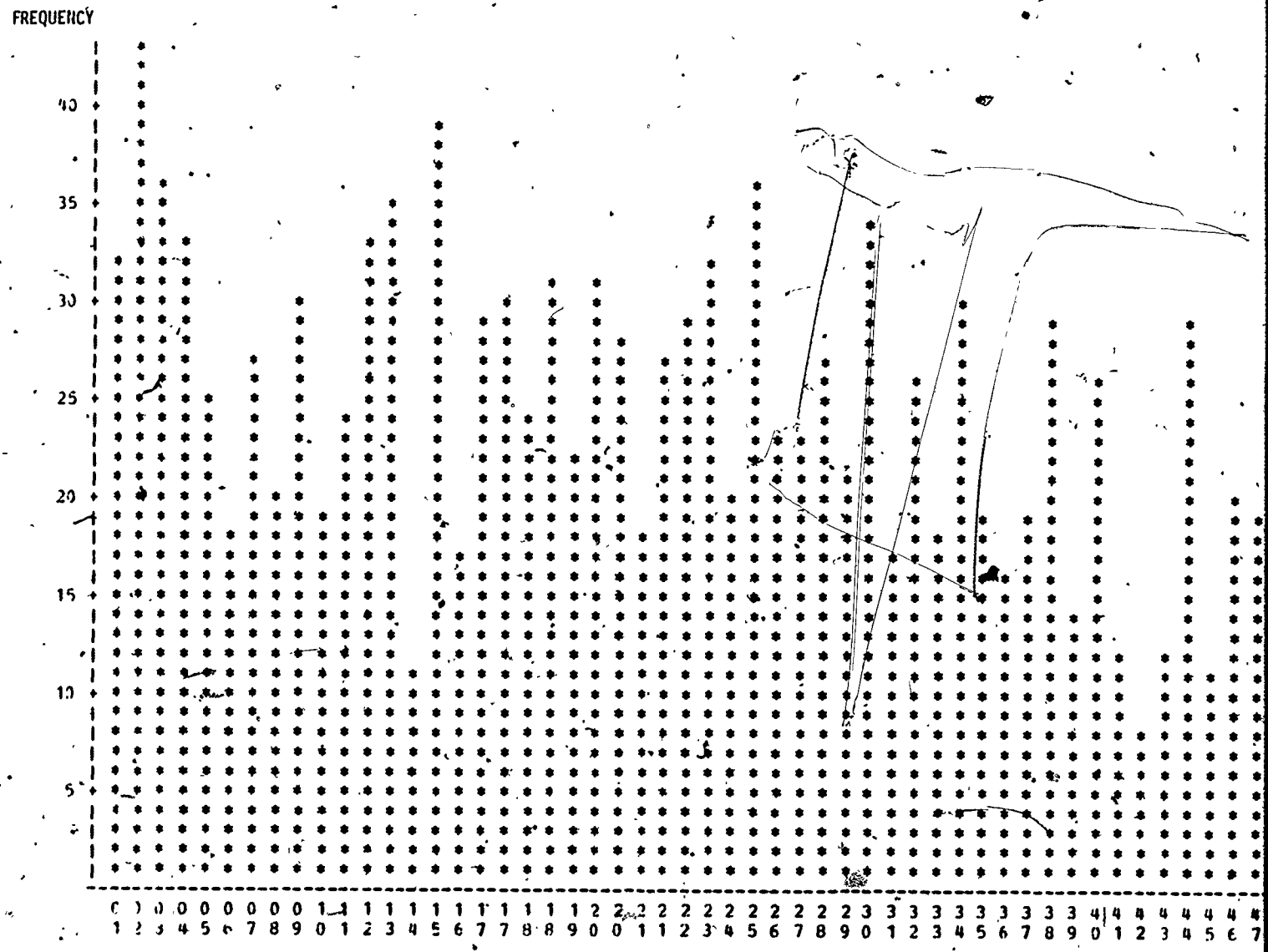
Activities Field-Tested All forty-eight math activities were utilized by at least eight of the ninety-two participants. The utilization ranged from forty-three users (Lesson 2) to eight users (Lesson 42). The frequency of utilization of the math activities is represented graphically in a bar chart (Figure 1). In total, the forty-eight lessons were used 1,262 times by the ninety-two participants. The mean (average) score for lesson utilization was twenty-four times per lesson. Table 2 includes a listing of the frequency with which each lesson was used. The frequency table is arranged in rank order so that those lessons which were used most frequently are listed first. A listing of the names of each lesson by code is contained in Table 3.

Each activity was evaluated by each teacher who used that lesson. The evaluation form contained a rating scale of 1 (very poor) to 5 (very good) for seven specific areas: interest level, clarity of questions, clarity of requirements, difficulty of the activity, relationship to work, ease of application to work, and stimulant to class discussion. In addition, an overall evaluation of the activity was obtained.

The results of the evaluations were excellent. The detailed statistical analysis is contained in Appendix A-19. A summary of the overall evaluation of each activity is listed in Table 3. The overall mean for each activity is given in the right hand column. As can be seen in the table, the means ranged from 3.09 (satisfactory) to 4.32 (very good).

Of the seven evaluation variables for each of the forty-eight lessons, only the "interest level" in Lesson 14, and the "clarity of questions" and "clarity of requirements" in Lesson 17A, fell below the 3.0 rating of satisfactory. They were rated 2.91, 2.93, and 2.96 respectively, which can be translated as "marginally less than satisfactory."

FIGURE 1 - MATHEMATICS SKILLS CURRICULUM GUIDE FIELD-TEST UTILIZATION BAR CHART



Prepared with the aid of the Statistical Analysis System (SAS).

TABLE 2

RANKED FREQUENCY OF ACTIVITY FIELD-TESTING

Observation	Lesson	Count	Observation	Lesson	Count
1	02	43	27	11	24
2	15	39	27	18A	24
3	03	36	29	26	23
3	25	36	29	27	23
5	13	35	31	19	22
6	30	34	32	29	21
7	04	33	33	08	20
7	12	33	33	24	20
9	01	32	33	46	20
9	23	32	36	10	19
11	18B	31	36	35	19
11	20A	31	36	37	19
13	09	30	36	47	19
13	17B	30	40	06	18
13	34	30	40	21A	18
16	17A	29	40	33	18
16	22	29	43	16	17
16	38	29	43	31	17
16	44	29	45	36	16
20	20B	28	46	39	14
21	07	27	47	41	12
21	21B	27	47	43	12
21	28	27	49	14	11
24	32	26	49	45	11
24	40	26	51	48	10
26	05	25	52	42	8

TABLE 3

LESSON CODE, TITLE, AND OVERALL EVALUATION MEAN

CODE	LESSON TITLE	MEAN (Scale of 1 to 5)
01	Personal Organization (I) - Neatness and Orderliness	3.63
02	Personal Organization (II) - Keeping a File	4.14
03	Personal Grooming/Hygiene	4.00
04	Automotive Responsibilities	4.06
05	Getting Along with Others	3.88
06	Accepting Differences in Others	3.72
07	Leadership/Group Planning	4.11
08	Respecting Rights of Others	3.55
09	Responding to Authority	4.17
10	Acceptance of Authority	3.68
11	Use of Leisure Time	3.96
12	Personal Letter Writing	3.85
13	Business Letter Writing	4.03
14	Interpreting Oral Orders/Directions	3.09
15	Following Orders/Directions in Correct Sequence	4.21
16	Interpreting Written Orders/Directions	4.00
17A	Bill Paying	3.66
17B	Bill Paying	4.03
18A	Banking Skills (I) - Functions of a Savings Account	3.61
18B	Banking Skills (I) - Functions of a Savings Account	4.03
19	Banking Skills (II) - Savings Account	4.09
20A	Banking Skills (III) - Checking Account	4.32
20B	Banking Skills (III) - Checking Account	4.27
21A	Expenses	3.94
21B	Expenses	3.89
22	What are Credit Cards?	3.86
23	Buying a Used Car	3.91
24	Renting/Leases	4.15

TABLE 3 (continued)

CODE	LESSON TITLE	MEAN (Scale of 1 to 5)
25	Developing a Sense of Pride	4.00
26	Self-Esteem/Pride	3.77
27	Responsibility/Dependability	4.09
28	Accepting Criticism	3.74
29	Accepting Rejection	3.76
30	Assertiveness Training	4.15
31	Identifying Acceptable Human Values	3.47
32	Identifying Desirable Human Values - Dependability	4.15
33	Identifying Desirable Human Values - Honesty	4.06
34	Decision-Making	4.17
35	Introduction to Career Awareness	3.89
36	Assessing Self Abilities/Qualities	3.50
37	Job Resources	3.52
38	Finding Out About Companies	3.90
39	Letter of Application	3.46
40	Completing Job Application Form	4.19
41	Resume	3.83
42	The Interview	3.50
43	Interviewing	3.58
44	Employer Relations	4.10
45	Job Retention	3.91
46	Resigning	3.95
47	Route to Promotion	3.61
48	Asking for a Raise	3.80

The evaluation data was also computed for an evaluation of the MSCG as an overall project. The data from this evaluation was equally encouraging. The overall mean for the Curriculum Guide was found to be 4.05, which is within the "good" to "very good" range. The data for each of the seven evaluation variables for the MSCG is contained in Table 4. For further comparison, data from the seven variables, condensed from the detailed statistical analysis contained in Appendix A-19, are included in parentheses in this table.

The statistical analysis was used to further identify those items which needed obvious revision. The evaluation form was designed to include a "Comments" section for each of the seven variables. The comments were reviewed for each of the items and revisions were made as appropriate.

The comments sections were also reviewed to determine the aspects of the lessons that the students found most positive as well as most negative. The comments occurring most frequently concerning the positive aspects of the lesson were:

1. The activities related to the students' interest in work areas.
2. The students liked the application to realistic, everyday life experiences.
3. The activities prompted good discussions.
4. Math problems were easy and relevant.
5. The activities were good for individualized instruction.

The comments given most frequently concerning the negative aspects of the MSCG lessons were:

1. Dislike of word problems.
2. Students had difficulty with some calculations.
3. Lesson title was misleading.

TABLE 4

MATHEMATICS SKILLS CURRICULUM GUIDE

OVERALL EVALUATION RESULTS

VARIABLE LABEL	N	MEAN	STANDARD DEVIATION	MINUMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
Interest Level of the Activity	43 (1256)	3.93 (3.90)	0.67 (0.85)	2 (1)	5 (5)	0.10 (0.02)
Clarity of Questions	41 (1252)	3.68 (3.86)	0.65 (0.94)	2 (1)	5 (5)	1.10 (0.03)
Clarity of Requirements	41 (1248)	3.54 (3.90)	0.71 (0.90)	2 (1)	5 (5)	0.11 (0.03)
Difficulty of the Activity	41 (1221)	3.63 (3.76)	0.77 (0.91)	2 (1)	5 (5)	0.12 (0.03)
Relationship to Work	42 (1254)	4.21 (4.14)	0.90 (0.86)	2 (1)	5 (5)	0.14 (0.02)
Ease of Application to Work	42 (1254)	4.14 (4.11)	0.93 (0.85)	2 (1)	5 (5)	0.14 (0.02)
As Stimulant to Class Discussion	41 (1221)	3.83 (3.88)	0.92 (0.95)	1 (1)	5 (5)	0.14 (0.03)
Overall Evaluation of Activity	41 (1246)	4.05 (3.93)	0.67 (0.83)	3 (1)	5 (5)	0.10 (0.02)

Note: Data condensed from the detailed statistical analysis contained in Appendix A-19 are shown in parenthesis.

Several revisions were made in response to evaluations that indicated that the question format or wording required modification; the answer sheets were incorrect; more space was needed for calculations; diagrams need improvement; and the activity was too long. These revisions were made by the project staff and were incorporated in the final project. Some 43.5 percent of the field-test participants returned the Activities Rejected forms. From these returns, it was gleaned that the overwhelming reasons for not including an activity were the lack of time in the work schedule of the participant students, or that the content of the lesson was not appropriate for the curriculum of the class(e.g., a lesson about building site/construction work for an auto-body or food services class).

Objective 2 was: To field-test and revise the program guidelines for the establishment, operation, and evaluation of co-op and mainstream programs for the disadvantaged.

Field-Test Site Participants. Fifty-seven responses were obtained from the letter of invitation sent to potential field-test site participants. Forty-seven administrators agreed to review the manual or to delegate the task to a qualified staff member. Ten administrators were unable to participate in the field-test activities. No response was received from twenty-eight administrators. One review was received from the five program specialists in the state office of education.

The forty-seven field-test participants were asked to describe their principal role in the education of disadvantaged learners. The following summary describes the roles reported by participants:

Vocational Program	12
Supervisor of Instruction	1
Coordinator of Pupil Services	3
Other (resource teacher, special education teacher, administrator, special needs teacher, co-op coordinator)	10

Pilot-Test Results--Evaluation Instrument Eleven responses were received from the fifteen pilot-test participants, and the results were used to revise the evaluation instrument. The major revision involved the rearrangement of items 6 through 9 into a separate section entitled "Overall Evaluation Directions."

Review Evaluation Form Results Twenty review forms were received by May 20, 1981. Follow-up phone calls were made to field-test participants during the week of May 15 - 19. As a result, six additional review forms were received. The total response from twenty-six participants represented a 55 percent return rate from the forty-seven initial contacts.

In general, the responses were extremely positive. Of the twenty-six responses received, only one was a totally negative response. Unfortunately, the comments made by the respondent were not specific enough to use in the revision process. A summary of the responses to each question is contained in Table 5.

General Review Findings In general, the manual was ranked within the category, "very good," on a scale including poor (1), fair (2), good (3), very good (4), and excellent (5). The reviewers indicated that the subject matter of the manual was adequately covered and that it was presented in a logical and understandable manner. The reviewers also indicated that there was a critical need for the manual ($\bar{X}$=4.1). The majority of the readers (69%) did not feel that the manual was duplicative of other

TABLE 5

SUMMARY OF ADMINISTRATOR'S MANUAL EVALUATION RESULTS

ITEM	MEAN (1=poor; 5=excellent)
Section I. Introduction	
1. General content described	4.0
2. Eligibility criteria accurate	4.0
3. Sources adequate	3.9
4. Summarizations complete	4.3
5. Checklist helpful	4.3
Section II. Regular Class Placement	
6. Concept description adequate	4.2
7. Curriculum description sufficient	3.6
8. Staff qualifications helpful	3.9
Section III. Self-Contained Programs	
9. Concept description adequate	3.9
10. Curriculum overview complete	3.8
11. Staff qualifications helpful	3.7
Section IV. Co-Op Programs	
12. Concept description thorough	4.1
13. Curriculum description adequate	3.6
14. Staff responsibilities complete	3.9
Section V. Overall Evaluation	
15. Subject matter adequately covered	3.9
16. Logical sequence of presentation	4.1
17. Writing clear, understandable	4.3
18. Need for manual	4.1
19. Duplicative of other materials	Yes 8 : No 18
	31% 69%

materials dealing with the disadvantaged population. Those reviewers who did report duplication generally qualified their response by stating that, whereas parts of the manual were available elsewhere, they did not know of a document in which all three programs were discussed. Two documents were cited as possible duplications:

--Reach: Vocational Handbook for Mainstreaming.

--Vocational Administrators' Guidebook (Indiana University)

Introduction Section The responses to the introductory section were within the "very good," to "excellent" range ($\bar{X}$=3.9 - 4.3). No comments were given about this section. However, it should be noted that question number 3 regarding sources for establishing programs mistakenly indicated that sources were contained within pages 4 - 8. In fact, sources were contained within pages 7 - 11. It is possible that the relatively low score for question 3 was due, in part, to the reviewer's referral to the wrong pages.

Regular Class Placement The responses to the section dealing with Regular Class Placement ranged from "good" to "very good" ($\bar{X}$=3.6 - 4.2). The concept of regular class placement was reported to be adequately described. The description of the curriculum received a relatively low rating ($\bar{X}$=3.6) although the majority of the responses were within category 4 and 5 (see general comments section). Although the staff qualifications sections was found to be helpful, a comment was made that most administrators would have difficulty evaluating the teacher characteristics listed in Appendix C of the Manual.

Self-Contained Programs. The responses to the section describing Self-Contained Programs were generally within the "good" to "very good" range ($\bar{X}$=3.7 - 3.9). Although this section had slightly lower ratings than the other sections in the manual, no comments were given to assist in upgrading the section.

Cooperative Work Experience Programs The responses to the section describing Co-Op programs were generally within the "very good" to "excellent" range. Whereas the co-op concept ($\bar{X}$=4.1) and staff qualifications ($\bar{X}$=3.9) were reported to be thoroughly discussed, there was a slightly lower rating of the discussion of the curriculum ($\bar{X}$=3.6). Comments were made concerning the interchangeable use of the term co-op as both a "method" and as a "program."

Potential of the Manual The most frequent comment given concerning the manual was its potential for helping with establishing programs for disadvantaged students. Several comments were made by administrators who wished they had had the manual when they had started their programs. Several reviewers commented that the manual was the first they had read that gave an overall view of the types of services that could be provided for disadvantaged students.

Its organization was reported to be a strength of the manual. Reviewers specifically liked the checklists and references given within the manual. In general, the document was reported to respond to a high need in the field, and was considered to be useful in clarifying accountability and services for disadvantaged students.

Approximately 50 percent of the reviewers did not specify a major weakness of the manual. Five reviewers reported that the manual tended to

be too general, and that each of the sections should be expanded to provide more detail and more references. Three reviewers suggested adding a section describing exemplary programs in Pennsylvania. One reviewer suggested that Life Skills should be added to the curriculum sections. Finally, one reviewer indicated that the manual had "no pizzaz!"

Technical Accuracy The response to question 23 indicated that the information in the manual was technically correct. Two areas were mentioned as needing clarification.

(1) Terminology used in the co-op section (i.e. method vs. program).

(2.) Definition of "disadvantaged" did not correspond to the CETA guidelines.

Objective 3 was: To conduct a series of small group workshops for teachers of disadvantaged on implementing employability skills, reading skills, and mathematics skills in vocational programs.

As a result of the initial and follow-up telephone calls, on-site presentations were scheduled at twenty-one AVTS's and Intermediate Units in the State (Appendix C-4). A Dissemination Report was filed for every on-site presentation (Appendix C-5). The Dissemination Report contained the number of participants, the participants' names and job titles, the location of the on-site presentation, the format utilized, and comments describing significant features of the presentation. Table 6 summarizes the number of participants in attendance by job title.

TABLE 6

PARTICIPANTS ATTENDING
ON-SITE DISSEMINATION PRESENTATIONS

Job Title	Number
Curriculum Specialists	21
Counselors	18
Teachers	78
Administrators	24
Coordinators	18
	159

Participants at each on-site presentation received a personal copy of the RSCG. A copy of the RSCG and ESCG was given to each site that had hosted a presentation. (Note: The manuals had previously been disseminated to all AVTS and IUs). Participants at the presentations were told that they would receive a copy of the MSCG upon its completion, subject to supplies lasting. In addition, an MSCG dissemination list was generated at the presentations by asking participants for the names of persons in their districts who could benefit from the Guide.

As a result of the various methods utilized by the project staff, 600 copies of the ESCG, 500 copies of the RSCG, and 300 copies of the MSCG were disseminated.

Third Party Evaluation

Dr. Catherine Batsche, the third-party evaluator contracted in May, 1981, has experience in the areas of special education, vocational

education, administration, materials development, and grants and contracts. The third-party evaluation consisted of the following on-site activities:

1. Interviews with the project director and project staff.
2. Review of materials developed in the project.
3. Review of field-test procedures.
4. Review of evaluation data and narrative comments from field-test participants
5. Review of material/information dissemination strategies and results.

The project activities each had evaluation strategies appropriate to the respective objective. A summary of these activities is included below:

Objective 1 was: To field-test, evaluate, and disseminate the Mathematics Skills Curriculum Guide for disadvantaged learners.

a. Review by specialists in the fields of mathematics and vocational education.

b. Field-test by ninety-two teachers of vocational education, remedial mathematics, and special education.

c. Statistical analysis of the data extracted from the field-test evaluation forms.

d. Critical review of the Guide, and modification of it as necessary, in light of the narrative comments extracted from the field-test evaluation forms.

e. Third-party review and evaluation by a special needs consultant.

Comments

The Math Skills Curriculum Guide is a valuable component of the Curriculum Series for Disadvantaged Students. The field-test results

were very positive and the project staff is to be commended for their response to the need to serve the academically disadvantaged population.

The field-test activities were professionally conducted and were well received in the field. The response rate was higher than was originally anticipated. For example, it was projected that fifty teachers would participate, whereas ninety-two took part in the field-test. The project staff is also to be commended for their numerous communications with field-test participants.

A large number of math teachers and/or related support service personnel took part in the field-test activities. Although vocational teachers comprised only 30.2 percent of the field-test participants, this figure is probably not an unrealistic representation of the state of the art of teaching basic skills within vocational classes. It might be anticipated that math skills would be seen as the responsibility of the math teacher or some other support personnel. However, if an educational goal of the future is to integrate basic skill development within vocational classes, additional inservice activities with vocational teachers would be desirable.

It is as interesting to note that special education personnel volunteered as field-test participants even though the instructions indicated that the MSCG had been specifically developed for the disadvantaged population. It is not known if the two terms are equated in some schools or if the materials were thought to be appropriate to the handicapped population as well as the disadvantaged. However, the materials were reported to be too

difficult on several evaluation forms returned by teachers of retarded students. Since the retarded population was not the original target population, this response was not surprising but is informative for use in future dissemination activities.

There were only two concerns with the content of the MSCG. First, the readability of the story problems tended to rely too heavily on colloquialisms. In some cases, the language added to the theme of the story or the language used by students. In other cases, the language was distracting and resulted in confusion. It would be advisable to edit the word problems to clarify any misconceptions that might occur due to language differences.

Second, the MSCG was reported by several teachers to present a series of discrete mathematical problems as opposed to a sequential instructional process. Because the latter was not the intent of the Guide, the criticism is not serious. However, it might be helpful to teachers to have a summary matrix of the mathematical skills contained within the MSCG in the event that the teacher wished to use the lessons as a reinforcement activity to basic skill development. The matrix could list the basic operations and subskills sequentially and identify those lessons which included practice items for each skill.

Before further publication is undertaken, it would also be advisable to have the Guide reviewed by a consultant from the Mathematics Education Department. This practice could serve as further verification of the Guide and add to the confidence level of dissemination.

In summary, the project staff is to be commended for the completion of a valuable product and for their diligent efforts in conducting the activity.

Objective 2 was: To field-test and revise the program guidelines for the establishment, operation, and evaluation of co-op and mainstream programs for the disadvantaged.

a. Pilot-test by curriculum specialists, administrators, and special educators.

b. Field-test by curriculum specialists, administrators and special educators.

c. Review of the Manual by State Consultants for Disadvantaged and Handicapped.

d. Critical review of the Manual, and modification of it as necessary, in light of the data and comments extracted from the field-test evaluation forms.

e. Third-party review and evaluation by a special needs consultant.

Comments

The project staff is to be commended for developing a manual that has been found to respond to an evident need experienced in the field. The field-test of the Manual indicated that the document provided useful information that would be helpful to administrators in establishing programs and services for disadvantaged students. The document was reported to be well organized and easy to read. A strength of the Manual was found to be the emphasis given within a single manual to the three program options for disadvantaged students.

Although no major weaknesses were reported by the reviewers, several suggestions or comments were given and will be discussed below.

1. Although all sections of the Manual were rated highly, the questions dealing with curriculum tended to be rated slightly lower. It

is possible that the word "curriculum" was equated to materials or to specific course outlines. Since broader use of the word was intended in the Manual, it is not surprising that the ratings are relatively low. However, it might be advantageous to stress the concept that the curriculum for disadvantaged students generally follows the regular curriculum for the vocational program, and that the difference occurs in the additional services and variety of methods used to teach disadvantaged learners. This concept is mentioned in the Mainstream section. It may be helpful to expand this idea and to repeat it in each of the three program sections. Likewise, the reference to Appendix B of the Manual, Techniques, could be repeated in each section.

2. Although the Sources section of the Introduction was given a relatively low rating, a review by this evaluator suggests that the section is comprehensive and no changes are recommended. The confusion in the page numbers on the evaluation form is thought to have contributed to the slightly lower rating.

3. The Teacher Characteristics section described in Appendix C of the Manual was given high ratings. A significant reviewer comment suggested that administrators would have difficulty utilizing this information. Consideration should be given to providing inservice activities for administrators concerning the results of The Pennsylvania State University study and its application to their work with teachers.

4. Several comments were made concerning the use of the term "co-op" as both a program and a method. Clarification of this term would reduce the reader distraction in this section. Further explanation is suggested.

5. Although most reviewers indicated that it was well written and was easy to read, one reviewer suggested that the Manual had "no pizzaz!" Since it is a rather straight-forward document, the comment is probably accurate. It might be advisable to add to the readability of the Manual through the use of graphics and pictures if the budget allows. The suggestion given by one reviewer to discuss exemplary programs might also increase reader interest in the document.

Finally, the project staff is to be commended for their efforts to obtain field-test input from a large number of qualified reviewers. The field-test procedures provided several suggestions for future revisions that will improve the quality of an already well received document. The field-test results have also provided confidence in the document as a usable and practical manual that is needed by administrators in the field.

Objective 3 was: To conduct a series of small group workshops for teachers of disadvantaged students on implementing employability skills, reading skills, and mathematics skills in vocational programs.

a. Feedback from participants

b. Feedback from presenters

c. Review by project staff

d. Third-party review and evaluation by a special needs consultant

Comments

The dissemination methods utilized by the project staff have achieved the project goal. The on-site presentations had the advantage of providing small group interaction concerning the utilization of the curriculum guides. The format allowed for in-depth discussion by participants with

project staff concerning the linkage that exists among the three Guides It is anticipated that this mode of presentation will increase the utilization of the Guides in the intended manner. Two additional benefits of the on-site presentation were considered to be:

(1) the convenience afforded to potential users by offering the presentation at their building location, and

(2) the coordination of university expertise with local inservice needs.

A negative aspect regarding this dissemination method was the small number of teachers in attendance in relation to the project staff effort.

The project staff reported that the dissemination activities increased their personal contacts in the local schools and that these contacts will be helpful in future project activities. Six requests for inservice activities for Fall and Winter, 1981, had been generated from the on-site presentations.

Futhermore, the dissemination methods utilized provide for ongoing access to the Guides. As a result of these strategies, teachers can now locate a Guide in or through the VEIN system, IU director, or AVTS director. The centralization of dissemination should provide continuity to future users. In summary, the project staff is to be commended for the variety of methods used and for their efforts to widely disseminate the project materials.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This project focused on the further expansion of resources and services for teachers of disadvantaged learners. Some outcomes of the undertaking were the field-testing, and the further refining of the Mathematics Skills Curriculum Guide, a supplement to the previously developed Employability Skills Curriculum Guide and Reading Skills Curriculum Guide; the field-testing, and the further refining for publication of the Administrator's Manual for Planning, Developing, and Implementing Mainstream, Self-Contained or Co-Op Programs for the Disadvantaged. The dissemination of both sets of materials and information to vocational educators and administrators, concerned with disadvantaged students was conducted primarily in the Centre Region of Pennsylvania as well as state-wide and nationally.

The number of field-test participants (92) was almost double the estimated number (50) of persons who would field-test the Curriculum Guide. Over 12,250 students participated in these field-test activities. The number of visits made in fulfillment of the third objective (21) was more than double the projected minimum (10) number of small group dissemination exercises.

The ninety-two field-test participants represented seventy-five different locations across the three regions of Pennsylvania (Western 16, Centre 29, Eastern 24) and out-of-state (6), and ninety-six different subject areas. The forty-eight lessons, written for a ninth through twelfth grade population with skill levels in the range third through sixth grade, were used 1262 times, or an average of twenty-four times per lesson. Overall, the evaluation score for the activities ranged between 3.09 (satisfactory) and 4.32

(very good) on a scale of one to five.

Of the forty-seven administrators who agreed to review the Administrators Manual . . . , twenty-six completed and submitted evaluation forms. The manual was reported to respond to a high need in the field, and was considered to be useful in clarifying accountability and services for disadvantaged students.

The following conclusions and recommendations have been prepared eclectically, taking cognizance of the professional input of field-test participant administrators, consultants, program specialists, project staff, and third-party evaluator, all of whom have experience in the field of vocational education for disadvantaged learners.

Conclusions

The excellent evaluation results, positive narrative comments, and participant response rate associated with the field-test of the Mathematics Skills Curriculum Guide (MSCG) indicate that the methodologies and strategies adopted by the project staff were sound and effective, and that the content material was relevant, realistic, stimulating, and appropriately written for the skills levels of and for individualized, small group, or whole class presentation involving the target population.

Three principle negative comments emerged. One of these addressed students' dislike of word (y) problems. While not seeking to turn aside this comment, a mitigating situation will be recognized. The MSCG is a supplement to the previously developed Employability Skills Curriculum Guide (ESCG) and Reading Skills Curriculum Guide (RSCG). However, since the lessons would most likely be presented to the students as single, unrelated activities, it was necessary to build background information into the problems so that they

could be self-contained activities, and so that, in several instances, the problems might better relate to the lesson title.

A second negative comment concerned the difficulty which students experienced with some calculations. Regrettable as this is, it further illustrates and validates the perceptions of the project designers that a notable number of students in prevocational and vocational education programs need to have remedial work in the basic computation skills of addition, subtraction, multiplication, and division. The lessons in the MSCG were written to give students experience in just these basic skills.

The third principal negative comment indicated that, in some instances, the lesson title was misleading. Some lessons did require modification so that they might relate more closely to the respective title. However, as was stated earlier, it was not intended that the MSCG would be used as an isolated unit. It was designed as a supplement to the previously developed ESCG and RSCG, copies of which had been disseminated prior to the implementation of this project. Even though the existence and availability of these earlier guides was confirmed in the letter accompanying the field-test materials (vide Appendix A-6), it became evident that field-test teachers were not entirely cognizant of the interrelationship of the guides. Direct contact was made, by the project staff, with participants who, following explanation, both understood and highly valued the interrelatedness of the materials. The MSCG, and the now-complete set of curriculum guides, is a welcomed contribution in an area of need.

The Administrator's Manual . . . has potential for helping with establishing programs for disadvantaged students. It is a well organized and technically correct document which responds to a high need, and is not

duplicative of other materials in the field. It became evident during the field-test that there is need for nationally accepted definitions of "curriculum" which in the case of disadvantaged students, generally follows the curriculum for the regular vocational program, differences occurring in the additional services and variety of methods used to teach disadvantaged students. Clarification is also required regarding "co-op", whether used in association with a program or a method, and "disadvantaged" which has been differently defined in, for example, CETA. Some "pizzaz" has been introduced to the appearance of the document in its final printed form.

By taking the dissemination presentations to the field, the recipients of the information were better served. The sessions provided the opportunity for small group interaction, in-depth discussions and explanations, together with the convenience to the recipients of these sessions being available at their own or a nearby site. The method of dissemination also engendered for all parties an increased sense of being involved and of awareness of what the others are trying to achieve in their respective areas. As stated in Chapter IV, a negative aspect was the small number of teachers served directly by the dissemination exercises. A step towards overcoming the difficulty of contacting teachers outside of class time would be to dove-tail inservice offerings with programs on teacher inservice days. Requests received from the field for inservicing regarding the curriculum materials indicated that there is a need to which there should be a response, and is a willingness and openness to receive such response.

Recommendations

1. The Mathematics Skills Curriculum Guide, together with the Employability Skills Curriculum Guide and the Reading Skills Curriculum Guide should be disseminated widely, taking account of not only statewide but also national needs of disadvantaged students.
2. Steps should be taken to increase among educators especially educators of the disadvantaged student, awareness of the curriculum materials designed and tested in this and preceding projects.
3. Steps should be taken to increase awareness among prospective users of the curriculum materials that the three Guides are supplementary to each other and that sections, lesson titles, and themes are interrelated.
4. As a means toward implementing increased dissemination of the material and awareness of their availability and interrelatedness, a concerted, coordinated inservice program for educators of disadvantaged students should be planned and implemented.
5. The Administrator's Manual for Planning, Developing, and Implementing Mainstream, Self-Contained or Co-Op Programs for the Disadvantaged should be widely disseminated.
6. Funds should be made available at state and national levels for the successful implementation of the five foregoing recommendations.

Summary Comments and Recommendations of Third-Party Evaluator

An independent review by a third-party evaluator indicated that all objectives had been satisfactorily completed by the project staff. Specific

comments were made by the evaluator within each section. The purpose of this section is to summarize the overall reaction to the project by the third-party evaluator and to make recommendations for future activities.

1. The project staff is to be commended for their recognition of the need to conduct research and developmental activities directed toward the disadvantaged population. The activities conducted in the project address the national concern regarding youth unemployment as well as the social concerns expressed by Governor Richard Thornburgh. Specifically, the project activities related directly to those problems experienced by disadvantaged youth in their search for employment. The need for the project materials was verified by the field-test activities. It is anticipated that successful implementation of the project materials could contribute to increased successful employability of disadvantaged youth participating in vocational education programs.
2. The third-party evaluator has had the opportunity to observe the progression of the project over the past three years. The project director has demonstrated the capacity to manage the project in an effective and efficient manner over the three year period. The quality of the products developed is considered to exceed the normal expectancies of a project for the funded amount of dollars. It is suggested that funds be provided for additional dissemination activities so that a larger number of teachers could be provided with copies of the materials and inservice related to utilization of the materials.

3. Future dissemination activities would benefit from the scheduling of inservice activities throughout the year at times conducive to teacher attendance. Hopefully, the number of teachers could be increased by scheduling activities to correspond to teacher institute days and state conferences.
4. The project staff is to be commended for their excellent documentation of the activities performed, for their organizational skills, and for their attention to detail.
5. The project staff is also to be commended for the frequency of communication with project participants and for establishing links between the university and local school personnel.
6. It is suggested that an impact study be conducted in 1981-82 to determine the number of teachers and the number of students who utilized the materials disseminated during the past three years (Sample impact studies are available from the evaluator).

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APPENDIX A

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

October 24, 1980

Dear

Earlier this year you expressed your willingness to take part in the field-testing of a Math Skills Curriculum Guide. It is planned to mail the test copies of the guide to participants from mid-November and while writing to say this, I invite you to confirm your willingness to be a field test teacher. If you know of another who would be interested to participate in the test, please include their name and school information in your reply.

Thank you.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/sab

Enclosure

Appendix A-2

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

October 24, 1980

Dear Director:

The Division of Occupational and Vocational Studies at The Pennsylvania State University is currently developing a Math Skills Curriculum Guide to supplement our Employability Skills and Reading Skills Curriculum Guides for special needs learners.

Each of the math activities is designed to provide third or fourth grade level students with practice in basic mathematics skills necessary for survival in everyday life. The math guide will reinforce such skills as, balancing a checkbook, planning a budget, using money for daily shopping, and bill-paying, as well as providing practice in basic addition, subtraction, multiplication, and division. Each of the math activities is directly related to the lesson in the Employability Skills and Reading Skills Curriculum Guides. These lessons are also designed for individual, group, or whole-class use.

We are about to finalize preparations for field-testing the Math Skills Curriculum Guide and through you, invite any teacher on your staff who is working with disadvantaged students to participate in the field-testing of these materials. The field-test teacher would be sent a copy of the Math Skills Curriculum Guide from which any 20 lessons may be selected and conducted. We ask that an evaluation form be completed on each lesson taught.

The participation of teachers in the development of these materials is both encouraged and appreciated, and the names of participating field-test teachers will be included in the foreword of the final published copy of the Math Skills Curriculum Guide. Your help in bringing this project to the attention of your faculty is also very much appreciated.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/sab

Enclosures

TEACHERS INTERESTED IN FIELD-TESTING MATH SKILLS CURRICULUM GUIDE 1980/81

		Subjects Taught	Grade Level
Teacher's names:	_____	_____	_____
	_____	_____	_____

School Name: _____

School Address: _____
Street

_____
City State Zip Code

School Phone Number: _____
Area Code

Please return to Peter Irvin, Project Facilitator, (MSCG), Division of Occupational and Vocational Studies, Rackley Building, University Park, PA 16802.

TEACHERS INTERESTED IN FIELD-TESTING MATH SKILLS CURRICULUM GUIDE 1980/81

		Subjects Taught	Grade Level
Teacher's names:	_____	_____	_____
	_____	_____	_____

School Name: _____

School Address: _____
Street

_____
City State Zip Code

School Phone Number: _____
Area Code

Please return to Peter Irvin, Project Facilitator, (MSCG), Division of Occupational and Vocational Studies, Rackley Building, University Park, PA 16802.

VOL. 12, NO. 5
NOV. 3, 1980

Pennsylvania Education

F.Y.I.

Math guide needs help

The Division of Occupational and Vocational Studies at The Pennsylvania State University is currently developing a *Math Skills Curriculum Guide* to supplement their Employability Skills and Reading Skills Curriculum Guides for special needs learners.

Teachers in vocational programs who are working with disadvantaged students and who are interested to participate in field testing the materials for the *Math Skills Curriculum Guide* should make contact by November 20, 1980 with Dr. Jerry Wircenski, Project Director, or Peter Irvin, Project Facilitator, Division of Occupational and Vocational Studies, Rackley Building, University Park, Pa. 16802.

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

January 30, 1981

Dear Colleague:

Mathematics Skills Curriculum Guide (MSCG)

You have been selected as one of our field test teachers. Since our invitation was extended to the field we have been inundated with inquiries, and our preparation schedule has required adjustment. Your own situation may also have changed. If you still wish to participate in this field-test, I ask that you confirm this by return. Please use the enclosed form. The package of materials will be dispatched immediately upon confirmation of your continuing interest.

Briefly, this is what we expect of you:

1. There are 48 Math activities in the package, from which you are asked to select a minimum of 20 that you wish to use with your students. You may use the activities in a one-to-one, a small group, or a large group situation.

2. Plan to implement the activities and have all materials returned to us by April 15, 1981.

3. Your evaluation of the math activity is of greatest importance to us, so we ask that you evaluate each lesson immediately following its use. Your evaluation should include comments, recommendations, and suggested additions, deletions, and other modifications. A (short) standard rating form will be provided and one of these is to be completed for each activity tested, and returned together with the math activity in one of the reply-paid envelopes provided.

If I do not receive your response by Friday, February 6, 1981, I shall assume that you are no longer able to participate. Whatever the case, your interest in this project is most gratifying. Thank you.

Sincerely,

Peter A. Irvin
Project Facilitator

ebs

TO: Peter Irvin
Project Facilitator (MSCG)
Division of Occupational
and Vocational Studies
Rackley Building
University Park, PA 16802

Yes, I am still interested to participate in the MSCG field-test.

Address, telephone, or other changes are: _____

_____

_____

Teacher Name (Please Print) _____

(Thank you for your prompt reply. PAI)

TO: Peter Irvin
Project Facilitator (MSCG)
Division of Occupational
and Vocational Studies
Rackley Building
University Park, PA 16802

Yes, I am still interested to participate in the MSCG field-test.

Address, telephone, or other changes are: _____

_____

_____

Teacher Name (Please Print) _____

(Thank you for your prompt reply. PAI)

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

February 6, 1981

Dear Field-Test Teacher:

Mathematics Skills Curriculum Guide (MSCG)

Thank you, on behalf of the Division of Occupational and Vocational Studies of The Pennsylvania State University, for the extra time and effort you will take in assisting us to field-test the MSCG.

In the black binder you will find: 1) 20 evaluation forms, 2) 2 Activities Rejected forms, 3) 20 reply-paid and addressed envelopes for the return of the evaluation form and the evaluated activity you chose to test, 4) 48 math activities.

As a reminder, this is what we expect of you:

1. Of the 48 Math activities in the package, select a minimum of 20 that you wish to use with your students. You may use the activities in a one-to-one, a small group, or a large group situation.

2. Plan to implement the activities and have all materials returned to us by April 15, 1981.

3. Evaluate each lesson immediately following its use. Include comments, recommendations, and suggested additions, deletions, and other modifications. Complete one activity evaluation form for each activity tested, and return it, together with the math activity, in one of the reply-paid envelopes provided.

The Mathematics Skills Curriculum Guide constitutes the third part of a three-part approach to the teaching of employability skills to disadvantaged students. The first part of this approach was the Employability Skills Curriculum Guide (ESCG), the second was the Reading Skills Curriculum Guide (RSCG), each guide consisting of forty-eight lessons dealing with important skills for success on the job and in society. The guides were field-tested in 1979 and 1980 respectively and have been printed. A master copy of the ESCG is on file with your principal/director should you wish to examine it.

If you have any further questions or concerns, please feel free to contact me at 814-865-8361.

Again, thank you.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/ebs

MATHEMATICS SKILLS CURRICULUM GUIDE

ACTIVITY EVALUATION FORM

Teacher Name _____ Grade level of students _____

School Name _____ Ability level of students _____

Number of students _____

Class/Course title _____

Math Activity Number ☐

		Very Poor	Require(s) Modification	Satisfactory	Good	Very Good	COMMENTS (especially if rated less than satisfactory)
A	Interest level of activity content/topic						
B	Clarity of questions						
C	Clarity of requirements						
D	Difficulty of the activity						
E	Relationship to 'world of work'						
F	Ease of application to 'world of work'						
G	As a stimulant toward class discussion						
H	Overall evaluation of activity						

I Aspect most attractive to students _____

J Aspect most disliked by students _____

COMMENTS

K Overall Comments (continue on the other side if desired)

Please return this form ATTACHED TO THE MATH ACTIVITY, immediately after testing, in one of the reply-paid envelopes provided.

Thank you for your considered, professional response. You will be contacted. PAI.

Appendix A-8

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

MATHEMATICS SKILLS CURRICULUM GUIDE

TO: Peter Irvin
Project Facilitator (MSCG)
Division of Occupational
and Vocational Studies
Rackley Building
University Park, PA 16802

FROM: Teacher _____

School _____

_____

I have rejected from my field-test the following math activities:

ACTIVITY #	REASON FOR REJECTION (Briefly stated)

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

February 9, 1981

Dear Principal/Director:

Certain teachers in your school are working on a field-test activity for the Division of Occupational and Vocational Studies of The Pennsylvania State University involving the Mathematics Skills Curriculum Guide. In order to better implement and evaluate this guide, they may wish to refer to the Employability Skills Curriculum Guide which has been sent you. We ask that you keep this copy on file so these teachers may refer to it as necessary.

Your continuing cooperation and interest is appreciated.

Sincerely,

Peter A. Irvin
Project Facilitator

Participating teachers from your school:

_____

_____

_____

_____

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

March 13, 1981

Dear Field-Test Teacher:

By now you should have received all the materials you need to complete your field-test of the Mathematics Skills Curriculum Guide (MSCG). If you have not received the package, please let me know immediately.

It may be helpful to you if I clarify some points which some of your colleagues have raised, or which arise from evaluation forms which I have received.

Activities Rejected Form This sheet (two were located behind the letter in the package of materials) gives you the opportunity to let us know which activities you have rejected outright from your field-test, and why. For example, you may consider some activity/ies to be not appropriate for your subject area. Alternatively, they may be too difficult/easy for your particular students. Whatever your reason, let me know which activities you have positively rejected, and why.

Evaluation Form In providing the information "Grade level of students" and "Ability level of students," please use the numeric references (e.g. 9; 4.6) wherever possible. The use of words like "Trainable; Good," lack detail and can lead to your work and the evaluation being rejected from our final revisions.

Math Activity pages may be xeroxed for the purpose of your field-test activity.

Field-Testing of a selected activity may reveal a question which is confusing, or phrasing which is misleading to your students. Suggested corrections to these and other "errors" should be made on the pages of the activity being tested and these annotated sheets should be returned with the evaluation form for that activity. It is not necessary to send me the work sheets of each student.

May I remind you that the target date for the completion of all testing activity is April 15. As a check for your records, I have received ___ of 20 activity evaluations from you to date. I have not received your Activities Rejected Form.

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

DATE: April 13, 1981

TO: Selected Field-Test Teachers

FROM: Peter Irvin, Project Facilitator PAI

RE: Field-Test; Mathematics Skills Curriculum Guide (MSCG)

With all returns received by Friday, April 10, now entered, my records show no response from you to date. I regret that you have not been able to follow through with the field-test, and I am sure you will be disappointed not to be able to receive a complimentary copy of the finalized Mathematics Skills Curriculum Guide when it is printed and of the companion Reading Skills Curriculum Guide (RSCG). However, changing circumstances may have prevented you from undertaking the task. All materials you received to complete the field-test should be returned to me at this office by April 30 so that the analysis of data can be completed.

If you have partially completed the test and feel you need an extension of time, please contact me personally at 814-865-8361.

Thank you for your initial interest.

PAI/sab

Thank you for your professional input to this venture.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/ebs

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 22, 1981

Dear Field-Test Teacher:

Thank you for testing and evaluating at least twenty activities in the Mathematics Skills Curriculum Guide. An overall evaluation form, a release form, and a checklist of activities completed are being sent to you under separate cover for your completion and return.

In the meantime, I ask that you accept this copy of the Reading Skills Curriculum Guide, with our compliments.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/sab

Appendix A-13

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 29, 1981

To: Field-Test Teachers:

A complimentary copy of the Reading Skills Curriculum Guide is being mailed under separate cover to each field-test teacher as they complete testing at least twenty of the Mathematics Skills Curriculum Guide field-test activities.

If you still have completed evaluations to submit, please do this without delay. If, for reasons beyond your control, you have not yet completed testing but wish to complete the agreed task, please contact me immediately. All unused materials ought to be returned to me as soon as possible.

Enclosed are two Release Forms, two Checklists, and an Overall Field-Test Evaluation Form. When composing your comments you might include reference to whether or not the students helped in the evaluation, or indeed completed the evaluation of individual math activities.

Please make every effort to have completed forms and materials to me by May 15. Forms received after that date may not be included in the final analysis of data and composition of the Final Report. I stress the importance of sending us your completed and signed Release Form without which we may not finish the dissemination of the revised Mathematics Skills Curriculum Guide.

A word of "Thanks" to each of you. In general the response has been excellent, the comments informative, constructive, considered, and professional. A copy of the revised Mathematics Skills Curriculum Guide will be sent to teachers when it is printed, which will be this summer. Be sure to help us in this by sending me your Release Form, and the address to which the Guide is to be sent if this is different from your present mailing address.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/sab

Enclosures

MATHEMATICS SKILLS CURRICULUM GUIDE
OVERALL FIELD-TEST EVALUATION FORM

Teacher Name _____

School Name _____

_____

Grade level/range of students: _____

Achievement level/range of students: grade(s) _____

Average number of students participating in field-testing activities: _____

Class/Course title(s): _____

		Very Poor	Require(s) Modification	Satisfactory	Good	Very Good	COMMENTS (especially if rated less than satisfactory)
A	Interest levels of activities content/topic						
B	Clarity of questions						
C	Clarity of requirements						
D	Difficulty of the activities						
E	Relationship to 'world of work'						
F	Ease of application to 'world of work'						
G	As a stimulant toward class discussion						
H	Overall evaluation of field-test activities						

I Aspects most attractive to students _____

J Aspects most disliked by students _____

Comments

K Overall Comments (continue on the other side if desired)

Positive:

Negative:

Thank you for your considered, professional response. PAI.

Your signature: _____

Today's date: _____

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

MATHEMATICS SKILLS CURRICULUM GUIDE

FIELD-TEST ACTIVITIES

SUMMARY CHECKLIST

A. To be completed by Project Office:

1. Number of Activity Evaluations received. _____
2. Number still required to complete the field-test. _____

B. To be completed by Field-Test Teacher:	Yes	Date
3. All testing is now completed.	____	____
4. All completed Activity Evaluation/Rejection Forms now returned.	____	____
5. All remaining unused materials now returned.	____	____
6. Overall Field-Test Evaluation Form completed and returned.	____	____
7. Release form completed, signed, and returned.	____	____

Signature _____ Name _____
(please print/type)

Date _____

Please retain one copy of this form for your file, and return the other copy, duly completed, as soon as possible to:

Dr. Jerry L. Wircenski, Project Director
Division of Occupational and
Vocational Studies
110 Rackley Building
The Pennsylvania State University
University Park, PA 16802

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

MATHEMATICS SKILLS CURRICULUM GUIDE

RELEASE FORM

I, the undersigned, hereby release to The Pennsylvania State University all title and claim to any ideas, comments, suggestions, works submitted by me for or concerning the Mathematics Skills Curriculum Guide whether at the stage of composition, or field-testing, or revision, or final drafting for printing and publication.

Signature _____ Name _____
(please print/type)

Date _____ Position _____

Organization _____

_____

Please retain one copy of this form for your file, and return the other copy, duly completed, as soon as possible to:

Dr. Jerry Wircenski, Project Director
Division of Occupational and Vocational Studies
110 Rackley Building
The Pennsylvania State University
University Park, PA 16802

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

March 16, 1981

Dear Colleague:

Thank you for expressing an interest in field testing the Mathematics Skills Curriculum Guide (MSCG). I regret that your response was received too late for your name to be included among the final list of participants. Nonetheless, your response was reassuring and welcome.

If you have any inquiries regarding the MSCG, or would like to know when it is in final form, I will be happy to hear from you.

Sincerely,

Peter A. Irvin
Project Facilitator

PAI/ebs

MATHEMATICS SKILLS CURRICULUM GUIDE

SUBJECT/SERVICE AREAS REPRESENTED

By Field-Test Participants

Developmental/Remedial	
Math	16
Math Skills	3
Math, Consumer	1
Math, Developmental	1
Math, Title I	2
Math, Career/Vocational	3
Math, Technical and Remedial	1
Math, Remedial	7
Math, Remedial and Reading	1
Math and Reading, Voc. Ed.	1
Math and Reading	3
	39

Occupational Related Class/Co-Op	
Diversified Occupations	3
Employment Orientation	1
Occupational Education	1
OWA/OWE/Co-Op	6
Practical Living Skills	1
Work Theory	1
	13

Special Education	
Disturbed, Emotionally	1
Disturbed, Socially and Emotionally	1
EMR/TMR	5
Special Education	5
	12

Industrial Occupations	
Appliance Repair, Refrigeration	1
Auto Shop	1
Building Services	1
Building Trades	2
Construction Trades	1
Drafting	1
Electrical Occupations	1
Welding	1
	9

Business, Management, Marketing	
Distributive Education	1
Food Services	1
Hotel/Motel	1
Math, Business	1
Warehouse Management	1
	5

Appendix A-18 (2)

SUBJECT/SERVICE AREAS REPRESENTED (contd)

Occupational Home Economics	1
Horticulture	1
Administrators	
Administrator	1
Supervisor, Instructional	1
Supervisor, Special Education	1
	3
Other Service Areas	
ABE/GED	1
All Subjects	5
Basic Skills	1
Disadvantaged Students	1
Facilitator	2
Reading	1
Special Needs	1
Vocational/Academic Counselor	1
	13

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
ACTIVITY NUMBER.=01						
INTEREST LEVEL OF THE ACTIVITY.	32	3.44	0.84	2.00	5.00	0.15
CLARITY OF QUESTIONS.	32	3.53	1.08	1.00	5.00	0.19
CLARITY OF REQUIREMENTS.	32	3.66	0.94	2.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	32	3.50	0.95	1.00	5.00	0.17
RELATIONSHIP TO WORK.	32	3.91	1.12	2.00	6.00	0.20
EASE OF APPLICATION TO WORK.	32	3.88	1.04	2.00	5.00	0.18
AS STIMULANT TO CLASS DISCUSSION.	29	3.76	1.12	1.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	32	3.63	0.87	2.00	5.00	0.15
ACTIVITY NUMBER.=02						
INTEREST LEVEL OF THE ACTIVITY.	43	4.05	0.75	3.00	5.00	0.12
CLARITY OF QUESTIONS.	43	3.74	0.98	1.00	5.00	0.15
CLARITY OF REQUIREMENTS.	43	3.81	0.88	1.00	5.00	0.13
DIFFICULTY OF THE ACTIVITY.	42	3.55	0.94	1.00	5.00	0.15
RELATIONSHIP TO WORK.	43	4.37	0.69	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	43	4.37	0.66	3.00	5.00	0.10
AS STIMULANT TO CLASS DISCUSSION.	41	4.00	0.95	1.00	5.00	0.15
OVERALL EVALUATION OF ACTIVITY	43	4.14	0.77	1.00	5.00	0.12
ACTIVITY NUMBER.=03						
INTEREST LEVEL OF THE ACTIVITY.	36	3.89	1.04	1.00	5.00	0.17
CLARITY OF QUESTIONS.	36	4.08	1.00	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	36	4.03	0.91	2.00	5.00	0.15
DIFFICULTY OF THE ACTIVITY.	33	3.79	0.99	1.00	5.00	0.17
RELATIONSHIP TO WORK.	36	4.42	0.73	3.00	5.00	0.12
EASE OF APPLICATION TO WORK.	35	4.34	0.76	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	33	3.88	1.11	1.00	5.00	0.19
OVERALL EVALUATION OF ACTIVITY	36	4.00	0.99	1.00	5.00	0.16
ACTIVITY NUMBER.=04						
INTEREST LEVEL OF THE ACTIVITY.	33	4.18	0.77	3.00	5.00	0.13
CLARITY OF QUESTIONS.	33	3.67	1.05	2.00	5.00	0.18
CLARITY OF REQUIREMENTS.	33	3.88	0.86	2.00	5.00	0.15
DIFFICULTY OF THE ACTIVITY.	32	3.84	0.85	2.00	5.00	0.15
RELATIONSHIP TO WORK.	33	4.42	0.75	3.00	5.00	0.13
EASE OF APPLICATION TO WORK.	33	4.27	0.72	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	32	4.38	0.75	3.00	5.00	0.13
OVERALL EVALUATION OF ACTIVITY	32	4.06	0.72	3.00	5.00	0.13
ACTIVITY NUMBER.=05						
INTEREST LEVEL OF THE ACTIVITY.	25	3.60	0.82	1.00	5.00	0.16
CLARITY OF QUESTIONS.	25	4.24	0.60	3.00	5.00	0.12
CLARITY OF REQUIREMENTS.	25	4.16	0.62	3.00	5.00	0.12
DIFFICULTY OF THE ACTIVITY.	25	4.04	0.68	3.00	5.00	0.14
RELATIONSHIP TO WORK.	25	4.04	0.68	3.00	5.00	0.14
EASE OF APPLICATION TO WORK.	24	3.88	0.90	1.00	5.00	0.18
AS STIMULANT TO CLASS DISCUSSION.	25	3.60	1.04	1.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	25	3.98	0.60	3.00	5.00	0.12

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
ACTIVITY NUMBER.=06						
INTEREST LEVEL OF THE ACTIVITY.	18	3.61	0.61	3.00	5.00	0.14
CLARITY OF QUESTIONS.	18	4.00	0.91	2.00	5.00	0.21
CLARITY OF REQUIREMENTS.	18	4.17	0.79	3.00	5.00	0.19
DIFFICULTY OF THE ACTIVITY.	18	3.39	1.24	1.00	5.00	0.29
RELATIONSHIP TO WORK.	18	3.99	0.76	2.00	5.00	0.18
EASE OF APPLICATION TO WORK.	16	4.00	0.42	3.00	5.00	0.10
AS STIMULANT TO CLASS DISCUSSION.	17	3.24	1.03	1.00	5.00	0.25
OVERALL EVALUATION OF ACTIVITY	18	3.72	1.07	1.00	5.00	0.25
ACTIVITY NUMBER.=07						
INTEREST LEVEL OF THE ACTIVITY.	27	4.15	0.77	2.00	5.00	0.15
CLARITY OF QUESTIONS.	27	4.22	0.85	2.00	5.00	0.16
CLARITY OF REQUIREMENTS.	27	4.19	0.68	3.00	5.00	0.13
DIFFICULTY OF THE ACTIVITY.	26	4.00	1.13	1.00	5.00	0.22
RELATIONSHIP TO WORK.	27	4.44	0.89	1.00	5.00	0.17
EASE OF APPLICATION TO WORK.	27	4.22	0.89	1.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	25	3.84	0.90	1.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	27	4.11	0.75	2.00	5.00	0.14
ACTIVITY NUMBER.=08						
INTEREST LEVEL OF THE ACTIVITY.	20	3.90	0.79	3.00	5.00	0.18
CLARITY OF QUESTIONS.	20	3.75	0.72	2.00	5.00	0.16
CLARITY OF REQUIREMENTS.	20	3.75	0.72	2.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	20	3.60	0.75	3.00	5.00	0.17
RELATIONSHIP TO WORK.	20	3.55	1.00	2.00	5.00	0.22
EASE OF APPLICATION TO WORK.	20	3.55	1.05	2.00	5.00	0.23
AS STIMULANT TO CLASS DISCUSSION.	19	3.63	1.21	1.00	5.00	0.28
OVERALL EVALUATION OF ACTIVITY	20	3.55	1.10	1.00	5.00	0.25
ACTIVITY NUMBER.=09						
INTEREST LEVEL OF THE ACTIVITY.	30	4.03	0.72	3.00	5.00	0.13
CLARITY OF QUESTIONS.	30	4.07	0.83	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	30	4.03	0.67	2.00	5.00	0.12
DIFFICULTY OF THE ACTIVITY.	30	4.00	0.64	3.00	5.00	0.12
RELATIONSHIP TO WORK.	30	4.43	0.63	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	30	4.33	0.61	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	30	4.03	0.96	1.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	30	4.17	0.59	3.00	5.00	0.11
ACTIVITY NUMBER.=10						
INTEREST LEVEL OF THE ACTIVITY.	19	3.84	0.83	2.00	5.00	0.19
CLARITY OF QUESTIONS.	19	3.37	1.01	2.00	5.00	0.23
CLARITY OF REQUIREMENTS.	19	3.74	0.81	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	19	4.00	0.75	3.00	5.00	0.17
RELATIONSHIP TO WORK.	19	3.74	0.99	1.00	5.00	0.23
EASE OF APPLICATION TO WORK.	19	3.68	1.06	1.00	5.00	0.24
AS STIMULANT TO CLASS DISCUSSION.	19	3.74	0.93	2.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	19	3.68	0.82	2.00	5.00	0.19

STATISTICAL ANALYSIS OF VARIABLES

ACTIVITY NUMBER.=11

LABEL		MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	23	4.09	0.67	3.00	5.00	0.14
CLARITY OF QUESTIONS.	23	3.61	1.03	2.00	5.00	0.22
CLARITY OF REQUIREMENTS.	22	3.95	0.79	3.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	23	4.00	1.00	2.00	5.00	0.21
RELATIONSHIP TO WORK.	24	3.88	0.85	2.00	5.00	0.17
EASE OF APPLICATION TO WORK.	24	3.92	0.78	3.00	5.00	0.16
AS STIMULANT TO CLASS DISCUSSION.	23	3.87	0.92	2.00	5.00	0.19
OVERALL EVALUATION OF ACTIVITY	23	3.96	0.71	3.00	5.00	0.15

ACTIVITY NUMBER.=12

INTEREST LEVEL OF THE ACTIVITY.	33	3.79	0.78	2.00	5.00	0.14
CLARITY OF QUESTIONS.	33	3.86	0.86	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	33	3.97	0.64	3.00	5.00	0.11
DIFFICULTY OF THE ACTIVITY.	33	3.48	0.97	1.00	5.00	0.17
RELATIONSHIP TO WORK.	33	3.97	0.92	2.00	5.00	0.16
EASE OF APPLICATION TO WORK.	32	4.00	0.80	3.00	5.00	0.14
AS STIMULANT TO CLASS DISCUSSION.	31	3.32	1.17	1.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	33	3.85	0.67	3.00	5.00	0.12

ACTIVITY NUMBER.=13

INTEREST LEVEL OF THE ACTIVITY.	35	3.91	0.85	2.00	5.00	0.14
CLARITY OF QUESTIONS.	35	3.89	0.76	2.00	5.00	0.13
CLARITY OF REQUIREMENTS.	34	4.00	0.70	2.00	5.00	0.12
DIFFICULTY OF THE ACTIVITY.	33	3.85	0.80	2.00	5.00	0.14
RELATIONSHIP TO WORK.	35	4.00	0.80	2.00	5.00	0.14
EASE OF APPLICATION TO WORK.	35	4.09	0.82	2.00	5.00	0.14
AS STIMULANT TO CLASS DISCUSSION.	32	4.06	0.91	2.00	5.00	0.16
OVERALL EVALUATION OF ACTIVITY	35	4.03	0.79	2.00	5.00	0.13

ACTIVITY NUMBER.=14

INTEREST LEVEL OF THE ACTIVITY.	11	2.91	1.38	1.00	5.00	0.41
CLARITY OF QUESTIONS.	11	3.73	0.65	3.00	5.00	0.19
CLARITY OF REQUIREMENTS.	11	3.64	0.81	2.00	5.00	0.24
DIFFICULTY OF THE ACTIVITY.	11	3.45	1.21	2.00	5.00	0.37
RELATIONSHIP TO WORK.	11	3.09	1.22	1.00	5.00	0.37
EASE OF APPLICATION TO WORK.	11	3.18	1.25	1.00	5.00	0.38
AS STIMULANT TO CLASS DISCUSSION.	10	3.30	1.25	1.00	5.00	0.40
OVERALL EVALUATION OF ACTIVITY	11	3.09	1.04	1.00	5.00	0.31

ACTIVITY NUMBER.=15

INTEREST LEVEL OF THE ACTIVITY.	39	4.18	0.72	3.00	5.00	0.12
CLARITY OF QUESTIONS.	38	4.16	0.75	2.00	5.00	0.12
CLARITY OF REQUIREMENTS.	39	4.26	0.72	2.00	5.00	0.11
DIFFICULTY OF THE ACTIVITY.	37	3.68	1.06	1.00	5.00	0.17
RELATIONSHIP TO WORK.	39	4.41	0.72	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	39	4.31	0.73	3.00	5.00	0.12
AS STIMULANT TO CLASS DISCUSSION.	39	3.85	1.06	1.00	5.00	0.17
OVERALL EVALUATION OF ACTIVITY	38	4.21	0.70	3.00	5.00	0.11

STATISTICAL ANALYSIS OF VARIABLES
ACTIVITY NUMBER.=16

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	17	4.06	0.75	3.00	5.00	0.18
CLARITY OF QUESTIONS.	17	4.00	0.94	2.00	5.00	0.23
CLARITY OF REQUIREMENTS.	17	3.88	0.86	2.00	5.00	0.21
DIFFICULTY OF THE ACTIVITY.	17	3.76	0.66	3.00	5.00	0.16
RELATIONSHIP TO WORK.	17	4.29	0.69	3.00	5.00	0.17
EASE OF APPLICATION TO WORK.	16	4.25	0.77	3.00	5.00	0.19
AS STIMULANT TO CLASS DISCUSSION.	16	3.81	1.05	1.00	5.00	0.26
OVERALL EVALUATION OF ACTIVITY	17	4.00	0.71	3.00	5.00	0.17
ACTIVITY NUMBER.=17A						
INTEREST LEVEL OF THE ACTIVITY.	29	3.76	0.79	2.00	5.00	0.15
CLARITY OF QUESTIONS.	29	2.93	1.00	1.00	5.00	0.19
CLARITY OF REQUIREMENTS.	28	2.96	1.04	1.00	5.00	0.20
DIFFICULTY OF THE ACTIVITY.	29	3.59	0.73	2.00	5.00	0.14
RELATIONSHIP TO WORK.	29	4.28	0.88	2.00	5.00	0.16
EASE OF APPLICATION TO WORK.	29	4.17	0.85	2.00	5.00	0.16
AS STIPULANT TO CLASS DISCUSSION.	29	3.86	0.69	3.00	5.00	0.13
OVERALL EVALUATION OF ACTIVITY	29	3.66	0.86	2.00	5.00	0.16
ACTIVITY NUMBER.=17B						
INTEREST LEVEL OF THE ACTIVITY.	30	3.87	0.78	2.00	5.00	0.14
CLARITY OF QUESTIONS.	30	3.87	0.94	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	30	3.77	0.94	2.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	30	3.80	0.76	2.00	5.00	0.14
RELATIONSHIP TO WORK.	30	4.20	0.71	3.00	5.00	0.13
EASE OF APPLICATION TO WORK.	30	4.23	0.73	3.00	5.00	0.13
AS STIPULANT TO CLASS DISCUSSION.	30	4.07	0.87	2.00	5.00	0.16
OVERALL EVALUATION OF ACTIVITY	30	4.03	0.61	3.00	5.00	0.11
ACTIVITY NUMBER.=18A						
INTEREST LEVEL OF THE ACTIVITY.	23	3.61	0.94	1.00	5.00	0.20
CLARITY OF QUESTIONS.	24	3.29	1.12	1.00	5.00	0.23
CLARITY OF REQUIREMENTS.	24	3.42	1.25	1.00	5.00	0.25
DIFFICULTY OF THE ACTIVITY.	21	3.81	0.75	2.00	5.00	0.16
RELATIONSHIP TO WORK.	23	3.91	0.95	1.00	5.00	0.20
EASE OF APPLICATION TO WORK.	23	3.91	1.12	1.00	5.00	0.23
AS STIPULANT TO CLASS DISCUSSION.	23	4.13	0.81	2.00	5.00	0.17
OVERALL EVALUATION OF ACTIVITY	23	3.61	1.03	1.00	5.00	0.22
ACTIVITY NUMBER.=18B						
INTEREST LEVEL OF THE ACTIVITY.	31	4.03	0.60	3.00	5.00	0.11
CLARITY OF QUESTIONS.	31	4.06	0.77	2.00	5.00	0.14
CLARITY OF REQUIREMENTS.	31	4.26	0.68	2.00	5.00	0.12
DIFFICULTY OF THE ACTIVITY.	30	3.97	0.72	3.00	5.00	0.13
RELATIONSHIP TO WORK.	31	4.26	0.86	1.00	5.00	0.15
EASE OF APPLICATION TO WORK.	31	4.19	0.91	1.00	5.00	0.16
AS STIMULANT TO CLASS DISCUSSION.	30	4.23	0.73	3.00	5.00	0.13
OVERALL EVALUATION OF ACTIVITY	31	4.03	0.80	2.00	5.00	0.14

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	22	4.05	0.95	1.00	5.00	0.20
CLARITY OF QUESTIONS.	22	4.23	0.97	1.00	5.00	0.21
CLARITY OF REQUIREMENTS.	22	4.23	0.92	1.00	5.00	0.20
DIFFICULTY OF THE ACTIVITY.	22	3.86	1.04	1.00	5.00	0.22
RELATIONSHIP TO WORK.	22	4.09	0.97	1.00	5.00	0.21
EASE OF APPLICATION TO WORK.	22	4.09	0.92	1.00	5.00	0.20
AS STIMULANT TO CLASS DISCUSSION.	21	3.67	1.11	1.00	5.00	0.24
OVERALL EVALUATION OF ACTIVITY	22	4.09	0.92	1.00	5.00	0.20
ACTIVITY NUMBER.=20A						
INTEREST LEVEL OF THE ACTIVITY.	30	4.03	0.72	3.00	5.00	0.13
CLARITY OF QUESTIONS.	29	3.93	0.84	2.00	5.00	0.16
CLARITY OF REQUIREMENTS.	29	3.90	0.90	2.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	29	3.93	0.80	3.00	5.00	0.15
RELATIONSHIP TO WORK.	30	4.57	0.57	3.00	5.00	0.10
EASE OF APPLICATION TO WORK.	29	4.52	0.57	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	29	4.07	0.75	3.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY.	28	4.32	0.55	3.00	5.00	0.10
ACTIVITY NUMBER.=20B						
INTEREST LEVEL OF THE ACTIVITY.	27	4.07	0.68	3.00	5.00	0.13
CLARITY OF QUESTIONS.	25	4.00	0.87	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	26	4.08	0.93	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	27	4.11	0.75	3.00	5.00	0.14
RELATIONSHIP TO WORK.	27	4.63	0.56	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	26	4.62	0.57	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	27	4.07	0.78	3.00	5.00	0.15
OVERALL EVALUATION OF ACTIVITY	26	4.27	0.60	3.00	5.00	0.12
ACTIVITY NUMBER.=21A						
INTEREST LEVEL OF THE ACTIVITY.	18	3.83	0.71	3.00	5.00	0.17
CLARITY OF QUESTIONS.	18	3.56	0.92	2.00	5.00	0.22
CLARITY OF REQUIREMENTS.	18	3.67	0.97	2.00	5.00	0.23
DIFFICULTY OF THE ACTIVITY.	17	3.53	0.94	2.00	5.00	0.23
RELATIONSHIP TO WORK.	18	4.33	0.49	4.00	5.00	0.11
EASE OF APPLICATION TO WORK.	18	4.17	0.71	3.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	18	3.78	0.73	2.00	5.00	0.17
OVERALL EVALUATION OF ACTIVITY.	18	3.94	0.64	3.00	5.00	0.15
ACTIVITY NUMBER.=21B						
INTEREST LEVEL OF THE ACTIVITY.	27	3.96	0.71	2.00	5.00	0.14
CLARITY OF QUESTIONS.	27	3.78	0.97	2.00	5.00	0.19
CLARITY OF REQUIREMENTS.	27	3.78	0.85	2.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	26	3.65	0.69	2.00	5.00	0.14
RELATIONSHIP TO WORK.	27	4.19	0.62	3.00	5.00	0.12
EASE OF APPLICATION TO WORK.	27	4.00	0.68	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	27	3.74	0.71	2.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	27	3.89	0.51	3.00	5.00	0.10

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
ACTIVITY NUMBER.=22						
INTEREST LEVEL OF THE ACTIVITY.	29	3.76	0.83	2.00	5.00	0.15
CLARITY OF QUESTIONS.	29	4.21	0.73	2.00	5.00	0.13
CLARITY OF REQUIREMENTS.	29	4.17	0.71	2.00	5.00	0.13
DIFFICULTY OF THE ACTIVITY.	28	3.68	0.90	2.00	5.00	0.17
RELATIONSHIP TO WORK.	29	4.17	0.85	2.00	5.00	0.16
EASE OF APPLICATION TO WORK.	29	4.10	0.90	2.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	29	3.90	0.90	2.00	5.00	0.17
OVERALL EVALUATION OF ACTIVITY	29	3.86	0.83	2.00	5.00	0.15
ACTIVITY NUMBER.=23						
INTEREST LEVEL OF THE ACTIVITY.	32	4.06	0.91	2.00	5.00	0.16
CLARITY OF QUESTIONS.	32	4.13	0.66	3.00	5.00	0.12
CLARITY OF REQUIREMENTS.	32	4.25	0.72	3.00	5.00	0.13
DIFFICULTY OF THE ACTIVITY.	30	3.57	0.90	1.00	5.00	0.16
RELATIONSHIP TO WORK.	32	3.72	1.08	1.00	5.00	0.19
EASE OF APPLICATION TO WORK.	31	3.84	1.04	1.00	5.00	0.19
AS STIMULANT TO CLASS DISCUSSION.	32	4.22	0.79	3.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	32	3.91	0.89	2.00	5.00	0.16
ACTIVITY NUMBER.=24						
INTEREST LEVEL OF THE ACTIVITY.	20	4.00	0.73	2.00	5.00	0.16
CLARITY OF QUESTIONS.	19	4.00	0.58	3.00	5.00	0.13
CLARITY OF REQUIREMENTS.	19	3.84	0.83	2.00	5.00	0.19
DIFFICULTY OF THE ACTIVITY.	20	4.00	0.65	3.00	5.00	0.15
RELATIONSHIP TO WORK.	20	4.30	0.66	3.00	5.00	0.15
EASE OF APPLICATION TO WORK.	20	4.30	0.66	3.00	5.00	0.15
AS STIMULANT TO CLASS DISCUSSION.	20	3.95	0.89	2.00	5.00	0.20
OVERALL EVALUATION OF ACTIVITY	20	4.15	0.59	3.00	5.00	0.13
ACTIVITY NUMBER.=25						
INTEREST LEVEL OF THE ACTIVITY.	36	4.00	0.72	3.00	5.00	0.12
CLARITY OF QUESTIONS.	36	3.89	0.85	2.00	5.00	0.14
CLARITY OF REQUIREMENTS.	36	3.89	0.82	2.00	5.00	0.14
DIFFICULTY OF THE ACTIVITY.	35	3.71	0.86	2.00	5.00	0.15
RELATIONSHIP TO WORK.	36	4.53	0.65	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	34	4.35	0.73	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	36	4.00	0.83	2.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	36	4.00	0.63	3.00	5.00	0.11
ACTIVITY NUMBER.=26						
INTEREST LEVEL OF THE ACTIVITY.	23	3.91	0.79	2.00	5.00	0.17
CLARITY OF QUESTIONS.	22	3.86	0.74	3.00	5.00	0.15
CLARITY OF REQUIREMENTS.	23	3.83	0.78	2.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	22	3.68	0.72	2.00	5.00	0.15
RELATIONSHIP TO WORK.	22	3.50	0.96	1.00	5.00	0.21
EASE OF APPLICATION TO WORK.	21	3.76	0.70	3.00	5.00	0.15
AS STIMULANT TO CLASS DISCUSSION.	22	3.45	1.06	1.00	5.00	0.23
OVERALL EVALUATION OF ACTIVITY	22	3.77	0.69	2.00	5.00	0.15

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
ACTIVITY NUMBER.=27						
INTEREST LEVEL OF THE ACTIVITY.	23	4.04	0.71	3.00	5.00	0.15
CLARITY OF QUESTIONS.	23	4.22	0.74	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	23	4.17	0.76	2.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	20	3.95	0.69	2.00	5.00	0.15
RELATIONSHIP TO WORK.	22	4.27	0.77	3.00	5.00	0.16
EASE OF APPLICATION TO WORK.	23	4.13	0.87	2.00	5.00	0.18
AS STIMULANT TO CLASS DISCUSSION.	23	4.00	0.85	3.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	22	4.09	0.75	3.00	5.00	0.16
ACTIVITY NUMBER.=28						
INTEREST LEVEL OF THE ACTIVITY.	27	3.67	1.07	1.00	5.00	0.21
CLARITY OF QUESTIONS.	27	3.44	1.22	1.00	5.00	0.23
CLARITY OF REQUIREMENTS.	27	3.63	1.11	1.00	5.00	0.21
DIFFICULTY OF THE ACTIVITY.	25	3.56	1.08	2.00	5.00	0.22
RELATIONSHIP TO WORK.	27	3.93	0.92	1.00	5.00	0.18
EASE OF APPLICATION TO WORK.	26	3.92	0.89	1.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	27	3.67	0.96	1.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	27	3.74	0.94	2.00	5.00	0.18
ACTIVITY NUMBER.=29						
INTEREST LEVEL OF THE ACTIVITY.	21	3.67	0.86	2.00	5.00	0.19
CLARITY OF QUESTIONS.	21	3.90	0.77	3.00	5.00	0.17
CLARITY OF REQUIREMENTS.	21	3.86	0.91	2.00	5.00	0.20
DIFFICULTY OF THE ACTIVITY.	21	3.67	0.86	2.00	5.00	0.19
RELATIONSHIP TO WORK.	21	3.90	0.70	3.00	5.00	0.15
EASE OF APPLICATION TO WORK.	20	3.80	0.70	3.00	5.00	0.16
AS STIMULANT TO CLASS DISCUSSION.	21	3.67	0.97	2.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	21	3.76	0.77	2.00	5.00	0.17
ACTIVITY NUMBER.=30						
INTEREST LEVEL OF THE ACTIVITY.	34	4.18	0.76	3.00	5.00	0.13
CLARITY OF QUESTIONS.	34	3.79	1.12	1.00	5.00	0.19
CLARITY OF REQUIREMENTS.	34	3.91	1.06	1.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	32	3.81	1.12	1.00	5.00	0.20
RELATIONSHIP TO WORK.	34	4.50	0.66	3.00	5.00	0.11
EASE OF APPLICATION TO WORK.	34	4.47	0.71	3.00	5.00	0.12
AS STIMULANT TO CLASS DISCUSSION.	34	4.12	0.84	2.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	33	4.15	0.76	2.00	5.00	0.13
ACTIVITY NUMBER.=31						
INTEREST LEVEL OF THE ACTIVITY.	17	3.47	0.87	2.00	5.00	0.21
CLARITY OF QUESTIONS.	17	3.65	0.70	2.00	4.00	0.17
CLARITY OF REQUIREMENTS.	16	3.50	1.10	1.00	5.00	0.27
DIFFICULTY OF THE ACTIVITY.	16	3.50	0.89	2.00	5.00	0.22
RELATIONSHIP TO WORK.	17	3.59	0.62	3.00	5.00	0.15
EASE OF APPLICATION TO WORK.	17	3.65	0.61	3.00	5.00	0.15
AS STIMULANT TO CLASS DISCUSSION.	17	3.71	0.92	1.00	5.00	0.22
OVERALL EVALUATION OF ACTIVITY	17	3.47	0.87	1.00	4.00	0.21

STATISTICAL ANALYSIS OF VARIABLES

ACTIVITY NUMBER.=32

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	26	4.50	0.71	3.00	5.00	0.14
CLARITY OF QUESTIONS.	26	4.12	0.86	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	26	4.19	0.75	2.00	5.00	0.15
DIFFICULTY OF THE ACTIVITY.	26	3.85	0.73	2.00	5.00	0.14
RELATIONSHIP TO WORK.	26	3.96	0.87	2.00	5.00	0.17
EASE OF APPLICATION TO WORK.	25	4.04	0.84	2.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	26	4.04	0.72	3.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	26	4.15	0.61	3.00	5.00	0.12
ACTIVITY NUMBER.=33						
INTEREST LEVEL OF THE ACTIVITY.	18	3.83	0.71	3.00	5.00	0.17
CLARITY OF QUESTIONS.	18	3.94	0.80	2.00	5.00	0.19
CLARITY OF REQUIREMENTS.	17	4.00	0.71	2.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	18	4.00	0.77	3.00	5.00	0.18
RELATIONSHIP TO WORK.	18	4.33	0.59	3.00	5.00	0.14
EASE OF APPLICATION TO WORK.	18	4.28	0.57	3.00	5.00	0.14
AS STIMULANT TO CLASS DISCUSSION.	18	4.17	1.04	1.00	5.00	0.25
OVERALL EVALUATION OF ACTIVITY	17	4.06	0.56	3.00	5.00	0.43
ACTIVITY NUMBER.=34						
INTEREST LEVEL OF THE ACTIVITY.	30	4.10	0.71	3.00	5.00	0.13
CLARITY OF QUESTIONS.	30	4.07	0.83	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	30	4.17	0.70	3.00	5.00	0.13
DIFFICULTY OF THE ACTIVITY.	29	3.90	0.86	1.00	5.00	0.16
RELATIONSHIP TO WORK.	30	4.33	0.71	3.00	5.00	0.13
EASE OF APPLICATION TO WORK.	30	4.40	0.72	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	30	4.20	0.76	3.00	5.00	0.14
OVERALL EVALUATION OF ACTIVITY	30	4.17	0.65	3.00	5.00	0.12
ACTIVITY NUMBER.=35						
INTEREST LEVEL OF THE ACTIVITY.	19	3.79	0.98	1.00	5.00	0.22
CLARITY OF QUESTIONS.	19	3.79	1.18	1.00	5.00	0.27
CLARITY OF REQUIREMENTS.	19	3.74	1.10	1.00	5.00	0.25
DIFFICULTY OF THE ACTIVITY.	19	3.68	1.11	2.00	5.00	0.25
RELATIONSHIP TO WORK.	19	3.95	0.97	2.00	5.00	0.22
EASE OF APPLICATION TO WORK.	18	3.94	1.11	1.00	5.00	0.26
AS STIMULANT TO CLASS DISCUSSION.	18	3.83	1.04	1.00	5.00	0.25
OVERALL EVALUATION OF ACTIVITY	18	3.89	1.08	1.00	5.00	0.25
ACTIVITY NUMBER.=36						
INTEREST LEVEL OF THE ACTIVITY.	16	3.56	0.73	2.00	5.00	0.18
CLARITY OF QUESTIONS.	16	4.06	0.77	2.00	5.00	0.19
CLARITY OF REQUIREMENTS.	16	4.00	0.63	3.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	14	3.50	1.02	2.00	5.00	0.27
RELATIONSHIP TO WORK.	15	3.47	0.92	2.00	5.00	0.24
EASE OF APPLICATION TO WORK.	16	3.38	0.96	2.00	5.00	0.24
AS STIMULANT TO CLASS DISCUSSION.	15	3.40	0.83	2.00	5.00	0.21
OVERALL EVALUATION OF ACTIVITY	16	3.50	1.15	1.00	5.00	0.29

STATISTICAL ANALYSIS OF VARIABLES

ACTIVITY NUMBER.=37

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	19	3.32	1.06	1.00	5.00	0.24
CLARITY OF QUESTIONS.	19	3.74	0.73	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	19	3.79	0.79	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	19	3.42	1.07	1.00	5.00	0.25
RELATIONSHIP TO WORK.	19	3.32	1.16	1.00	5.00	0.27
EASE OF APPLICATION TO WORK.	19	3.42	0.84	2.00	5.00	0.19
AS STIMULANT TO CLASS DISCUSSION.	18	3.28	1.02	1.00	4.00	0.24
OVERALL EVALUATION OF ACTIVITY	19	3.32	1.06	1.00	5.00	0.24
ACTIVITY NUMBER.=38						
INTEREST LEVEL OF THE ACTIVITY.	29	3.72	1.00	1.00	5.00	0.19
CLARITY OF QUESTIONS.	29	3.90	0.82	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	28	3.86	0.93	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	29	3.97	0.78	2.00	5.00	0.14
RELATIONSHIP TO WORK.	29	4.00	0.89	2.00	5.00	0.16
EASE OF APPLICATION TO WORK.	29	4.03	0.91	2.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	28	3.75	0.97	2.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	29	3.90	0.82	2.00	5.00	0.15
ACTIVITY NUMBER.=39						
INTEREST LEVEL OF THE ACTIVITY.	12	3.33	0.89	2.00	5.00	0.26
CLARITY OF QUESTIONS.	14	3.21	1.05	2.00	5.00	0.28
CLARITY OF REQUIREMENTS.	14	3.71	0.83	3.00	5.00	0.22
DIFFICULTY OF THE ACTIVITY.	13	3.62	0.77	2.00	5.00	0.21
RELATIONSHIP TO WORK.	13	3.92	0.49	3.00	5.00	0.14
EASE OF APPLICATION TO WORK.	13	4.00	0.41	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	12	3.25	1.06	1.00	5.00	0.30
OVERALL EVALUATION OF ACTIVITY	13	3.46	0.66	3.00	5.00	0.18
ACTIVITY NUMBER.=40						
INTEREST LEVEL OF THE ACTIVITY.	26	4.12	0.95	2.00	5.00	0.19
CLARITY OF QUESTIONS.	26	3.73	1.31	1.00	5.00	0.26
CLARITY OF REQUIREMENTS.	26	3.69	1.35	1.00	5.00	0.26
DIFFICULTY OF THE ACTIVITY.	26	3.96	0.96	2.00	5.00	0.19
RELATIONSHIP TO WORK.	25	4.60	0.58	3.00	5.00	0.12
EASE OF APPLICATION TO WORK.	26	4.62	0.57	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	26	4.31	0.84	3.00	5.00	0.16
OVERALL EVALUATION OF ACTIVITY	26	4.19	0.94	2.00	5.00	0.18
ACTIVITY NUMBER.=41						
INTEREST LEVEL OF THE ACTIVITY.	12	3.75	0.87	2.00	5.00	0.25
CLARITY OF QUESTIONS.	12	4.17	0.72	3.00	5.00	0.21
CLARITY OF REQUIREMENTS.	12	3.83	0.94	2.00	5.00	0.27
DIFFICULTY OF THE ACTIVITY.	12	3.92	1.00	2.00	5.00	0.29
RELATIONSHIP TO WORK.	12	4.08	0.79	2.00	5.00	0.23
EASE OF APPLICATION TO WORK.	12	3.92	1.00	2.00	5.00	0.29
AS STIMULANT TO CLASS DISCUSSION.	11	3.73	1.10	1.00	5.00	0.33
OVERALL EVALUATION OF ACTIVITY	12	3.83	1.03	2.00	5.00	0.30

STATISTICAL ANALYSIS OF VARIABLES
ACTIVITY NUMBER.=42

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	8	3.00	1.41	1.00	5.00	0.50
CLARITY OF QUESTIONS.	8	3.25	1.58	1.00	5.00	0.56
CLARITY OF REQUIREMENTS.	8	3.25	1.58	1.00	5.00	0.56
DIFFICULTY OF THE ACTIVITY.	8	3.38	1.69	1.00	5.00	0.60
RELATICNSHIP TO WORK.	8	3.50	1.31	1.00	5.00	0.46
EASE OF APPLICATION TO WORK.	8	3.50	1.31	1.00	5.00	0.46
AS STIMULANT TO CLASS DISCUSSION.	6	3.67	1.51	1.00	5.00	0.61
OVERALL EVALUATION OF ACTIVITY	8	3.50	1.69	1.00	5.00	0.60
ACTIVITY NUMBER.=43						
INTEREST LEVEL OF THE ACTIVITY.	12	4.00	0.74	3.00	5.00	0.21
CLARITY OF QUESTIONS.	12	3.17	1.19	1.00	5.00	0.34
CLARITY OF REQUIREMENTS.	12	3.17	1.40	1.00	5.00	0.41
DIFFICULTY OF THE ACTIVITY.	12	3.67	0.98	2.00	5.00	0.28
RELATICNSHIP TO WORK.	12	4.50	0.67	3.00	5.00	0.19
EASE OF APPLICATION TO WORK.	12	4.08	1.00	2.00	5.00	0.29
AS STIMULANT TO CLASS DISCUSSION.	11	3.82	0.87	3.00	5.00	0.26
OVERALL EVALUATION OF ACTIVITY	12	3.58	1.08	1.00	5.00	0.31
ACTIVITY NUMBER.=44						
INTEREST LEVEL OF THE ACTIVITY.	29	4.31	0.76	3.00	5.00	0.14
CLARITY OF QUESTIONS.	29	3.86	0.95	2.00	5.00	0.18
CLARITY OF REQUIREMENTS.	29	4.00	0.85	2.00	5.00	0.16
DIFFICULTY OF THE ACTIVITY.	29	4.03	0.94	2.00	5.00	0.18
RELATICNSHIP TO WORK.	29	4.48	0.63	3.00	5.00	0.12
EASE OF APPLICATION TO WORK.	29	4.45	0.69	3.00	5.00	0.13
AS STIMULANT TO CLASS DISCUSSION.	28	4.18	0.82	3.00	5.00	0.15
OVERALL EVALUATION OF ACTIVITY	29	4.10	0.90	2.00	5.00	0.17
ACTIVITY NUMBER.=45						
INTEREST LEVEL OF THE ACTIVITY.	11	3.91	0.83	3.00	5.00	0.25
CLARITY OF QUESTIONS.	11	3.91	0.70	3.00	5.00	0.21
CLARITY OF REQUIREMENTS.	10	3.80	0.79	3.00	5.00	0.25
DIFFICULTY OF THE ACTIVITY.	11	3.91	1.04	2.00	5.00	0.31
RELATICNSHIP TO WORK.	11	3.82	0.98	2.00	5.00	0.30
EASE OF APPLICATION TO WORK.	11	4.00	0.77	3.00	5.00	0.23
AS STIMULANT TO CLASS DISCUSSION.	11	3.82	0.87	3.00	5.00	0.26
OVERALL EVALUATION OF ACTIVITY	11	3.91	0.70	3.00	5.00	0.21
ACTIVITY NUMBER.=46						
INTEREST LEVEL OF THE ACTIVITY.	20	3.70	0.98	2.00	5.00	0.22
CLARITY OF QUESTIONS.	20	4.20	0.70	3.00	5.00	0.16
CLARITY OF REQUIREMENTS.	20	4.15	0.75	2.00	5.00	0.17
DIFFICULTY OF THE ACTIVITY.	17	3.76	0.83	2.00	5.00	0.20
RELATICNSHIP TO WORK.	20	3.90	0.72	3.00	5.00	0.16
EASE OF APPLICATION TO WORK.	19	3.95	0.91	2.00	5.00	0.21
AS STIMULANT TO CLASS DISCUSSION.	19	3.89	0.81	2.00	5.00	0.19
OVERALL EVALUATION OF ACTIVITY	20	3.95	0.83	2.00	5.00	0.18

STATISTICAL ANALYSIS OF VARIABLES

ACTIVITY NUMBER.=47

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
INTEREST LEVEL OF THE ACTIVITY.	19	3.74	0.73	3.00	5.00	0.17
CLARITY OF QUESTIONS.	19	3.79	0.98	2.00	5.00	0.22
CLARITY OF REQUIREMENTS.	19	3.63	1.21	1.00	5.00	0.28
DIFFICULTY OF THE ACTIVITY.	18	3.33	1.08	2.00	5.00	0.26
RELATIONSHIP TO WORK.	19	4.21	0.71	3.00	5.00	0.16
EASE OF APPLICATION TO WORK.	19	4.11	0.88	2.00	5.00	0.20
AS STIMULANT TO CLASS DISCUSSION.	18	3.83	0.86	3.00	5.00	0.20
OVERALL EVALUATION OF ACTIVITY	18	3.61	0.98	2.00	5.00	0.23

ACTIVITY NUMBER.=48

INTEREST LEVEL OF THE ACTIVITY.	10	3.80	1.14	2.00	5.00	0.36
CLARITY OF QUESTIONS.	9	3.67	1.12	2.00	5.00	0.37
CLARITY OF REQUIREMENTS.	9	3.78	0.83	3.00	5.00	0.28
DIFFICULTY OF THE ACTIVITY.	10	3.90	1.10	2.00	5.00	0.35
RELATIONSHIP TO WORK.	10	4.00	0.94	3.00	5.00	0.30
EASE OF APPLICATION TO WORK.	10	4.10	0.88	3.00	5.00	0.28
AS STIMULANT TO CLASS DISCUSSION.	10	3.30	1.06	2.00	5.00	0.33
OVERALL EVALUATION OF ACTIVITY	10	3.80	1.03	2.00	5.00	0.33

MATHEMATICS SKILLS CURRICULUM GUIDE

STUDENTS PARTICIPATING IN FIELD-TEST ACTIVITIES

ACTIVITY NUMBER	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM
01	32	9.56	8.89	1.00	35.00	1.57	306.00
02	40	8.75	7.71	1.00	30.00	1.22	350.00
03	35	8.60	7.77	1.00	34.00	1.31	301.00
04	32	8.38	5.88	1.00	22.00	1.04	268.00
05	24	8.92	5.72	1.00	22.00	1.17	214.00
06	18	10.78	13.83	1.00	60.00	3.26	194.00
07	26	7.42	5.00	1.00	16.00	0.98	193.00
08	20	8.70	6.32	1.00	20.00	1.41	174.00
09	29	10.17	7.86	1.00	30.00	1.46	295.00
10	18	11.06	13.82	1.00	60.00	3.26	199.00
11	23	11.35	12.63	1.00	60.00	2.63	261.00
12	33	7.82	6.95	1.00	25.00	1.21	258.00
13	35	7.11	6.13	1.00	24.00	1.04	249.00
14	11	8.82	6.69	1.00	20.00	2.02	97.00
15	39	10.05	11.20	1.00	60.00	1.79	392.00
16	17	9.06	8.47	1.00	30.00	2.06	154.00

ACTIVITY NUMBER	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM
17A	29	9.55	7.51	1.00	28.00	1.40	277.00
17B	29	12.52	11.77	1.00	60.00	2.19	363.00
18A	23	11.91	10.18	1.00	39.00	2.12	274.00
18B	28	8.04	6.51	1.00	24.00	1.23	225.00
19	22	11.09	8.79	1.00	30.00	1.87	244.00
20A	31	8.16	7.06	1.00	25.00	1.27	253.00
20B	28	7.86	6.91	1.00	25.00	1.31	220.00
21A	16	7.19	6.37	1.00	20.00	1.59	115.00
21B	27	8.19	6.64	1.00	25.00	1.28	221.00
22	29	10.21	11.67	1.00	60.00	2.17	296.00
23	31	9.61	11.61	1.00	60.00	2.09	298.00
24	19	12.95	13.24	1.00	60.00	3.04	246.00
25	35	9.74	10.94	1.00	60.00	1.85	341.00
26	23	11.74	12.85	1.00	60.00	2.68	270.00
27	18	13.22	13.88	1.00	60.00	3.27	238.00
28	26	14.73	19.08	1.00	86.00	3.74	383.00
29	21	9.10	10.48	1.00	45.00	2.29	191.00
30	34	9.26	11.24	1.00	60.00	1.93	315.00

ACTIVITY NUMBER	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN	SUM
31	17	13.88	14.43	1.00	60.00	3.50	236.00
32	25	8.20	6.63	1.00	25.00	1.33	205.00
33	16	13.44	15.56	1.00	60.00	3.89	215.00
34	29	9.45	6.43	1.00	25.00	1.19	274.00
35	19	10.32	14.18	1.00	60.00	3.25	196.00
36	16	9.56	9.13	1.00	30.00	2.28	153.00
37	19	11.16	14.10	1.00	60.00	3.23	212.00
38	27	9.48	8.17	1.00	30.00	1.57	256.00
39	14	12.07	16.21	1.00	60.00	4.33	169.00
40	26	10.04	7.41	1.00	30.00	1.45	261.00
41	11	15.27	17.49	1.00	60.00	5.27	168.00
42	8	11.88	10.02	1.00	30.00	3.54	95.00
43	12	8.83	7.04	1.00	22.00	2.03	106.00
44	29	12.90	15.11	1.00	60.00	2.81	374.00
45	11	7.73	9.49	1.00	30.00	2.86	85.00
46	18	16.78	15.58	2.00	60.00	3.67	302.00
47	18	9.22	14.18	1.00	60.00	3.34	166.00
48	10	11.00	17.91	1.00	60.00	5.66	110.00
Summary	1226	10.00	10.49	1.00	86.00	0.30	12258.00

APPENDIX B

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

Dear Administrator:

You have been selected along with other qualified members in the field of vocational education to assist the Division of Occupational and Vocational Studies at The Pennsylvania State University and the Bureau of Vocational Education, in the evaluation and review of a program development manual. The manual is entitled, An Administrators Manual for Planning, Developing and Implementing Mainstream, Self-Contained or Co-op Programs for the Disadvantaged.

The time required of you to review the manual and complete the evaluation form should be about one hour. Please complete the bottom portion of this letter and return it to the address below at your earliest convenience.

Thank you for your cooperation.

Sincerely,

Pamela J. Blake

Pamela J. Blake
Instructor

PJB/sab

☐ I will be most happy to serve as evaluator.

☐ Unfortunately, I will be unable to serve as evaluator, but I have selected a qualified member of my staff to assist in the evaluation process. Please provide name and position.

☐ I am unable to assist at this time.

Return to : Ms. Pamela J. Blake
109-B Rackley Building
University Park, PA 16802

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 20, 1981

Dear Evaluator:

Enclosed you will find a copy of the manual entitled, An Administrators Manual for Planning, Developing and Implementing Mainstream, Self-Contained or Co-op Programs for the Disadvantaged. You will also find a copy of the Administrators Manual Evaluation Form. Please use the form to carefully evaluate the manual.

The time required of you to review the manual and complete the evaluation form should be about one hour. Please return the completed form in the enclosed self-addressed envelope by Friday, May 1, 1981

Thank you for your assistance.

Sincerely yours,

Pamela J. Blake

Pamela J. Blake
Instructor
Vocational Education

PJB/llc

Enclosures

ADMINISTRATORS MANUAL EVALUATION FORM

THE PENNSYLVANIA STATE UNIVERSITY
Division of Occupational and Vocational Studies

DIRECTIONS: Below are several statements about the manual you have been asked to review. Please read each of the statements carefully and circle the rating (5, 4, 3, 2, 1) which most accurately describes your feelings.

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
SECTION I Introduction, Pages 1 to 16 of the manual:					
1. The introduction serves to indicate the general content of the manual.	5	4	3	2	1
2. The eligibility requirements are in keeping with the current federal legislation (Vocational Education Amendments of 1976).	5	4	3	2	1
3. Sources for establishing the need for a program (p. 4-8) are adequate.	5	4	3	2	1
4. The program summarizations (p. 13-15) provide a complete review of the program options.	5	4	3	2	1
5. The checklist (p. 16) will be helpful in tabulating the steps for implementing any of the three program options.	5	4	3	2	1
SECTION II Regular Classroom Placement, Pages 19 to 24 of the manual:					
6. Thoroughly describes the mainstreaming concept.	5	4	3	2	1
7. Provides a sufficient description of the curriculum.	5	4	3	2	1
8. Will be helpful in the selection of a qualified staff.	5	4	3	2	1
SECTION III Self-Contained Programs, Pages 26 to 30 of the manual:					
9. Thoroughly describes the concept of a self-contained program.	5	4	3	2	1
10. Provides a complete overview of the curriculum.	5	4	3	2	1
11. Will be helpful in the selection of a qualified staff.	5	4	3	2	1

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
SECTION IV Cooperative Work Experience Programs, Pages 31 to 42 of the manual:					
12. Gives a thorough description of the cooperative work experience concept.	5	4	3	2	1
13. Provides an adequate description of the curriculum.	5	4	3	2	1
14. Fully acquaints you with the work load and responsibilities of the teacher-coordinator.	5	4	3	2	1
OVERALL EVALUATION DIRECTIONS: Please read each item below carefully and indicate your frank assessment of the material.					
15. The manual presents adequate coverage of the subject matter.	5	4	3	2	1
16. The material is presented in a logical sequence.	5	4	3	2	1
17. The information is written in a clear and understandable manner.	5	4	3	2	1
18. The manual addresses a critical need for this type of reference guide.	5	4	3	2	1

19. Does this manual duplicate other material available to you for the development of programs for the disadvantaged? YES ____ NO ____
If yes, which sources does it duplicate?

_____

20. What potential does this publication have to you?

_____

_____

_____

21. What is the major strength of this manual?

_____

_____

_____

Appendix B-3 (3)

-3-

22. What is the greatest weakness of this manual?

23. To what extent is the material in this reference technically correct?

24. Briefly summarize your reactions to this manual.

25. What is your prihcipal role in the education of disadvantaged learners? (Circle one)

Vocational Program Director 1
Supervisor of Instruction 2
Curriculum Coordinator 3
Coordinator Pupil Services 4
Other 5
(Please specify)

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 27, 1981

Mr. Wayne Grubb, Consultant
Disadvantaged and Handicapped
Pennsylvania Department of Education
333 Market Street
Harrisburg, PA 17108

Dear Wayne:

The enclosed copy of The Administrator's Manual for Planning, Developing, and Implementing Mainstream Self-Contained or Co-op Programs for the Disadvantaged reflects the comments and suggestions as per our meeting last fall. The Manual has been revised to assure cross-referencing with other PDE materials as well as the Mainstreaming manual developed at IUP.

As you will recall, the Manual is intended to provide the vocational administrator with information to determine; whether there is a need for a program and information and how to set-up one of the three program types.

In addition to your reviews, the Manual was reviewed last year by sixteen administrators, teacher educators, and curriculum specialists throughout the state. The revised copy is presently being critiqued and evaluated by an additional, 47 vocational administrators throughout the Commonwealth.

The last remaining task is to have the program specialist in the Bureau review and critique the contents. Following this process, the final draft will be prepared, printed, and disseminated to all vocational administrators and chief school administrators throughout the Commonwealth.

If you will, please scan these copies for any final corrections and distribute them to the selected program specialist within PDE.

Should you require further information, please do not hesitate to contact me at 814-865-8361.

Sincerely,

Jerry L. Wircenski
Associate Professor

JLW/sab

Enclosures

cc: Clara Gaston

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
109B RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 13, 1981

Dear Evaluator:

Enclosed you will find one copy of the manual entitled, "An Administrators Manual for Planning, Developing and Implementing Mainstream, Self-Contained or Co-op Programs for the Disadvantaged". You will also find a copy of the Administrators Manual Evaluation Form.

Please use the form to evaluate the manual. At the same time it will be of great assistance to us if you would take a few minutes to critique the evaluation form itself. Feel free to make the necessary comments and/or corrections directly on the form. Please complete the pilot evaluation form and return it to the address above by Friday, April 17, 1981.

Thank you for your cooperation.

Sincerely,

Pamela J. Blake

Pamela J. Blake
Instructor

Appendix B-6

(PILOT SURVEY)

ADMINISTRATORS MANUAL EVALUATION FORM

THE PENNSYLVANIA STATE UNIVERSITY
Division of Occupational and Vocational Studies

DIRECTIONS: Below are several statements about the manual you have been asked to review. Please read each of the statements carefully and circle the rating (5,4,3,2,1) which most accurately describes your feelings.

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
SECTION I Introduction, Pages 1 to 16 of the manual:					
1. The introduction serves to indicate the general content of the manual.	5	4	3	2	1
2. The eligibility requirements are in keeping with the current federal legislation (Vocational Education Amendments of 1976).	5	4	3	2	1
3. Sources for establishing the need for a program (p.4-8) are adequate.	5	4	3	2	1
4. The program summarizations (p.13-15) provide a complete review of the three program options.	5	4	3	2	1
5. The checklist (p.16) will be helpful in tabulating the steps for implementing any of the three program options.	5	4	3	2	1
6. The manual presents adequate coverage of the subject matter.	5	4	3	2	1
7. The material is presented in a logical sequence.	5	4	3	2	1
8. The information is written in a clear and understandable manner.	5	4	3	2	1
9. The manual addresses a critical need for this type of reference guide.	5	4	3	2	1
SECTION II Regular Classroom Placement, Pages 19 to 24 of the manual:					
10. Thoroughly describes the mainstreaming concept.	5	4	3	2	1
11. Provides a sufficient description of the curriculum.	5	4	3	2	1
12. Will be helpful in the selection of a qualified staff.	5	4	3	2	1
SECTION III Self-Contained Programs, Pages 26 to 30 of the manual:					
13. Thoroughly describes the concept of a self-contained program.	5	4	3	2	1

	EXCELLENT	VERY GOOD	GOOD	FAIR	POOR
14. Provides a complete overview of the curriculum.	5	4	3	2	1
15. Will be helpful in the selection of a qualified staff.	5	4	3	2	1
SECTION IV Cooperative Work Experience Programs, Pages 31 to 42 of the manual:					
16. Gives a thorough description of the cooperative work experience concept.	5	4	3	2	1
17. Provides an adequate description of the curriculum.	5	4	3	2	1
18. Fully acquaints you with the work load and responsibilities of the teacher-coordinator.	5	4	3	2	1

OVERALL EVALUATION DIRECTIONS: Please read each question below carefully and indicate your frank assessment of the material.

19. Does this manual duplicate other material available to you for the development of programs for the disadvantaged? YES ____ NO ____
If yes, which sources does it duplicate?

20. What potential does this publication have to you?

21. What is the major strength of this manual?

22. What is the greatest weakness of the manual?

23. To what extent is the material in this reference technically correct?

24. Briefly summarize your reactions to this manual.

_____

_____

_____

25. Additional comments:

_____

_____

_____

What is your <u>principal</u> role in the education of disadvantaged learners? (Circle one)

Vocational Program Director	1
Supervisor of Instruction	2
Curriculum Coordinator	3
Coordinator Pupil Services	4
Other	5

(Please specify)

_____

APPENDIX C

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

April 30, 1981

You have been quite outstanding in your conduct of the field-testing of the Mathematics Skills Curriculum Guide. Because of this I ask if you would undertake a small but significant job for us.

Briefly, I am interested in educators, like yourself, who are or will be working with disadvantaged youth in the school system, who are concerned with developing students' school-to-work transition skills; and who would benefit from and use the materials we have prepared. Being familiar with your colleagues' interests, you would be an excellent judge of individuals and situations for the most appropriate dissemination of the materials.

I am asking if you would provide a list of persons in your locality whom you know would appreciate and utilize the materials. I would send to you copies of the Reading Skills Curriculum Guide, and the now-available Handbook for the Implementation of School-to-Work Transition Skills for Disadvantaged Youth for yourself and one for each of the persons whom you named. In this regard, you would be the conduit between our research and development and the field for which it is intended. My only caution is that the supply of materials is limited.

If you are willing to help, please send your list to me by May 8. The materials will be dispatched without delay. It could be an asset to your curriculum planning for next year.

Thank you for all your assistance.

Sincerely,

Peter Irvin
Project Facilitator

PI/e

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

Date: November 18, 1980

To: Field-Test Teachers, Reading Skills Curriculum Guide

From: Dr. Jerry L. Wircenski, Project Director

Your patience may now be rewarded. I am pleased to enclose your copy of the Reading Skills Curriculum Guide which we have now received from our printers. The part you played in helping us to prepare this more-refined finished article was important, and it has been greatly appreciated.

Once again, thank you for your assistance, cooperation, and interest throughout the field-test.

Our team of field-test teachers for the Math Skills Curriculum Guide is not yet finalized. If you have not already volunteered and would like to, or if you know of a colleague who would participate then let us know. I am attaching a form in anticipation of the need, and ask that special attention be given to entries under "Subject Taught" and "Grade Level."

JLW/llc

Enclosure

Home Economics Education — 814-865-5441 Industrial Arts Education — 814-863-0275 Vocational Industrial Education — 814-865-8361

Appendix C-2 (2)

TEACHERS INTERESTED IN FIELD-TESTING MATH SKILLS CURRICULUM GUIDE 1980/81

		Subjects Taught	Grade Level
Teacher's names:	_____	_____	_____
_____	_____	_____	_____

School Name: _____

School Address: _____
Street

_____
City State Zip Code

School Phone Number: _____
Area Code

Please return to Peter Irvin, Project Facilitator, (MSCG), Division of Occupational and Vocational Studies, Rackley Building, University Park, PA 16802.

TEACHERS INTERESTED IN FIELD-TESTING MATH SKILLS CURRICULUM GUIDE 1980/81

		Subjects Taught	Grade Level
Teacher's names:	_____	_____	_____
_____	_____	_____	_____

School Name: _____

School Address: _____
Street

_____
City State Zip Code

School Phone Number: _____
Area Code

Please return to Peter Irvin, Project Facilitator, (MSCG), Division of Occupational and Vocational Studies, Rackley Building, University Park, PA 16802.

Appendix C-3

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

DATE: November 1980

TO: Colleagues in Vocational Special Needs Education

FROM: Jerry L. Wircenski, Project Director

The enclosed documents have been developed by the Division of Occupational and Vocational Studies at The Pennsylvania State University under a grant from the Pennsylvania Department of Education. Single copies are being disseminated to personnel who are interested in improving the delivery of vocational education services to special needs students.

I hope that you will find the enclosed materials useful in your efforts in planning and implementing vocational education services for the disadvantaged.

JLW/sab

Enclosures

School	Location	Date
Altoona AVTS	Altoona, PA	Friday, May 1, 1981
Juniata-Mifflin AVTS	Lewistown, PA	Monday, May 4, 1981
Dauphin Co. AVTS	Harrisburg, PA	Monday, May 4, 1981
Harrisburg-Steelton-Highspire AVTS	Harrisburg, PA	Monday, May 4, 1981
Cumberland-Perry AVTS	Mechanicsburg, PA	Tuesday, May 5, 1981
York Co. AVTS	York, PA	Tuesday, May 5, 1981
York Office I.U. #12	York, PA	Tuesday, May 5, 1981
Franklin Co. AVTS	Chambersburg, PA	Wednesday, May 6, 1981
Huntingdon Co. AVTS	Mill Creek, PA	Wednesday, May 6, 1981
SUN AVTS	New Berlin, PA	Thursday, May 7, 1981
Northumberland Co. AVTS	Shamokin, PA	Thursday, May 7, 1981
Columbia-Montour AVTS	Bloomsburg, PA	Thursday, May 7, 1981
Centre Co. AVTS	Pleasant Gap, PA	Friday, May 8, 1981
Lock Haven Office I.U. #10	Lock Haven, PA	Monday, May 11, 1981
Clearfield Co. AVTS	Clearfield, PA	Tuesday, May 12, 1981
Smethport Office I.U. #9	Smethport, PA	Tuesday, May 12, 1981
Wellsboro I.U. #17	Wellsboro, PA	Wednesday, May 13, 1981
Bradford Co. AVTS	Towanda, PA	Wednesday, May 13, 1981
Williamsport Area Community College	Williamsport, PA	Wednesday, May 13, 1981
Lebanon Co. AVTS	Lebanon, PA	Thursday, May 14, 1981
Lancaster Co. Brownstown AVTS Mount Joy AVTS Willow Street AVTS	Mount Joy, PA	Thursday, May 14, 1981

Appendix C-5

THE PENNSYLVANIA STATE UNIVERSITY
COLLEGE OF EDUCATION
Division of Occupational and Vocational Studies
RACKLEY BUILDING
UNIVERSITY PARK, PENNSYLVANIA 16802

. . . . SKILLS FOR DISADVANTAGED YOUTH

DISSEMINATION REPORT

TO: Curriculum Specialists ____
Counselors ____
Teachers/Faculty ____
Aides ____
Administrators ____
Other ____
____
Total ____

By: Presentation - individual ____
- group ____
Seminar ____

At: AVTS ____
I.U. ____
High School ____
Other ____

Names of participants:

_____ _____
_____ _____
_____ _____
_____ _____
_____ _____

Comments: _____

_____
_____
_____

Location: _____ Visited by: _____

_____ Date: _____

STATISTICAL ANALYSIS OF VARIABLES

LABEL	N	MEAN	STANDARD DEVIATION	MINIMUM VALUE	MAXIMUM VALUE	STD ERROR OF MEAN
ACTIVITY NUMBER.=37						
INTEREST LEVEL OF THE ACTIVITY.	19	3.32	1.06	1.00	5.00	0.24
CLARITY OF QUESTIONS.	19	3.74	0.73	2.00	5.00	0.17
CLARITY OF REQUIREMENTS.	19	3.79	0.79	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	19	3.42	1.07	1.00	5.00	0.25
RELATIONSHIP TO WORK.	19	3.32	1.16	1.00	5.00	0.27
EASE OF APPLICATION TO WORK.	19	3.42	0.84	2.00	5.00	0.19
AS STIMULANT TO CLASS DISCUSSION.	18	3.28	1.02	1.00	4.00	0.24
OVERALL EVALUATION OF ACTIVITY	19	3.32	1.06	1.00	5.00	0.24
ACTIVITY NUMBER.=38						
INTEREST LEVEL OF THE ACTIVITY.	29	3.72	1.00	1.00	5.00	0.19
CLARITY OF QUESTIONS.	29	3.90	0.82	2.00	5.00	0.15
CLARITY OF REQUIREMENTS.	28	3.86	0.93	2.00	5.00	0.18
DIFFICULTY OF THE ACTIVITY.	29	3.97	0.78	2.00	5.00	0.14
RELATIONSHIP TO WORK.	29	4.00	0.89	2.00	5.00	0.16
EASE OF APPLICATION TO WORK.	29	4.03	0.91	2.00	5.00	0.17
AS STIMULANT TO CLASS DISCUSSION.	28	3.75	0.97	2.00	5.00	0.18
OVERALL EVALUATION OF ACTIVITY	29	3.90	0.82	2.00	5.00	0.15
ACTIVITY NUMBER.=39						
INTEREST LEVEL OF THE ACTIVITY.	12	3.33	0.89	2.00	5.00	0.26
CLARITY OF QUESTIONS.	14	3.21	1.05	2.00	5.00	0.28
CLARITY OF REQUIREMENTS.	14	3.71	0.83	3.00	5.00	0.22
DIFFICULTY OF THE ACTIVITY.	13	3.62	0.77	2.00	5.00	0.21
RELATIONSHIP TO WORK.	13	3.92	0.49	3.00	5.00	0.14
EASE OF APPLICATION TO WORK.	13	4.00	0.41	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	12	3.25	1.06	1.00	5.00	0.30
OVERALL EVALUATION OF ACTIVITY	13	3.46	0.66	3.00	5.00	0.18
ACTIVITY NUMBER.=40						
INTEREST LEVEL OF THE ACTIVITY.	26	4.12	0.95	2.00	5.00	0.19
CLARITY OF QUESTIONS.	26	3.73	1.31	1.00	5.00	0.26
CLARITY OF REQUIREMENTS.	26	3.69	1.35	1.00	5.00	0.26
DIFFICULTY OF THE ACTIVITY.	26	3.96	0.96	2.00	5.00	0.19
RELATIONSHIP TO WORK.	25	4.60	0.58	3.00	5.00	0.12
EASE OF APPLICATION TO WORK.	26	4.62	0.57	3.00	5.00	0.11
AS STIMULANT TO CLASS DISCUSSION.	26	4.31	0.84	3.00	5.00	0.16
OVERALL EVALUATION OF ACTIVITY	26	4.19	0.94	2.00	5.00	0.18
ACTIVITY NUMBER.=41						
INTEREST LEVEL OF THE ACTIVITY.	12	3.75	0.87	2.00	5.00	0.25
CLARITY OF QUESTIONS.	12	4.17	0.72	3.00	5.00	0.21
CLARITY OF REQUIREMENTS.	12	3.83	0.94	2.00	5.00	0.27
DIFFICULTY OF THE ACTIVITY.	12	3.92	1.00	2.00	5.00	0.29
RELATIONSHIP TO WORK.	12	4.08	0.79	2.00	5.00	0.23
EASE OF APPLICATION TO WORK.	12	3.92	1.00	2.00	5.00	0.29
AS STIMULANT TO CLASS DISCUSSION.	11	3.73	1.10	1.00	5.00	0.33
OVERALL EVALUATION OF ACTIVITY	12	3.83	1.03	2.00	5.00	0.30