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ABSTRACT

A project was undertaken to develop a set of individualized instructional materials for use in helping academically disadvantaged students to acquire the vocational, study, and learning skills necessary to succeed in secondary and postsecondary programs. In order to identify the industrial vocational concepts and related study and learning skills that are fundamental to a widespread number of vocational programs, researchers administered questionnaires to 11 of the 14 full-time instructors in the Industrial Division at Linn-Benton Community College in Oregon. Based on the results of this survey, the researchers developed 30 individualized learning activity packages dealing with the following areas: measurement, fasteners, simple machines, electricity, and hand tools. In addition to covering these five vocational skills areas, the modules also address various study and learning skills, including vocabulary, recalling details, following directions, memorization, notetaking, observation skills, and test taking skills. The final stage of the project involved the development of 18 instructional aids to help academically disadvantaged vocational learners to achieve the desired content and process objectives for each module. (Appended to this report are data detailing the costs of developing the individual materials as well as the cost of the project as a whole.) (MN)

FINAL REPORT

"Fundamental Vocational Skills for Disadvantaged Learners"

Funded by: Curriculum Development Unit
Instructional Services Division
Oregon Department of Education

Funding Period: September 15, 1978 - July 30, 1979

Purpose: The purpose of this project was to identify industrial vocational concepts and related skills which are fundamental to a widespread number of vocational programs. Individualized instructional materials were then developed which would promote the acquisition of these vocational skills as well as the basic learning skills necessary to succeed in vocational programs.

The project was to develop a model which was transportable to other secondary and post-secondary institutions. The State Department of Education was to receive thirty learner modules and a minimum of eighteen multimedia aids.

Project Director: Carroyl Kleine
Linn-Benton Community College

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Overview

One of the fundamental concepts changing Amercan society, and education in particular, is "Equality of Opportunity." Too often, however, this concept is translated to "equal access: or the general open-door policy. Many students choosing to enter vocational education find that they do not have an equal opportunity for success because they lack proficiency in basic learning skills or they lack basic experiences and knowledge which is assumed for their peers. Another source of inequality is the general lack of materials which are appropriate for different learning styles.

Many vocational students are academically, or educationally, disadvantaged not because of differences in vocational ability or potential but because of lack of opportunity or development of other skills. In order to provide greater equality opportunity and potential for success for these students, services and materials were developed which relate to their interests, needs, and learning requirements.

Many of the students who pass through the open doors of a community college do so with reservations, reluctance, or even fear. They have not previously experienced success and satisfaction through education. They may be returning for further education, but are caught up in a web of failure in the development of basic learning skills. Students cannot open many doors to opportunities if they do not read, write, and compute well.

The community college may well represent the last opportunity for many students to learn the skills and knowledge they require. More appropriately, it may be their last chance to learn how to learn. For the colleges, this is a tremendous challenge and responsibility. The community college must provide these students with opportunities in basic skills if they are going to develop the skills and attitudes which they need to (1) earn a living; (2) be thoughtful, responsive citizens; and (3) lead full, interesting and useful lives.

In terms of learning behavior, as well as behavior in general; each person perceives in accordance with individual needs, goals, defenses, and values. An instructional program which is designed to change and improve learning skills must affect many other changes and must be treated accordingly. The process of education is fundamentally a change in the way individuals perceive their environment and their individual roles in society. The important component in the determination of behavior is the meaning which objects, facts, and settings have for the person through their relationship to personal beliefs, values, and priorities.

Materials forced upon students without consideration of their present needs and immediate goals tend to acquire a negative connotation. This is no less true if the materials are labeled "remedial" or "developmental" and administered in a learning laboratory setting. Students must perceive relevance to their

needs and goals if learning experiences are to be effective in changing their skills and their lives. As developers of instructional materials we had to accept the task of dealing with learning skills while at the same time providing relevant content and practical activities designed for reinforcement of conceptual and theoretical learning. An adequate and appropriate treatment of both skills and content was mandatory if the community college is to remain "open door" and responsive to local needs, but still be accountable as an institution of higher learning.

This project specifically addressed the development of instructional materials for academically disadvantaged students in industrial/vocational/occupational education. At times, these students are referred to as "learning disabled" or "low-achieving". A standard, accepted definition does not seem to exist, even at the individual institutional level. As a result of differences in definitions and standards used for classifying disabilities of disadvantages, the literature concerned with the general population of students who are academically disadvantaged is inconclusive and often contradictory. In many cases, researchers have been unable to establish appropriate control groups or other experimental conditions. Few studies have taken into account the effects of the school environment on the teaching/learning process or the differences in learning modes for individual students.

"Academically Disadvantaged" is defined as follows by the State Department of Education:

> "Academically Disadvantaged--means that the INABILITY TO SUCCEED IN VOCATIONAL COURSES is a direct result of one or more of the following student characteristics:
> --math, reading or writing level below the demands placed upon the student in the vocational courses.
> --study skills don't meet the demands of the vocational courses.
> --fear (avoidance) of academics due to past failure.

For the purposes of this project, the definition was somewhat broadened to take into account disadvantages which result from lack of appropriate educational experiences--as in the case of women with respect to industrial programs. They have no practical experience with tools and equipment which will allow them to enter classes at the functional level of their peers. Many students are academically disadvantaged not because of differences in ability or potential but because of differences in opportunities.

Educators have coined many terms to describe what they mean by individualized learning. As it applies to the ideas and techniques presented in this project, individualized learning is the process of developing and retaining individuality by a program organization that provides for the effective and efficient learning experiences of each student. Teaching and learning methods which focus on one approach to subject mastery are replaced by alternative methods which are responsive to individual differences in achievement, interest and preferred learning modes.

Relating Instructional Design to Population Characteristics

Experience in working with the academically disadvantaged students has led to the generalization that these students are likely to exhibit one or more, if not all, of the following characteristics:

They perform four years or more below the reading grade level.

They have shorter attention spans and prefer a variety of materials and activities.

They prefer overt or direct methods of learning.

They have some basic writing skills, but their ability to project new ideas is limited. They are more successful when relating to their own immediate environment.

They require more cues from their environment to stimulate thought and give meaning to their perceptions.

They may be quite effective in a variety of situations outside of the school or classroom environment.

They have developed attitudes and behaviors which indicate feelings of low self-worth.

These students can generally write a little about what they have done, observed, and read, but cannot project new or complex ideas with much success. Learning activities had to establish a strong similarity between what occurs in the classroom and what the student does or sees other people do outside the classroom. Activities were, therefore made concrete by basing them on tangible features of the student's environment and particularly on the individual's vocational aspirations.

There is reason to believe that the low achieving students require more cues in the way of details to stimulate thought. "Simplification" of instructional materials necessitated their explanations to include much necessary detail and illustrative material. In writing these special instructional materials the project staff was cognizant of the fact that the number of principles presented had to be reduced with the depth of understanding remaining as nearly constant as possible.

The creation of these instructional materials for academically disadvantaged students was based on the premise that the level of social and cultural sophistication of these students is probably well above their learning skill development. Students will not be interested in a naive approach and will probably rebel at materials and activities which appear "juvenile." Care was taken to avoid student reactions of this type because of the undesirable psychological effects which were prime considerations within this project.

In developing instructional materials to be used by academically disadvantaged students, certain parameters were established which relate the design of the materials to the characteristics of these students.

The majority of students identified as academically disadvantaged read at least four years below their grade level. To compensate for this factor, the project writers kept the compositions of written materials at a level that is not beyond the capacity of each student. Reading levels were maintained between the 6th and 8th grades.

This was accomplished by:

1. Use of graduated vocabulary lists. Linn-Benton Community College has developed a computer-based program for readability analysis, using several formulas, which establishes reading levels and identifies words which are not common to the vocabulary at a given reading level.
2. Careful introduction of new concepts or terms. Unfamiliar words, both technical and non-technical, were defined when introduced and redefined in a variety of contexts.
3. Avoidance of complex or abstract terms which do not add to understanding. Comprehension was not jeopardized to augment the vocabulary of the reader. Whenever possible, difficult technical material were simplified by substituting more concrete and familiar words for unfamiliar and abstract words. Instead of describing lightning as a spectacular exhibition of static electricity, the writer replaced "spectacular exhibition" by "great display". The level of reading difficulty is significantly reduced without adversely affecting the validity of concept or appeal to the vocational student.

Another common trait of the academically disadvantaged student is a short attention span. Provisions for this characteristic was achieved by varying the materials and learning activities as much as possible and by making a concerted effort to relate content and activities to previous experiences of the students. In order to enhance understanding, new concepts were presented in several ways. Explanations are explicit and precise. Materials include frequent summaries and opportunities for self-evaluation.

Students characterized as academically disadvantaged often learn more readily from overt and directed experience than from reading. They also encounter considerable difficulty comprehending abstract concepts. These students should profit from learning activities which involve manipulation of concrete learning episodes which call for only moderate amount of reading. Student interest in, and a need for, reading as a means of gaining additional information can be developed and fostered by the use of "work sample" activities.

Work Program Summary

Goal 1: Identify industrial vocational concepts and related skills which are fundamental to a widespread number of vocational programs. (ie. mechanical principles, principles of energy, measurement, use of non-verbal symbols.)

Objectives:		Completed:	
1.1	Systematically obtain and organize task information from the Dictionary of Occupational Titles and existing task analysis of occupations.	11/15/78	
1.2	Devise a questionnaire to be administered to LBCC industrial/trade programs to determine the relevance of each task to specific occupations.	12/01/78	See pp. 11-14
1.3	Administer the questionnaire and compile data.	12/15/78	See pp. 15-16
1.4	Review data with project steering committee.	01/21/79	
1.5	Select a minumum of six and a maximum of nine concept areas for curriculum development within this project.	01/21/79	See chart on pp. 17
1.6	Develop task statements for each concept area in terms of activities and materials (ie. cutting metal, etc.).	02/01/79	

* The questionnaires were administered to eleven of the fourteen full-time instructors in the Industrial Division. All programs were represented by at least one faculty representative.

1.7	Select supporting Learning Activity Package topics from the list of task statements in 1.6.	02/01/79	
1.8	Develop sequence of L.A.P.'s within module.	02/10/79	Also illustrated on charts pp. 17-21

Survey of Study Learning Skill Necessary for Industrial Instructional Programs at LBCC

Directions: Study/Learning Skills which are:

2 = required for successful completion of our program

1 = helpful for successful completion of our program

0 = not applicable

Following Directions

_____ 1. Verbal
_____ 2. Written
_____ 3. Illustrated
_____ 4. Demonstrated

Understand and Use Specific Technical Vocabulary

_____ 1. Word recognition (at _____ level)
_____ 2. Understand the meanings of new words when the author has provided clues within the selection (context clues)
_____ 3. Use the dictionary to find the meanings of new words.
_____ 4. Select appropriate definition for use in context.
_____ 5. Pronounce new words correctly.
_____ 6. Use new words in writing.

Comprehend Written Material

_____ 1. Identify subject matter.
_____ 2. Identify topic sentence.
_____ 3. Understand the main idea of sentences, paragraphs, and longer selections.
_____ 4. Relate material read to personal experience.
_____ 5. Detect sequence.
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_____ 10. Understand the effects of marks of punctuation.
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_____ 12. Understand word relationship (dog is to cat)
_____ 13. Recall details and factual information

Listening Skills

_____ 1. Understand spoken vocabulary
_____ 2. Listen for main point (be able to paraphrase)
_____ 3. Draw outline from spoken material
_____ 4. Filter distractions when listening

Reference Skills

_____ 1. Use specifications manual
_____ 2. Understand illustrations:
  _____ a. line drawings
  _____ b. exploded diagram
  _____ c. schematic diagram
  _____ d. photograph
  _____ e. cartoon
  _____ f. mechanical drawing
_____ 3. Understand charts
_____ 4. Understand graphs
_____ 5. Understand tables
_____ 6. Understand maps
_____ 7. Understand legend (explanation of symbols used)

Study Techniques

_____ 1. Highlight (underline) relevant material
_____ 2. Utilize SQ4R - (Survey, Question, Read, Recite, Review, Reflect)
_____ 3. Take notes on lecture
_____ 4. Take notes on reading
_____ 5. Test taking skills--objective
_____ 6. Test taking skills--subjective (essay)

Classification Skills

_____ 1. Alphabetize materials
_____ 2. Order materials numerically
_____ 3. Catagorize information or materials

Basic Reasoning Skills

_____ 1. Observation skills
_____ 2. Visualize
_____ 3. Arrange ideas in logical order (time, space)
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_____ 6. Distinguish between fact and opinion

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_____ 9. Write a cause and effect paper
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_____ 11. Summarize
_____ 12. Write instructions
_____ 13. Draw line diagrams
_____ 14. Draw illustrations
_____ 15. Use symbols
_____ 16. Write a critique-analysis
_____ 17. Write the correct form of the business letter
_____ 18. Write anecdotal reports (observational reports)
_____ 19. Write a resume
_____ 20. Write a research (term) paper
_____ 21. Write correct footnotes and bibliographies
_____ 22. Write a book (abstract, article, chapter, etc.) review or summary
_____ 23. Write a memo
_____ 24. Recognize in a sentence the parts of speech
_____ 25. Use correct grammatical forms (verbs, pronouns, etc.)
_____ 26. Apply the rules of punctuation correctly
_____ 27. Fill out forms correctly

Speaking Skills

_____ 1. Formulate questions
_____ 2. Give verbal directions
_____ 3. Give oral presentations of information

Non-Verbal Communication Skills

_____ 1. Give demonstrations

Basic Physical Skills

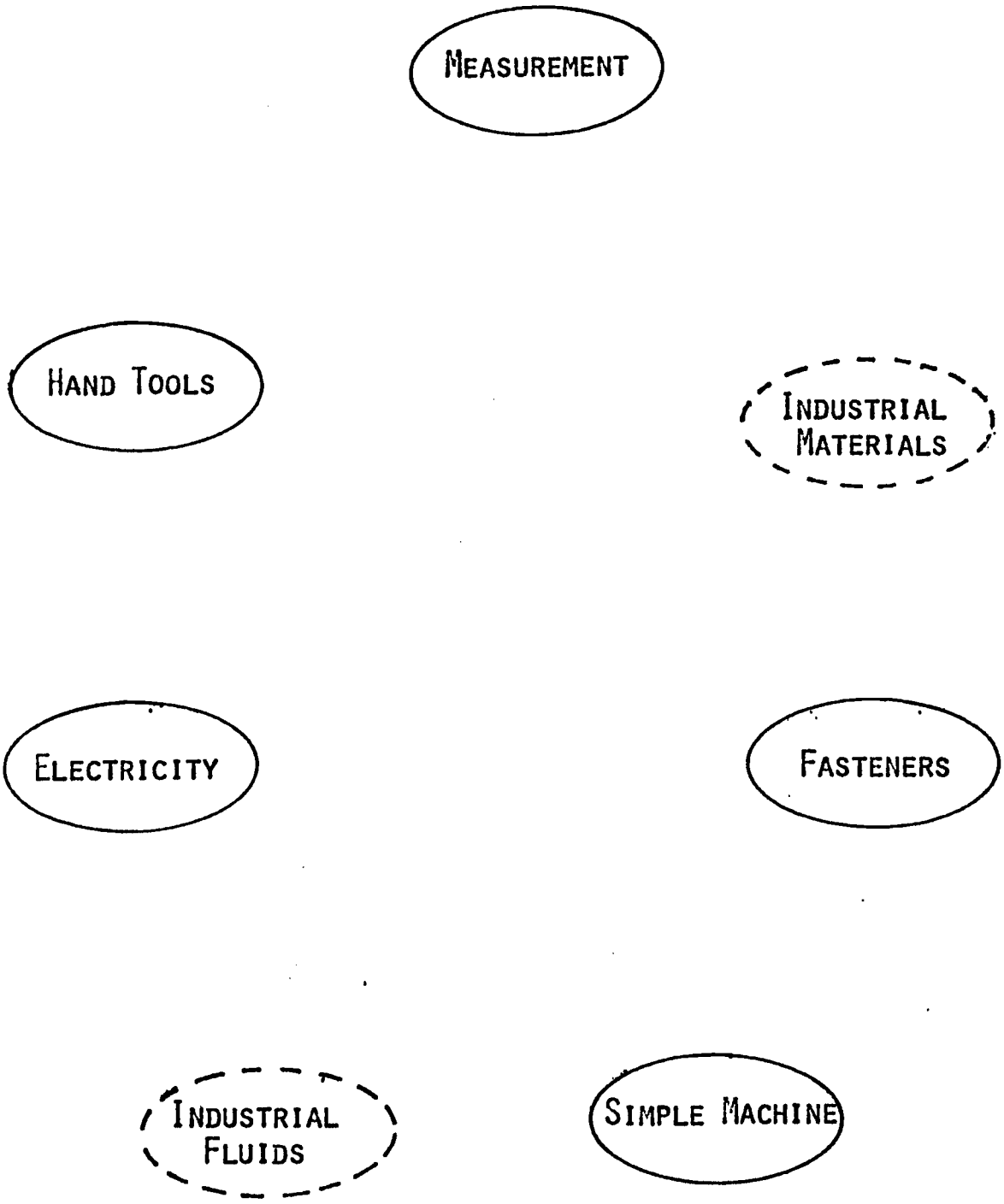
_____ 1. Eye-hand coordination
_____ 2. Eye-foot coordination
_____ 3. Hand-foot coordination
_____ 4. Ambidexterousness
_____ 5. Strength
  _____ a. Lift 25 lb.
  _____ b. Lift 50 lb.
  _____ c. Lift more than 50 lb.
  _____ d. Arm and upper body (Apply _____ lbs. torque pressure)
_____ 6. Stand for long periods of time
_____ 7. Bend over frequently
_____ 8. Sit for extended periods of time

Rank Order* of Skills Indicated As Pre-requisite

14	Hand tools
16	Power tools
19	Steel Rules and tapes
23	Fasteners
29	Abrasives Taps and Dies
30	Basic Machines Setting-up gas welding and cutting equipment
31	Brazing Volts, amps, and resistance
32	Area and Volume measurements Tool sharpening
33	Geometrics of shape Fits and tolerances Fittings and Connectors
34	Fuels, lubricants, coolants Stress verses strain
35	Force, Area, Pressure
36	Heat: Transfer, intensity, and types Heat Treatment of metals Properties of welding rods AC electrics DC electrics Alloys and metals
38	Pipe and tubing
39	Batteries Chemistry of ignition Vacuum verses pressure Circles, cylinders, spheres, and displacement Seals, gaskets, and sealants
40	Belts and chains Electric motors, start and run, windings
41	Insulation "R" factors Welding tips (gas): sizes, types and uses
42	Gravity -- weight

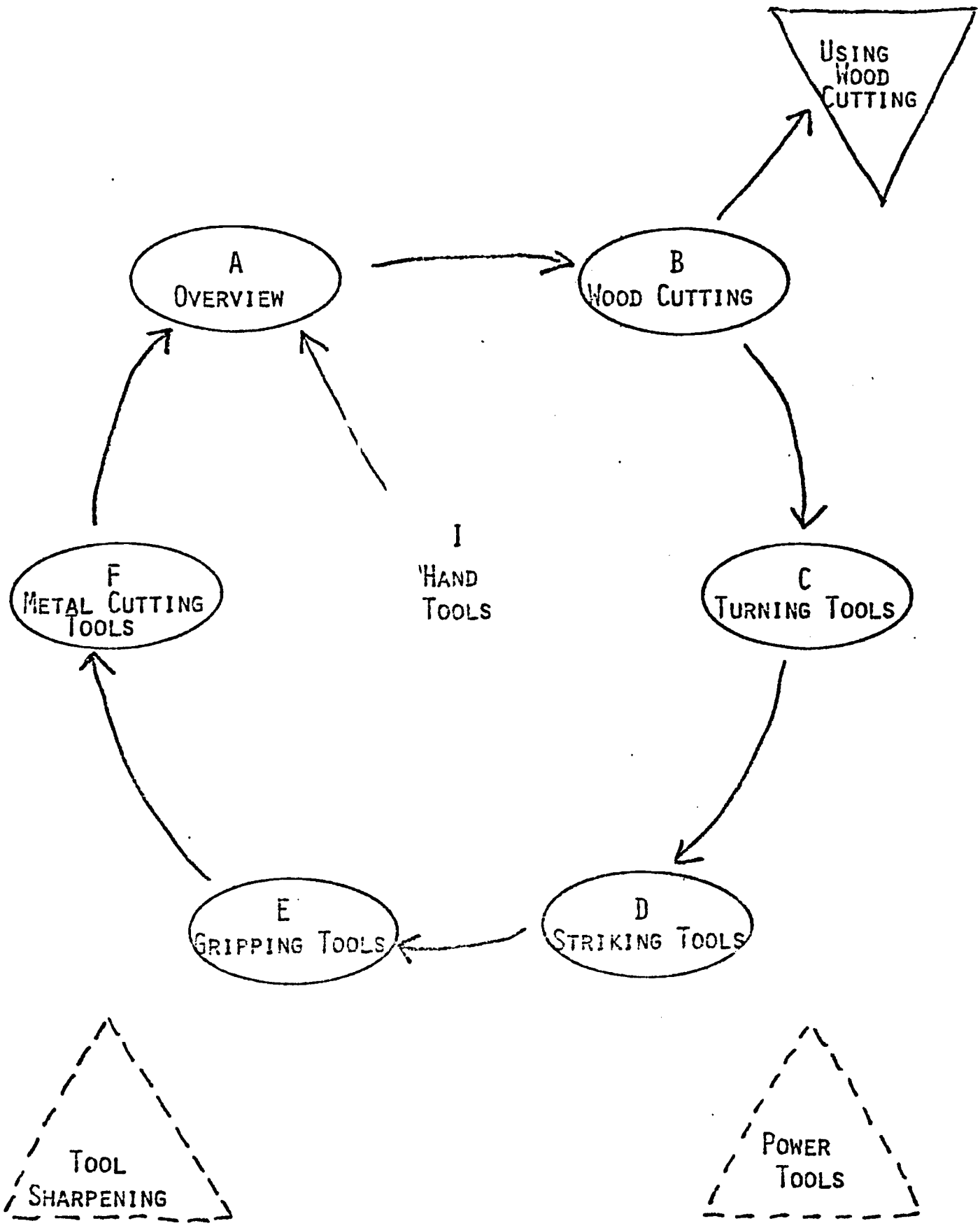
* This ranking is done using the lowest score as the most desirable.

43	Thread pitch gauge Plug Gauges Gauges, vacuum, pressure, mometer, etc. Lapping magnets and magnetos
44	Tachometers Hardness Tester Trianulation -- transition
47	Gears: types,sizes, nomenclature Springs (Hookes Law)
48	Sheet metal, seems Bournellies Law Framing Termonology: construction Power kinds of measurement
49	Basic Valves (types and application)
50	Generation of electrical energy
51	Gas analyzer Plywood (grades and construction) Lumber (grades and sizes) Board feet calculation
52	Oscilloscope Spark plugs
53	Light meter Resonance Furniture and cabinet joints
54	Dwell meter Optical basics -- level and light spectrums
55	Docimeter



——— Modules Selected for Development

- - - - Topics not modularized in this project



_____ L.A.P.'s completed

_ _ _ _. Projected but not completed as a part of this project

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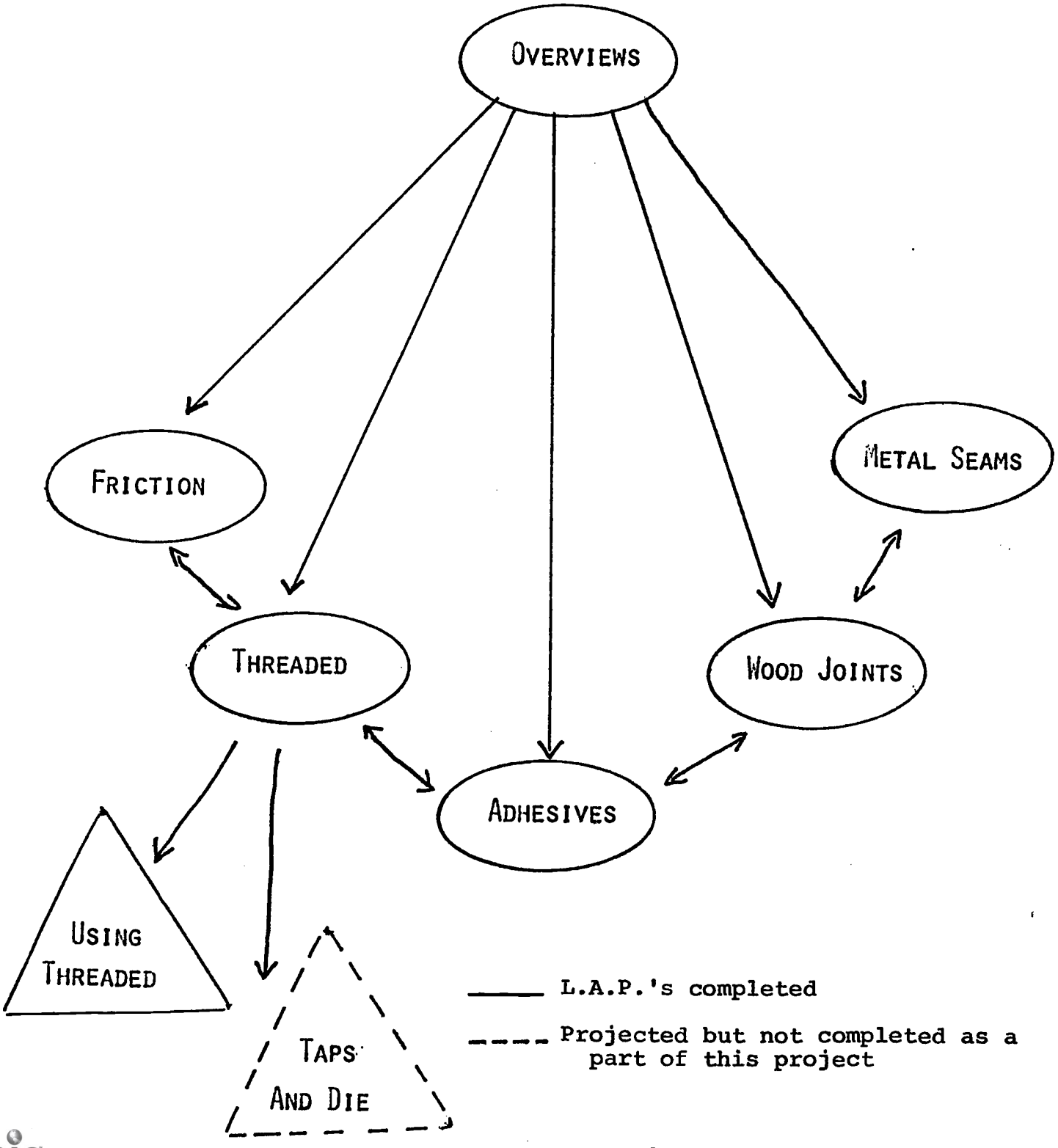
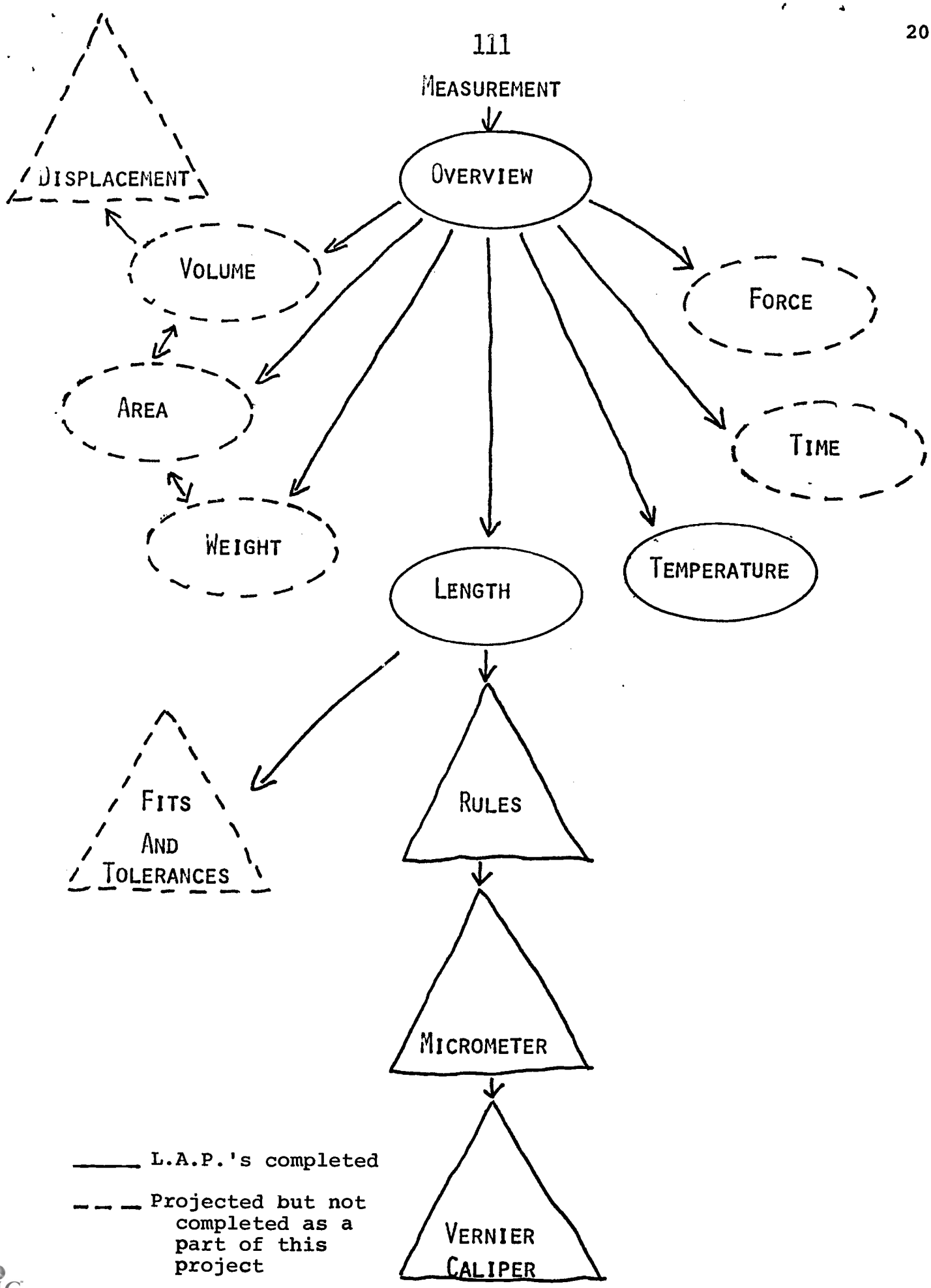
FASTENERS




MEASUREMENT
OVERVIEW
DISPLACEMENT
VOLUME
AREA
WEIGHT
FORCE
TIME
TEMPERATURE
LENGTH
FITS AND TOLERANCES
RULES
MICROMETER
VERNIER CALIPER
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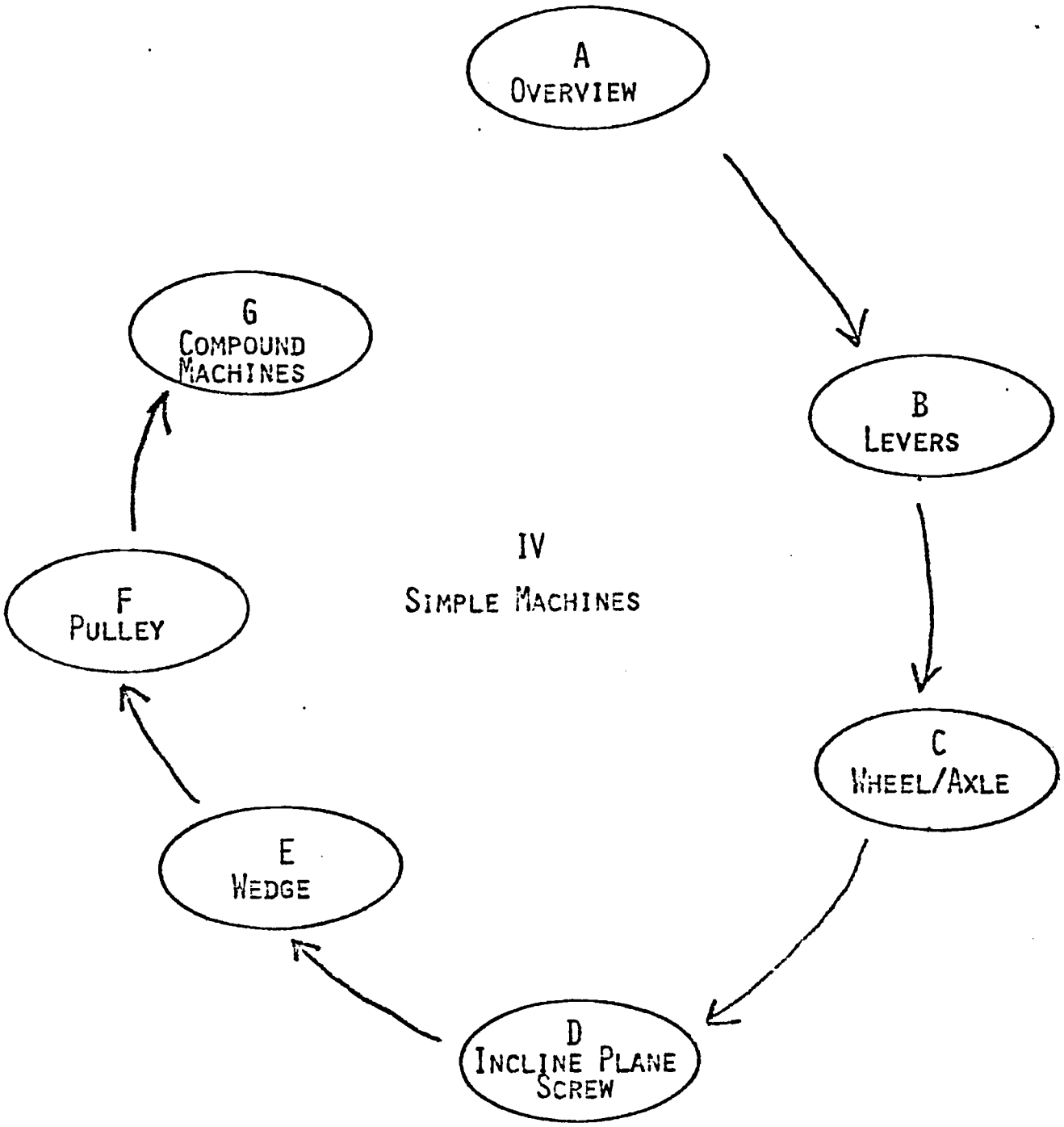


_____ L.A.P.'s completed

_ _ _ Projected but not completed as a part of this project

Goal 2: Develop thirty individualized Learning Activity Packages within the concept areas identified in Goal 1 which will provide the students with opportunities:

A. to explore concrete occupational tasks which enable them to gain information about the trade/industrial occupational clusters.

B. to gain self knowledge of their capabilities and weaknesses without experiencing the punitive effects of failure.

C. to gain insight into the learning skills necessary for fundamental vocational tasks.

D. to assess their developmental level of those learning skills.

E. to participate in supporting learning episodes which will
   1. enhance their knowledge and skills in the vocational content of the Learning Activity Packages, and
   2. further their developmental level in identified learning skill areas.

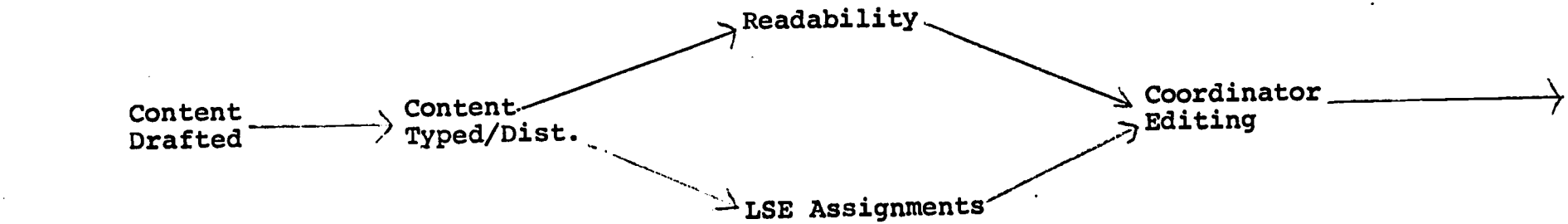
Objectives:	Completed:	
2.1 Develop a format for Learning Activity Packages that addresses the needs of the academically disadvantaged vocational students.	02/07/79	See Final Product
2.2 Review LAP format with advisory committee and make revisions as appropriate.	02/09/79	
2.3 Identify and articulate goals of Learning Activity Packages in terms indicating that the student will be able: to solve some work-related problem to perform some skill operation to produce some tangible product.	02/07/79	See Final Product

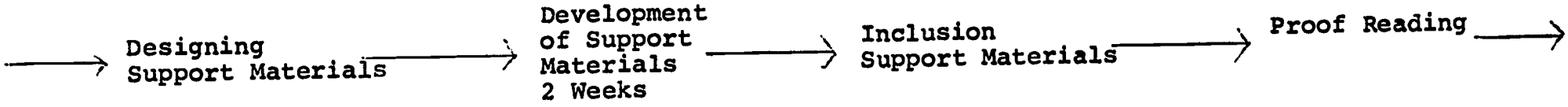
Objectives:		Completed:	
2.4	Contract with writers to draft vocational content.	02/07/79	
2.5	Develop drafts of vocational content information.	05/30/79	
2.6	Review and critique drafts by project staff.	06/12/79	
2.7	Do Readability Analysis.	06/15/79	Computer Print-Outs on file
2.8	Produce each Learning Activity Package.	07/30/79	See Final Product
*2.9	Field test each Learning Activity Package with academically disadvantaged vocational students.		
*2.10	Compile evaluation data obtained from the field test.		
*2.11	Revise each Learning Activity Package as appropriate from evaluation data.		

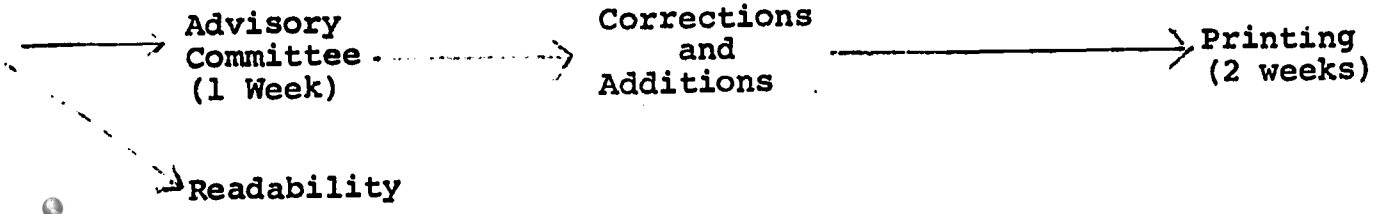
* These objectives will be completed after the end of the funding period.

The production flow process is illustrated on page 25. This production includes the incorporation of the Learning Skills Episodes (See Goal III).

L.A.P. Production Flow







Goal 3: Develop a wide variety of materials and activities which will provide a systematic sequential development of learning skills and competencies for academically disadvantaged vocational students. The materials will:

A. relate directly to the content of industrial occupational training.

B. be appropriate for different types of student learning styles.

C. provide students with opportunities to make decisions about what they learn and how they learn it.

Objectives:	Completed:	
3.1 Examine pre-assessment data for academically disadvantaged students as assessed by the CGP.	11/30/78	
3.2 Develop a task analysis of learning skills.	11/30/78	
3.3 Develop a questionnaire to determine those learning skills which would be most helpful to students enrolled in LBCC vocational programs	12/01/78	See pp. 28-31, also pp. 37-38
3.4 Administer questionnaire to program chair persons and other appropriate staff.	12/15/78	Compilation pp. 32-36, also pp. 39-40
3.5 Develop a working curriculum model of the learning skills most needed by LBCC industrial students.	01/10/79	See charts on pp. 41-45
3.6 Review critique with steering committee and revise as appropriate.	02/23/79	
3.7 Develop a taxonomy of learning skills identified in 3.6 above (for a sample of this tool see appendix).	03/01/79	
3.8 Write draft copies for learning skills episodes.	06/15/79	

Objectives:		Completed:	
3.9	Review and critique learning skill episodes.	06/30/79	
3.10	Produce each learning skill episode.	07/30/79	See final product
*3.11	Field test each learning skill episode with academically disadvantaged vocational students.		
*3.12	Compile evaluation data obtained from field test.		
*3.13	Revise each learning skill episode as appropriate from evaluation data.		

* These objectives will be completed after the end of the funding period.

Survey of Study Learning Skill Necessary for Industrial Instructional Programs at LBCC

Directions: Study/Learning Skills which are:

2 = required for successful completion of our program

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_____ 2. Written
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Understand and Use Specific Technical Vocabulary

_____ 1. Word recognition (at _____ level)
_____ 2. Understand the meanings of new words when the author has provided clues within the selection (context clues)
_____ 3. Use the dictionary to find the meanings of new words.
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_____ 1. Identify subject matter..
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_____ 1. Understand spoken vocabulary
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Study Techniques

_____ 1. Highlight (underline) relevant material
_____ 2. Utilize SQ4R - (Survey, Question, Read, Recite, Review, Reflect)
_____ 3. Take notes on lecture
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_____ 2. Visualize
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Writing Skills

_____ 1. Spell correctly
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Speaking Skills

_____ 1. Formulate questions
_____ 2. Give verbal directions
_____ 3. Give oral presentations of information

Non-Verbal Communication Skills

_____ 1. Give demonstrations

Basic Physical Skills

_____ 1. Eye-hand coordination
_____ 2. Eye-foot coordination
_____ 3. Hand-foot coordination
_____ 4. Ambidexterousness
_____ 5. Strength
  _____ a. Lift 25 lb.
  _____ b. Lift 50 lb.
  _____ c. Lift more than 50 lb.
  _____ d. Arm and upper body (Apply _____ lbs. torque pressure)
_____ 6. Stand for long periods of time
_____ 7. Bend over frequently
_____ 8. Sit for extended periods of time

"Compilation of Survey of Study Learning Skills for Industrial Instructional Programs at LBCC"

Following Directions:

32	Demonstrated
31	Verbal
30	Illustrated
29	Written

Understand and Use Specific Technical Vocabulary:

29	1.	Word recognition
23	2.	Understand the meanings of new words when the author has provided clues within the selection (context)
22	4.	Select appropriate definition for use in context.
19	6.	Use new words in writing.
18.5	5.	Pronounce new words correctly.
18	3.	Use the dictionary to find the meanings of new words.

Comprehend Written Material:

30	7.	Draw Conclusions.
	13.	Recall details and factual information.
28	1.	Identify subject matter.
26	8.	Use context.
25	6.	Make generalizations.
24	4.	Relate material read to personal experience.
23	3.	Understand the main idea of sentences, paragraphs, and longer selections.
	5.	Detect sequence.
	12.	Understand word relationship (dog is to cat).
20	2.	Identify topic sentence.
17	9.	Understand abstract concepts.
16	11.	Understand idiomatic expression.
12	10.	Understand the effects of marks of punctuation.

Listening Skills:

30	1. Understand spoken vocabulary.
28	2. Listen for main point (be able to paraphrase).
26	4. Filter distractions when listening.
24	3. Draw outline from spoken material.

Reference Skills:

34	1. Use specifications manual.
33	2f. mechanical drawing
32	2. Understand illustrations. 3. Understand charts.
31	2a. line drawings
30	2b. exploded diagram
29	2c. schematic diagram
27	2d. photograph 4. Understand graphs. 5. Understand tables. 7. Understand legend (explanation of symbols used)
12	2e. cartoon
11	6. Understand maps

Study Techniques:

27	3. Take notes on lecture.
24	1. Highlight *underline) relevant material.
22	5. Test taking skills--objective 6. Test taking skills--subjective (essay)
21	2. Utilize SQ4R - (Survey, Question, Read, Recite, Review, Reflect) 4. Take notes on reading.

Classification Skills:

25	3. Catagorize information or materials.
24	2. Order materials numerically.

16	1.	Alphabetize materials.

Basic Reasoning Skills:

31	1.	Observation skills.
	2.	Visualize.
28	3.	Arrange ideas in logical order (time, space).
	5.	Compare/contrast two objects.
	6.	Distinguish between fact and opinion.
25	8.	Use deductive reasoning.
23	4.	Select examples to support idea
20	7.	Use inductive reasoning.
17	12.	Understand the author's purpose.
16	9.	Recognize propaganda techniques.
15	10.	Form analogy.
14	11.	Understand the author's tone
12	13.	Recognize/use simile, metaphor, allusion, personification.

Writing Skills:

28	27.	Fill out forms correctly.
26	15.	Use symbols.
25	11.	Summarize.
	14.	Draw illustrations.
24	10.	Take notes.
23	13.	Draw line diagrams.
22	19.	Write a resume.
20	2.	Spell complete sentences.
19	5.	Be able to write a logical paragraph.
	12.	Write instructions.
18	1.	Spell correctly.
	6.	Write an accurate descriptive paragraph.
	9.	Write a cause and effect paper.

17	3.	Apply the rules of punctuation correctly.
	4.	Recognize the topic sentence of a given, well-written paragraph.
16	23.	Write a memo.
	25.	Use correct grammatical forms (verbs, pronouns, etc.)
15	16.	Write a critique-analysis.
	17.	Write the correct form of the business letter.
14	20.	Write a research (term) paper.
13	18.	Write anecdotal reports (observational reports).
	26.	Apply the rules of punctuation correctly.
11	7.	Write comparison-contrast paragraph.
	8.	Write an argumentative (pro-con) paper.
	24.	Recognize in a sentence the parts of speech.
9	21.	Write correct footnotes and bibliographies.
	22.	Write a book (abstract, article, chapter, etc.) review or summary.

Speaking Skills:

27	1.	Formulate questions.
	2.	Give verbal directions.
23	3.	Give oral presentations of information.

Non-Verbal Communication Skills:

18	1.	Give demonstrations.

Basic Physical Skills:

31	1.	Eye-hand coordination.
28	3.	Hand-foot coordination.
	7.	Bend over frequently.
27	2.	Eye-foot coordination.
	6.	Stand for long periods of time.
25	5.	Strength.
23	4.	Ambidexterousness.
20	5b.	Lift 50 pounds.

18	5a. Lift 25 pounds.
17	5c. Lift more than 50 pounds.
15	5d. Arm and upper body
	8. Sit for extended periods of time.

Survey of Instructional Approach

Instructor_____ Dept._____ Ext._____

Class Format

List the approximate percentages of total class time for the entire quarter spent by students in:

Lecture_____

Discussion_____

Lab_____

Other (explain)_____

TOTAL 100%

Assignments

How many in-class weekly projects, problems, or assignments are planned? _____

Estimate, in hours, the average amount of time spent on each activity listed in #1 above. _____

How many hours, on the average, are spent doing homework each week? _____

How many pages of reading, on the average, are required per week? _____

For the entire term how many reports or abstracts from printed outside reading are required? _____

For the entire term how many speeches must a student give? _____

Approximately how many quizzes are given each term? _____

How many major tests are usually given? _____

What percentage of the total quiz or test questions that you write for the entire quarter are:

Objective (true-false, multiple choice): _____

Essay: _____

Hands-on demonstrations: _____

Approximately what percentages of a student's final grade are determined by the following:

Attendance: _____

Class participation (oral): _____

Quizzes: _____

Tests: _____

Lab Work: _____

Hands-on demonstration: _____

Term projects: _____

Other (specify): _____ _____

TOTAL 100%

Compilation of
Survey of Instructional Approach

Instructor_____ Dept._____ Ext._____

Class Format

List the approximate percentages of total class time for the entire quarter spent by students in:

Lecture 20%

Discussion 12.1%

Lab 63.2%

Other (explain) 16.75%

TOTAL 100%

Assignments

How many in-class weekly projects, problems, or assignments are planned? 4.1

Estimate, in hours, the average amount of time spent on each activity listed in #1 above. 8.42

How many hours, on the average, are spent doing homework each week? 4.01

How many pages of reading, on the average, are required per week? 23

For the entire term how many reports or abstracts from printed outside reading are required? 8.34

For the entire term how many speeches must a student give? .83

Approximately how many quizzes are given each term? 7.87

How many major tests are usually given? 3

What percentage of the total quiz or test questions that you write for the entire quarter are:

Objective (true-false, multiple choice): 67%

Essay: 57.35%

Hands-on demonstrations: 40.62%

Approximately what percentages of a student's final grade are determined by the following:

Attendance:	18.05%
Class participation (oral):	8.43%
Quizzes:	14.23%
Tests:	20.66%
Lab Work:	33.26%
Hands-on demonstration:	22.75%
Term projects:	26.25%
Other (specify): Employee desirability, clean up, attitude, & work habits	17.5%
TOTAL	100%

I HAND TOOLS

L.A.P.	L.S.E.	MEDIA SUPPORT
A. OVERVIEW	VOCABULARY IMPORTANCE OF STUDY TOOLS IMPORTANCE OF ILLUSTRATIONS	FLASH CARDS
B. WOOD CUTTING TOOLS	WOOD RECOG. RECALL DETAILS TEST TAKING SKILLS - COMPLETION	FLASH CARDS
B1 USING WOOD CUTTING TOOLS	ILLUSTRATION DIRECTIONS PRINTED DIRECTIONS	PICTORIAL ESSAY (PATTERN PIECES)
C. TURNING TOOLS	MEMORIZATION TECHNIQUES TEST PREPARATION - TRUE/FALSE	FLASH CARDS
D. STRIKING TOOLS	SELECTING APPROPRIATE DEFINITIONS TAKING NOTES PRINTED MEDIA TEST TAKING SKILLS - MULTIPLE CHOICE	FLASH CARDS
E. GRIPPING TOOLS	OBSERVATION SKILLS HIGHLIGHTING TEST PREPARATION - MATCHING	FLASH CARDS AUDIO TAPE

L.A.P.	L.S.E.	MEDIA SUPPORT
F. METAL CUTTING TOOLS	LECTURE NOTE TAKING REVIEW PREVIOUS SKILLS TAUGHT MODULE	VIDEO TAPES FILES AND RASPS CHISELS TWIST DRILLS, COUNTERSINKS, REAMERS AND PUNCHES FLASH CARDS FLASH CARDS "MORE TOOLS TO LEARN"

III MEASUREMENT

A	OVERVIEW	AUDIO TAPE
B	LENGTH MEASURING TOOLS	ACTIVITY BOX
B1	READING RULES	ACTIVITY BOX SLIDE TAPE
B2	MICROMETER	ACTIVITY BOX
B3	VERNIER CALIPER	ACTIVITY BOX
C	TEMPERATURE	

II FASTENERS

L.A.P.	L.S.E.	MEDIA SUPPORT
A. Overview	Contextual Clues	Video Tape
B. Friction	Understanding Charts Understanding Verbal Vocabulary	Demon. Board Audio Tape Activity Box
C. Threaded	Understanding Illustrations Drawing Illustration	Activity Box
C1 Using Threaded Fasteners	Following Illustration Directions Problem Solving	Seymore Model
D. Adhesives	Compare/Contrast	Activity Box
E. Wood Joints	Fact/Opinion	10 Models of Joints
F. Metal Seams	Understanding Mechanical Drawings	Activity Box 9 Seam Patterns

IV SIMPLE MACHINES

L.A.P.	L.S.E.	MEDIA SUPPORT
A. Overview	Identify Subject Identify Main Idea Essay Test	Audio Tape
B. Levers	Generalization Understanding Symbols Using Symbols Writing Topic Sentences	Model Video Tape
C. Wheel/Axle	Paraphrasing Lecture - Notetaking Writing Summaries	
D. Incline Plane/Screw	Arranging Ideas in Logical Order Writing Directions	
E. Wedge	Visualization Writing Comparison/Contrast	
F. Pulley	Problem Solving Writing Explanations	
G. Compound	Selecting Examples Writing Examples	

V ELECTRICITY

L.A.P.	L.S.E.	MEDIA SUPPORT
A. OVERVIEW	FORMULATING QUESTIONS ARRANGE IDEAS DETECTING SEQUENCE	ACTIVITY MATERIALS AUDIO TAPE
B.	SUMMARIZING SELECTING EXAMPLE TO SUPPORT MAIN IDEAS	ACTIVITY MATERIALS AUDIO TAPE
C.	TEXTBOOK UTILIZATION	VIDEO TAPE

Goal 4: Develop a minimum of eighteen instructional aids which will assist the academically disadvantaged vocational students to achieve the desired content and process objectives for each module. The purpose of the materials will be to accomplish one or more of the following:

A. show relation of the part to the whole.

B. give examples of an application of a principle.

C. simplify complex material.

D. condense or summarize lengthy material.

E. contrast/compare two or more concepts.

F. demonstrate psychomotor skills.

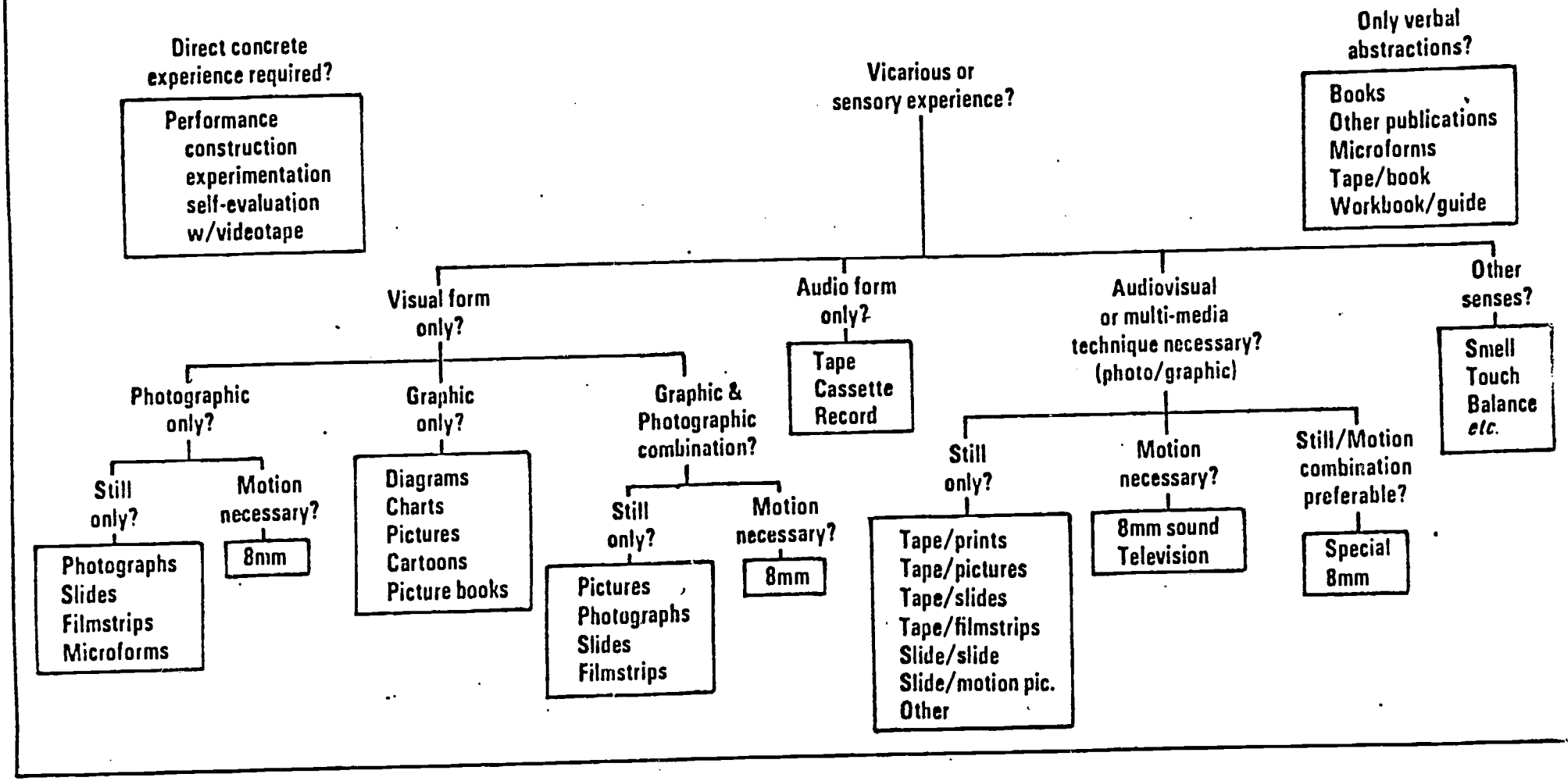
Objectives:		Completed:	
4.1	Identify content which can best be illustrated or demonstrated other than through printed words.	02/23/79	
4.2	Identify the mode of presentation best suited to the content identified in 4.1 above (ie. mechanical model, simulator, graphic illustration, chart, diagrams, sketches, film loop, sound recordings, etc.).	03/04/79	
4.3	Select, according to criteria (see appendix), those instructional support materials to be developed through this project.	03/15/79	See page
4.4	Develop drafts of script/design for each media package.	05/30/79	
4.5	Review and critique draft of media script/ design.	06/15/79	

Objectives:		Completed:	
4.6	Revise script/design for media package.	06/15/79	
4.7	Produce media packages.	06/30/79	See final product
*4.8	Field test each media package using academically disadvantaged vocational students.		
*4.9	Compile evaluation data obtained from 4.8.		
*4.10	Revise each media package as appropriate from evaluation data.		

* These objectives will be completed after the end of the funding period.

MEDIA SELECTION

Independent Study for Individual Students



PROJECT COSTS

DETAILED BUDGET

PROJECT TITLE Fundamental Vocational Skills for Disadvantaged Learners

LEA OR COLLEGE Linn-Benton Community College

Function/Object Code	Total Project Costs	Local District Funds	Federal Funds Requested
Salaries			
A. Professional (all positions for 9 months)			
0.30 Project Director	4701	4701	
0.50 Industrial Skills Instructor	7580	7580	
0.20 Study Skills	2710	2710	--
0.05 Readability	766	766	
0.10 Media Specialist	1646	1646	
Curriculum Writers @ $10.30/hr, 30 hrs/LAP for 30 LAP's	9270		9270
B. Production/Clerical			
1.00 Media Assistant $716/month x 6 months	4296		4296
1.00 Production Clerk $594/month x 6 months	3564		3564
0.50 Secretary $750/month x 9 months	3375	3375	
C. Steering Committee (all positions for 9 mo.)			
0.03 Industrial/Apprenticeship Director	544	544	
0.03 Guidance Services Director	644	644	
0.02 Developmental Center Director	375	375	
0.02 Associate Dean of Instruction	379	379	
0.01 Mathematics Instructor	194	194	
0.01 Drafting Instructor	204	204	
0.02 Living Skills Instructor	288	288	
0.01 Cooperative Work Experience Coordinator	185	185	
Sub-Total	40,721	23,591	17,130
Employee Benefits @ 22%	8,959	5,190	3769
Travel	50	50	
Purchased Services			
Readability Analysis	1000	250	750
Supplies and Materials			
A. Learning Activity Packages			
Supplies, tools and equipment for "hands on" experience	500		500
B. Multi-media Materials Development			
Audio Tapes	90		90
Film and Development	560		560
Video Tape	484		484
Miscellaneous	75	50	25
Models or cutaways	150		150
C. Phone/Postage	250	250	
D. Printing/Duplication	600	300	300
Sub-Total	2709	600	2109
Other			
A. Rental Equivalents	2500	2500	
Office Space			
Office Equipment	500	500	
Media Equipment	500	500	
B. Accounting Services			
Annual Cost @ 5%	1188	****	1188

OREGON DEPARTMENT OF EDUCATION
942 Lancaster Drive NE
Salem, Oregon 97310

County Linn District 52
Part 1 of 1

TYPEWRITER ONLY

OBLIGATION OF VOCATIONAL EDUCATION FUNDS

(Special Projects Only)

State Plan Activity No. 11A(5)11B(2)
Fund No. 80-462
Program No. 361.13
VEC No. 1229
Encumbrance No. 22-650-137
ODE Project Monitor Hargis/Austen
Amount of Part 1 $ 25,000

Obligating funds for (please check one or more if applicable):

- [ ] Consumer & Homemaking
- [ ] Handicapped
- [x] Disadvantaged
- [ ] Adult Education
- [ ] E.P.D.A.
- [x] Curriculum Development
- [ ] Exemplary
- [ ] Personnel Development
- [ ] Teacher Education
- [ ] Guidance
- [ ] Special Needs Disadvantaged
- [ ] Research
- [ ] Other

1. Educational Agency Linn-Benton Community College District No.
2. Address 6500 SW Pacific Boulevard, Albany, OR 97321
3. Title of Project Fundamental Vocational Skills for Disadvantaged Learners
4. Brief Description of Activity (attach appropriate backup material, e.g., proposal) The development of curriculum materials to meet the needs of : Fundamental Vocational Skills for Disadvantaged Learners.
5. Grant Starting Date 9/15/78 Grant Ending Date 6/30/79
6. TOTAL PROJECT AWARD (sum of all parts) $ 25,000

7. SPECIAL PROJECT BUDGET Function/Object Code*		Total Project Costs	Federal/State Funds Requested	STATE USE ONLY Approved Allocation
1000	Instruction			
100	Salaries			
200	Employee Benefits			
300	Travel			
	Other Purchased Services			
400	Supplies			
2210	Improvement of Instructional Services			
100	Salaries	28,673	9,770	
200	Employee Benefits	6,022	2,052	
300	Travel	50		
	Other Purchased Services	500	325	
400	Supplies	850	454	
2220	Educational Media Services			
100	Salaries	11,678	10,032	
200	Employee Benefits	1,410	1,064	
300	Purchased Services			
400	Supplies	1,859	115	
2500/2600	Support Services Business/Central			
Indirect Cost @ 5 %		1,188	1,188	
TOTAL		55,730	25,000	

*Districts should refer to the codes. Community Colleges may disregard them if not appropriate, and relate them to their own chart of accounts.

See contract.
Signature, Authorized LEA Official — Title — Date

THIS PORTION FOR STATE USE ONLY

Transmitted by: Program Unit Coordinator — Date

Approved by: Director of Career and Vocational Education — Date

581-4671 (12/77)

State Program File

Breakdown of Average Cost Per Printed Learning Activity Package

Content	$220.00
L.S.E.	75.00
Readability	40.00
Drawings/Illus.	80.00
Editing	130.00
Proof	50.00
Typing	128.00
Darkroom	24.00
Supplies	6.00
	$753.00

State's Cost Per L.A.P.

IA	Overview Hand Tools	$ 810.00
IB	Wood Cutting Tools	792.00
IB1	Using Wood Cutting Tools	320.00
IC	Turning Tools	898.00
ID	Striking Tools	860.00
IE	Gripping Tools	788.00
IF	Metal Cutting Tools	976.00
		$5,444.00

IIA	Overview Fasteners	$ 630.00
IIB	Friction Fasteners	920.00
IIC	Threaded Fasteners	980.00
IIC1	Using Threaded Fasteners	682.00
IID	Adhesive Fasteners	761.00
IIE	Wood Joint Fasteners	876.00
IIF	Metal Seam Fasteners	891.00
		$5,740.00

IIIA	Overview of Measurements	$ 530.00
IIIB	Measurements of Length	687.00
IIIB1	Rules of Measurements	630.00
IIIB2	Vernier Caliper Measurements	560.00
IIIB3	Micrometer Measurements	542.00
IIIC	Temperature Measurements	546.00
		$3,495.00

IVA	Overview Simple Machines	$ 702.00
IVB	Levers	892.00
IVC	Wheel/Axle	787.00
IVD	Incline Plane/Screw	738.00
IVE	Wedge	726.00
IVF	Pulley	791.00
IVG	Compound Machines	760.00
		$5,396.00

VA	Overview Electricity	$ 847.00
VB	Motors - Electricity	811.00
VC	Batteries - Electricity	213.00
		$1,871.00

TOTAL $21,946.00

Expenditure for unused content.....$ 672.00

State's Cost Per Set of Mediated Support Materials

7 Sets Flash Cards		$ 288.60
5 Video Tapes		1,372.00
6 Audio Tapes		78.00
1 Slide Tape		62.00
1 Pictorial Essay		220.00
5 Models		
Demo Board	$ 60.00	
Wheel/Axle	30.00	
Activity Materials	78.00	
Wood Joints	160.00	
Metal Seams	34.00	
	$362.00	362.00
		$2,382.00