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ABSTRACT

This is one of the outcomes of the work of the Massachusetts Evaluation Service Center for Occupational Education (ESCOE). This publication is intended to serve primarily as a user's guide for facilitators and instructors associated with ESCOE who seek to use and implement the Synthesized Objective Package. Besides a short explanation of the Objective Synthesis Process, the instruction manual contains replicas of feedback documents from ESCOE to the Local Education Agencies (LEAs), and from LEAs back to ESCOE, along with instructions on how to use and implement the various sections of the package. (A glossary of terms and phrases and a three-page bibliography are appended.) (Author)

Final Report

Evaluation Service Center for Occupational Education

APPENDIX N:

INSTRUCTION MANUAL: SYNTHESIZED OBJECTIVE PACKAGE

Evaluation Service Center for Occupational Education
Center for Occupational Education, School of Education
University of Massachusetts, Amherst, Massachusetts

June 1972

INSTRUCTION MANUAL

THE SYNTHESIZED OBJECTIVE PACKAGE

Prepared by the Staff

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PREFACE

In "Learning for Mastery" Bloom (1968) posits:

> There is little question that the schools do provide experience for some students--perhaps as high as one-third of the students. If the schools are to provide successful and satisfying learning experiences for at least 90 per cent of the students, major changes must take place in the attitudes of students, teachers, and administrators; changes must also take place in teaching strategies and in the role of evaluation.

Curriculum revision, new designs in teacher education, and other innovative programs are evidence of the search to improve education. Inherent in these attempts is the assumption that the status of the education system is known and that its inadequacies can be empirically identified. These attempts to improve instruction and instructional processes, however, have served to spotlight evaluation weaknesses and indicate that most educational improvement programs are carried out on a trial and error basis. Without the ability to diagnose student capabilities and needs, without the ability to compare alternative programs, there exists little basis for directed improvement.

In order that evaluation better serve the needs of education, evaluation itself must become a more active part of the process of change and an important activity in decision-making. Feedback for curriculum revision should come from evaluation. Curriculum choices should be based upon data generated for evaluation. Hence, the evaluation needs of the education system are more than the limited tests and measurement skills usually offered. Evaluation must become more than the quickly gathered "after-the-fact" data selected to justify a program.

Thus an evaluation process in the educational setting introduces conditions for the adoption of scientific methodology. Evaluation in education should, moreover, be an on-going process, its purpose being to feed back information on all relevant aspects of the educational process on a continuous basis. Such an information feedback system would serve as a basis for directed change and provide a climate that facilitates quality control in education.

The design of the Evaluation Service Center for Occupational Education emphasizes development of a comparable state-wide data pool; a technical support component to process and analyze the data; dissemination of feedback; programmatic research and evaluation of instructional efforts to meet state-wide and local needs.

Several unusual logistics problems are generated in the collection and control of state-wide information within a system which seeks to preserve local autonomy in administrative decision-making, in curriculum design and modification, and in school organization. The size of the management and development tasks dictates gradual implementation which includes feasibility studies of the processes, evaluation of the total system from a smaller experimental system, training of the personnel in the development of objectives, the development of an adequate test battery, the design procedures for data collection, analysis and feedback, dissemination, and the training of personnel to produce the information and to utilize and interpret the results.

The Evaluation Service Center must then be thought of as an information feedback and evaluation system which seeks program improvement and modification rather than program condemnation. It is designed as a partnership endeavor between state agencies and local schools, serving as an evaluation instrument

which provides information on a state-wide basis and yet preserving local autonomy in curriculum design.

The program evaluation has been designed to provide feedback on the effectiveness of specific programs in achieving locally determined/selected objectives. Two essential components of the product assessment constitute the major aspects of this program evaluation:

1. the development of a file of behavioral objectives for each program
2. the development of a test file for each objective.

Since the evaluation and information feedback system depends upon content designation by each individual school, it is conceivable that each school would desire and develop different behavioral objectives within each curriculum area. Although this possibility exists, totally different objectives for each curriculum area do not seem probable; however, a variety of objectives within each area must be anticipated in the design of the testing process.

The anticipation of unique objectives and the variety of conditions (varied course sequences and organization, staffing patterns, administrative structure, etc.) existing in the LEAs demands flexibility and continuous development in the testing process.

It is believed that Objective Synthesis--a model of curriculum development which seeks to incorporate diversity--avoids the old fantasies about centralized, mechanized, and systematized imposition of goals on local districts and at the same time provides a framework within which centralized, mechanized, and systematic evaluation of goals can be undertaken.

The synthesis process is perceived as the buckle that fastens the two major components of the information feedback/evaluation system by incorporating those behavioral objectives with similar performances into one synthesized

whole, containing Form Changes (options) to allow for different levels of competency and different prerequisite materials and skills to be demonstrated and utilized in the accomplishment of a particular performance.

Objective Synthesis tends to support Cronbach's and Stufflebeam's view that "evaluation" consists of the collection and use of information to make decisions about an educational program. The practice of justifying programs through the testimonies of experts and through the sanction of accreditation agencies have led educators to believe that these activities fulfill the evaluation needs of a program without ever questioning the kinds of effects the program has on students or on staff. This piecemeal approach to the development of evaluation skills has generally been unsatisfactory.

Moreover, confusion in regard to purposes and usefulness of evaluation has generated a lack of confidence in the ability to evaluate programs functionally. There are often few attempts to analyze what standardized tests measure. Usually, evaluation procedures for instructional programs take place only at the end of the program, too late to become part of the decision-making feedback process which should be an integral part of evaluation

This use of evaluation in an after-the-fact manner robs evaluation of its most potential benefits and places the evaluator in a role of having to pass judgment upon a program which cannot be altered from the information produced.

Such a situation can be avoided, however, by applying evaluation as a feedback mechanism rather than a post hoc operation, thus allowing evaluation to offer directions for program modification and operation.

Both the Evaluation Service Center for Occupational Education as well as this publication, "Instruction Manual for the SYNOB Package," owe their existence to the genius and tireless efforts of those who

conceptualized and developed the System:

Dr. Jim C. Fortune
Dr. William G. Conroy

and to the enthusiastic support and participation of those LEAs who have been associated with the Center.

The "Instruction Manual for the SYNOB Package" is offered by the members of the staff at ESCOE to those educators interested and committed to the ideals of such an Information Feedback System.

CONTENTS

ILLUSTRATIONS

INTRODUCTION

This publication is intended to serve primarily as a User's Guide for those Facilitators and Instructors associated with ESCOE who seek to use and implement the Synthesized Objective Package. Besides a short explanation of the Objective Synthesis Process, the Instruction Manual contains replicas of feedback documents from ESCOE to the LEAs, and from the LEAs back to ESCOE, along with instructions on how to use and implement the various sections of the Package.

The Synthesized Objective Package is not a fixed collection of documents but rather a unique collection of objectives--both raw and synthesized--put together by ESCOE for feedback to, and response from, each individual LEA participating in the project. The Printouts of Raw and Synthesized Objectives for different subgroups as well as the Raw and Synthesized Objective Matrices form the first half of the synthesis feedback loop. They communicate to each LEA a textual and graphic representation of its own contribution to the total data bank, besides indicating how ESCOE has incorporated their unique contributions into the information feedback evaluation system by the process of synthesis. The second half of the feedback loop will be completed when LEAs respond individually to these synthesized objectives by way of the SYNOB Selection Reporting Form and the Block and Unit Coverage by SYNOBS -- LEA Reporting Form.

Although this Instruction Manual has been prepared with a view to serving the needs of LEAs that intend to use and implement the Synthesized Objective Package, it is hoped that others who are interested in the Objective Synthesis Process and in the purpose and functions of the various

components of the Package will also find the manual useful.

A final word of appreciation to all those who have contributed to the preparation of the Instruction Manual:

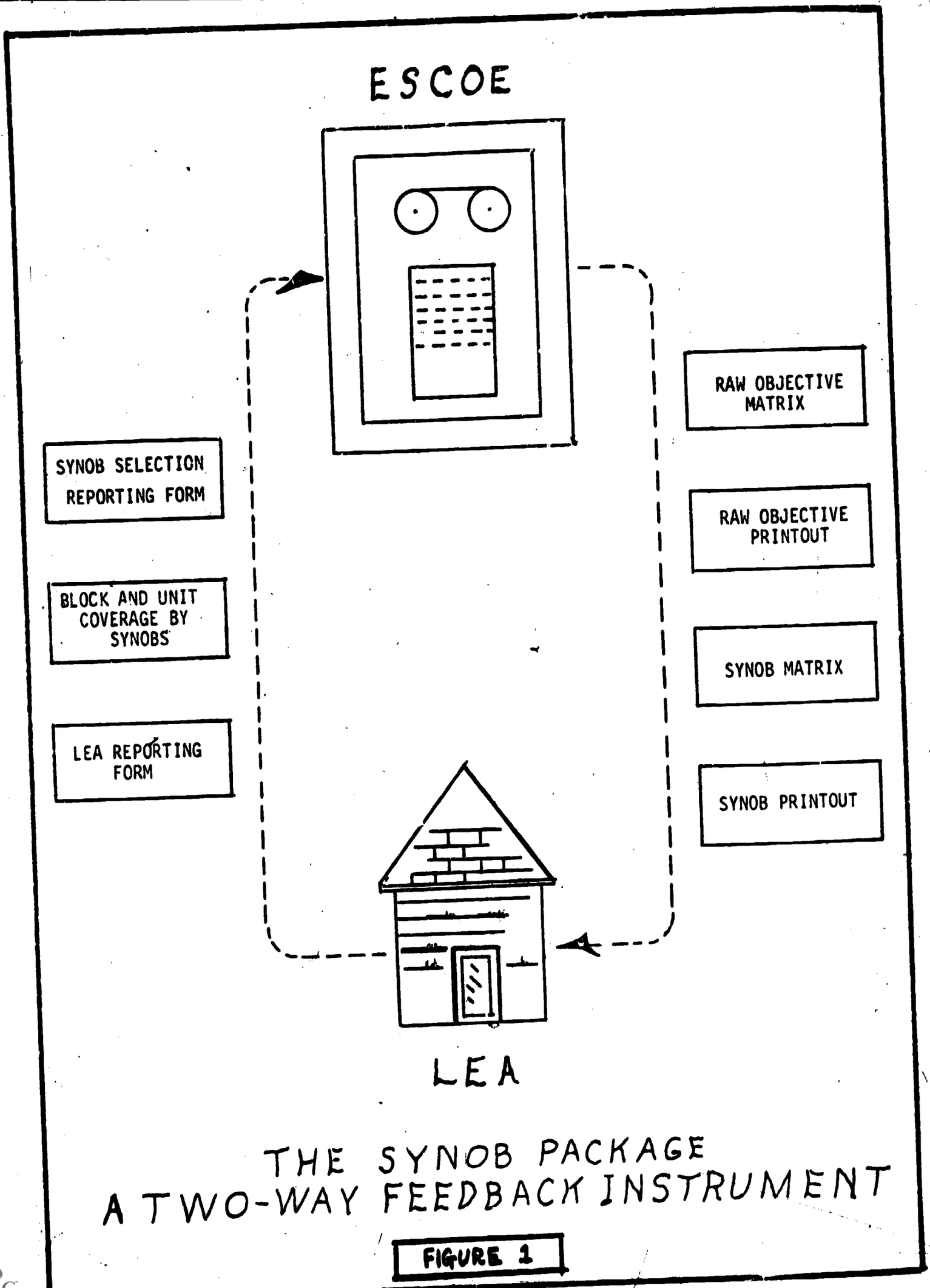
To Kathy Paranya of the University of Massachusetts Computer Center for her invaluable help and support in providing computer programs and printouts;

To Walter Long, for his helpful suggestions and the illustrations included in the Package;

And to Dr. William Conroy, Mr. Alfred Rios, and the late Mr. Jesse O. Richardson for their constant help and guidance--we are especially grateful.

Roshan R. Billimoria

John J. Iacobucci, Jr.



THE SYNOB PACKAGE
A TWO-WAY FEEDBACK INSTRUMENT

FIGURE 1

INSTRUCTIONS

RAW OBJECTIVE MATRIX

SYNOB PACKAGE SECTION I:

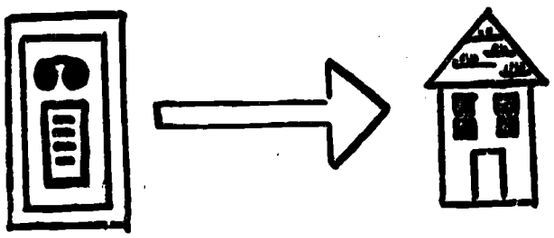


FIGURE 2

Purpose:

The Raw Objective Matrix is a one-way feedback instrument from the Evaluation Service Center for Occupational Education (ESCOE) to the Local Education Agencies (LEAs).

1. The Raw Objective Matrix communicates to each LEA individually the total number of raw objectives submitted to ESCOE by that particular school:

   (a) in each Subgroup

   (b) in each Block within the Subgroups

   (c) in each Unit within the Blocks

   Note: A zero in a particular unit square indicates that the LEA did not submit any raw objectives in that unit. This does not necessarily imply that the LEA must submit objectives to fill that "gap," although it may choose to do so after reading the synthesized objectives which cover that block and unit.

2. The Raw Objective Matrix for a particular subgroup, when used in conjunction with its respective Block and Unit Breakdown, which describes blocks and units within a subgroup by names and code

numbers, shows each LEA where its own contribution of behavioral objectives fits into the ESCOE data bank.

Note: A blank square(s) indicates end of units in that particular block. (See Block and Unit Breakdowns, Item 3 of SYNOB Package)

MATRIX

DATE 10/13/71

LEA - [illegible] LEA NAME [illegible]

UNITS

BLOCKS	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	TOTAL
01	4.	1.	0.	0.	0.	0.	2.	0.	2.	0.	0.	4.	0.	1.	0.	1.	3.	0.	0.	0.	0.	2.	4.	2.	1.	19.	46.
02	1.	1.	0.	1.	3.	0.	0.	0.	0.	1.	2.	0.	1.	4.	0.	0.	10.										24.
03	1.	0.	1.	4.	0.	1.	3.	6.																			16.
04	4.	1.																									5.
05	2.	4.																									6.
06	1.	0.	0.																								1.
07	0.	0.	1.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.							1.
08	0.	3.																									3.
09	0.	1.	0.	4.																							5.
10	0.	27.	0.	1.	1.	0.	1.	0.	0.	0.	0.	0.	0.	0.													30.
11	0.	2.	0.	6.	0.																						8.
12	8.	0.	3.	0.	2.	0.	0.																				13.
13	3.	1.	1.	1.	1.	0.	0.																				7.
14	1.	1.	1.	0.	1.	3.	1.																				8.

TOTAL NUMBER 173

FIGURE 3

RAW OBJECTIVE PRINTOUT

SYNOB PACKAGE SECTION II:

Purpose:

The Raw Objective Printout is a collection of each LEA's own objectives, sorted by subgroup and listed by blocks and units. For the user's convenience, special care has been taken to state the names and code numbers of LEAs, Subgroups, Blocks, and Units on the Printout.

A single line drawn across the page is used to separate the units within a block and a double line indicates the start of the next block. In addition, all blocks begin on a new page.

LEA = 999999 LEA NAME
SUB-GROUP = 122302 MACHINE SHOP
OBJECTIVES LISTED BY BLOCKS AND UNITS

BLOCK = 02 TECHNICAL DRAWING
UNIT = 07 MILLING,SLOT

CONDITION	VERTICAL MILLING MACHINE,2 IN SHAFT,2 LIP END MILLING CUTTER,PRINT AND LUBRICANT
PERFORMANCE	MILL A ENCLOSED KEYWAY,SELECT PROPER SPEEDS AND FEED
EXTENT	CENTERED WITHIN .005 DEPTH 1/2 WIDTH WITHIN +-.005,FREE OF BURRS

BLOCK = 02 TECHNICAL DRAWING
UNIT = 07 MILLING,SLOT

CONDITION	HDR,MILLING MACHINE,60 DEG CUTTER MOUNTED,PRINT,ALUMINUM BLOCK
PERFORMANCE	MACHINE A DOVETAIL SLOT 60 DEG SELECT PROPER SPEEDS AND FEEDS
EXTENT	FIT TO GAGE WITH .002 CLEARANCE,FRACTIONAL TOLERANCE +- 1/64,FREE OF BURRS

BLOCK = 02 TECHNICAL DRAWING
UNIT = 07 MILLING,SLOT

CONDITION	HAVING A PART MACHINED READY FOR POCKET MILLING, PRINT OF JOB, AND A VERTICAL MILL, HEIGHT GAGE, CUTTER
PERFORMANCE	LAYOUT ACCURATELY WITH HEIGHT GAGE, INDICATE MILL VISE, SET PROPER SPEED, SELECT TOOLS, LOCATE PART IN VISE, ROUGH AND FINISH POCKET, INSPECT, PER PRINT
EXTENT	TO PERFORM PER PRINT SPECIFICATIONS AND TOLERANCES.

FIGURE 4

THE SYNTHESIS PROCESS

Purpose:

The Synthesis process is one of the major services performed by ESCOE. The Synthesized Objective Printout (SYNOB PRINTOUT) is a feedback instrument from ESCOE to the LEAs and as such forms the first half of the synthesis feedback loop.

The process of synthesizing objectives involves three main steps:

1. coding of all objectives in a particular subgroup according to blocks and units
2. grouping objectives within a particular unit by similarity of performance
3. combining all objectives with similar performances into one synthesized objective which contains options--"Form Changes"--to cover the variations in Conditions, degrees of completeness, and Extent that existed in the raw objectives. (For details, see SYNOB PRINTOUT--Item 3, SYNOB Package.)

THE SYNOB PACKAGE: A TWO-WAY FEEDBACK INSTRUMENT

The other half of the loop will be completed when LEAs respond individually to these Synthesized Objectives by way of the SYNOB SELECTION REPORTING FORM (Item V, SYNOB Package), and indicate via one BLOCK AND UNIT COVERAGE REPORTING FORM (Item VI, SYNOB Package) what portion of their course (in terms of blocks and units of instruction) still remains to be covered by additional synthesized objectives.

SYNOB MATRIX

SYNOB PACKAGE SECTION III:

Purpose:

The Synthesized Objective Matrix indexes by blocks and units the synthesized objectives within a subgroup.

It provides a means of locating the synthesized objectives, by SYNOB ID number, that cover specific blocks and units. It is possible that one synthesized objective may cover several blocks and units, in which case that SYNOB ID number will appear in more than one square on the SYNOB Matrix.

A blank square indicates that at present there are no synthesized objectives in that particular unit.

SYNTHESIS OBJECTIVE MATRIX

DATE 10/15/71

SUB-GROUP 1715.2 ELECTRONICS

IT IS UNDERSTOOD THAT THE SYNOPTIC NUMBERS USED IN THE SQUARES
ON THE MATRIX ARE PREFACED BY S AND THE SUB-GROUP NUMBER
THUS - - - 001 = S-1715.2/001

UNITS

BLOCKS	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
01	.001	.004		.008	.012	.013	.013	.015	.016	.017	.018			.022	.023	.026	.027	.031		.033	.035
	.002			.009		.014		.014			.019									.034	.036
	.003							.015													.037
																					.038
																					.039
																					.040
02	.041	.043	.045	.046	.047	.048		.050	.052	.052	.052	.054	.055	.056	.057						
	.042	.045						.051	.053						.058						
03	.058	.065	.076	.080	.082	.087		.094	.097												
	.059	.066	.077	.081	.083	.088		.095	.098												
	.060	.067	.078		.084	.089			.099												
	.061	.068	.079		.085	.090			.100												
	.062	.069			.086	.091															
	.063	.070																			
	.064	.071																			
		.072																			
		.073																			
		.074																			
		.075																			
04	.101	.104	.107		.110	.127		.214		.117		.127					.129	.133	.134		
	.102	.105			.111					.118		.128					.130		.135		
	.103	.106			.112					.119							.131				
										.120							.132				
										.121											
										.122											
										.123											
										.124											
										.125											
										.126											
05	.136	.137		.142	.143	.146	.147		.149	.153	.156	.158	.160								
		.138			.144				.150	.154		.159	.161								
		.139			.145					.155			.162								
		.140																			

FIGURE 5

SYNOB PRINTOUT

SYNOB PACKAGE SECTION IV:

Purpose:

As stated previously, the Synthesized Objective Printout provides feedback from ESCOE to the LEAs.

Synthesized Objectives are listed in numerical sequence within a subgroup. Thus S 17 15 02/001 is the SYNOB ID number assigned to the first synthesized objective within the subgroup Electronics (17 15 02).

The month and year that a Synthesized Objective was developed (8/71) appears on the same line as the SYNOB ID number in the Synthesized Objective Printout.

Immediately following this line is a listing of the blocks and units (by code number and name) that are touched upon by that particular synthesized objective.

The ID numbers and the Levels of the Raw Objectives from which the Synthesized Objective was created appear below the block and unit listing.

The Components of a Synthesized Objective:

A Synthesized Objective contains three components:

1.0 Conditions
2.0 Performance
3.0 Extent

--the same basic components that form a Raw Objective.

The Synthesis Process, however, yields components that consist of a

combination of fixed and variable text. The variable text is in the form of interchangeable parts and provides a means for the LEA to select its own unique method of utilizing the different components of that synthesized objective. It is envisioned that the services of ESCOE become even more valuable to LEAs at this stage by opening up to them the options offered by other LEAs utilizing the same basic objective.

The Form Changes (options) are coded thus:

1•0 Conditions
2•0 Performance
3•0 Extent

Within the component Condition (1•0) the form change 1•11 indicates the first interchangeable part, the form change 1•12 indicates the second option within that particular interchangeable part, 1•13 indicates the third option, and so on. Form Change 1•21 indicates the first option within the second interchangeable part, 1•22 the second option, and so on:

1•0 Condition:
(fixed text)
.....

[ ] 1•11 .....
[ ] 1•12 ..... (Variable Text)
[ ] 1•13 .....

(fixed text)
.....

[ ] 1•21 ..... (Variable Text)
[ ] 1•22 .....

EVALUATION ... CENTER FOR ... EDUCATION

SYNTHESIS ... LIST ... SEQUENCE

DATE 10/14/71
PAGE 1

SUB-GROUP ... AUTOMOTIVE MECHANIC

SYNCH I.D. ...002/001 YEAR 09/71

BLOCK 01 ...
UNIT 01 ENGINE

RAW OBJECTIVE NUMBERS AND LEVELS

000529-33	000538-32	000650-33	000861-41	000861-41	000862-41	000866-42	000869-42	000870-42	000871-42	000872-42
[illegible]-43	[illegible]	000954-43	[illegible]-44	000952-44	001/20-43	001/26-21	001/27-21	001/28-21	001/29-21	001/32-21
002[illegible]-42	002/2[illegible]	002/29-43	002/3[illegible]-43	004/29-22	004/29-22	004/30-22	004731-22	004735-21	005365-43	005374-42
005376-42	005380-4[illegible]	005670-42	0056[illegible]-43	005682-43	005684-44	005690-43				

1.0 CONDITIONS

ENGINE BLOCK, ENGINE STAND, MICROMETERS, CLEANERS, PLASTIC GAGE, CYLINDER GAUGE, FEELER GAUGES, TOOLS, PARTS, MANUAL.

2.0 PERFORMANCE

(12.11 MOUNT ENGINE ON STAND.
(12.12 ENGINE IN VEHICLE
REMOVE CYLINDER RIDGE, REMOVE PISTONS.
(12.21 ...
(12.22 ... CYLINDER ...
MEASURE
(12.31 CYLINDER TAPER
(12.32 OUT-OF-ROUNDNESS
CLEAN PISTON RING GROOVES AND CHECK RING CLEARANCE, MEASURE PISTONS AND CRANKSHAFT, REPLACE SEALS AND GASKETS, R&R TIMING CHAIN, CLEAN AND REMOVE CARBON FROM ALL PARTS, REMOVE FIT AND REPLACE RIST PINS, R+R CONNECTING RODS, INSTALL
(12.41 PISTON EXPANDERS,
(12.42 KNURL
ASSEMBLE ENGINE
(12.51 CHECK ALIGNMENT OF CRANKSHAFT, FLYWHEEL, BELLHOUSING;

3.0 EXTENT

ALL ADJUSTMENTS AND SPECIFICATIONS TO MANUFACTURE RECOMMENDATIONS

FIGURE 6

BEST COPY AVAILABLE

SYNOB SELECTION REPORTING FORM

SYNOB PACKAGE SECTION V:

Purpose:

The Synthesized Objective Selection Reporting Form completes the Synthesized Objective feedback loop, in that the LEAs are given an opportunity to respond to the synthesized objectives developed by ESCOE out of the raw objectives.

The top of the form provides space for the LEA to fill in the required information about school, subgroup, level, and SYNOB ID number. Space is also provided under Conditions, Performance, and Extent for LEAs to indicate, by inserting the appropriate form change number, which form change (option) or group of form changes are used by them in each component.

Furthermore, the LEA may indicate the need for additional form changes within a component by adding the next highest form change number and, in the space provided, specifying the additional form change desired.

There is also space to make general comments on either the separate components or the whole synthesized objective. For example: an LEA may disagree with a portion of the fixed text and indicate this in the place provided, by inserting its own version.

It would also be helpful if--in the block of space provided for General Comments--each Instructor/Facilitator would indicate approximately how well (in percentages) this particular synthesized objective covers his/her course of instruction.

Form A

October 1971

EVALUATION SERVICE CENTER FOR OCCUPATIONAL EDUCATION

Synthesized Objective Selection Reporting Form

Date _____

School _____

Subgroup _____

Instructor _____

Facilitator _____

SYNOB ID # _____

Level _____

No. of Pupils _____

1.0 CONDITIONS [ ] _____

[ ] _____

[ ] _____

[ ] _____

[ ] _____

2.0 PERFORMANCE [ ] _____

[ ] _____

[ ] _____

[ ] _____

[ ] _____

3.0 EXTENT [ ] _____

[ ] _____

[ ] _____

[ ] _____

[ ] _____

GENERAL COMMENTS:

How well does this Synthesized Objective cover your course of instruction?

[ ] %

_____

_____

_____

_____

_____

_____

FIGURE 7

BLOCK AND UNIT COVERAGE

BY SYNOBS -- LEA REPORTING FORM

SYNOB PACKAGE SECTION VI:

Purpose:

The purpose of this reporting form is to render a more meaningful feedback from each LEA to ESCOE on the Synthesized Objectives developed by the Center. It is thus another step in completing the second half of the feedback loop.

The Block and Unit Coverage by SYNOBS Reporting Form makes it possible for each LEA to respond to ESCOE's coverage of blocks and units of instruction within a particular subgroup, by the Synthesized Objectives developed at the Evaluation Service Center.

As has been mentioned earlier, the SYNOB Matrix (SYNOB Package, Item III) provides a means of locating Synthesized Objectives--by SYNOB ID numbers--that "touch upon" specific blocks and units.

Now this Block and Unit Coverage by SYNOBS Reporting Form (SYNOB Package, Item IV) provides an opportunity for each LEA to indicate what portion of their course of instruction (by blocks and units) still remains to be covered by Synthesized Objectives.

Thus a percentage figure in a particular square indicates what portion of this LEA's course (by blocks and units) has not been covered by ESCOE Synthesized Objectives.

A blank in a square indicates that the LEA feels that the particular unit of instruction is adequately covered by ESCOE's Synthesized Objectives.

Form B

EVALUATION SERVICE CENTER FOR OCCUPATIONAL EDUCATION

October 1971

LEA REPORTING FORM

Block and Unit Coverage by Synthesized Objectives

School _____ Date _____

Subgroup _____

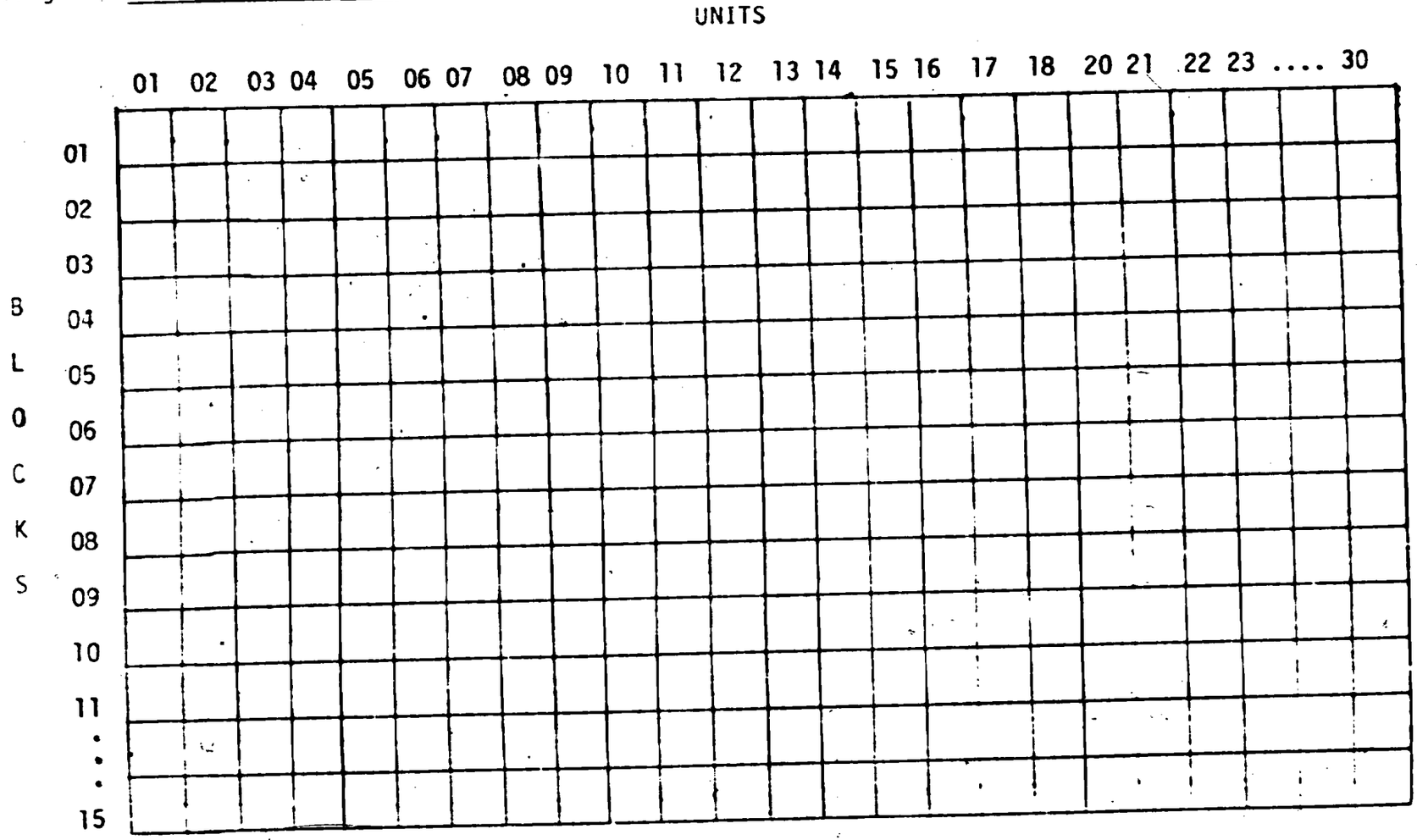


Figure 8

GLOSSARY OF TERMS AND PHRASES

AFFECTIVE CAPABILITIES

Positive or negative feelings toward an object, person, or idea.

AFFECTIVE DOMAIN

The sphere of learning that deals with feelings or attitudes.

BATCH

A set of four subgroups processed simultaneously.

BEHAVIORAL OBJECTIVE

A measure from which capabilities can be inferred, listing the exact performance to be demonstrated, the exact conditions under which the performance is carried out, and the exact extent (degree of completeness, accuracy, speed, etc.) to which the performance will be measured.

BLOCK

Largest instructional segment of a subgroup.

CAPABILITY CLASSIFICATION

A system for coding the abilities demonstrated by the performance of a behavioral objective as psychomotor, cognitive, affective, or combinations thereof.

CATEGORY BREAKDOWN

The terms Field of Study, Major Group, Subgroup--which ESCOE uses to categorize occupational programs of study.

CODING HEADER

A tabular listing of data.

COGNITIVE CAPABILITIES

The ability to do things that are mostly intellectual or mental in nature. In general, cognitive capabilities involve acquiring and applying knowledge or information.

COGNITIVE DOMAIN

The sphere of learning which deals with developing intellectual or mental capabilities.

CONDITIONS

That portion of a behavioral objective which states the exact circumstances under which the objective is performed, including: instructions, raw materials, parts, tools, equipment, drawings, models, etc.

CRITERION

A standard of judgment.

CRITERION-REFERENCED STANDARDS

Scores are interpreted as to the amount of proficiency the individual exhibits in a subject area. The score would describe how the student performed on specific objectives at a given point in his learning program.

CRITERION TEST

The evaluation instrument used to assess the degree to which the performance of the student meets pre-determined performance objectives.

DOMAINS

Educational spheres of learning, i.e., Affective, Cognitive, Psychomotor.

ESCOE

Evaluation Service Center for Occupational Education.

EXTENT

That portion of a behavioral objective which states the exact criteria used to measure the performance, including: tolerances, accuracy, quality or workmanship, speed, etc.

FACILITATOR

ESCOE liaison person in a local educational agency.

FEEDBACK

The process of communicating the products of the system to the users and the process by which the users react to the performance of the system.

FEEDBACK CHECKLIST

Form used by ESCOE to communicate responses/comments relative to objectives submitted by LEAs.

FIELD OF STUDY

The broadest category of occupational area classification, i.e., Trade and Industry, Health Occupations, etc.

FIXED TEXT

The portion of a synthesized objective that is not optionable.

FORM CHANGES

The options available within a synthesized objective. (The so-called variable text.)

INPUT

Material upon which the system operates and is developed.

LEA

see Local Educational Agency

LEARNING DOMAINS

Spheres of educational influence, i.e., Affective, Cognitive, Psychomotor.

LOCAL EDUCATIONAL AGENCY

A school, i.e., high school, trade school, vocational-technical school, BOCES center, community college, junior college, skills center, etc.

MAJOR GROUP

Category breakdown of occupational programs within a Field of Study, i.e., Health occupations: Dental Services, Medical Services, Nursing.

MATRIX

A rectangular array of information displayed on a chart having horizontal and vertical coordinates.

NORM-REFERENCED STANDARDS

Traditional approach where students' performance is compared to the performance of others in the same reference group, such as achievement tests and aptitude tests. These tests provide no direct indication of the individual's degree of proficiency in the subject matter.

OUTPUT

The product of the system.

PERFORMANCE

That portion of a behavioral objective that states the exact observable behavior that is required.

PRINTOUT

Printed computer output.

PROCESS

The ongoing state of the system while doing whatever has to be done in order to attain the purpose.

PSYCHOMOTOR CAPABILITIES

The ability to do things that are mostly muscular in nature, but which ensue from cognitive capabilities. In general, psychomotor capabilities involve manipulating objects with various parts of the body.

PSYCHOMOTOR DOMAIN

The sphere of learning that deals with developing physical skills requiring muscular coordination and varying degrees of strength.

RAWOB

see Raw Objective

RAW OBJECTIVE

Behavioral Objective written by the Local Education Agency.

SUBGROUP

Category breakdown of occupation programs within a Major Group, i.e., Dental Services: Dental Assistant, Dental Laboratory Technician, Dental (other).

SYNOB

see Synthesized Objective.

SYNTHESIZE (dictionary)

(1) To make up by combining parts or elements.
(2) To combine into a complex whole.

SYNTHESIZED OBJECTIVE

A behavioral objective consisting of fixed and variable text, produced by combining raw objectives having the same or similar performances into one objective so that all variations of conditions and extent indicated by the LEAs are included.

SYSTEM

Entity designed by man which applies commonsense decision-making by using self-correcting and logical methodology. Includes identification of specific goals and objectives, the analysis of functions and components, the training and testing of the system, the installation and quality control.

TERMINAL OBJECTIVE

A desired outcome of an educational program.

Infers a capability which is an essential, specific occupational competency.

A capability that cannot be inferred from a higher order objective.

TEST DEVELOPMENT

The research process of creating, from standard instructional activities, measures of performance stated by each synthesized objective. The process includes placing these observed activities in a format so as to standardize their administration and scoring, and so that they may be requested and organized into a test packet tailored to test the objectives taught in a given classroom.

UNIT

Instructional segments within a Block.

U.S.O.E.

United States Office of Education.

U.S.O.E. Code

United States Office of Education code numbers used to identify trades, academic subjects. occupational areas, etc.

Variable Text

That portion of a synthesized objective which is optionable. (The Form Changes.)

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