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A STUDY OF ADULT FUNCTIONAL COMPETENCY
AMONG ENTERING FRESHMEN, JUNIORS, AND SENIORS
OF DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS
IN THE PACIFIC REGION

presented by

DENNIS LEON BYBEE

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A STUDY OF ADULT FUNCTIONAL COMPETENCY AMONG
ENTERING FRESHMEN, JUNIORS, AND SENIORS
OF DEPARTMENT OF DEFENSE DEPENDENTS
SCHOOLS IN THE PACIFIC REGION

By

Dennis Leon Bybee

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ABSTRACT

A STUDY OF ADULT FUNCTIONAL COMPETENCY AMONG ENTERING FRESHMEN, JUNIORS, AND SENIORS OF DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS IN THE PACIFIC REGION

By

Dennis Leon Bybee

The purpose of this study was to obtain, analyze, and evaluate data relevant to functional literacy among high school students of Department of Defense Dependents Schools (DODDS) in the Pacific Region.

Functional literacy was studied in terms of the Adult Performance Level (APL) Project definition, which describes adult functional competency as having a set of skills and being able to apply them in the context of adult-life situations.

Adult functional competency levels, as measured by performance on The High School APL Survey (HS-1), were determined for 1,049 entering freshmen, 509 juniors, and 501 seniors among 11 high schools managed by DODDS for dependents of United States government personnel stationed on military bases in Korea, Mainland Japan, Okinawa, and the Republic of the Philippines.

Major findings on comparison and statistical analysis of differences in performance levels among the study groups as well as between junior or senior study groups and comparable national norm groups seem to support the following general conclusions:

1. Juniors and seniors among DODDS high schools in the Pacific Region ARE APPARENTLY AS ABLE AS THEIR COUNTERPARTS IN THE UNITED STATES to utilize abilities to identify facts and terms, read, write, compute, and solve problems characteristic of everyday adult-life situations both generally and according to the following five content areas:

- (a) Community Resources, (b) Occupational Knowledge, (c) Health,
- (d) Government & Law, and (e) Consumer Economics.

2. At the end of their school year, seniors among DODDS high schools in the Pacific Region ARE APPARENTLY BETTER PREPARED TO FUNCTION AS ADULTS IN EVERYDAY-LIFE SITUATIONS than are entering freshmen.

3. In their preparation for adult daily living:

a. Entering freshmen, while not as well prepared as juniors or seniors, ARE APPARENTLY BETTER PREPARED THAN WOULD HAVE BEEN EXPECTED to handle tasks involving Problem Solving skills and to deal with topics in Health and Government & Law.

b. Juniors, while not as well prepared as seniors, ARE APPARENTLY BETTER PREPARED THAN WOULD HAVE BEEN EXPECTED to handle tasks involving Problem Solving skills and in dealing with topics in Health.

c. Seniors ARE APPARENTLY BETTER THAN WOULD HAVE BEEN EXPECTED in terms of tasks involving Reading, Computation, and Problem Solving skills and in regard to topics in the area of Health.

d. NEITHER freshmen, juniors, or seniors ARE APPARENTLY AS WELL PREPARED AS THEY COULD BE to handle tasks involving

Identification of Facts and Terms or to deal with topics involving Occupational Knowledge.

e. Juniors and seniors ARE APPARENTLY BETTER PREPARED GENERALLY THAN WOULD HAVE BEEN EXPECTED.

4. As many as 16 percent of the seniors attending DODDS-Pacific high schools may have BELOW AVERAGE PREPARATION to perform tasks associated with everyday adult-life situations; and, in terms of the adult performance level (APL) definition of adult functional competency, this group can be expected to function with minimal success in adult life.

Assuming that schools, communities, parents, and educators may want to address the issue of adult functional competency development through schooling, there are several implications for program development that are suggested by this research.

First, program development efforts among DODDS high schools in the Pacific should begin with the basic premise that current programs are adequate in many respects.

Second, it should be recognized that observed differences in adult functional competency levels among freshmen and seniors may not be in proportion to the emphasis these schools have placed on key requirements in the minimum curriculum.

Third, remedial programs should be instituted for as many as 16 percent of DODDS-Pacific high school students.

To my two sons,
Richard Leon and Jeffrey Grant

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In its inception, conduct, and completion many fine people have contributed to this study.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	viii
LIST OF FIGURES	ix
LIST OF APPENDICES	xi
 Chapter	
I. THE PROBLEM	1
Introduction	1
Statement of the Problem	4
Need for the Study	5
Purpose of the Study	7
Statement of Research Questions and Hypotheses	8
Theoretical Basis of the Study	9
Limitations of the Study	11
Definition of Terms	13
Overview	15
II. REVIEW OF THE LITERATURE	17
Introduction	17
Illiteracy Remediation	18
History	18
Beyond Reading	21
APL Project	23
General Theory	26
Methodology	26
Findings	28
APL Project Reviews	28
APL Impact on ABE Programs	30
Refinement/Marketing of APL Materials (ACT)	31
Illiteracy Prevention	32
Critics and Criticism	32
Legal Challenges	33
Present Forces and Public Policy	34
Competency versus Capacity	36
Competency-Based Education in Oregon	37

Chapter	Page
Related Studies	39
Current Education: A 9/12 Assessment	39
The Study	39
Implications and Limitations	41
Reading: An 11/12 Assessment	42
The Study	42
Implications and Limitations	43
Mathematics: A 3,5,7,9 Assessment	43
The Study	43
Implications and Limitations	44
Other Studies	44
Reading	44
High School Diploma Program (HSDP)	45
Enduring Effects of Education	45
Innovation and Change in DODDS	45
Summary	46
Illiteracy Remediation	46
Illiteracy Prevention	48
Other Studies	48
III. DESIGN OF THE STUDY	50
Introduction	50
Population of Interest	50
DODDS Setting	51
Curriculum	54
Study Groups	54
Student Capabilities	55
Language Arts/Mathematics Assessment, Grades	
3 and 6, 1978	55
Language Arts Assessment at Grades 8 and 11,	
1977-78	57
College Entrance Examination Boards--1978	57
Instrumentation	59
Test Construction	59
Standardization	61
Validity	61
Reliability	61
Research Questions	62
Testable Hypotheses	65
Data-Collection Procedures	68
Analysis	69
Basic Assumptions	69
Analysis Model	70
Summary	71

Chapter	Page
IV. FINDINGS	73
Introduction	73
Research Questions	73
Question 1: Overall Adult Functional Competency Levels	73
Question 1.1: Freshmen	75
Question 1.2: Juniors	78
Question 1.3: Seniors	78
Question 2: Content, Skill Area, and General Adult Functional Competency Levels	79
Question 2.1: Content Areas	79
Question 2.2: Skill Areas	83
Question 2.3: General	85
Question 3: Similarities and Differences in Adult Functional Competency Levels Among 9,11, and 12th Grade Study Groups	89
Question 3.1: Strengths/Weaknesses	89
Question 3.2: Similarities	93
Question 3.3: Differences	94
Question 4: Distribution of Performance Scores	94
Question 4.1: Content Areas	95
Question 4.2: Skill Areas	101
Question 4.3: General	109
Significance	112
Hypotheses	112
Hypothesis 1: Comparison of Junior Groups	112
H1 Findings	113
Hypothesis 2: Comparison of Senior Groups	113
H2 Findings	115
Hypothesis 3: Comparison of Freshman and Junior Study Groups	117
H3 Findings	117
Hypothesis 4: Comparison of Freshman and Senior Study Groups	123
H4 Findings	123
Hypothesis 5: Comparison of Junior and Senior Study Groups	124
H5 Findings	124
Summary of Findings	125
Overall Adult Functional Competency Levels of Entering Freshmen, Juniors, and Seniors	125
Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	126
Strengths and Weaknesses in Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	127

Chapter	Page
Distribution of Content, Skill Area, and General Adult Functional Competency Among Entering Freshmen, Juniors, and Seniors	128
Differences in Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	129
V. SUMMARY AND CONCLUSIONS	131
Introduction	131
Summary	131
Major Research Findings	133
Overall Adult Functional Competency Levels of Entering Freshmen, Juniors, and Seniors	133
Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	133
Strengths and Weaknesses in Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	134
Distribution of Content, Skill Area, and General Adult Functional Competency Among Entering Freshmen, Juniors, and Seniors	135
Differences in Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors	136
Conclusions	137
Discussion	139
Recommendations	142
Suggestions for Future Studies	143
BIBLIOGRAPHY	145
APPENDICES	150

LIST OF TABLES

Table	Page
1.1 Content-By-Skills Matrix: Examples of Tasks	12
3.1 Listing of DODDS-Pacific High Schools, School Populations, and Population in the Study Groups	56
3.2 SAT Scores for Graduating DODDS Seniors, 1978	58
3.3 Score Averages for the Separate Achievement Tests	58
3.4 Distribution of Items Across APL Matrix	60
4.1 Summary Statistics for Performance by Students on the High School APL Survey (HS-1), According to Grade	74
4.2 Summary Statistics for Students on the High School APL Survey (HS-1), Reported as Percent of Total Possible Score (TPS), According to Grade	76
4.3 Summary of Rank Order (RK) and Differences From Expectancies in Relative Rank Ordering of Performance on APL Subscales ($RK_{NG} - RK_{SG}$)	90
4.4 Comparisons of Study Group (SG) APL Test Performance With APL Test Performance by Normative Groups (NG)	114
4.5 Comparisons of APL Test Performance Among 9,11, and 12th Grade Study Groups (11 vs. 9, 12 vs. 9, 12 vs. 11)	116
4.6 Comparisons of APL Test Performance Among 9,11, and 12th Grade Study Groups for Scale Scores Expressed as Percent of Total Possible Score on Each Scale (11 vs. 9, 12 vs. 9, 12 vs. 11)	118

LIST OF FIGURES

Figure	Page
2.1 APL Project Methodology	27
3.1 DODDS and DODDS-Pacific Organizational Chart for School Year 1977-78	53
4.1 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on Each Content or Skill Area and on the Total Survey	77
4.2 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study and Norm Groups on the Content Area Scales	80
4.3 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study and Norm Groups on the Skill Area Scales	81
4.4 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study and Norm Groups on the Total Survey	86
4.5 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study and Norm Groups on Each Content or Skill Area and on the Total Survey	87
4.6 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Community</u> <u>Resources</u> Sub-scale	96
4.7 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Occupational</u> <u>Knowledge</u> Sub-scale	98
4.8 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Health</u> Sub-scale	99
4.9 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth Grade Study Groups on the <u>Government</u> <u>and Law</u> Sub-scale	100

Figure	Page
4.10 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Consumer Economics</u> Sub-scale	102
4.11 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Identification of Facts and Terms</u> Sub-scale	103
4.12 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Reading</u> Sub-scale	104
4.13 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Writing</u> Sub-scale	106
4.14 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Computation</u> Sub-scale	107
4.15 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Problem Solving</u> Sub-scale	108
4.16 Comparison of APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on the <u>Total Survey</u> . . .	110
4.17 Comparison of Differences in APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on Each <u>Content Area</u> Scale	119
4.18 Comparison of Differences in APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on Each <u>Skill Area</u> Scale	120
4.19 Comparison of Differences in APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on <u>Total Survey</u>	121
4.20 Comparison of Differences in APL Test Performance by Ninth, Eleventh, and Twelfth-Grade Study Groups on Each Content or Skill Area and on the Total Survey . . .	122

LIST OF APPENDICES

Appendix	Page
A. APL GOALS AND OBJECTIVES, AND DEFINITIONS OF THE APL SKILLS	151
B. APL PROJECT FINDINGS	166
C. A SAMPLING OF FEDERAL ADULT BASIC EDUCATION APL RESOURCE DEVELOPMENT PROJECTS AND FUNDING (OCT. 1976-SEPT. 1977)	169
D. MINIMAL COMPETENCY STANDARDS--STATE ACTIVITY	173
E. COMPETENCY PERFORMANCE INDICATORS SALEM PUBLIC SCHOOLS, SALEM, OREGON	179
F. DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS REQUIREMENTS FOR EDUCATORS	188
G. SUMMARY RESULTS OF THE DODDS LANGUAGE ARTS AND MATHEMATICS ASSESSMENT, GRADES 3 AND 6 (1978)	195
H. DODDS LANGUAGE ARTS ASSESSMENT RESULTS 1977-78	200
I. FORM HS-1: ITEM CLASSIFICATION BY CONTENT AND SKILL	207
J. FORM HS-1: DEMOGRAPHIC SUMMARY DESCRIPTION OF THE STANDARDIZATION SAMPLE	210
K. APL TEST NORMATIVE GROUP SUMMARY STATISTICS BASED ON INDIVIDUAL RESPONSES FOR TOTAL SAMPLES	212
L. STATISTICAL CHARACTERISTICS OF THE HIGH SCHOOL APL SURVEY HS-1	214
M. PROGRAM DCHECK SOURCE DOCUMENTATION FOR VERIFICATION OF DATA PREPARATION AND SUMMARIES FROM COMPUTATION OF DESCRIPTIVE STATISTICS BY SCHOOL	217
N. SOURCE DOCUMENTATION AND TABULATIONS OF GRADE LEVEL DESCRIPTIVE STATISTICS FROM INDIVIDUAL APL TEST PERFORMANCE DATA	231

CHAPTER I

THE PROBLEM

Introduction

By January of 1977, "16 states had some kind of legal requirement for competency-based education; by September of the same year 26 states were on the list" (Leeper, 1977, p. 1). If this trend continues, it can be expected that most states will probably have some form of competency-based legislation.

The problem of illiteracy is one which is basic to all countries, whether they are prosperous, emerging or underdeveloped. It is true that, in recent years, illiteracy figures [in America] have shown steady improvement; but it is only during this past decade that the true burden of illiteracy has been realized (Cook, 1977, p. ix).

According to the United States Census Bureau, illiteracy in America has decreased steadily over the past 75 years. Census estimates of the number of illiterate adults in America dropped from 10.7 percent in 1900 to a low of 1 percent in 1969.

The reduction of illiteracy may be due to increased emphasis on education and partly to the consistency of the definitions which were used in determining and reporting literacy statistics. In 1900 an illiterate adult was defined as anyone ten or older who could not read and write his native language. While life in America changed dramatically in the intervening years, there was little change in either the age or criterion used in reporting literacy statistics.

The 1969 Census survey counted as illiterate any person 14 or older who couldn't read and write a simple message in English or any other language (U.S. Department of Commerce, 1971).

But is the ability to read and write a simple message in English or any other language an adequate criterion upon which to base an assessment of literacy in America? Many researchers of the 1970s, in recognizing the "true burden of illiteracy," have suggested that it is not.

It has not only been recognized that the Census definition is inadequate in terms of societal expectations of "Youth in Transition to Adulthood" (Timpane, 1976), but findings of the Adult Performance Level Project (Northcutt, 1975) also suggest that as much as 20 percent of the American adult population functions with difficulty in terms of their ability to use basic skills such as reading, writing, and computation in performing everyday living tasks. Actual estimates of the extent of adult illiteracy vary depending on the definition used. In attempting to identify adults who were not able to read ads, application forms, and directions common to everyday life, Lou Harris and Associates reported in 1972 that as much as 4 percent of the population suffers from serious deficiencies (Decrow, 1972).

The Lou Harris and Adult Performance Level Project surveys taken together suggest a range of from 4 to 20 percent of adults in America who perform everyday living tasks with difficulty and could be described as functionally illiterate.

Americans have traditionally recognized the illiteracy problem during periods of great stress and have responded with solutions

which emphasized either prevention and/or remediation. Early efforts focused on prevention in attempting to solve the adult illiteracy problem through more and more effective "schooling" of youth. Later efforts included remediation which attempted to identify and respond directly to the educational needs of illiterate adults.

The process of recognizing illiteracy in America during periods of stress and of applying varying amounts of prevention and/or remediation follows a fairly consistent pattern over the past 75 years (Cook, 1977). Two world wars, the Great Depression, the Korean conflict, a "cold war," and the space race have been accompanied by equally dramatic changes in education. Local, state, and federal governments have enacted a great variety of legislation--everything from dollars to controls. Compulsory attendance to age 16 became universal as did the concept of equality of opportunity. There are even examples of obligatory remediation of illiteracy as a condition of either private employment or public support.

Throughout this 75-year period, adult basic and secondary school educators have each addressed their respective remedial and preventive illiteracy functions and, although the logical evolution was necessarily different, each group of educators is presently extremely concerned with the same problem--illiteracy.

Adult educators on the one hand have moved away from remediation by repetition of in-school experiences (failures), away from development of school grade level proficiency in basic skills such as reading and mathematics, and away from equivalency testing and equivalency certification. Adult basic educators, in recognizing that

"literacy education offered, in isolation from economic and other social problems, was relatively ineffective" (Cook, 1977, p. v), have moved toward contextual basic skills development for adult functional competency.

Meanwhile, secondary school educators went "through a curriculum reform era in the fifties, an innovation era in the sixties, and now find [themselves] in an accountability era" (Cawletti, 1977), moving "back-to-the-basics," and rapidly toward legislatively mandated competency-based education with criterion-referenced testing and minimum competency certification for high school graduation.

It is precisely in this context and with these motivating factors that this study of functional competency levels among DODDS high school students is being conducted.

Statement of the Problem

The Department of Defense Dependents Schools (DODDS) system-wide Curriculum Review Council first addressed the illiteracy issue at a meeting in Washington, D.C., in September of 1977. This council identified the following ten "Extremely Critical Issues Regarding Inclusion of Performance Testing as Part of Graduation Requirements:"

1. Which variety of competency approaches should be used?
2. To what extent will students be granted early exit?
3. Should remediation be required for or only offered students not meeting criteria?
4. Who establishes competencies required and sets criteria?
5. Are competency requirements and criteria established DODDS-wide or will local options be permitted?
6. When should competency testing occur?

7. Will DODDS establish reciprocity agreements with various school systems regarding competency requirements?
8. What will the new graduation requirements look like?
9. Does DODDS have financial and human resources necessary for community orientation, teacher and administrator in-service training, curriculum development, and test development and scoring to effect the competency requirements proposed?
10. Can DODDS insure that the results of competency-based testing will be used for program improvement and not staff evaluation? (Furgensen, 1977).

Of these ten issues, number 9 seems most critical since it questions the ultimate impact that competency-based education may have throughout the system. Answers to this issue are dependent on what type of competency approach is used (issue 1) and on what present performance levels are in relation to those that would be expected or required. In this regard, there are basically two approaches which can be taken--either independently or in combination. The first emphasizes specification of capacities; the alternative focuses on competencies (Spady, 1977).

While much has been assumed about DODDS student capacities from performance data on traditional tests of academic progress (Cardinale, 1977), DODDS decision makers have virtually no information on student competency levels from which to develop appropriate policy and establish direction for school planning or curriculum development in regard to competency-based education.

Need for the Study

This study is being conducted in order to provide a significant data base of information on the adult functional competency levels of DODDS high school students. As schools in America are

moving toward establishment of competency-based education programs, it can be anticipated that the DODDS system will voluntarily move or be legislatively required to move in this direction. It is therefore essential that DODDS policy makers have information, not only on student capacities, but also have information on student competencies from which to make decisions and establish policy in regard to competency-based education in the DODDS system.

This study should be of value to schools in the United States since the study also provides comparative data for ninth-grade student performance on the High School APL Survey (HS-1) which are not presently available.

For adult educators, this study of adult functional competency levels among DODDS students provides comparative data which may be useful in curriculum development and in establishing equivalency criteria for adult basic education student performance.

Griffith and Cervero (1976), in noting that "it [the Adult Performance Level Project] has been given more publicity than any other development in adult basic education in this century," also point out that little has been published in regard to the high school edition of American College Testing's Adult Performance Level Survey (HS-1), and that "until further information is published concerning the high school edition it will not be possible to assess either its validity or any claim that there is a need for both [adult and high school] editions."

The data generated by this study may also be useful to the adult education community in its evaluation of the high school

alternative form of ACT's Adult Performance Level Survey (HS-1), as Griffith and Cervero suggest.

Purpose of the Study

The purpose of this research is to study functional literacy among secondary schools managed by DODDS in the Pacific Region. It attempts to determine, analyze, and evaluate competency levels among entering freshmen, juniors, and seniors of this population in terms of the Adult Performance Level (APL) definition of functional competency.

On examination of the descriptive information collected in this study, one should be able to:

1. Determine the extent to which entering freshmen, juniors, and seniors in this population are able to utilize abilities to identify facts and terms, read, write, compute, and solve problems characteristic of everyday-adult-life situations both generally and according to the following five categorical content areas: (a) Community Resources, (b) Occupational Knowledge, (c) Consumer Economics, (d) Health, and (e) Government and Law;

2. Identify adult functional competency content and skill area strengths and weaknesses among entering freshmen, juniors, and seniors of this population;

3. Identify the number of high school students in this population who might require remedial instruction in adult functional competencies at any selected level of "minimal competency"; and

4. Make inferences as to the possible impact that establishment of competency-based education--which provides for or specifies

adult functional competencies--would have on DODDS-Pacific high schools.

Statement of Research Questions and Hypotheses

As an essentially descriptive study the following questions are constructed to guide this research:

1. What are the overall adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

2. What are the content, skill area, and general adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

3. What similarities and differences in content, skill area, or general adult functional competency exist between entering freshmen, juniors, and seniors in the population?

4. What is the distribution of content, skill area, and general functional competency among entering freshmen, juniors, and seniors in the population?

The following broadly stated hypotheses* are examined in this study:

1. There are no significant differences between adult functional competency levels of high school students in the population at the end of their junior year and adult functional competency levels among high school students at the end of their junior year of school in the United States.

*These hypotheses are restated in testable form in Chapter III.

2. There are no significant differences between adult functional competency levels of high school seniors in the population and adult functional competency levels among high school seniors in the United States.

3. There are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of students in the population at the end of their junior year of high school.

4. There are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of high school seniors in the population at the end of their school year.

5. There are no significant differences between adult functional competency levels of students in the population at the end of their junior year of high school and adult functional competency levels of high school seniors in the population at the end of their school year.

Theoretical Basis of the Study

What is functional literacy? One often hears teachers and administrators say that high school graduates and students in adult education programs should have a minimum of it--whatever it is. Most secondary school and adult educators will probably or have already addressed themselves to this issue and come to some conclusions to this question that affect the kinds of things they do and hope for as educational outcomes.

Several years ago, David Harman (Northwest Regional Educational Laboratory, 1976) conducted a study of literacy in the United States which concluded that approximately 50 million adults were illiterate. The results of his study, according to an account published in the Region XCHANGE, shocked the Office of Education and stimulated their funding of a National Assessment Project to:

. . . [identify] those competencies which are functional to adult life, with the implication that these competencies would become the core objectives for adult basic education programs (Northcutt, 1975).

The national assessment became known as the Adult Performance Level (APL) Project and was conducted by the University of Texas at Austin under the direction of Dr. Norvell Northcutt, Professor of Educational Research, Division of Extension.

After two years of study, researchers of the APL Project concluded that:

. . . the APL Project has accomplished the following tasks: (a) developed and validated a series of objectives which comprise adult functional competency, (b) conducted a series of national assessments of performance of adults with respect to those objectives, and (c) created, as a by-product of the research, a prototype test of adult functional competency (Northcutt, 1973).

A general theory of adult functional competency emerged from the APL Project and was used as a basis for further study. This general theory assumes that adult functional competency is:

A construct which is meaningful only in a specific societal context. . . . Two-dimensional (i.e. is both the possession of a set of skills, and their application to a set of knowledge areas). . . . A function of individual capabilities and societal expectations [and] As a concept is directly related to success in adult life (Northcutt, 1973).

The APL project's two-dimensional concept of adult functional competency was refined by the APL Department staff at American College Testing Corporation. ACT's refinement--which is used in this study as the criterion measure of adult functional competency--consists of five skills which must be applied in five separate content areas. Figure 1.1 illustrates the interrelationship of skills and content areas in this theoretical definition of adult functional competency.* "Reading a want ad," for example, can be used as a measure of reading skill and of ability to apply this skill in the occupational content area.

This present research assumes that student performance on the criterion-referenced APL (HS-1) Survey is indicative of each student's adult functional competency level.

Limitations of the Study

The findings of this study are limited to and based upon a population defined as entering freshmen, juniors, and seniors of Department of Defense Dependents high schools in the Pacific region. Inasmuch as the population is characteristically unique in consisting almost exclusively of students who are dependents of military personnel stationed on U.S. government installations in the Pacific region, it is anticipated that the results may not be generalized beyond this group. However, as these schools are accredited by the North Central Association (NCA) of Schools and Colleges and provide a curriculum similar to that of many high schools in the United States, it is

*See Appendix A for a listing of APL content area goals/objectives and definitions of skills upon which the High School APL (HS-1) Survey is based.

CONTENT AREAS SKILLS → ↓	COMMUNITY RESOURCES	OCCUPATIONAL KNOWLEDGE	CONSUMER ECONOMICS	HEALTH	GOVERNMENT AND LAW
IDENTIFICATION OF FACTS AND TERMS	Knowing what a time zone is	Knowing what skills are needed for clerical jobs	Knowing what "bait and switch" is	Knowing what the normal human temperature is	Knowing what the Bill of Rights says
READING	Reading a bus schedule	Reading a want ad	Reading a contract	Reading a prescription label	Reading a ballot
WRITING	Writing a letter to make hotel reservations	Filling out a W-4 Form	Filing a consumer complaint	Answering a medical questionnaire	Writing a letter to a legislator
COMPUTATION	Computing a plane fare	Computing overtime earnings	Finding the best buy	Computing a daily dosage	Computing a statute of limitations
PROBLEM SOLVING	Determining where to go for help with a problem	Deciding what to say to a bothersome co-worker	Deciding which of two decisions is better in economic terms	Deciding which meal is best, given a set of preconditions	Determining whether a given situation or action is legal

Table 1.1.--Content-by-skills matrix: Examples of tasks.

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey
(Iowa City: ACT, 1976), p. 1.

anticipated that the findings might be used for comparative purposes with other similar populations (e.g., DODDS high schools in Europe and the Atlantic regions or possibly with other NCA-accredited high schools).

Definition of Terms

Competency-Based Education ". . . is a performance-oriented set of processes that facilitate, measure, record, and certify the demonstration of explicitly stated and agreed upon learning outcomes that reflect functioning in life roles" (Keefe & Georgialles, 1978, p. 95).

Adult Functional Compency

. . . has four attributes: (1) the term functional competency is meaningful only in a specific societal context; (2) functional competency is best described as application of skills to a set of general knowledge areas; (3) functional competency results from a combination of individual capabilities and societal requirements; and (4) functional competency is directly related to success in adult life (Keefe & Georgialles, 1978, p. 5).

Adult Functional Competency Levels are levels of competency as indicated by percent scores of performance on the High School APL Survey (HS-1) of adult functional competency.

Adult Performance Level Content Areas are categorical subscales of the Adult Performance Level Test, which

. . . cover things in every day life that [adults] need to know about. These include:

Community Resources--the services that supply recreation, information, community help, and transportation.

Occupational Knowledge--finding, getting, working at, and keeping a job.

Consumer Economics--managing family or personal money and understanding good buying habits.

Health--the rules and habits that lead to good mental and physical health.

Government and Law--the structure of the government, the functions of the legal system, and [a citizen's] rights and obligations under them (American College Testing Program, 1976, p. 11).

Adult Performance Level Skill Areas are categorical subscales of the Adult Performance Level Test which

. . . cover the use of numbers and written information in everyday life. These include:

Identification of Facts and Terms--knowing the important words and ideas [a person] use[s] in dealing with the content areas named above.

Reading--being able to read such materials as ads, booklets, directions, contracts, and forms.

Writing--knowing how to write such things as notes, letters, applications, and lists.

Computation--being able to use numbers in daily situations, for example, those involving money, weights, measures, and calories.

Problem Solving--knowing how to find solutions to practical problems (American College Testing Program, 1976, p. 11).

Capacities

. . . identifies the more discrete skills and capabilities that underlie a competency. When combined and utilized (often in complex ways in life-role contexts) these capacities serve as the enablers or building blocks on which competencies rest (Spady, 1977).

Competency refers ". . . to the ability to perform successfully in the patterned activities which constitute adult life-roles" (Spady, 1977).

Minimum Competency is the minimum level of criterion-referenced performance which is acceptable for purposes of certification in competency-based education programs.

Illiteracy is the inability to "read and write a simple message in English or any other language" (U.S. Department of Commerce, 1971).

Functional Illiteracy is the inability to perform simple tasks characteristic of everyday life situations. It is characterized by: "(1) income at or below the poverty level, (2) an education of eight or less years, and by (3) unemployment or employment in occupations of low job status" (Northcutt, 1975, p. 5).

Illiteracy Prevention is elementary- and secondary-level education and training designed to prevent illiteracy among adults through the education of youths.

Illiteracy Remediation is elementary- and secondary-level education designed to develop literacy among persons generally 18 years or older.

Ratings of adult functional competency levels are

. . . verbal descriptors of individual or class performance [on the High School APL Survey (HS-1) test of adult functional competence]. . . . The ratings are derived from the following arbitrarily chosen segments of the distribution of norming data:

Below Average--lowest 15%,

Average--middle 60%,

Above Average--highest 25%

(American College Testing Program, 1976, p. 8).

Overview

The balance of this work is organized and presented as follows:

Related literature and research are reviewed in Chapter II. This review of literature addresses both illiteracy prevention and remediation. Related or analogous studies are included and works specifically related to or using APL Project materials are discussed.

The setting, research methods, instrumentation, statistical hypotheses, and analysis process are described in Chapter III.

Research data, analysis, and findings with respect to both research questions and hypotheses are presented in Chapter IV.

The research summary and conclusions are given in Chapter V.

Bibliographic references are included immediately following Chapter V, and more detailed information relating to topics discussed in Chapters I through V are subsequently appended in order of their referenced appearance in the text.

This research, then, is an attempt to discuss and explicate what is known about adult functional competency: what kinds of knowledge or skills are implicit in one's ability to perform tasks characteristic of everyday adult life situations, what levels of implicit competency are essential, and how competent are adults or high school students in America. These questions are central to the theoretical basis of this study and are therefore an appropriate starting point for the review of related literature and research, which follows in Chapter II.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Literature relevant to this research was reviewed and findings are selectively presented in this chapter. Basic information relating to literacy in America was collected from three primary reviews.

First, from a review of the written record of illiteracy remediation, information is presented here to explicate what is known about literacy education efforts among adults. Second, from a parallel review of literature dealing with illiteracy prevention, information is presented to summarize what has and is being done in the preparation of high school students for everyday adult living. Third, literature relevant or analogous to this study of adult functional competency among secondary school students was more specifically reviewed and implications drawn for this or future studies in the area.

In each of these reviews, available literature was initially screened from the ERIC data base of documents in education by computer, utilizing the system operated by the Michigan State University Library under contract with Bibliographic Retrieval Services.

Searches were conducted using the following ERIC descriptors and identifiers:

Area 1. Adult Basic Education or Literacy Education (with)

- a. Daily Living Skills, or
- b. Basic Skills, or
- c. Survival Skills, or
- d. Life Coping Skills.

Area 2. High Schools or Secondary Education or Graduation Requirements (with)

- a. Daily Living Skills, or
- b. Basic Skills, or
- c. Survival Skills, or
- d. Life Coping Skills.

Area 3. APL or Adult Performance Level or Adult Performance Level Project and Not a Programming Language.

These preliminary computer-assisted ERIC searches yielded 27 citations in Area 1, 87 citations in Area 2, and 20 references related to the Adult Performance Level (APL) Project. Findings on review of these and other references are given below.

Illiteracy Remediation

History

The history of literacy education in America since 1900, as reviewed by Wanda Cook (1976), has followed a fairly consistent pattern of recognition during periods of stress and of application of varying degrees of prevention and/or remediation.

In the decade from 1910 to 1919, for example, the national concern with foreigners and the frightening number of illiterates or

near-illiterates (25 percent) discovered in the process of registration for the draft (WWI) resulted in widespread local efforts to reduce illiteracy. At the national level, legislative action in 1917 aimed at illiteracy prevention resulted in a bill which restricted immigrants on the basis of literacy. So great was the national concern with Americanization during this period that this bill became law over President Wilson's veto.

This pattern of national concern and intervention continued through the 1940s and into the 50s with WWII and the Korean Conflict providing the major impetus for action in literacy education.

Throughout modern history, literacy education in America suffered from inadequate and inappropriate materials. According to Cook (1976),

The market for adult materials during the fifties was little more than it had been during the previous decade. Often, teachers used materials designed for children and adapted them for adult classes. Success did not always follow (p. 75).

During the 1960s,

Americans became acutely aware of the plight of native born functional illiterates and educators recognized that education, offered in isolation from economic and other social problems was relatively ineffective (Cook, 1976, p. v).

In fact, the term "functional illiterate" begins to appear most prominently in the writings of the 1960s. Berg, in 1960, and Fox, in 1964, both, for example, refer to the need to develop reading programs which address the functional needs of adults.

Also in the 1960s, public interest in literacy education at the federal level was in educating adults to be functional members

of society. The concept of adult basic education and job training was firmly established in the Manpower Development and Training Act of 1962 with major amendments in 1965 and in the Economic Opportunity Act of 1964.

Manpower Development and Training centers were established in many places across the country as a result of this federal interest in literacy education. Robert Vermeulen's study of student success at the Lincoln Skill Center in Kalamazoo, Michigan, in 1968 is interesting as he relates the functional orientation of these programs.

Vermeulen's study concentrated on basic education and vocational skills development in the Lincoln Manpower Development and Training Center. On investigating the relationships between vocational proficiency and literacy skill levels as well as basic educational achievement and job success, he concluded that trainees with basic skill levels above the sixth grade were significantly more successful in the training program and that trainees showed gains in job status, wages, and self-confidence.

By the end of the 1960s, traditional concepts of literacy were expanding from grade-level reading proficiency to more comprehensive definitions. The Adult Basic Education Act of 1966, which had provided opportunities for adults whose skill levels were below the eighth grade, was extended by the Adult Education Act of 1969 to provide funding for the education of adults with less than a twelfth-grade education.

Beyond Reading

The extension of literacy beyond reading can be seen in the Louisiana State Department of Education Curriculum Guide for Adult Education Teachers (Hammett, 1970). This guide specified that language arts, mathematics, social studies, and science skills were to be taught in seven content areas: (1) Family Life, (2) Citizenship, (3) Occupational Education, (4) Consumer Education, (5) Personal Improvement, (6) Conservation, and (7) Leisure Time.

Other practitioners in the 70s also dealt with specification of skills, other than reading, that they felt were important to adult daily living. The importance of problem solving as an adult living skill was described, with contextual examples of how it could be taught, in the Life Skills Course of the Saskatchewan NewStart program (Saskatchewan NewStart, 1972). In 1973 the Appalachian Adult Education Center compiled a list of the information needs of disadvantaged adults (Moorehead State Univ., 1973). Published under the title Life Coping Skills Categories and Sub-categories: Areas of the Information Needs of Disadvantaged Adults, this list covered many categories of life coping skill areas and included such topics as: (1) Human Relationships, (2) Career Planning, (3) Home Management, (4) Leisure, (5) Recreation, (6) Self-Understanding, (7) Religion, (8) Education, (9) Ethnic Studies, (10) Drug Abuse, (11) Health, (12) Legal Aid, and (13) Sexual Relationships.

Report number ABE-1 of the Office of Education (1967) specifically identifies 16.3 million in 1960 and estimates that by 1970

the figure would be down to 12.5 million adults in America between the ages of 18 and 64 who are "educationally disadvantaged." Educationally disadvantaged was defined as adults with less than an eighth-grade education. This survey report of the status of adult basic education programs did not include an estimate of, but did speculate that the number of persons who are "functionally inadequate" despite completion of the eighth grade would be quite large.

It was becoming more apparent at the start of the 70s that a new definition and new methods of determining literacy were needed. Previous definitions and estimates of literacy in terms of the ability to read and write a simple message, grade-level completion, or of grade-level reading proficiency were discounted by most researchers. According to the Northwest Regional Educational Laboratory (1976), David Harmon concluded, in his study of the nation's conditions of literacy in the 60s, that approximately 50 million adults in America were "illiterate" in terms of their ability to perform functional tasks of everyday life.

Using a national sample based on the 1970 Census, Louis Harris (1971) conducted a study of the extent of functional reading difficulties in America. This study assessed everyday reading ability in such different areas as: (1) telephone dialing, (2) classified ads, (3) applications, (4) use of transportation, (5) medicine, and (6) citizenship. The Harris group concluded that 4 percent of the United States population 16 and older (about 5.6 million people) suffer from serious deficiencies in terms of functional reading ability.

These estimates of illiteracy in America are shocking when compared to official Bureau of the Census figures. The United States Bureau of the Census, in 1969, found only 1.4 million people in America who were 14 and older and unable to "read and write a simple message either in English or any other language" (p. 5). Clearly, these official estimates of illiteracy in America needed to be revised. Illiteracy, which had been perceived by many as a problem that had been eradicated, once again became a national concern.

APL Project

National effort in the 70s was launched by James Allen (1969) when, as United States Commissioner of Education, he announced the "Right-to-Read" program in an address to the National Association of State Boards of Education. The aim of this program was to eradicate illiteracy (reduce to 1 percent) among adults in America by 1980.

In October of 1971, the Division of Adult Education Programs of the United States Office of Education in Washington, D.C., issued a Request for Proposal (RFP) which solicited proposals for a study and development project intended to provide national direction in adult basic education. The intent, content, and scope of this project can be seen from the following text, which is quoted here for information from the original RFP:

In support of the National Right to Read Effort, the Division of Adult Education Programs has adopted the following definition of adult literacy:

The challenge is to foster through every means the ability to read, write, and compute with the functional competence needed for meeting the requirements of adult living.

The emphasis of this definition is in its final phrase, "requirements of adult living." These requirements must be determined by an analysis of adult living rather than by the common practice of attaching a grade equivalence to them. Existing grade equivalents cannot be effectively adapted to adult needs. This is not to say that school curricula do not prepare students for adult roles, but rather it says that the forms in which school curricula are derived, their detailed content and the way in which they are presented to school attendees are not applicable to adult learning frameworks. A system of adult education must derive its own specific aims and have its own adult based curricula, methodologies, and materials. This system is necessary because both the characteristics of adult learners and the frameworks within which they learn differ radically from those found in the formal school system.

This definition of adult literacy must be elaborated into specific aims. The definition together with this elaboration will then become the objective of what historically has been called "Adult Basic Education."

Aims expressed in the Adult Basic Education Act of 1966 as amended provide a broad framework of objectives, leaving much room for elaboration. The framework does, however, provide terms of reference. Specifically, ABE is to be occupation-oriented, provide tools for coping with adult responsibility and relate to adult reading, writing and computational skills, requisite for adult living. The Act delimits the scope of ABE by removing specific skill training from its purview.

In expanding these aims, the following principles should be applied:

1. Objectives should be stated in terms of levels of competency to be attained;
2. These levels should derive from predetermined adult living requirements, not grade school achievement levels;
3. Levels should be expressed in terms of tasks;
4. In articulating the aims, regional differences throughout the country should be accommodated;
5. Aims should involve a graduated scale commencing with a minimal level.

Adult Performance Level

The ultimate aim of ABE is to achieve an Adult Performance Level (APL) commensurate with the requirements of adult living. The APL has four knowledge and skill components:

1. Adult Reading Level (ARL)
2. Adult Writing Level (AWL)
3. Adult Computational Level (ACL)
4. General Knowledge Variables (GKV)

Any adult person [age 16 and above] unable to perform at the minimal level included in any one of these four is to be considered in educational terms as functionally lacking.

Purpose of APL Project

The APLs determined by this project together with the definition of adult functional literacy will constitute the objectives of a system of adult basic education. They also will determine the target population of adult basic education in that they imply that any person, age 16 and above whose proficiency is less than that specified in the first APL, is a potential participant in adult basic education programs. Furthermore, all subsequent adult syllabuses and curricula will be based on the APL and will derive from it, not from school curricula.

The products of this initial project and their primary uses will be:

1. Articulation of aims of adult basic education as they relate to individual and societal needs.
This will provide State ABE programs and other federally supported adult education efforts with an adult society-based set of aims for programs at all levels of ABE.
2. Determination of adult requisite levels of functioning and Adult Performance Level (APL) encompassing reading, writing, computation, and knowledge variables.
For the first time systems of adult basic education throughout the country will be given clearly articulated and detailed terms of achievement supplanting the grade level achievements in current usage.
3. Determination of the tasks involved in APL.
This will provide syllabus and curriculum planners and developers with clear terms of reference.

These three products are essential to the development of an effective Nationwide Adult Right to Read Effort. They will provide the basis of an [sic] system of adult education which will be implemented through a national conference and regional conferences thrusting State Directors of Adult Education into leadership roles involving business, industry, education, and volunteer and community service organizations in each state. This system will further permit coordination of the 32 different federal programs having basic education components for adults. These programs representing federal expenditures of several hundred million dollars must be coordinated if an effective nationwide effort is to become reality (Reprinted in Northcutt, 1972).

On evaluation of proposals pursuant to their RFP, the United States Office of Education awarded the study contract to a research team headed by Dr. Norvell Northcutt at the University of Texas at Austin, Texas. The study, which became known as the Adult Performance Level (APL) Project, was funded for approximately \$1 million under

Section 309 of the Adult Education Act of 1969. In summarizing the results of their two-year study, the Project team reported that:

. . . the APL project has accomplished the following tasks: (a) developed and validated a series of objectives which comprise adult functional competency, (b) conducted a series of national assessments of performance of adults with respect to those objectives, and (c) created, as a by-product of the research, a prototype test of adult functional competency (Northcutt, 1975).

General theory.--After this initial task had been accomplished, a general theory of Adult Functional Competency emerged and was used as a basis for further study. The general theory assumes that Adult Functional Competency is:

. . . a construct which is meaningful only in a specific societal context . . . two-dimensional (i.e., is both the possession of a set of skills, and their application to a set of knowledge areas) . . . a function of individual capabilities and societal expectations . . . [and] as a concept is directly related to success in adult life (Northcutt, 1975, p. 2).

Methodology.--APL methodology, which was summarized diagrammatically in the team report (Northcutt, 1975, p. 3) and as reproduced here as Figure 2.1, covered (a) specification of competencies, (b) development of performance indicators, (c) field trial/review, and (d) national assessment, which resulted in (e) a determination of competencies for the sample within three levels--adults who function with difficulty (APL 1), functional adults (APL 2), and proficient adults (APL 3).

In an earlier report, the research team indicated that the Primary source of knowledge on minimum performance level criterion exists in (was obtained from) the experiences, accumulated data, and reports of professionals dealing with minimally performing adults (Northcutt, 1972, pp. 5-6).

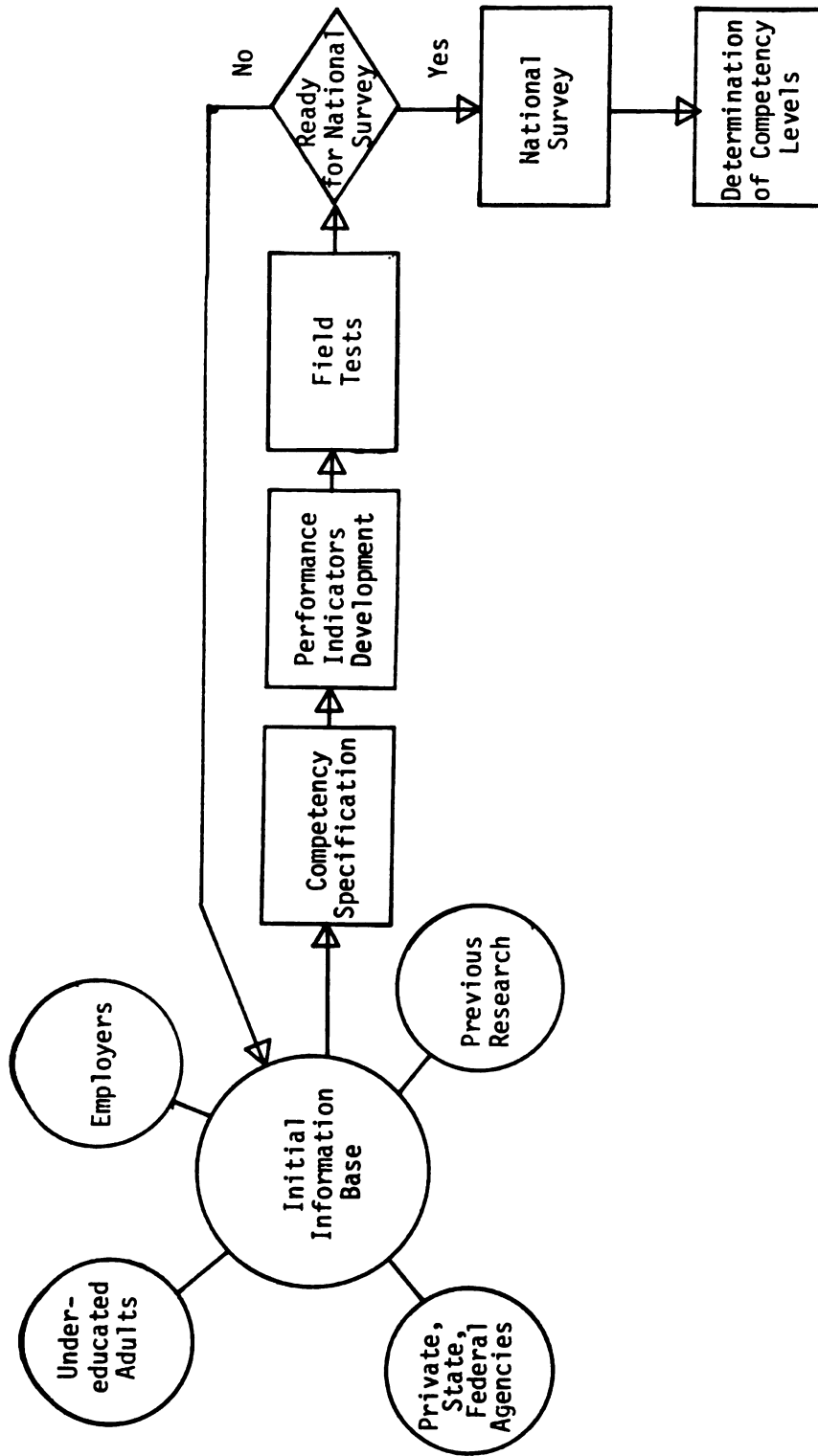


Figure 2.1.--APL project methodology.

Development of performance indicators and criterion reference tests relied heavily on the National Assessment process. The APL staff reportedly (1) developed objectives and related test instruments, (2) reviewed and revised the objectives and test items at a series of four regional conferences, and (3) conducted field testing in Texas (Northcutt, 1972).

The national assessment phase of the project was conducted among 7,500 adult basic education students in 30 states and at 67 sites. As a control, testing was also conducted among students of seven high schools in Texas.

Findings.--Since the sample data were nationally representative, the APL Team estimated the proportion of the United States adult population which comprised each APL level. The percentages overall and according to several demographic variables are reproduced here from the Team's March 1975 summary report (Appendix B). Several interesting conclusions can be drawn from the findings; however, the most alarming result is that approximately one-fifth (20 percent) of all adults in the United States were estimated to be functioning with difficulty.

APL Project Reviews

According to Griffith and Cervero (1976), the APL Project has been perhaps the most widely publicized development in adult basic education in this century. The incredible publicity surrounding this project, and, in fact, generated by the APL Project report, is probably due to many factors--several of which are worthy of mention in this review.

First, the study was not only funded by the Division of Adult Programs of the United States Office of Education; it also had the Office's regulatory commitment to implement curricula based on the adult performance criteria identified in the study (USOE/Division of Adult Education Programs, 1971). This commitment was reiterated in a speech by Terrel H. Bell (1975), then United States Commissioner of Education, when he stated, "I think we have a very useful project here that the education community has to examine with great seriousness and deliberation."

And so they did, as the title of Edith Roth's (1976) article in American Education suggests: "A Ferment in Education."

Second, the development of a conceptual framework or theory and objectives was systematic and involved many different inputs, including review of literature and research (Northcutt, 1972, Bibliography), survey of state and federal agencies and foundations, conferences, and a continuing series of semi-structured interviews with undereducated and underemployed adults.

Third, the methodology was logically consistent and the assessment phase was extensive. Over 7,500 adults were included in the national sampling. The sampling was reportedly representative of the United States population at large, and hence, useful in developing broad generalizations--some of which were highly controversial. The findings show, for example, a very high concentration of minorities and women in the lowest competency level.

Controversy surrounding the findings is not limited to the politics of literacy education in America. Several adult educators have openly challenged the validity of the APL Project findings.

Griffith and Cervero (1976), in their review of the APL Project, have questioned the findings on several points. One of their most serious objections appears to be that the United States Office of Education's specifications of competencies were published in the RFP "in advance of the research they proposed to fund" to determine what competencies are needed in a definition of adult functional competency. These critics apparently have suggested that the resulting competencies may not be those that are definitive of adult functional competency in America. (Note: Authors Griffith and Cervero have requested that their criticism of the APL Project be interpreted and quoted in the context of their effort to examine the APL Project rather than to cast aspersion upon it.)

Nafziger (1976) raises a serious objection in questioning the validity or reliability of the findings since no effort was made to establish the reliability of the instrument used by the APL Team in the national assessment of Adult Performance Levels.

APL Impact on ABE Programs

Objections notwithstanding, the APL Project has had a tremendous impact on adult basic education programs in America.

One of the first curriculum development efforts based on competencies identified by the APL Project was directed by Harry Frank at Auburn University (1975). This effort produced a series of five curriculum guides for use in adult basic education programs in Alabama.

Published under the auspices of the Department of Vocational and Adult Education as Career Education for Adults, there is one guide or module for each of the five APL content areas. APL goals and objectives were listed in each module together with suggested learning activities and instructional materials.

Mocker and Spear (1976) conducted a study to identify appropriate competencies that would be important in the training of adult basic education teachers to teach in APL-based programs. This study was a cross-validation of Mocker's earlier competency listings for adult basic education teachers. The original adult basic education teacher competencies list was revised as a result of this study.

Participation in APL-oriented curriculum development became widespread throughout the country by the mid-1970s. A sampling of federally funded APL-based curriculum development projects is presented in Appendix C to illustrate the extent to which this APL movement had spread among adult basic education programs in four years after its preliminary announcement (1972) and in only one year after its summary report was published by the United States Office of Education in 1975. In this sampling, funding for APL-related projects in 34 states, and in the District of Columbia, was in excess of \$3.8 million, with an average of \$30,000 spent in each individual project.

Refinement/Marketing of APL Materials (ACT)

In March of 1975, the American College Testing Corporation (ACT) acquired the exclusive right to refine, adapt, publish, and distribute APL materials. ACT rights extend into 1981, at which time the

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project materials revert to public domain. The ACT refinement initially resulted in both adult and high school versions of the original APL Survey. These tests were standardized and published for general use in 1976. The High School APL Survey (HS-1), published by ACT, was used in this study of adult functional competency among entering freshmen, juniors, and seniors of DODDS high schools in the Pacific Region.

Illiteracy Prevention

Americans have traditionally felt that an "ounce of prevention" was worth the proverbial "pound of cure." Certainly this idea is fundamental to the growth and development of publicly supported schooling in the United States. However, this faith or hope for schooling as a means of ensuring a minimal level of national literacy, at least functional literacy, appears to be faltering.

Critics and Criticism

In recent years, criticism of the schools has become much more extensive and severe than ever before. Ornstein (1977), in discussing critics and criticism, has observed that "Teachers and schools have always been criticized by educators and laypeople, but only recently the criticism has been more flagrant and hostile than before" (p. 21).

Among the critics, educators are perhaps the most critical in their own attacks on the present system. The flavor of these "internal critics" can be appreciated on examination of their works. Authors such as Friedenborg, Goodman, Neill, Holt, Kozol, Kohl, Herndon, Illich, and Freire have presented everything from poignant anxiety with

present practice to outright demands for the elimination of schools altogether.

Criticism of schools from parents and other adults in the community has been expressed throughout the country in newspapers and magazines, at school board meetings, at the ballot box, and in the courts.

Concern with what schools are accomplishing or failing to accomplish runs the gamut of public expectations. Expectations run from college preparation to moral development to development of simple everyday living skills. The fact that national Scholastic Aptitude Test (SAT) scores have declined between 8 and 5 percent over the ten-year period between 1965 and 1975 has been the subject of much public debate. Public concern with these and other measurable outcomes of education eventually developed into a growing national concern with the teaching of fundamental or basic skills.

Legal Challenges

In the 70s, schools faced direct challenges at the ballot box and in the courts. An early court case in San Francisco (John Doe v. San Francisco Board of Education, 1973) charged the schools with gross negligence and fraud in awarding a high school diploma to Peter Doe. Peter was described as a boy of normal intelligence, who was graduated from high school although he could only read at the sixth-grade level, and who later learned to read with relative ease when given private tutoring.

The plaintiff's case was dismissed and dismissal upheld on appeal. The court's decision, which apparently supported the school, was, in fact, a severe indictment of the present system of schooling. In dismissing the case, the court ruled that, for the school to be held liable for fraud, the diploma had to have been represented as meaning something. In its finding, it stated that the high school diploma apparently does not stand for anything and to award it to incompetent students did not constitute fraud on the part of the school system.

In 1972, the United States Supreme Court ruled--in the case of *Yoder v. Wisconsin*--that the schools could not enforce compulsory attendance among the Amish people since the Amish apparently become "self-reliant citizens" without attending schools.

At the ballot box, citizens of California--in accepting Proposition 13--apparently rejected the notion that public services deserve unrestricted public support. It was anticipated--and was widely used as an argument against Proposition 13--that passage of the measure would severely affect schools throughout the state. Passage of the measure by overwhelming majority should, at least, be taken as an indication of public dissatisfaction with public schooling.

Present Forces and Public Policy

Gordon Cawelti (1977), in summarizing present forces, has stated that:

During the past several months, actions have been taken by legislatures, state boards of education, and local school boards which mandate that certain minimum competencies be required before students are either passed on to the next grade or graduated from

high school. One also frequently hears these days such terms as "coping skills," "adult literacy," and "survival skills," and these terms relate to the same movement . . . the public quite clearly is saying that it wants more and better teaching of the basic skills of reading, mathematics and writing.

All is not bleak, though, as according to Cawelti (1977),
one

. . . potential benefit from the Competency Based Education (CBE) movement is that it may afford us for the first time in many years an opportunity to fundamentally re-examine the nature of general education for secondary students. The present instructional program represents more what I called a "patchwork curriculum" among traditional separate subjects. While we have been through a curriculum reform era in the fifties, an innovation era in the sixties, and now find ourselves in an accountability era, at no time during these movements have I seen a substantial effort to define the nature of general education--that education which is "basic" and that all youngsters should receive.

In his discussion of key elements involved in policy planning for competency-based education, Brickell (1978) lists seven key questions that must be addressed:

1. What competencies will you require?
2. How will you measure them?
3. When will you measure them?
4. How many minimums will you set?
5. How high will you set the minimum?
6. Will they be for schools or for students?
7. What will you do about incompetents?

Pipho's (1977) review of state actions in establishing minimum competency standards (Appendix D) shows that states, in establishing public policy for competency-based education, have generally begun their efforts by requiring action by state and local boards of education. The legislative and state board actions typically address one or more but not all of Brickell's questions, thus leaving much to be developed by state or local boards of education and by the schools themselves.

Competency versus Capacity

School systems which must develop and implement a program of competency-based education very quickly find that Bickell's first question--What Competencies?--has essentially two answers. According to Bickell (1978), you can describe competencies in terms of "school skills" or in terms of "life skills." And, he illustrated the difference by citing the following test questions for

. . . a school skills test:

If John has 70 marbles and gives José 13 marbles and gets 26 marbles from Slim and gives 38 marbles to Alice, how many marbles does John have left?

. . . a life skills test:

Balance this checkbook by adding these deposit slips and subtracting those cancelled checks.

Spady and Mitchell (1977) have also discussed these divergent options which must be addressed in establishing public policy with respect to competency-based education. In their discussion, they define the differences between school skills and life skills in terms of competencies and capacities. According to these authors,

. . . the term competency refers exclusively to the ability to perform successfully in the patterned activities which constitute adult life. The term capacity identifies the more discrete skills and capabilities that underlie a competency.

One problem, according to Spady and Mitchell, in competency-based education is that:

Outcome expectations stated in capacity (school skill) terms rest on the assumption that students will be able to manage successfully both the integration of individual capacities and the transfer of those capacities to life-role situation.

This assumption, which is fundamental to the "patchwork curriculum" of many secondary schools in America, may not be a valid one.

The idea that students will be able to integrate skills and make transferals in real-life situations has apparently not been true for all students.

Competency-Based Education in Oregon

Oregon State Department of Education (1973) was the first to adopt competency-based high school graduation requirements. As many states stand at the threshold, it seems appropriate here to conclude this review of illiteracy prevention with a summary of the Oregon experience.

According to Nance (1977), Oregon now has three dimensions to its high school graduation requirements: (1) credits, (2) attendance, and (3) competencies. The first two dimensions were retained from previous requirements but were modified substantially. Attendance requirements were changed from four years of 9-12 schooling to fewer or more than four years in school or other appropriate educational settings. The credit requirement was expanded to include one credit each in Consumer and Career Education.

The major difference in Oregon's new graduation requirements is that they now include a competency requirement. Beginning with the class of 1978, in order to graduate from high school, students in Oregon were to have been able to demonstrate competency. According to Nance,

The following areas were (initially) specified by the State Board: read; listen; speak; write; analyze; compute; scientific and technological processes; healthy mind and body; life-long learner; citizen in the community, state and nation; citizen in interaction with the environment; citizen on the streets and highways; consumer of goods and services; function within an occupation or continue education leading to a career.

In 1976 this Board policy was refined to stipulate that districts would develop "a statement of desired student performance representing demonstrable ability to apply knowledge, understanding, and/or skills assumed to contribute to success in life role functions" and that the requirement in all competency areas would become applicable to students in the class of 1981.

Responsibility for competency development in Oregon was delegated to local districts. Typical content of local competency requirements can be seen in the list of "Competency Performance Indicators" of the Salem Public Schools (Appendix E). This listing is clearly life-role oriented.

Nance (1977) says that the State Board "intent was to provide a means to assure that Oregon's high school graduates would be able to cope adequately with the demands commonly faced in adulthood." In reviewing the difficulties that Oregon experienced, several key points were mentioned:

1. Little had been done before that could be used as a basis for program development;
2. Long lists of isolated skills were initially specified instead of life competencies as intended by the State Board;
3. Districts learned to write competencies in terms of life-roles;
4. The process of competency development was difficult and took much longer than expected; and

5. Initial skills listings required too much teacher time in record keeping.

In answering the question, "How Fares Competency Development in Oregon?" Nance concludes:

We have made mistakes, we are correcting them, we have learned much, and we are still committed to the concept of establishing clearly and publicly expressed goals for education, and then providing the resources which will enable students to achieve those goals.

This statement of conviction by someone who has been through the throes of competency-based education for several years should be encouraging to educators in America who are presently faced with responsibility for implementing public demands for competency-based education in their schools.

Related Studies

In this section of the review of literature, studies are selectively referenced which are related to the purpose, design, expectations, potential conclusions, and possible recommendations that might be made as a result of this present research. In most instances, the study is described, findings are reviewed, and implications and limitations are discussed.

Current Education: A 9/12 Assessment

The study.--The Division of Assessment and Evaluation of the Texas Education Agency (1976) conducted a study of basic skills, knowledge, and competencies in career education among 9th and 12th grade students in the Texas public schools. According to the staff report (Texas Education Agency, 1976), the purpose of the study was:

. . . to provide decision makers with information about student performance in career education that will assist curriculum planning and development efforts at the local, regional and state levels.

Through a survey of students, parents, educators, and business leaders, the study identified 177 learner outcomes that Texans felt were important for 17-year-olds in the area of career education. After identifying "what should be," the research staff selected a representative sample of approximately 20,000 9th-grade and 6,600 12th-grade students and proceeded to determine "what actually exists."

In order to conduct the assessment, researchers developed an evaluation instrument which was criterion referenced to the skills, attitudes, and knowledge that they had identified as being important. The resulting test, Career Education Measurement Series (CEMS), had 45 items, 9 categories, and 26 sub-categories. It was used in November and December of 1975 and the results of this testing were published with respect to each group's performance on the nine categories. In summary, their findings include the following:

1. Of the nine categories, freshmen and seniors scored above expected levels (75 percent and 90 percent, respectively) in five of the areas and below expectation in four of the areas.
2. Performance by seniors was higher than by freshmen in all nine categories.
3. Rank order of highest to lowest performance by category was the same for both groups. Students had least difficulty with items involving "Self-Investigation and Evaluation for Career Success"

and most difficulty in topics involving "Career and Occupational Information."

Conclusions of the study were that:

1. . . . Priority attention should be given to those categories in which less than 75 percent of the [seniors] displayed attainment.
2. Assessment data have indicated areas of strength and weakness in student performance . . . [and that] . . . school districts should examine existing career education programs in light of the assessment results;
3. . . . School districts should use the assessment instruments to gain more information;
4. . . . Efforts should be continued to infuse career education concepts into the entire instructional program.

Implications and limitations.--The Texas study of career competencies among high school students has an analogous purpose and was conducted using methodology very similar to this present study. It therefore has several implications which are important to this research.

First, it should be expected that, at least in terms of Occupational Knowledge, seniors will have higher levels of competency. Differences in performance between freshmen and seniors of at least 10 to 15 percent might be expected. Second, since students did poorly on the "Career and Occupational Information" sub-category, it might also be expected that students will score lower on the "Identification of Facts and Terms" sub-scale of the High School APL Survey (HS-1) as a result of having inadequate career and occupational information.

Third, the methodology may not have given information about the career competency of seniors. Since the assessment was conducted in November and December, it could be argued that the assessment was essentially conducted among entering freshmen and "juniors." In order to avoid

this design limitation, the present research assessed the competencies of both juniors and seniors at the end of their school year.

Reading: An 11/12 Assessment

The study.--As a doctoral dissertation at Georgia State University, William Hammond (1976) conducted "A Study of the Literacy Level of Atlanta Public High School 11th and 12th Grade Students." The purpose of this study was (1) to determine the number of 11th and 12th grade students who were functionally literate, marginally literate, and illiterate; and (2) to determine what factors might be used to predict student literacy levels. The methodology employed was to administer the Reading Everyday Activities in Life Test (R/EAL) to randomly selected classes among the Atlanta public high schools. A total of 430 students were tested. Test results were analyzed using condescript and crosstabs programs of the Statistical Package for the Social Sciences (Version 5.01).

The findings of this study among 11th and 12th grade students were that: (1) Taken together, the total percentages were 84 percent functionally literate, 14.8 percent marginally literate, and 1.2 percent illiterate; (2) Race was found to be the strongest predictor of student performance; other predictors were post-secondary educational plans, school location, and year in school; and (3) Sex and income were not strong predictors of performance level.

Hammond concluded that:

There appears to be a significant portion (approximately 16%) of the Atlanta public high school 11th and 12th grade population that cannot successfully and independently perform basic reading and reading related tasks.

Implications and limitations.--Hammond's study has at least three important implications for the present research. First, since year in school was found to be a strong predictor of student reading ability, it can be expected that seniors will have significantly higher reading competency than that of juniors. Second, the percentage of students who might have below-average reading proficiency might be in the neighborhood of 16 percent. Finally, as a major limitation, Hammond's study does not lend itself to any conclusions about the relative reading abilities of either of the study groups beyond the recognition that seniors do better. If, in fact, seniors did very much better than juniors, then the concluding recommendation for more emphasis on reading might not be justified in the high schools of Atlanta.

This present research has attempted to avoid potential limitation by separately testing and statistically evaluating the functional reading levels of juniors and seniors in the study.

Mathematics: A 3,5,7,9 Assessment

The study.--Charlene Behne (1976) conducted a study of mathematical literacy among selected groups of 3rd, 5th, 7th, and 9th grade students in the Minneapolis-St. Paul suburban area. The purpose of the study was to determine mathematical literacy of these students "in four areas: (1) basic skills, (2) algebra, (3) problem solving, and (4) inductive reasoning."

Students in four classes of 3rd, 5th, 7th, and three 9th grade algebra classes were given the Brown-Arnold Math Placement Guide, which tested student abilities in each of the four areas. Descriptive

statistics were computed and group differences were tested, using a t-ratio (two-tailed), for significance at the 0.05 level.

Essential findings of the study were: (1) "Differences between the grade levels in each of the four categories of mathematics literacy were significant at the 0.05 level"; (2) Higher grade levels made higher scores on the Math Placement Guide; and (3) "The percentage of students meeting the achievement levels on the Math Placement Guide designated for their grade level in basic skills decreased steadily from grade three through grade nine."

Implications and limitations.--From this study it could be expected that there may be significant differences in mathematical skills among students of DODDS high schools in the Pacific. Since Behne's study did not show any point at which student mathematical literacy did not increase, it might be interesting to see if this observation is also true at the high school level, where students are not required to, but often do, take more than one year of mathematics.

Other Studies

Several other studies are reported here that are generally related to the topic and setting of this research.

Reading.--Gadway and Wilson (1974) reported on a study of functional literacy among 17-year-olds conducted by the Education Commission of the States, as part of the National Assessment of Educational Progress. The purpose of this study was to determine if "the reading skills which are usually taught in the schools are adequate to functioning in everyday life." From an analysis of student performance

on test items by type, Gadway and Wilson reported that even superior readers did poorly on items involving interpretation of insurance policies, traffic tickets, and application forms. Furthermore, Gadway and Wilson also concluded that there is a need to further define functional reading.

High School Diploma Program (HSDP).--Bauer (1977) reported on a comparative study of basic skills among high school graduating seniors and adult high school diploma students. Among other findings, Bauer reported that:

There was no significant difference between the performance of the traditional high school seniors and the HSDP students in vocabulary, language arts and reading comprehension as measured on the Gates and ITED tests.

Enduring effects of education.--Hodgkinson (1977), in support of his contention that education does make a difference, points out that Hyman, Wright, and Reed conducted a study "of 80,000 adults between the ages of 25 and 72 that showed that the longer you stay in school the more you know--throughout your life;" and, furthermore, "that people from lower socioeconomic backgrounds who go to college do better in life than those from wealthy backgrounds who only complete high school."

Innovation and change in DODDS.--Of the many studies that have been conducted in the Department of Defense Dependents Schools system, one conducted by Demos (1978) seems particularly applicable to the ultimate use that may be made of findings from this present research. Demos studied the factors which contributed to or discouraged innovation

and change among DODDS schools in Europe. The following selected conclusions and recommendations were reported:

Selected Conclusions. (1) Teachers who receive the support of their principal do hold more positive perceptions toward innovation and change. (2) Teachers who take an active part in planning and development of the curriculum hold perceptions which are more favorable toward adopting innovation and change. (3) Teachers who teach required subjects tend to hold the same perceptions of innovation and change as do teachers of elective subjects. (4) Teachers who visit innovative programs do become more positive in their views about introducing innovations and changes.

Selected Recommendations. (1) The principal should support and encourage all who will be involved in a projected change. (2) Teachers should be provided the opportunity to visit other schools to assist them in modifying their instructional program or to learn about innovation. (3) Schools making provisions to individualize instruction are urged to examine such innovation practices as: (a) employment of paraprofessionals, (b) variations in use of time, (c) variable-sized grouping of students, and (d) team teaching.

Summary

This review of the literature has described the problem of illiteracy in America from two separate perspectives. Efforts of adult basic educators in the area of illiteracy remediation have been presented. Parallel efforts by elementary and secondary schools in the area of illiteracy prevention have also been described.

Illiteracy Remediation

In the area of illiteracy remediation, it has been stated that Americans have followed a fairly consistent pattern, in the twentieth century, of recognition during periods of stress and of application of varying degrees of remediation or prevention.

Most efforts in the first half of the century were directed toward developing reading skills and tended to narrowly equate literacy

with reading ability or grade-level completion. This definition was gradually extended to include basic skills such as reading, writing, and computing; and grade-level equivalency definitions of literacy rose in stages from 6th, to 8th, to completion of the 12th grade by the mid-60s.

Refinement of operational definitions of literacy reached a zenith in the 60s as more researchers tended to be concerned with "functional literacy" and to define this in terms of contextual application of basic skills. Adult basic educators had concluded by the end of the 60s that "skills taught in isolation were relatively ineffective," and that, in terms of being able to perform the tasks of everyday life, millions of Americans were "functionally illiterate."

Much work in adult basic education in the 70s was related to or involved the results of the Adult Performance Level (APL) Project. This project, which was funded for approximately \$1 million by the United States Office of Education, defined literacy in terms of adult functional competencies. These adult functional competencies were identified as part of a two-dimensional concept or theory of literacy which featured the application of a set of basic skills in context of everyday-life situations.

Results of the APL Project were heatedly debated, widely accepted, and immediately implemented in adult basic education programs across the country. The speed with which this innovation was accepted may have been partly due to the unprecedented support it had from the United States Office of Education and partly because it represented a

concept of adult basic education which had been growing and which had crystallized in this Project's report.

Illiteracy Prevention

Illiteracy prevention has been discussed in terms of the growing concern that many people have expressed over the last several years that schools don't provide adolescents with the skills that they need to function as adults in America.

Much of this criticism has been directed at the secondary school, but many of the resultant actions have also affected elementary schools as well. The record shows that criticism fostered concern, which resulted in legislative and state board action in many states.

In terms of policy, two approaches to specifying competencies were discussed. The first looks to "basic skills" such as reading, writing, and mathematics; the second attempts to specify competency in terms of everyday tasks or "life skills." Much information is available in the literature about the former; little has been written about the latter.

Other Studies

Several selected studies were reported which related to the purpose, design, expectations, potential conclusions, and possible recommendations that might be made as a result of this present research.

From this review it should be expected that (1) grade level *will* be directly related to adult functional competency levels of students; (2) on evaluation of student criterion-referenced test results,

a statistically significant difference should be found in math, reading, and career education; and that (3) results of the study should be helpful to decision makers in their planning for competency-based education programs.

CHAPTER III

DESIGN OF THE STUDY

Introduction

The research design facilitates an assessment of adult functional competency levels among DODDS-Pacific high school entering freshmen, and juniors as well as seniors at the end of their respective school years. The performance level of each of these study groups on a measure of adult functional competency was determined. Comparisons were made among groups and between study groups and similar groups for which national norms of adult functional competency are available.

The population of interest, instrumentation, statistical hypotheses, data collection, and analysis process are described in this chapter.

Population of Interest

The population of interest in this study includes entering freshmen, and juniors as well as seniors at the end of their respective school years. The population is further defined as students in these three grades among DODDS-Pacific high schools during school years 1977-78 and 1978-79.

Freshmen were included in the study in order to obtain a measure of adult functional competency among students at the very beginning of their high school experience. Assessment of adult

functional competency among members of this study group was conducted at the beginning of the school year.

Juniors were included in the study in order to obtain a measure of adult functional competency among students for whom comparative national norms are available and with whom additional comparisons of adult functional levels could be made. Assessment of adult functional competency levels among members of this study group was conducted in the Spring.

Seniors were included in the study in order to obtain a measure of adult functional competency among students at the end of their high school experience. Assessment of adult functional competency levels among members of this study group was conducted in the Spring.

Sophomores were not included in this study since comparable national norms are not available for this group and because no attempt was made in this study to progressively measure the development of adult functional competency over the four years of high school. No assessment of student adult functional competency was made at the end of either the freshman or sophomore year.

DODDS Setting

The DODDS Overseas program as described in the system-wide educator recruitment brochure (DODDS, 1977-78) consists of

Elementary and secondary schools [which] have been operated on U.S. military bases overseas since 1946, for the children of military and civilian personnel assigned overseas. The Department of Defense Dependents Schools Overseas provide educational opportunities comparable to those offered in the better school systems in the United States. This segment of American public

education consists of approximately 265 elementary, junior high, and high schools. The schools are located . . . around the world, with an enrollment of approximately 140,000 students and [are] staffed with approximately 7,500 educational personnel. The overseas school system is one of America's largest school systems; it is exceeded in enrollment by only a few other American school districts.

Courses of study parallel those of the public schools in the United States, and standard approved textbooks are used. Students vary in background and heritage as widely as the regions within the United States from which they came. Frequent changes in home and school result in some adjustment problems, but the students usually adapt rapidly to their new environments. The general atmosphere in the overseas dependents schools is similar to that found in schools in the United States.

Some of the elementary schools are small and the teacher must teach multiple grades. Many junior high schools have only four to eight staff members, and each educator may be required to teach two or more different subjects.

Some of the larger elementary schools and all the junior high and high schools are accredited by the North Central Association of Colleges and Schools. The secondary teacher is required, generally, to teach in more than one field and should be prepared to conduct at least one extracurricular activity. There are a number of high schools with enrollments of less than 500 where classes are small, as is the staff. Staff members must be versatile, with the ability and willingness to teach in at least two fields (p. 1). [See Appendix F for A Description of DODDS Requirements for Employment of Educators.]

DODDS Overseas schools are presently located in Antigua, British West Indies, the Azores, Bahamas, Bahrain Island, Belgium, Bermuda, Guantanamo Bay, Cuba, England, Germany, Greece, Iceland, Italy, Japan, Korea, Netherlands, Newfoundland, Norway, Okinawa, Philippine Islands, Scotland, Spain, and Turkey.

At the time of this study, DODDS managed schools in these countries organizationally through three regional offices. (See Figure 3.1.) DODDS-Pacific operated 40 schools for dependents in Japan, Korea, Okinawa, the Philippines, and on Midway Island.

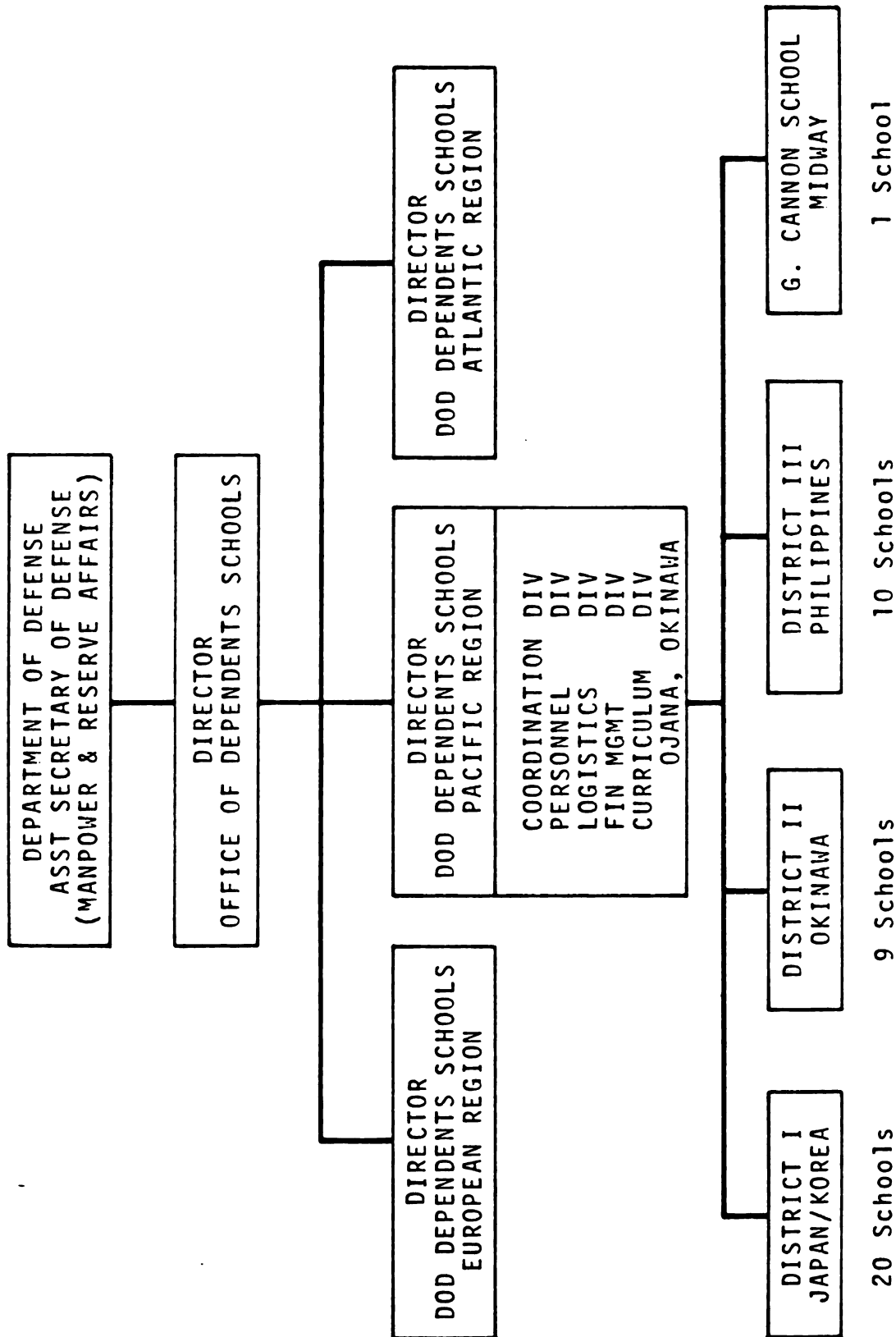


Figure 3.1.--DODDS and DODDS-Pacific organizational chart for school year 1977-78.

Curriculum

The curriculum in DODDS-Pacific schools follows the pattern of curriculum for general education followed in many high schools in the continental United States. College preparatory students follow programs which provide the background needed for their further education. Electives in music, arts and crafts, industrial arts, business education, and in other academic subjects are available to students of DODDS-Pacific high schools. To graduate from high school, students must have a minimum of 18 credits as listed below:

<u>Curricular Area</u>	<u>Units Required</u>
Language Arts (e.g., English, Speech, Journalism)	4
Social Studies (Must include 1 unit of U.S. History and 1/2 unit of U.S. Government)	3
Mathematics	1
Science	1
Career Education (e.g., Practical Arts, Vocational Education, Work Study)	1
Aesthetics (e.g., Humanities, Art, Music)	1
Physical Education	1
Health (Beginning in School Year 1978/79)	1/2
Electives	<u>5-1/2</u>
Total	18

Study Groups

The population for this study, hereinafter called study groups, include entering freshmen, and students of the junior and senior class at the end of their school year among the 11 DODDS-Pacific high schools.

There were 1,049 students in the ninth grade group, 509 students in the eleventh grade group, and 501 students in the twelfth grade study group. (See Table 3.1.)

The only students at these grade levels who were systematically excluded from the study were those who were assigned to special education classes as a result of having been identified as being mentally handicapped.

Student Capabilities

Three separate assessments of student capabilities were completed within DODDS during the two school years in which this study of adult functional competency levels was conducted. While results of these assessments of student capability are not separately available for DODDS-Pacific students, the system-wide results are summarized here as an illustration of the general level of capability among DODDS students and of the type of capacity information which is available to DODDS decision makers.

Language Arts/Mathematics Assessment, Grades 3 and 6, 1978

(see Appendix G).--Approximately 20,000 students in the three DODDS regions were tested in May of 1978. The DODDS summary report of findings indicated that:

1. At the third grade level in both mathematics and language arts, DODDS students scored at or above the limits of expectancy set by the DODDS system.
2. At the sixth grade level in language arts, DODDS student performance on content areas representative of reading skills was

Table 3.1.--Listing of DODDS-Pacific high schools, school populations, and population in the study groups.

School Number	School Name	Location of School	School Population	Population of Students in the Study Group		
				9-12	9	11 12
6404	Pusan Am. School	Pusan, Korea	50		10	9 12
6405	Seoul HS	Seoul, Korea	481		147	91 55
6407	Zama HS	Zama, Japan	313		81	60 59
6408	Taegu Am. School	Taegu, Korea	84		30	22 10
6500	E. J. King School	Sasebo, Japan	16		6	.. 3
6501	Kinnick HS	Yokosuka, Japan	371		112	69 45
6503	M. C. Perry School	Iwakuni, Japan	68		24	15 11
6602	Misawa HS	Misawa, Japan	178		57	23 24
6606	Yokota HS	Yokota, Japan	548		166	83 108
7401	Kubasaki HS	Okinawa, Japan	1,089		223	.. 174
8602	Wagner HS	Clark AB, RP	807		193	137 ..
Totals			4,005		1,049	509 501

significantly above that of the comparative U.S. population. Results on writing skill sub-scales were at or above expectations as well as scores by comparable United States norm groups. Sixth grade math scores were above comparable United States norm group scores on all factors.

Language Arts Assessment at Grades 8 and 11, 1977-78 (see Appendix H).--The assessment was conducted in the Spring of 1978 among several thousand pupils at grades 8 and 11 in sampled schools from the three DODDS geographic regions. Results from the tests which covered both composition and English indicate that:

1. In the area of Composition, DODDS students compare favorably with students who participated in the 1974 National Assessment of Educational Progress in writing; and

2. In the area of English, DODDS students were generally within the range of expectancy in language arts and higher than the average pupil score shown by the National Assessment of Educational Progress. Weaknesses were noted for both grade levels in reading comprehension.

College Entrance Examination Boards--1978.--In 1978 a total of 2,299 DODDS seniors took the Scholastic Aptitude Test (SAT). Scores reported for these students (see Tables 3.2 and 3.3) indicate that:

1. Average verbal scores were 445 and average math scores were 484. Both score averages were 16 points above the national average;

2. Males scored 39 points higher than females on the math test; and

3. With the exception of separate tests for physics, biology, and literature, DODDS student group averages were higher than the national average on all separate and sub-tests ("College Entrance Examination Board Score Reports," 1978).

Table 3.2.--SAT scores for graduating DODDS seniors, 1978.

	Verbal			Math		
	Male	Female	Total	Male	Female	Total
Number	1,173	1,126	2,299	1,173	1,126	2,299
(Mean Average)	447	443	445	509	458	484
Standard Deviation	10.9	10.8	10.9	11.1	10.4	11.1

Source: "College Entrance Examination Board Score Reports for Students in the Department of Defense Dependents Schools (DODDS), 1978" (Washington, D.C.: DODDS, 1978).

Table 3.3.--Score averages for the separate achievement tests.

Subtest	()*	DODDS	National
English Composition	(350)	514	512
Mathematics Level I	(254)	551	541
Mathematics Level II	(62)	681	665
American History	(115)	509	496
German	(71)	634	553
Chemistry	(65)	596	577
Biology	(52)	527	544
Spanish	(33)	586	544
Literature	(29)	520	521
Physics	(29)	581	591

Source: "College Entrance Examination Board Score Reports for Students in the Department of Defense Dependents Schools (DODDS), 1978" (Washington, D.C.: DODDS, 1978).

*Represents the actual number of DODDS students electing to take a subtest.

Instrumentation

The High School APL Survey Form HS-1 was used in this study to assess functional competency levels among DODDS high school juniors, seniors, and entering freshmen in the Pacific region. The test was first published in 1976 and is criterion-referenced to objectives which were refined from those that were originally developed as performance indicators of adult functional competency by researchers at the University of Texas at Austin, Texas (Northcutt, 1975).

Test Construction

The test itself is a 40-item paper and pencil, power test generally taking from one to one and one-half hours to administer. All items are multiple-choice questions with a reported Dale-Chall readability of from fifth to sixth grade level. There are eight items for each of the five content area sub-scales. On analysis the items are grouped into one of the five skill areas which they also measure (see Table 3.4). The items require examinees to use skills in the context of everyday living situations.

Item mean difficulty is from 71.6 to 84.7. Item discrimination --reported as median point biserial correlation between item and part-- ranges from 0.40 to 0.56.

Item classifications by context and skill areas are provided in Appendix I. The criterion-referenced nature of this examination can be seen in these tables which cross-reference items, content objectives, and skills.

Table 3.4.--Distribution of items across APL matrix.

	Identification of Facts and Terms	Reading	Writing	Computation	Problem Solving	Total
Community Resources	1	2	2	1	2	8
Occupational Knowledge	1	2	1	2	2	8
Consumer Economics	1	2	1	2	2	8
Health	1	2	2	2	1	8
Government and Law	2	1	2	2	1	8
Total	6	9	8	9	8	40

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey
(Iowa City: ACT, 1976), p. 5.

Standardization

Test items were standardized by ACT among 4,449 high school students chosen to represent four geographic regions of the country and five community sizes. There were 2,167 eleventh-grade and 2,040 twelfth-grade students who took form C of the test in May of 1976. The demographic characteristics of this sampling are given in Appendix J.

Test results for these normative groups are included in Appendix K, and will be referenced later in comparing these performance levels with those of comparable student groups in this study.

Validity.--No empirical evidence is provided by the test manufacturer for concurrent or predictive validity. The construct upon which the test is made is that of "functional competency" with validity arguments based on the process and research of the Adult Performance Level Project. Empirical values are given for content validity by the test developers. Content validity is reported around 0.5 among the content and skill sub-scales with a range of 0.75-0.83 being given for part-total correlations.

Reliability.--Two coefficients of reliability are provided by ACT test developers for eleventh and twelfth grade normative groups. The range of reliability estimates derived from KR-20, or split-half calculations (see Appendix L), is from 0.50-0.64 on the content scales and--with the exception of the computation sub-scale--from 0.42-0.57 on skill scales for both eleventh and twelfth-grade groups. The reader will note that the reliability of the computation sub-scale is

reported at from 0.70-0.71 and that this is considerably higher than any of the other sub-scales.

Reliability for the total survey is reported at from 0.85-0.87 for both groups. No normative data are available for ninth-grade student performance on the test.

Research Questions

The following research questions are restated here, together with several inherent questions about which data were collected in this study:

1. What are the overall adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

1.1. What is the overall level of adult functional competency of high school entering freshmen in the population?

1.2. What is the overall level of adult functional competency of high school juniors in the population at the end of their school year?

1.3. What is the overall level of adult functional competency of high school seniors in the population at the end of their school year?

2. What are the content, skill area, and general adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

2.1. What are the adult functional competency levels of high school entering freshmen, juniors, and seniors in the population in the following five content areas:

- 2.1.1 Community Resources,
- 2.1.2. Occupational Knowledge,
- 2.1.3. Health,
- 2.1.4. Government and Law, and
- 2.1.5. Consumer Economics?

2.2. What are the adult functional competency levels of high school entering freshmen, juniors, and seniors in the population in the following five skill areas:

- 2.2.1. Identification of Facts and Terms,
- 2.2.2. Reading,
- 2.2.3. Writing,
- 2.2.4. Computation, and
- 2.2.5. Problem Solving?

2.3. What are the general levels of adult functional competency among high school entering freshmen, juniors, and seniors in the population?

3. What similarities and differences in content, skill area, or general adult functional competency exist between entering freshmen, juniors, and seniors in the population?

3.1. What are the strengths and weaknesses in content, skill area, or general level of adult functional competency among entering freshmen, juniors, and seniors in the population?

3.2. What similarities are there in strengths and weaknesses in content, skill area, or general level of adult functional competency among entering freshmen, juniors, and seniors in the population?

3.3. In what content, skill area, or general level of adult functional competency are there differences among entering freshmen, juniors, and seniors in the population?

4. What is the distribution of content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors in the population?

4.1. What is the distribution of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year in the following content areas:

- 4.1.1. Community Resources,
- 4.1.2. Occupational Knowledge,
- 4.1.3. Health,
- 4.1.4. Government and Law, and
- 4.1.5. Consumer Economics?

4.2. What is the distribution of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year in the following skill areas:

- 4.2.1. Identification of Facts and Terms,
- 4.2.2. Reading,
- 4.2.3. Writing,

4.2.4. Computation, and

4.2.5. Problem Solving?

4.3. What is the distribution of the general level of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year?

Testable Hypotheses

The five hypotheses of this research are restated here and symbolically represented in testable form. The implicit alternative hypotheses are also given below:

1. As measured by average test performance, there are no significant differences between adult functional competency levels of high school juniors in the population and adult functional competency levels among high school juniors in the United States.

Symbolically: $H_1: M_{11}(SG) = M_{12}(NG)$

Legend: $M_{11}(SG)$ = Mean score of the eleventh-grade study group.

$M_{11}(NG)$ = Mean score of the eleventh-grade norm group.

Alternate. As measured by average test performance, there are significant differences between adult functional competency levels of high school juniors in the population and adult functional competency levels among high school juniors in the United States.

Symbolically: $H_{1a}: M_{11}(SG) \neq M_{11}(NG)$

2. As measured by average test performance, there are no significant differences between adult functional competency levels of high school seniors in the population and adult functional competency levels among high school seniors in the United States.

Symbolically: $H_2: M_{12}(SG) = M_{12}(NG)$

Legend: $M_{12}(SG)$ = Mean score of the twelfth-grade study group.

$M_{12}(NG)$ = Mean score of the twelfth-grade norm group.

Alternate. As measured by average test performance, there are significant differences between adult functional competency levels of high school seniors in the population and adult functional competency levels among high school seniors in the United States.

Symbolically: $H_{2a}: M_{12}(SG) \neq M_{12}(NG)$

3. As measured by average test performance, there are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of students in the population at the end of their junior year of high school.

Symbolically: $H_3: M_{11}(SG) = M_9(SG)$

Legend: $M_{11}(SG)$ = Mean score of the eleventh-grade study group.

$M_9(SG)$ = Mean score of the ninth-grade study group.

Alternate. As measured by average test performance, there are significant differences between adult functional competency levels of

students in the population upon entry into high school and adult functional competency levels of students in the population at the end of their junior year of high school.

Symbolically: $H_{3a}: M_{11}(SG) \neq M_9(SG)$

4. As measured by average test performance, there are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of high school seniors in the population at the end of their school year.

Symbolically: $H_4: M_{12}(SG) = M_9(SG)$

Legend: $M_{12}(SG)$ = Mean score of the twelfth-grade study group.

$M_9(SG)$ = Mean score of the ninth-grade study group.

Alternate. As measured by average test performance, there are significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of high school seniors in the population at the end of their school year.

Symbolically: $H_{4a}: M_{12}(SG) \neq M_9(SG)$

5. As measured by average test performance, there are no significant differences between adult functional competency levels of students in the population at the end of their junior year of high school and the adult functional competency levels of high school seniors in the population at the end of their school year.

Symbolically: $H_5: M_{12}(SG) = M_{11}(SG)$

Legend: $M_{12}(SG)$ = Mean score of the twelfth-grade study group.

$M_{11}(SG)$ = Mean score of the eleventh-grade study group.

Alternate. As measured by average test performance, there are significant differences between adult functional competency levels of students in the population at the end of their junior year of high school and the adult functional competency levels of high school seniors in the population at the end of their school year.

Symbolically: $H_{5a}: M_{12}(SG) \neq M_{11}(SG)$

For each of these testable hypotheses, the comparison of average test performance as a measure of adult functional competency implies a comparison of overall mean scores as well as mean scores on a measure of each of the five content and skill areas included in the theoretical definition of adult functional competency used in this study.

Data-Collection Procedures

The High School APL Survey (HS-1) was administered to ninth-grade students in the population in September of school years 1977/78 and 1978/79. Most schools conducted the testing of ninth grade students in the Fall of 1977; two of the schools tested ninth-grade students in September of 1978. All eleventh-grade students were tested in May of 1978. All twelfth-grade students were tested in May of 1977.

Machine and hand-scored test performance data for each student were keypunched onto tabulating cards for storage and analysis. A computer program was written (see Appendix M) to assist in verifying the accuracy of the keypunched data and to compute school mean scores on the total survey and on each of the ten APL sub-scales. After the data were verified for accuracy, listings were prepared summarizing each school's APL test results.

A second program was then written to read the entire data file and to compute APL performance data for each of the three study groups (see Appendix N). Descriptive statistics provided by this program include group frequency distributions, mean scores, and standard deviations for the total survey and for each of the ten APL sub-scales.

Analysis

This section describes the basic assumptions and analysis model used in the study.

Basic Assumptions

In conducting this study of adult functional competency among DODDS-Pacific high schools, it was assumed that:

1. Student scores on the High School APL Survey (HS-1) are a measure of their general level of adult functional competency;
2. The population studied will be generally representative of the group that might be affected by high school competency-based policy in the near future;

3. The performance of seniors on the High School APL Survey (HS-1) is indicative of where high school students in the population are in terms of adult functional competency at the end of their high school experience;

4. The performance of juniors on the High School APL Survey (HS-1) is indicative of where high school students in the population are in terms of adult functional competency at the end of their junior year of high school; and that

5. The performance of entering freshmen on the High School APL Survey (HS-1) is indicative of where high school students in the population are in terms of adult functional competency at the beginning of their high school experience.

No assumptions are made in regard to the school's contribution to adult functional competency levels in or among each study group.

Analysis Model

Descriptive statistics for performance by high school students in the population on the High School APL Survey (HS-1) were tabulated, graphically presented, and interpreted in terms of the previously stated research questions.

The t-test (two-tailed) was used to test the significance of differences between mean scores among the study groups.

In view of the relatively low reliability of the Survey subscales, a significance level of 0.001 was chosen as the criterion for rejection of possible differences among mean scores on all but the

computation sub-scale. Reliability estimates for the computation sub-scale and for the total survey seem to justify rejection of possible differences on these scales at the 0.01 level of significance.

Summary

The fundamental design of the study has been presented in this chapter.

The population was described as being characteristically unique in its location on U.S. military installations in foreign countries throughout the Pacific region. Although unique in its location, information has been presented here to indicate that the performance of members of the population on traditional measures of academic capability compare favorably with the population of students within the United States.

It has been suggested that the curriculum offered and qualifications of the professional staff are similar to that which is available to students of better schools in the United States.

Reliability, validity, and normative data were presented for the High School APL Survey (HS-1), which was used to measure adult functional competency levels in this study. While the sub-scales are not extremely reliable, the content validity is excellent and the reliability of the total survey is acceptable.

Research questions and hypotheses were further delineated, data collection was discussed, and the analysis process was prescribed.

For most differences in student group performance to be recognized, the level of significance must be at or above the 0.001 level.

The findings of this study are presented and analyzed in Chapter IV.

CHAPTER IV

FINDINGS

Introduction

The purpose of this study was to obtain, analyze, and compare relevant data concerning adult functional competency among freshmen, juniors, and seniors of DODDS-Pacific high schools.

In Chapter III, the instrument and procedures used in collecting data were described, research questions and hypotheses were restated in testable form, and the analysis model was discussed. In this chapter, research data are first presented in terms of the major research questions and then discussed in terms of the hypotheses.

Research Questions

Data collected for 1,049 freshmen, 509 juniors, and 501 seniors are reported here in regard to the following research questions:

Question 1: Overall Adult Functional Competency Levels

Question 1. What are the overall adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

Overall adult functional competency levels of students in the population, as measured by performance on the High School APL Survey, are summarized in Table 4.1. Mean scores with standard deviation for

Table 4.1.--Summary statistics for performance by students on the
High School APL Survey (HS-1), according to grade.

APL Scales	Number of Items	Grade 9 (N=1,049)		Grade 11 (N=509)		Grade 12 (N=501)	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
<u>Content Areas</u>	(40)						
Community Resources	8	6.3	1.36	6.8	1.20	7.0	1.26
Occupational Knowledge	8	4.8	1.69	6.0	1.73	6.5	1.56
Health	8	5.8	1.42	6.4	1.32	6.6	1.34
Government and Law	8	5.1	1.79	5.8	1.57	6.2	1.66
Consumer Economics	8	4.7	1.60	5.7	1.60	6.1	1.60
<u>Skill Areas</u>	(40)						
Identification of Facts and Terms	6	3.5	1.53	4.6	1.45	4.8	1.35
Reading	9	6.4	1.45	7.0	1.49	7.5	1.51
Writing	8	6.2	1.40	6.6	1.24	6.8	1.31
Computation	9	4.8	2.06	6.1	2.10	6.8	2.05
Problem Solving	8	5.8	1.51	6.4	1.40	6.6	1.35
Total Survey	40	26.7	5.96	30.8	5.84	32.5	6.01

each grade level study group in each content and skill area as well as on the total survey are indicated in this table. Group mean scores and standard deviation are also reported as percent of total possible score (TPS) according to grade level in Table 4.2. Performance scores for each school are reported in Appendix M.

The overall level of adult functional competency for each study group, as measured by performance on the High School APL Survey, is illustrated in Figure 4.1.

Question 1.1. What is the overall level of adult functional competency of high school freshmen in the population?

As measured by performance on the High School APL Survey, the overall adult functional competency of high school freshmen in the population ranges from a low of 53.33 percent on the Computational Skill sub-scale to a high of 78.75 percent on the Community Resources scale. Mean group performance on the Total Survey was 66.75 percent.

While no norms of ninth-grade student performance on the High School APL Survey are available for qualitative comparison, a tenuous comparison of performance scores with eleventh-grade norms would indicate that freshmen study group adult functional competency levels could be rated as AVERAGE on most sub-scales with the exception of Occupational Knowledge, Computation, and Total Survey scales, for which performance could be described as BELOW AVERAGE on comparison. (See Chapter I definitions of these qualitative ratings.)

Table 4.2.--Summary statistics for students on the High School APL Survey (HS-1), reported as percent of total possible score (TPS), according to grade.

APL Scales	Number of Items	Grade 9 (N=1,049)		Grade 11 (N=509)		Grade 12 (N=501)	
		Mean Score as % of TPS	S.D. as % of TPS	Mean Score as % of TPS	S.D. as % of TPS	Mean Score as % of TPS	S.D. as % of TPS
<u>Content Areas</u>							
	(40)						
Community Resources	8	78.75	16.88	85.00	15.00	87.50	15.75
Occupational Knowledge	8	60.00	21.13	75.00	21.63	81.25	19.50
Health	8	72.50	17.75	80.00	16.50	82.50	16.75
Government and Law	8	63.75	22.38	72.50	19.63	77.50	20.75
Consumer Economics	8	58.75	20.00	71.25	20.00	76.25	20.00
<u>Skill Areas</u>							
	(40)						
Identification of Facts and Terms	8	58.33	25.50	76.67	24.17	80.00	22.67
Reading	9	71.11	16.11	77.78	16.56	83.33	16.78
Writing	8	77.50	17.50	82.50	15.50	85.00	16.38
Computation	9	53.33	22.89	67.78	23.33	75.56	22.78
Problem Solving	8	72.50	18.88	80.00	17.50	82.50	16.88
Total Survey	40	66.75	14.90	77.00	14.60	81.25	15.03

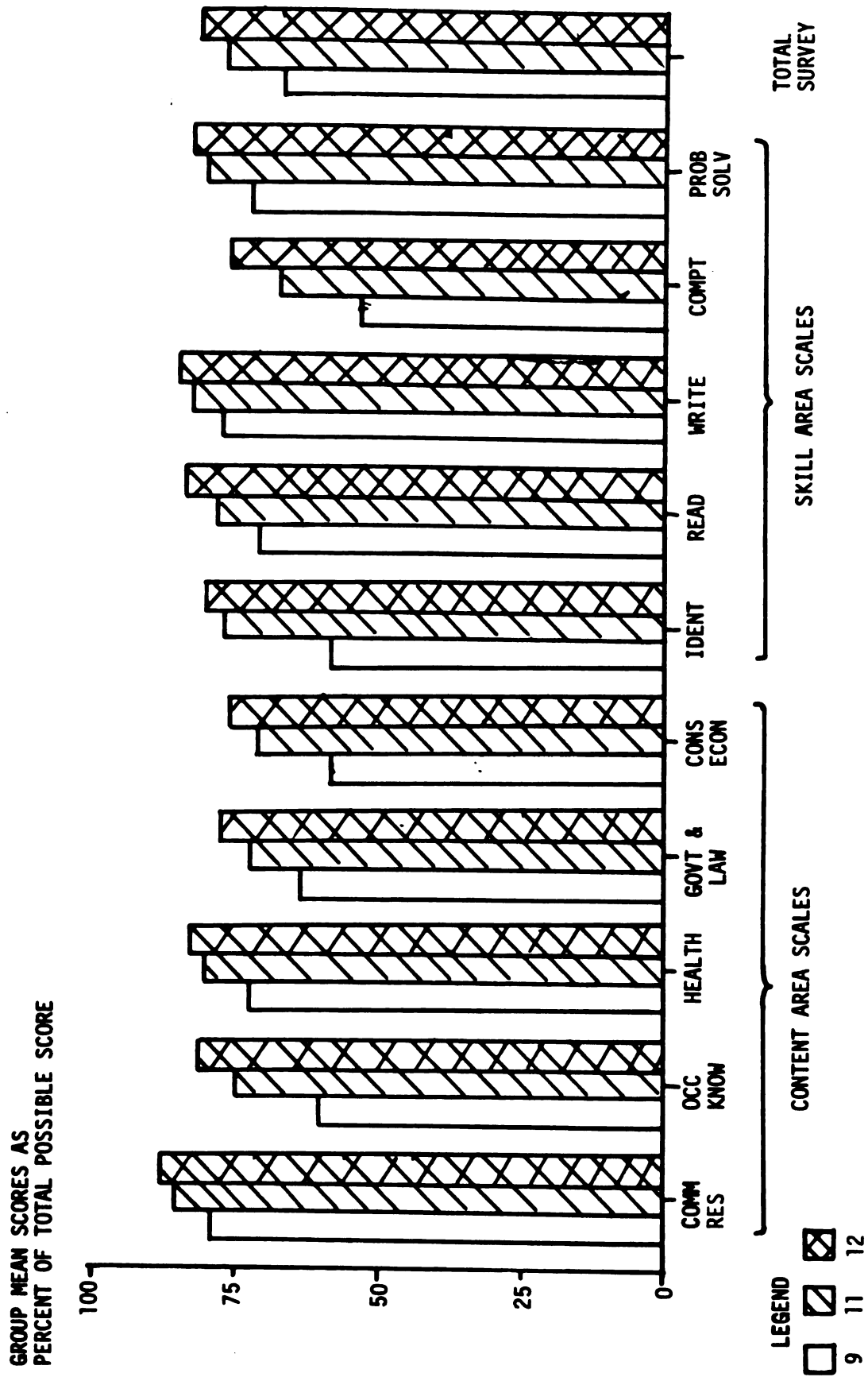


Figure 4.1.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on each content or skill area and on the total survey.

Question 1.2. What is the overall level of adult functional competency of high school juniors in the population at the end of their school year?

As measured by performance on the High School APL Survey, the overall level of adult functional competency of high school juniors in the population varies from a low of 67.78 percent on the Computation sub-scale to a high of 85 percent on the Community Resources sub-scale, with the mean score of juniors at 77 percent for the Total Survey.

The overall level of adult functional competency among high school juniors in the population is rated as AVERAGE on all scales when compared to performance by the eleventh-grade norm group.

Question 1.3. What is the overall level of adult functional competency of high school seniors in the population at the end of their school year?

As measured by performance on the High School APL Survey, the overall level of adult functional competency of high school seniors in the population varies from a low of 75.52 percent on the Computation sub-scale to a high of 87.5 on the Community Resources sub-scale, with an average Total Survey score of 81.25 percent.

The overall level of adult functional competency among high school seniors in the population is rated as AVERAGE on all scales when compared to performance by the twelfth-grade norm group.

Question 2: Content, Skill Area,
and General Adult Functional
Competency Levels

Question 2. What are the content, skill area, and general adult functional competency levels of high school entering freshmen, juniors, and seniors in the population?

Content, skill area, and general adult functional levels of students in the population, as measured by performance on the High School APL Survey, are illustrated in Figures 4.2-4.4. Mean group scores, as percent of total possible score, on each sub-scale are illustrated in these figures for both norm and study groups. The range of scores (+/- 1 SD) is also given for each study group.

Question 2.1. What are the adult functional competency levels of high school entering freshmen, juniors, and seniors in the population in the following five content areas?

2.1.1. Community Resources. Competency levels--in regard to the services that supply recreation, information, community help, and transportation--among freshmen, juniors, and seniors in the population vary from the ninth-grade low of 78.75 to a twelfth-grade high of 87.5 percent of total possible performance on this sub-scale. Comparison of performance by junior and senior study groups with comparable national norm groups shows that both study groups scored higher than their counterparts on this sub-scale.

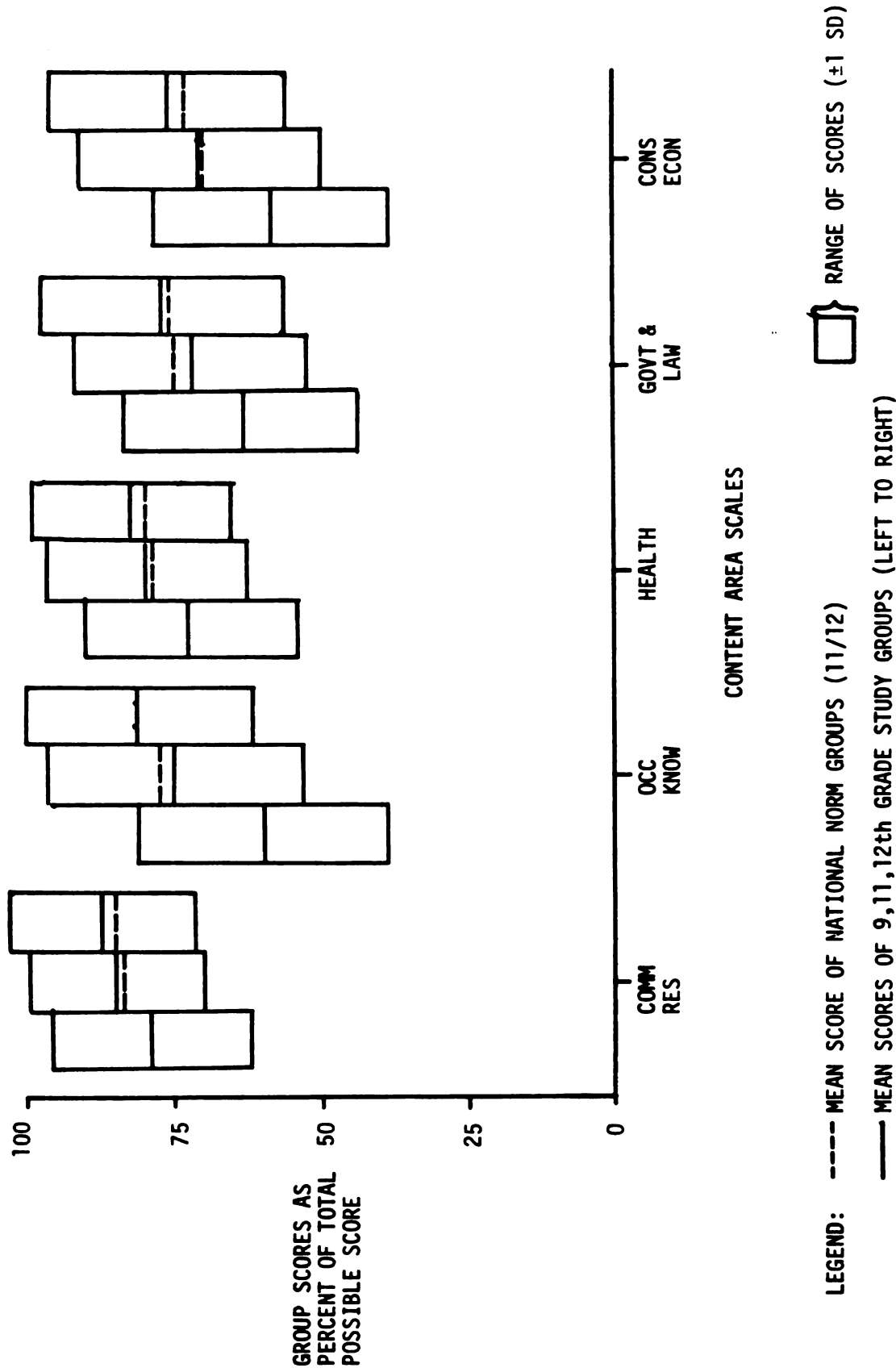


Figure 4.2.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study and norm groups on the content area scales.

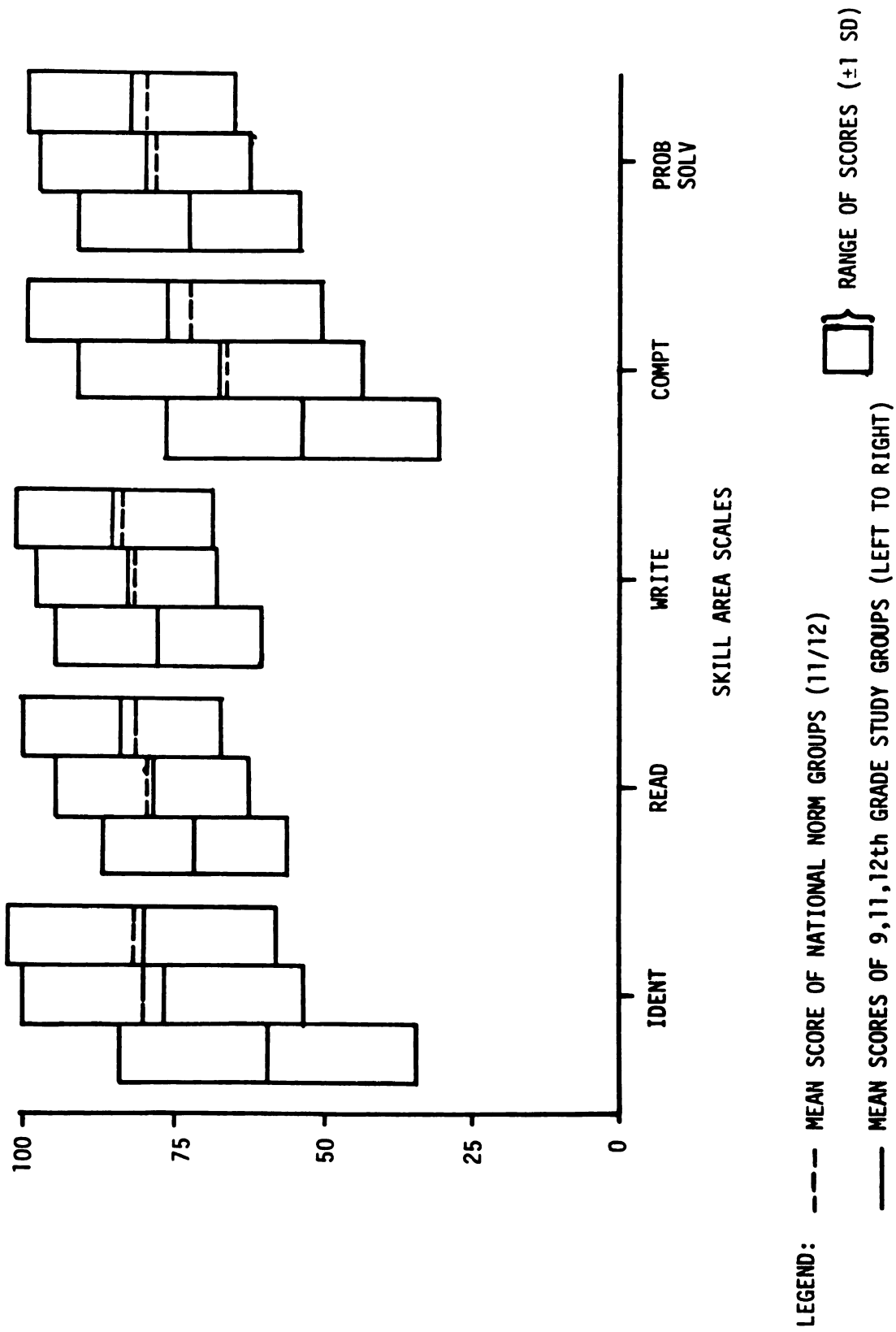


Figure 4.3.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study and norm groups on the skill area scales.

2.1.2. Occupational Knowledge. Competency levels--in regard to finding, getting, working at, and keeping a job--among freshmen, juniors, and seniors in the population vary from a freshman group low of 60 to a senior group high of 81.25 percent of total possible performance on this sub-scale. Comparison of performance by juniors and seniors with comparable national norm groups shows that junior study group scores were below and senior study group scores were just at the level of performance by their counterparts on this sub-scale.

2.1.3. Health. Competency levels--in regard to the rules and habits that lead to good mental and physical health--among freshmen, juniors, and seniors in the population vary over a range of ten points from a freshman group low of 72.5 to a senior group high of 82.5 percent of total possible performance on this sub-scale. Comparison of performance by juniors and seniors with comparable national norm groups shows that performance by both study groups was above the mean scores of performance by their respective counterparts in the United States.

2.1.4. Government & Law. Competency levels--in regard to the structure of government, functions of the legal system, and (a citizen's) rights and obligations under them--among freshmen, juniors, and seniors in the population vary over a range of from 63.75 to 72.5 to 77.5 percent of total possible performance for ninth, eleventh, and twelfth-grade study groups, respectively. Comparison of performance by juniors and seniors with comparable national norm groups shows that performance by juniors was below and by seniors was above

the level of performance by their respective norm groups on this sub-scale.

2.1.5. Consumer Economics. Competency levels--in regard to managing family or personal money and understanding good buying habits--among freshmen, juniors, and seniors in the population are from 58.75 to 71.25 to 76.25 percent of total possible performance by ninth through twelfth-grade study groups, respectively. Comparison of performance by juniors and seniors with comparable national norm groups shows that performance by both groups was above the level of performance by respective norm groups on this sub-scale.

Question 2.2. What are the adult functional competency levels of high school entering freshmen, juniors, and seniors in the population in the following five skill areas?

2.2.1. Identification of Facts and Terms. Competency levels--in regard to knowing the words and ideas (a person) use(s) in dealing with the content areas named above--among freshmen, juniors, and seniors in the population ranges from a freshman group low of 58.33 through 76.67 percent for juniors to 80 percent of total possible performance on this sub-scale by the senior study group. Comparison of performance by junior and senior study groups with comparable national norm groups shows that performance by both study groups was below the performance level of their respective norm group on this sub-scale.

2.2.2. Reading. Competency levels--in regard to being able to read such materials as ads, booklets, directions, contracts, and

forms--among freshmen, juniors, and seniors in the population are from 71.11 to 77.78 to 83.33 percent of total possible performance, respectively, by each study group on this sub-scale. Comparison of performance of junior and senior study groups with comparable national norm groups shows that performance by the eleventh-grade was below and by the twelfth-grade study group was above the performance levels of their respective norm groups on this sub-scale.

2.2.3. Writing. Competency levels--in regard to writing such things as notes, letters, applications, and lists--among freshmen, juniors, and seniors in the population are from 77.5 to 82.5 to 85 percent of total possible performance, respectively, by each study group on this sub-scale. Comparison of performance by the junior and senior study groups with comparable national norm groups shows that performance by both study groups was above the performance level of their comparable norm group on this sub-scale.

2.2.4. Computation. Competency levels--in regard to the use of numbers in daily situations, for example, those involving money, weights, measures, and calories--among freshmen, juniors, and seniors in the population vary from a freshman study group low of 53.33 to a junior group average of 67.78 to a senior group performance of 75.56 percent of total possible performance on this sub-scale. Comparison of performance of junior and senior study groups with comparable national norm groups shows that performance by these study groups was above that of the national norm groups on this sub-scale.

2.2.5. Problem Solving. Competency levels--in regard to knowing how to find solutions to practical problems--among freshmen,

juniors, and seniors in the population varied over a range of ten points from 72.5 for the freshman group to 80 for the juniors to 82.5 percent of total possible performance by the senior study group on this sub-scale. Comparison of performance of junior and senior study groups with comparable national norm groups shows that performance by both study groups was above that of the norm group on this sub-scale.

Question 2.3. What are the general levels of adult functional competency among high school entering freshmen, juniors, and seniors in the population?

The general level of adult functional competency among high school entering freshmen, juniors, and seniors in the population, as measured by Total Survey performance on the High School APL Survey, can be seen in Figure 4.4. Total survey performance by the freshman group was 66.75, by the junior study group was 77, and by the seniors was 81.25 percent of total possible performance on the total survey. Comparison of performance by the junior and senior study groups with comparable national norm groups shows that performance by the eleventh-grade study group was below and by the twelfth-grade study group was above that of their respective norm groups on the total survey.

Study group and norm reference performance data for both content and skill area sub-scales as well as for the total survey are summarily illustrated in Figure 4.5. It can be seen from this graph of average group scores as percent of total possible score that a pattern of higher performance by higher grade-level students is consistent across the scales.

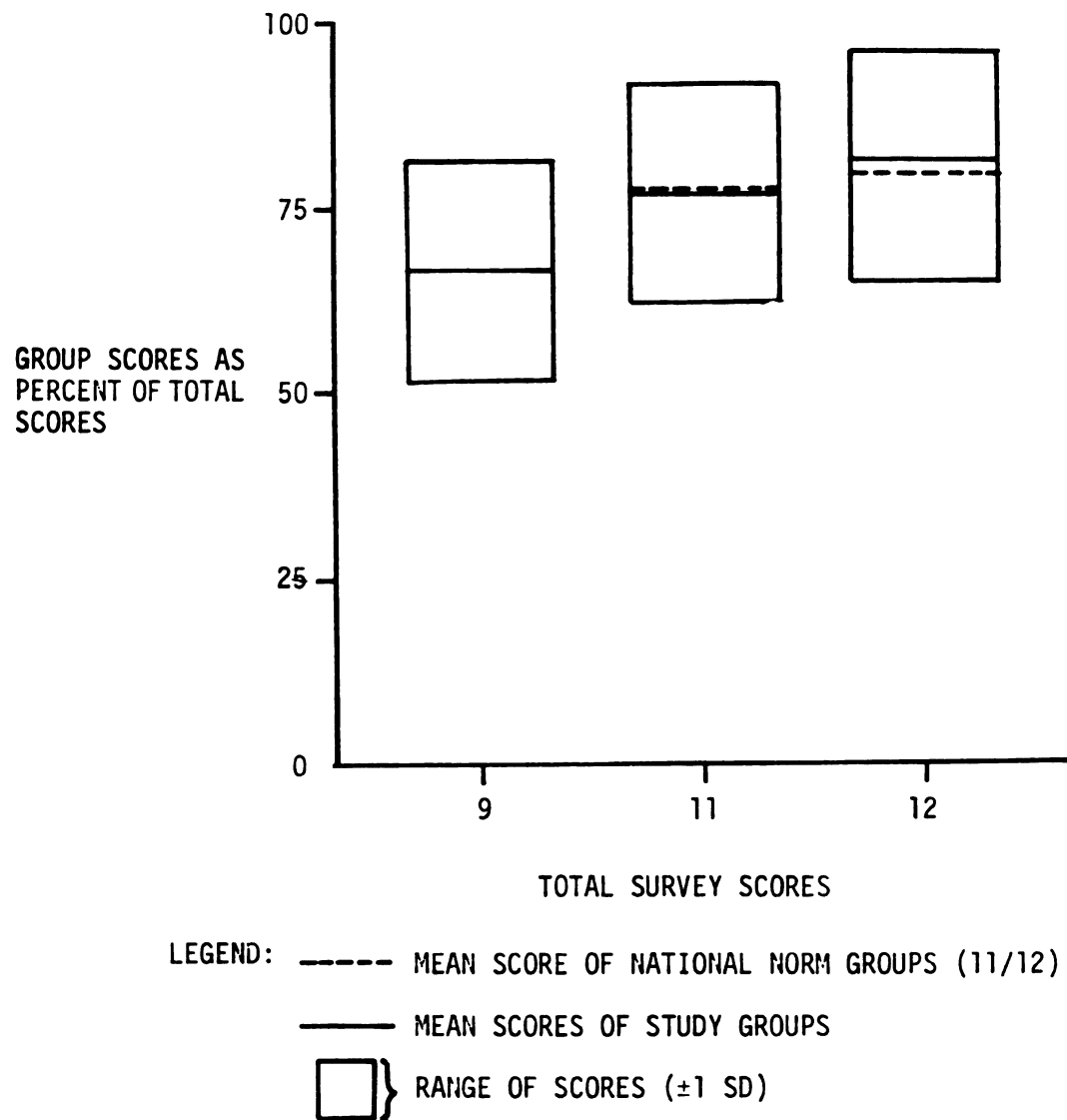


Figure 4.4.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study and norm groups on the total survey.

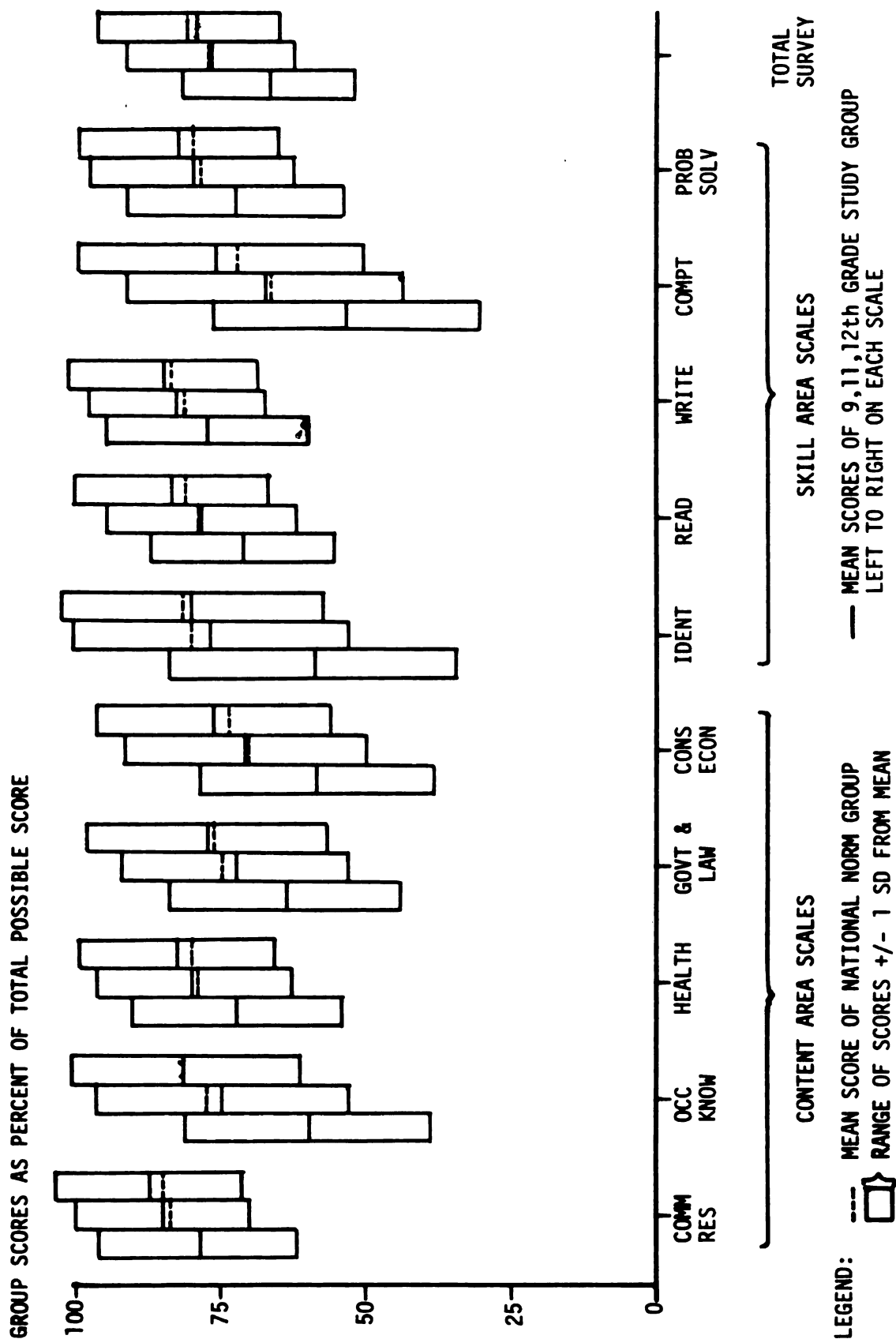


Figure 4.5.---Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study and norm groups on each content or skill area and on the total survey.

A summary of findings on comparison of content, skill area, and general (Total Survey) adult functional competency levels among juniors and seniors in the population and comparable national norm group performance is given below. National norms for performance by entering freshmen are not available for comparison.

Study Group	Higher Than Norm Group Performance	Lower Than Norm Group Performance	Same as Norm Group Performance
Juniors	Community Resources Health Consumer Economics Writing Computation Problem Solving	Occupational Knowledge Government & Law Identification of Facts and Terms Reading Total Survey	
Seniors	Community Resources Health Government & Law Consumer Economics Reading Writing Computation Problem Solving Total Survey	Identification of Facts and Terms	Occupational Knowledge

It should be observed from this summary that members of the junior study group apparently had higher adult functional competency levels than their counterparts in the United States on six of the eleven scales and lower adult functional competency levels on the remaining five scales which included general performance on the Total Survey.

Senior study group members apparently had higher adult functional competency levels than their comparable norm group on all but

the Identification of Facts and Terms and Occupational Knowledge sub-scales.

Question 3: Similarities and Differences
in Adult Functional Competency Levels
Among 9,11, and 12th Grade Study Groups

Question 3. What similarities and differences in content, skill area, or general adult functional competency exist between entering freshmen, juniors, and seniors in the population?

This question was addressed in terms of three related questions. Findings with respect to each of these questions are described below.

Question 3.1. What are the strengths and weaknesses in content, skill area, or general adult functional competency among entering freshmen, juniors, and seniors in the population?

Relative strengths and weaknesses were determined by comparing the rankings of study group performance with expectations. Performance expectations are based on rankings of mean difficulty for each sub-scale among eleventh and twelfth-grade norm groups (see Appendix L). Findings in regard to rank ordering and comparative differences in study group and norm group performance rankings are indicated in Table 4.3.

Rank ordering of performance on APL sub-scales is from 1 to 11 in order of increasing difficulty (i.e., least difficult scale has rank order of 1. Most difficult has rank order of 11).

Table 4.3.--Summary of rank order (RK) and differences from expectancies in relative rank ordering of performance on APL subscales ($RK_{NG} - RK_{SG}$).

APL Scales	9th Grade Group		11th Grade Group		12th Grade Group	
	Rank Order (RK)	Difference From Rank Expectancy*	Rank Order (RK)	Difference From Rank Expectancy*	Rank Order (RK)	Difference From Rank Expectancy*
Community Resources	1	0	1	0	1	0
Occupational Knowledge	8	-2	8	-2	7	-3
Health	3	+2	3	+2	4	+2
Government and Law	7	+2	9	0	9	0
Consumer Economics	9	+1	10	0	10	+1
Identification of Facts and Terms	10	-7	7	-4	8	-5
Reading	5	-1	5	-1	3	+2
Writing	2	0	2	0	2	0
Computation	11	0	11	0	11	-1
Problem Solving	4	+2	4	+2	5	+2
Total Survey	6	+2	6	+2	6	+2

*Expectancy based on mean difficulty reported for eleventh-grade norm group.

Positive sub-scale differences in Table 4.3 indicate that the rank order of performance on the sub-scale was higher than expected for the study group and may be indicative of study group strengths. Negative differences indicate that performance by the study group was lower than expected and may be indicative of possible study group weaknesses. Differences less than plus or minus one in rank order were ignored in reporting possible strengths or weaknesses.

Findings in regard to rank order of study group performance as compared to expectations of group performance, based solely on reported mean difficulty of the APL sub-scales, are as follows:

Content Areas

Area 1. Scores on the Community Resources sub-scale were the highest for all three study groups and also ranked first according to eleventh and twelfth-grade norm group performances.

Area 2. Rankings for the Occupational Knowledge sub-scale were 8th, 8th, and 7th, respectively, for the freshman, junior, and senior class study groups. Norm group performance rankings for the Occupational Knowledge sub-scale were, respectively, 6th and 4th for junior and senior class students.

Area 3. Rank order on the Health sub-scale was 3rd for freshmen and junior study groups and 4th for the senior study group. Junior and senior norm group rankings for this scale were, respectively, 5th and 6th.

Area 4. Government and Law, which ranked 9th in order of mean difficulty among the norm groups, ranked 7th among freshmen, and 9th among junior and senior study groups.

Skill Areas

Area 1. The relative rankings of performance on the Identification of Facts and Terms sub-scale were 10th, 7th, and 8th for freshman, junior, and senior study groups and 3rd for junior and senior norm groups.

Area 2. The relative rankings of Reading sub-scale performance were 5th for freshmen and juniors and 3rd for the senior study group. Norm group performance was 4th and 5th for junior and senior class students, respectively.

Area 3. Writing sub-scale rank order was 2nd for all groups.

Area 4. Computation sub-scale rankings were 11th for all study groups and, respectively, 11th and 10th for the junior and senior class norm groups.

Area 5. Problem Solving sub-scale performances ranked 4th with freshmen and juniors and 5th with the senior study group. Norm group performance rankings were 6th and 7th for junior and senior class students.

General Adult Functional Competency Levels

Comparisons of total survey rankings show that study group rankings were 6th and norm group rankings were 8th for all groups.

Summary of Findings for Question 3.1

A summary of findings for study group performance in comparison to expectations suggests the following possible strengths and weaknesses among the study groups:

Strengths. For freshmen, strengths were observed on Health, Problem Solving, and Government and Law sub-scales. For juniors, strengths were noted on the Health and Problem Solving sub-scales. For seniors, strengths were seen on Reading, Health, and Problem Solving sub-scales. Possible strengths were also noted for each study group in regard to group performance on the Total Survey.

Weaknesses. For freshmen, weaknesses were observed on Identification of Facts and Terms and Occupational Knowledge sub-scales. For juniors, weaknesses were noted on the Identification of Facts and Terms and Occupational Knowledge sub-scales. For seniors, weaknesses were seen on the Identification of Facts and Terms and on the Occupational Knowledge sub-scales.

Question 3.2. What similarities are there in strengths and weaknesses in content, skill area, or general adult functional competency among freshmen, juniors, and seniors in the population?

Apparent similarities among freshman, junior, and senior class study groups on comparison of study group performance rankings with expectancies are as follows:

Strengths. Performance on Health and Problem Solving sub-scales by each study group was higher than expected. Performance by

the freshman study group on the Government and Law sub-scale was higher than would have been expected for juniors. Performance by the twelfth-grade study group on the Reading sub-scale was higher than expected. Performance in each group on the Total Survey was higher than expected.

Weaknesses. Performance by all study groups on the Identification of Facts and Terms and Occupational Knowledge sub-scales was lower than expected.

Question 3.3. In what content, skill area, or general level of adult functional competency are there differences among entering freshmen, juniors, and seniors in the population?

Potential differences between study groups were only noted in regard to possible strengths in Government and Law among freshmen and Reading among senior class students.

Question 4: Distribution of Performance Scores

Question 4. What is the distribution of content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors in the population?

The distribution of adult functional competency as measured by performance on the High School APL Survey among the 1,049 entering freshmen, 509 juniors, and 501 seniors in the population is reported in Appendix N.

The frequency distribution of study group test performance on content and skill area sub-scales is reported in Tables 1-3 of Appendix N. The frequency distribution of study group APL Test scores on content and skill area sub-scales is also reported as a percent of each group (percent frequency distribution) in Tables 4-6 of Appendix N. Percent frequency distributions of study group performance scores are graphically presented for categorical content and skill area sub-scales in Figures 4.6-4.15.

Frequency distribution of total survey scores for grades 9, 11, and 12 are reported in Tables 7-9 of Appendix N. Table 10 of Appendix N provides a summary of total survey performance scores for grades 9, 11, and 12. These frequency distribution data are graphically represented in Figure 4.16.

Specific observations with respect to each content or skill area and total survey performance by each study group are given below as appropriate to each of the following three related questions.

Question 4.1. What is the distribution of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year in the following content areas?

4.1.1. Community Resources. The distribution of adult functional competency on this sub-scale among freshmen, juniors, and seniors can be seen from an examination of Figure 4.6. It should be

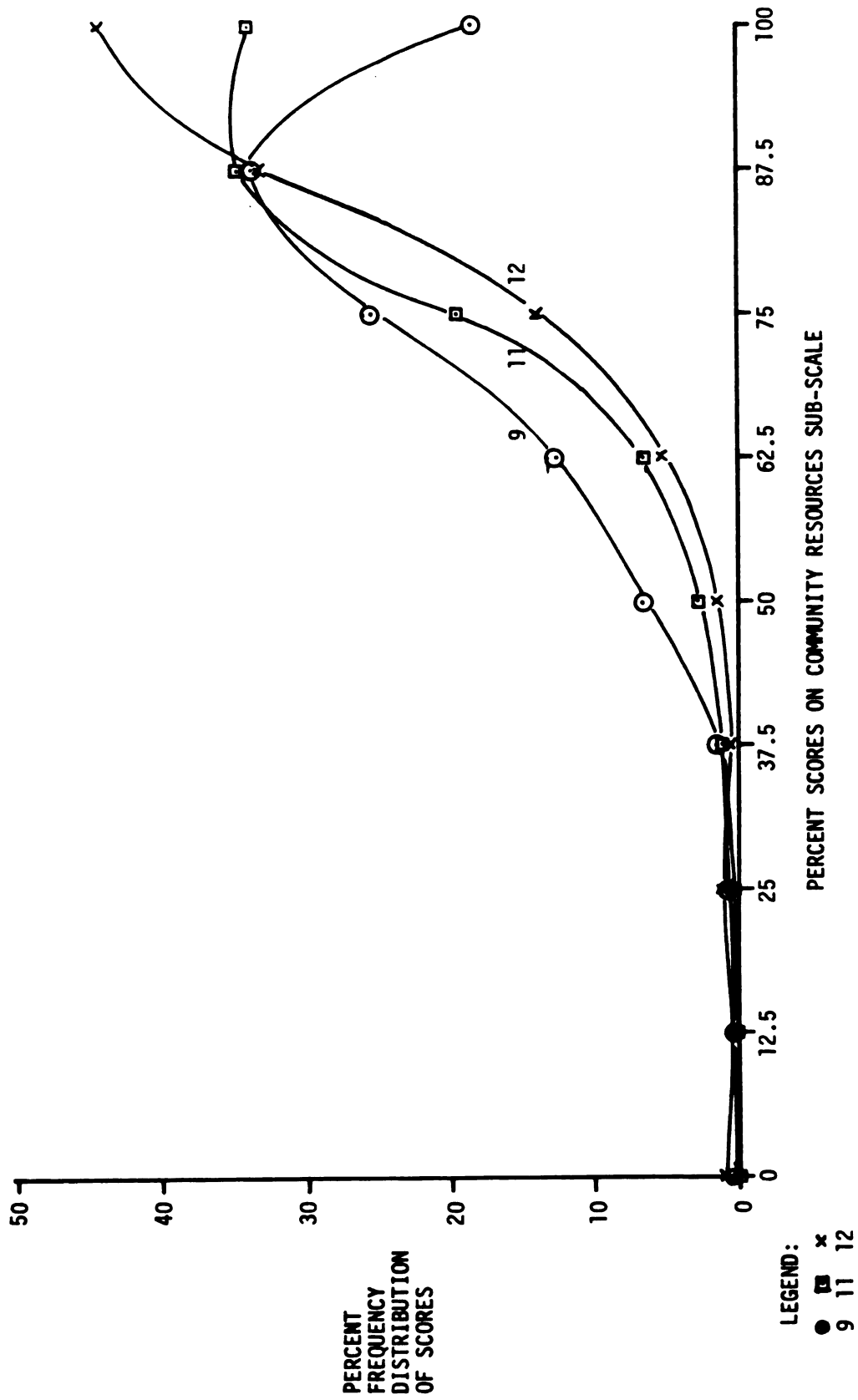


Figure 4.6.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Community Resources sub-scale.

noted from this graph of percent frequency distribution that freshman scores are lower than those of either the junior or senior class. It can also be observed that there are more seniors scoring higher than juniors on the Community Resources sub-scale.

4.1.2. Occupational Knowledge. The distribution of adult functional competency on this sub-scale among freshmen, juniors, and seniors can be seen from an examination of Figure 4.7. There is a general pattern of larger percentages of low scores among all three study groups on this sub-scale. Performance differences between freshman and junior or senior study groups appear more pronounced on this sub-scale than on other categorical content area sub-scales. Minor differences in junior and senior study group performance on the lower end of the scale are more apparent at higher performance levels.

4.1.3. Health. The distribution of adult functional competency on this sub-scale among freshmen, juniors, and seniors is illustrated in Figure 4.8. Performance by the freshman study group is apparently quite lower than that of junior or senior groups. While somewhat higher, performance levels of seniors are not much higher than those of juniors on this sub-scale.

4.1.4. Government and Law. The distribution of adult functional competency on this content sub-scale is illustrated in Figure 4.9. Scores by each study group appear to be broadly distributed over the range of possible scores. Differences appear to be about equal among the three groups, with seniors scoring higher than juniors, who scored higher than freshmen on this sub-scale.

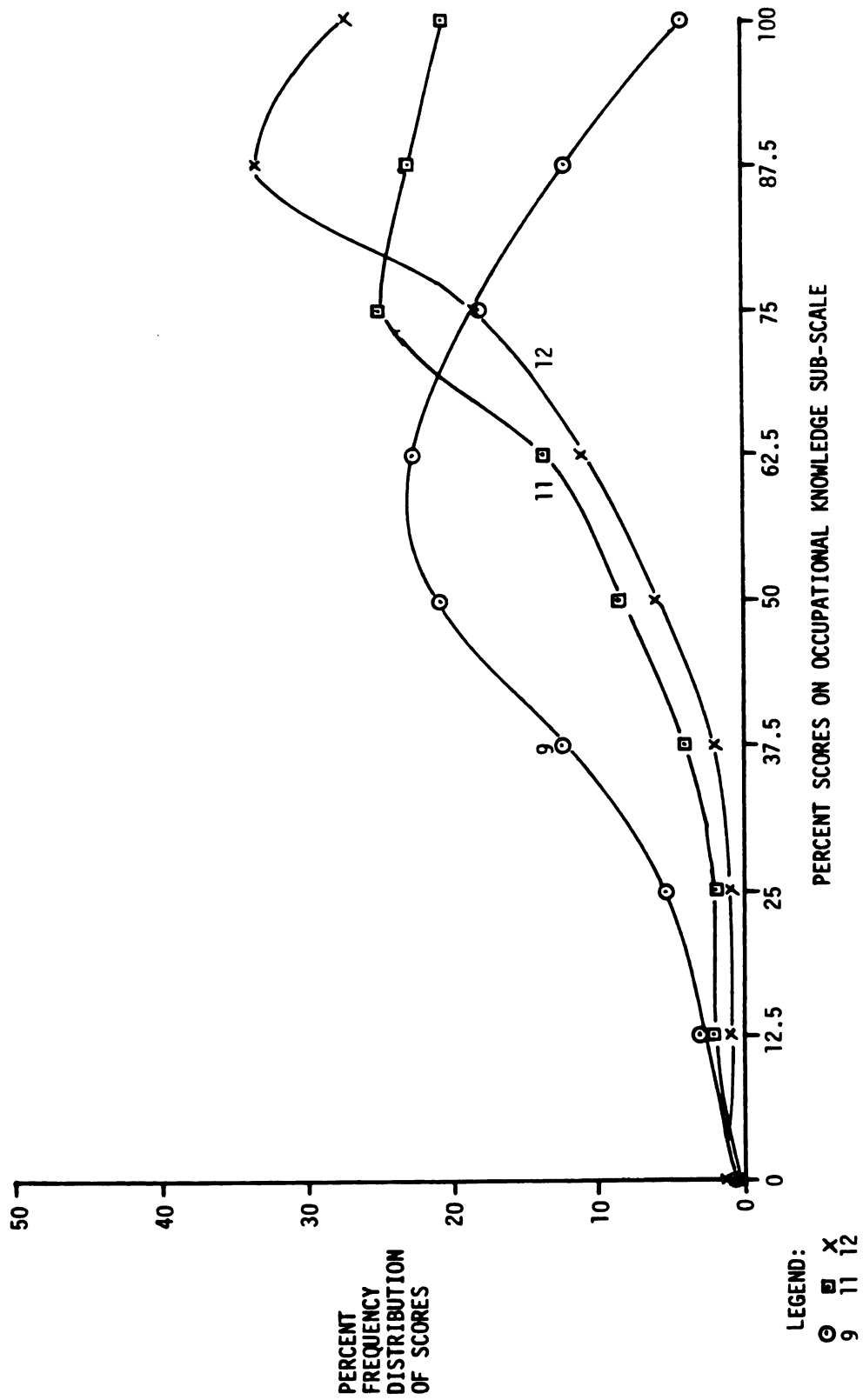


Figure 4.7.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Occupational Knowledge sub-scale.

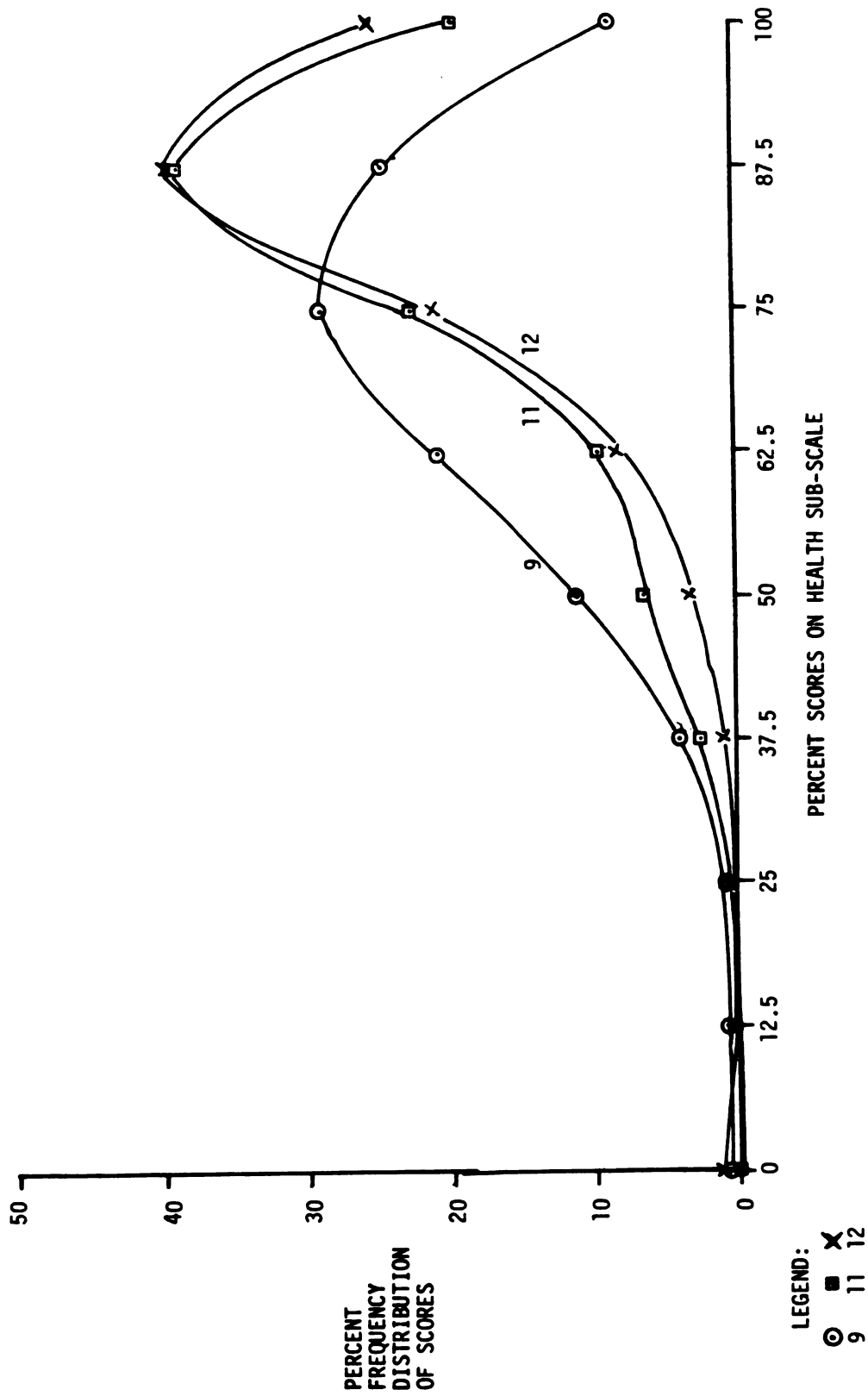


Figure 4.8.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Health sub-scale.

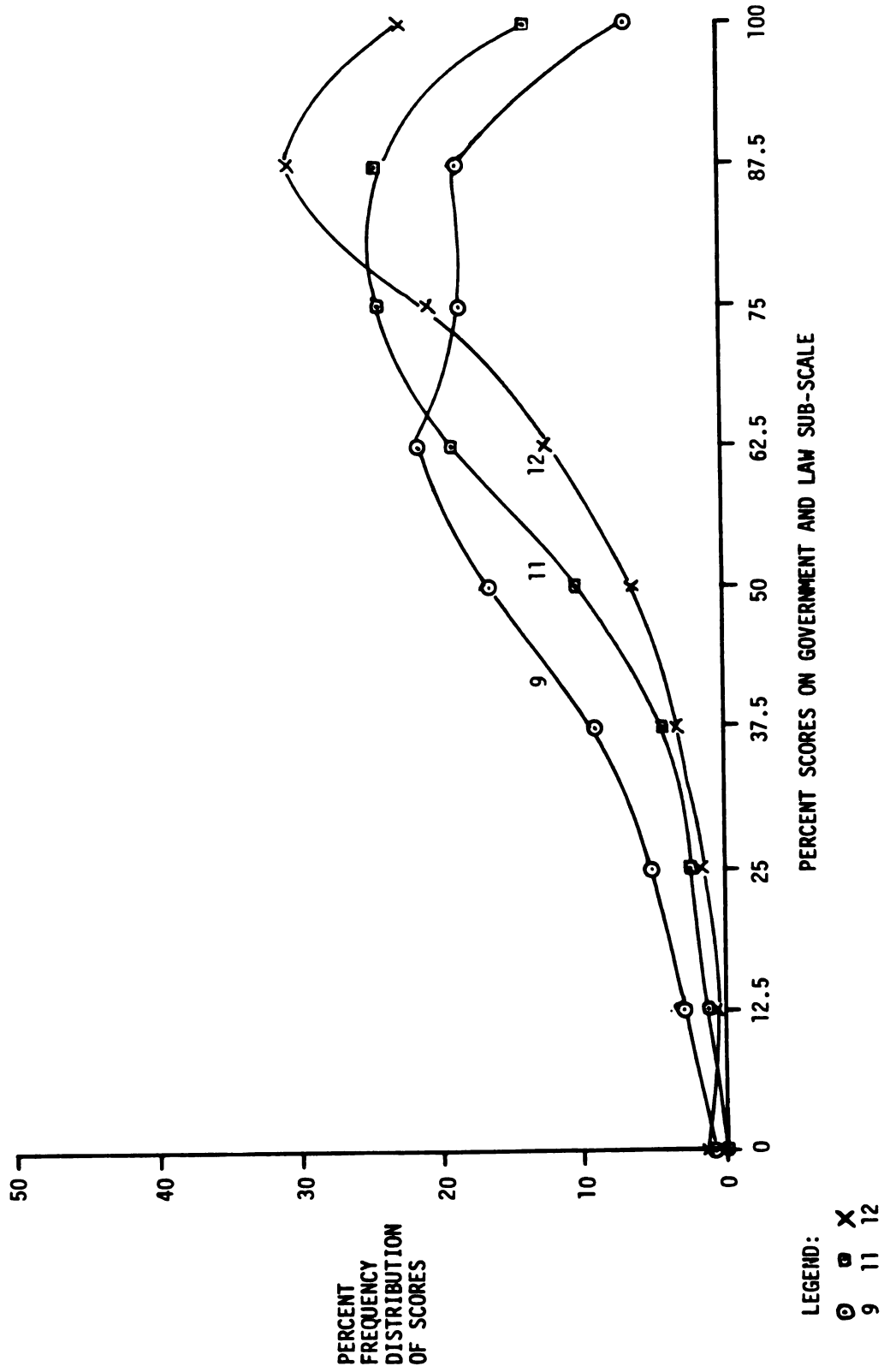


Figure 4.9.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Government and Law sub-scale.

4.1.5. Consumer Economics. The distribution of adult functional competency on this sub-scale among freshmen, juniors, and seniors is illustrated in Figure 4.10. Study group scores on this sub-scale are similar to the group scores on the Occupational Knowledge sub-scale. Scores are higher for higher grade-level groups; differences between freshmen and juniors or seniors are more pronounced; and differences between junior and senior study groups become more apparent at higher performance levels.

Question 4.2. What is the distribution of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year in the following skill areas?

4.2.1. Identification of Facts and Terms. The distribution of adult functional competency on this skill area sub-scale is illustrated in Figure 4.11. A comparison indicates that freshman performances are lower than either junior or senior study groups and that the distribution of performance among juniors and seniors is similar over the range of possible scores with senior study group scores slightly higher overall.

4.2.2. Reading. The distribution of adult functional competency in regard to reading is illustrated in Figure 4.12. The general trend is for higher grade-level students to score higher on this sub-scale. Differences between study groups appear about equal at lower levels of performance and become more pronounced at higher levels.

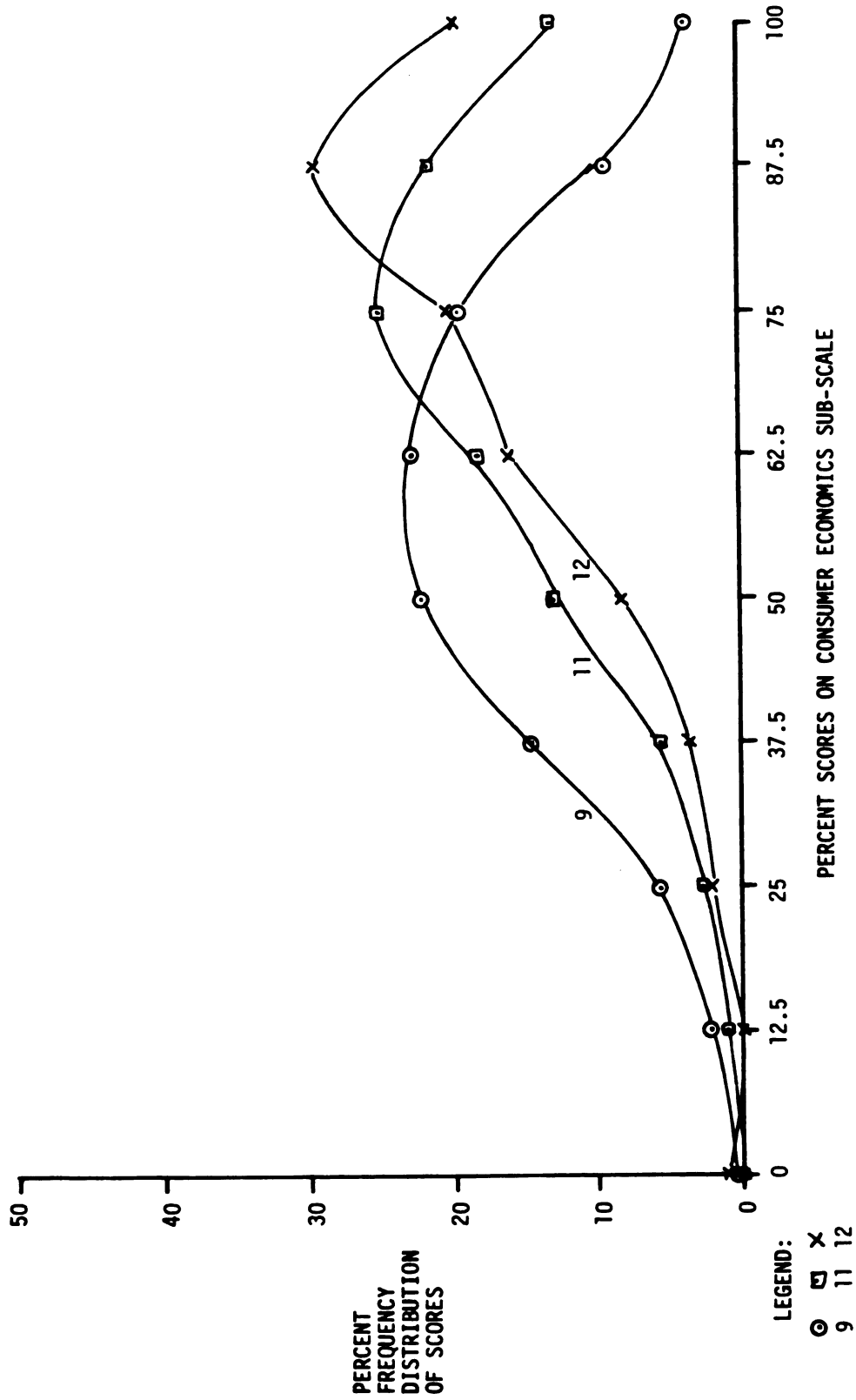


Figure 4.10.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Consumer Economics sub-scale.

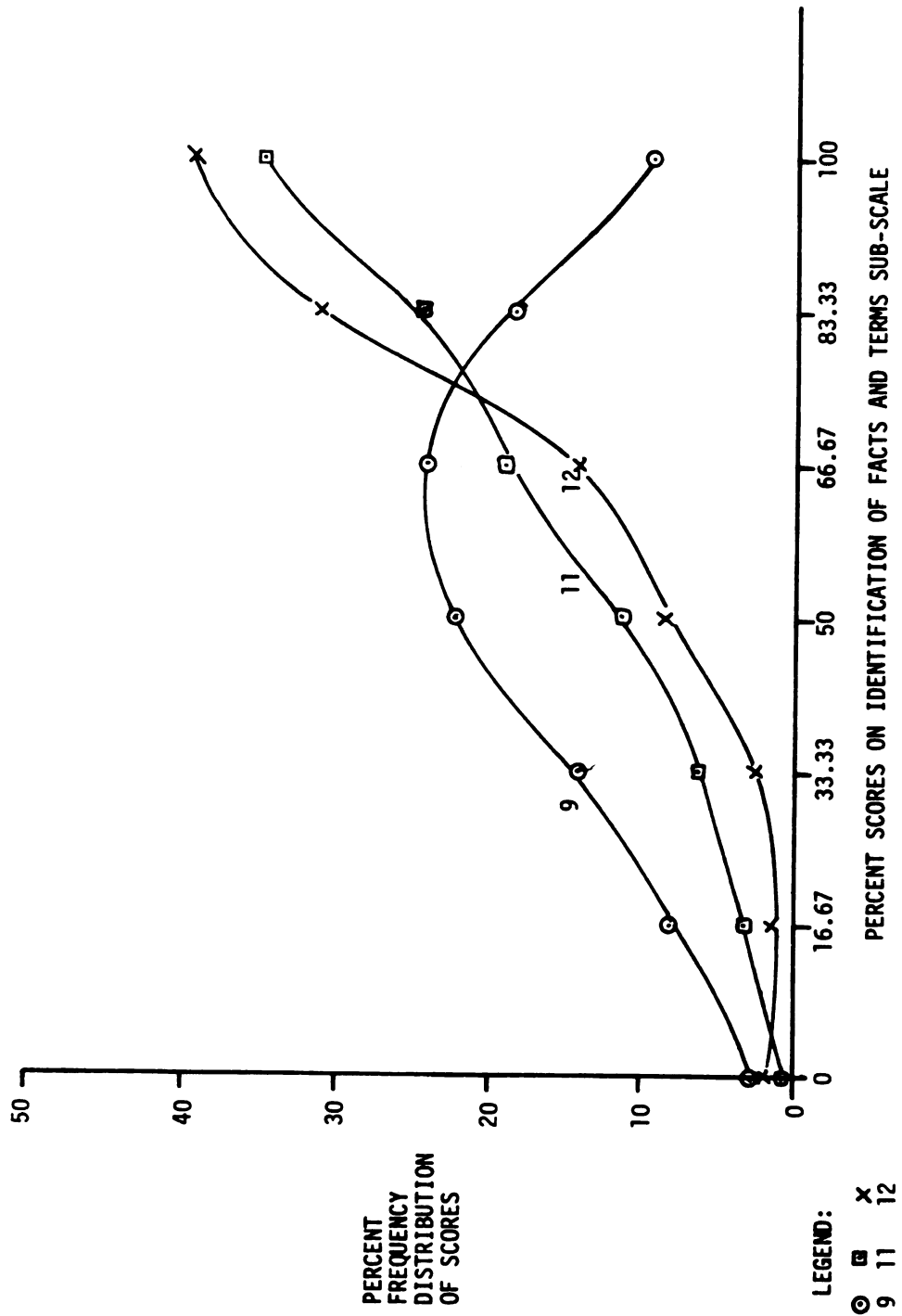


Figure 4.11.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Identification of Facts and Terms sub-scale.

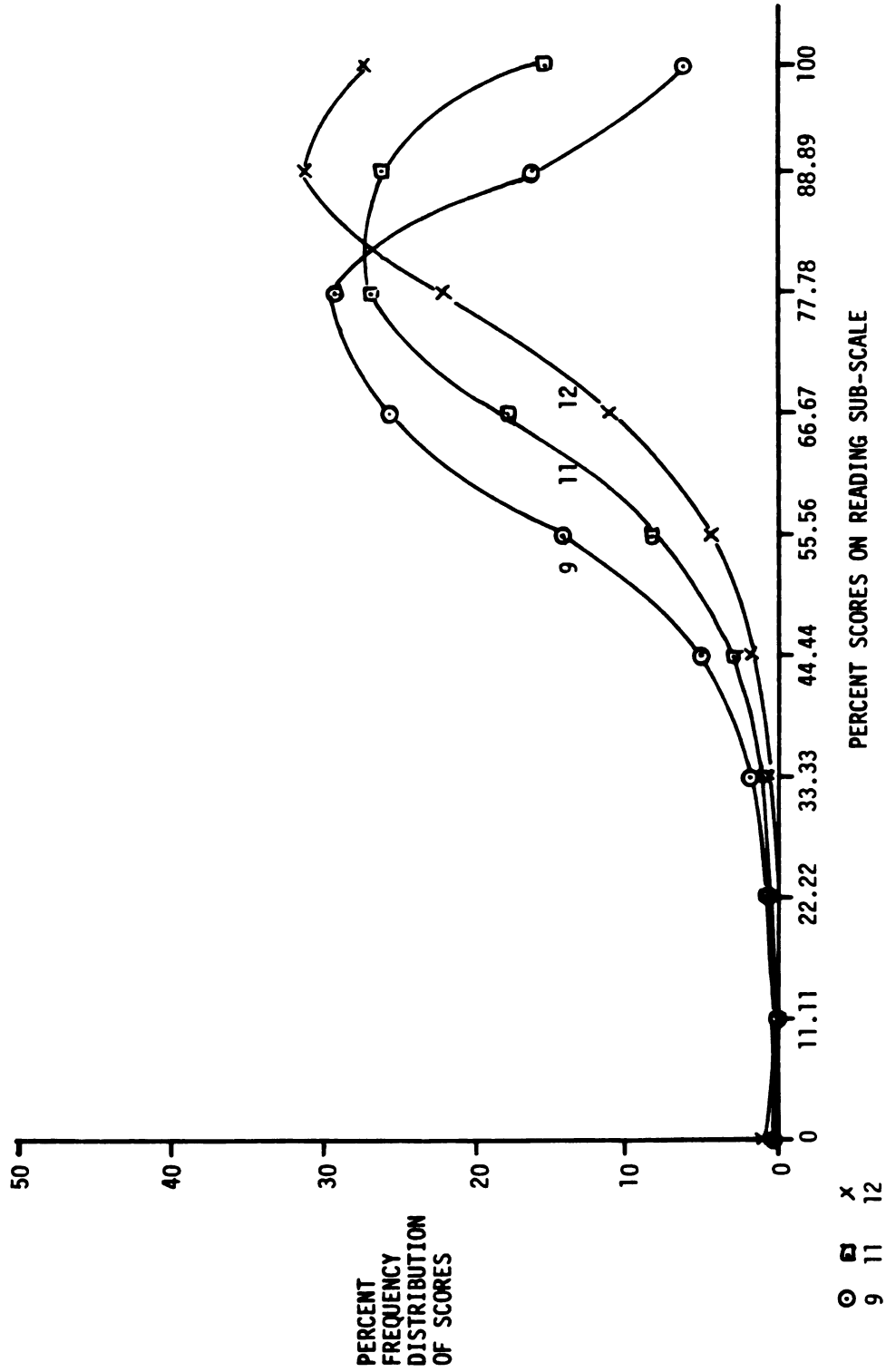


Figure 4.12.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Reading sub-scale.

4.2.3. Writing. The distribution of adult functional competency on this sub-scale is illustrated in Figure 4.13. In general, scores by study groups were high on this scale, with relatively small differences between study groups appearing at average and higher levels of performance. The trend of higher performance by higher grade-level groups is also observed on this sub-scale.

4.2.4. Computation. The distribution of adult functional competency on this sub-scale is illustrated in Figure 4.14. Larger numbers of freshmen made lower scores on this scale than on any other sub-scale. Low scores were also made by juniors, whose overall performance was broadly distributed across the range of possible scores. At lower performance levels there were larger apparent differences in performance by freshmen in comparison to junior or senior groups than there were between the two upper-class study groups. Group differences appear similar at higher performance levels, with seniors scoring higher than juniors, who scored higher than freshmen.

4.2.5. Problem Solving. The distribution of adult functional competency on this sub-scale is illustrated in Figure 4.15. The general trend of higher performance by higher grade-level groups is observed here with the exception that differences between performance by junior and senior groups--which were not large at the lower end of the scale--disappear at the higher end of the performance scale.

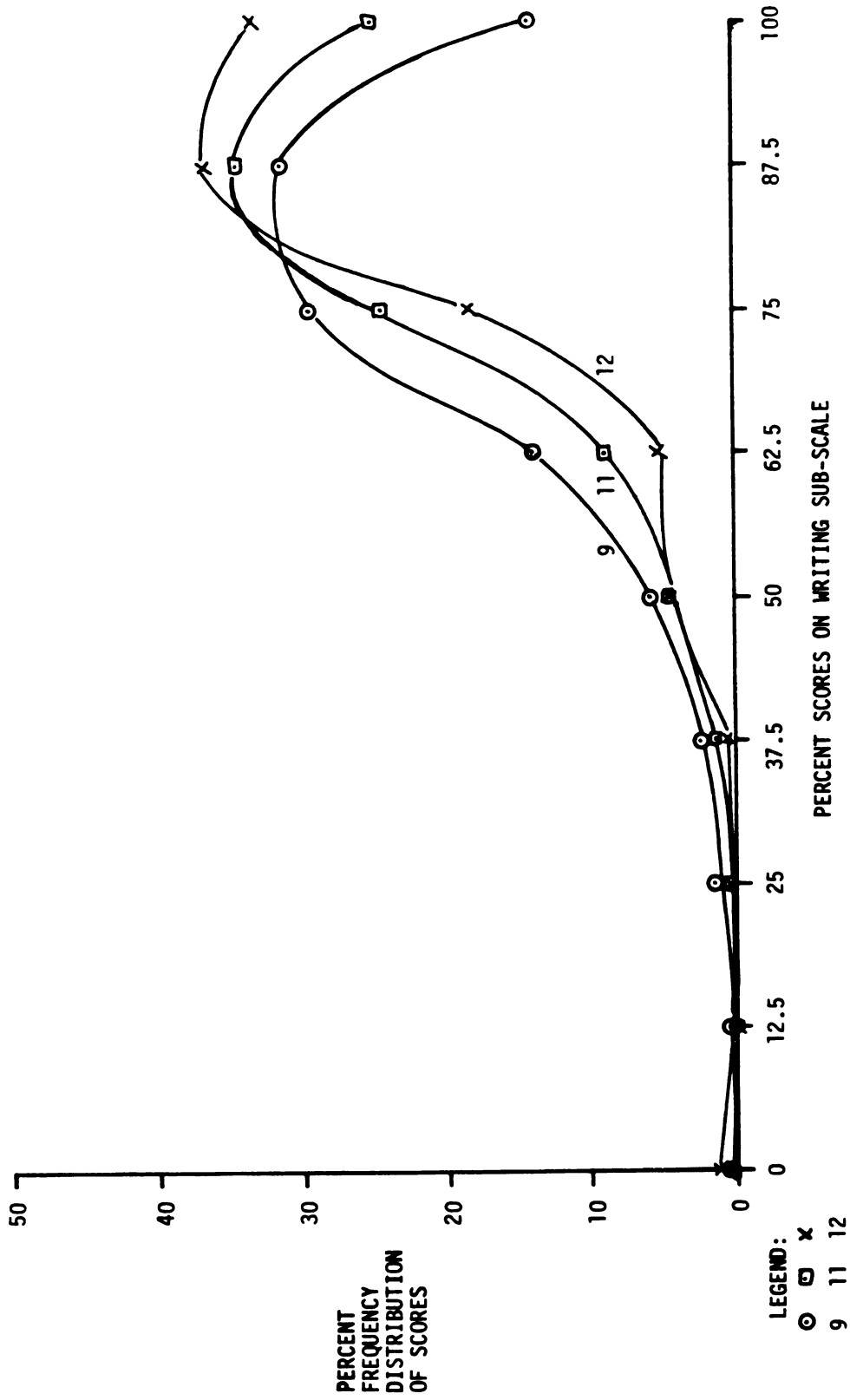


Figure 4.13.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Writing sub-scale.

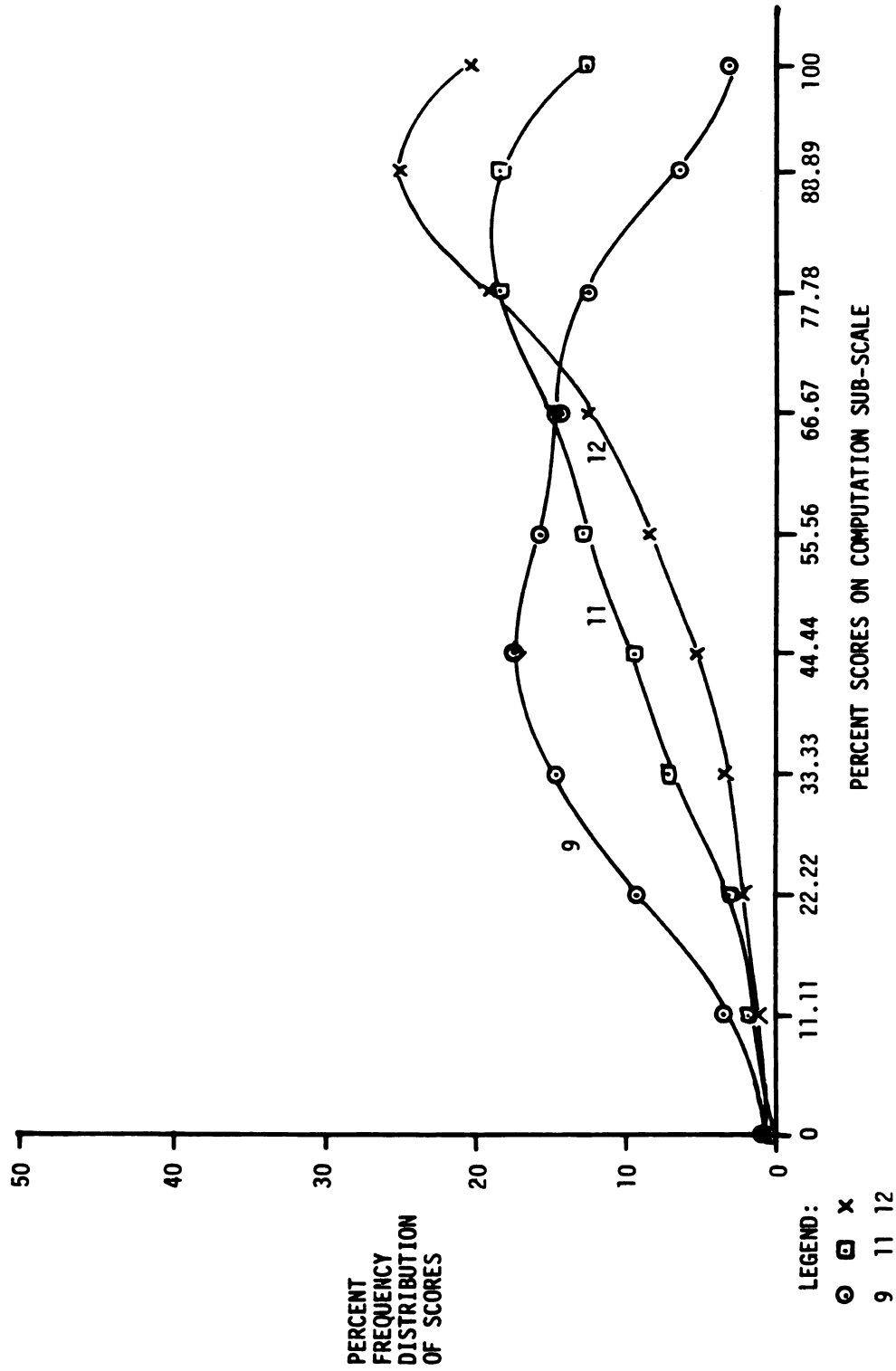


Figure 4.14.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Computation sub-scale.

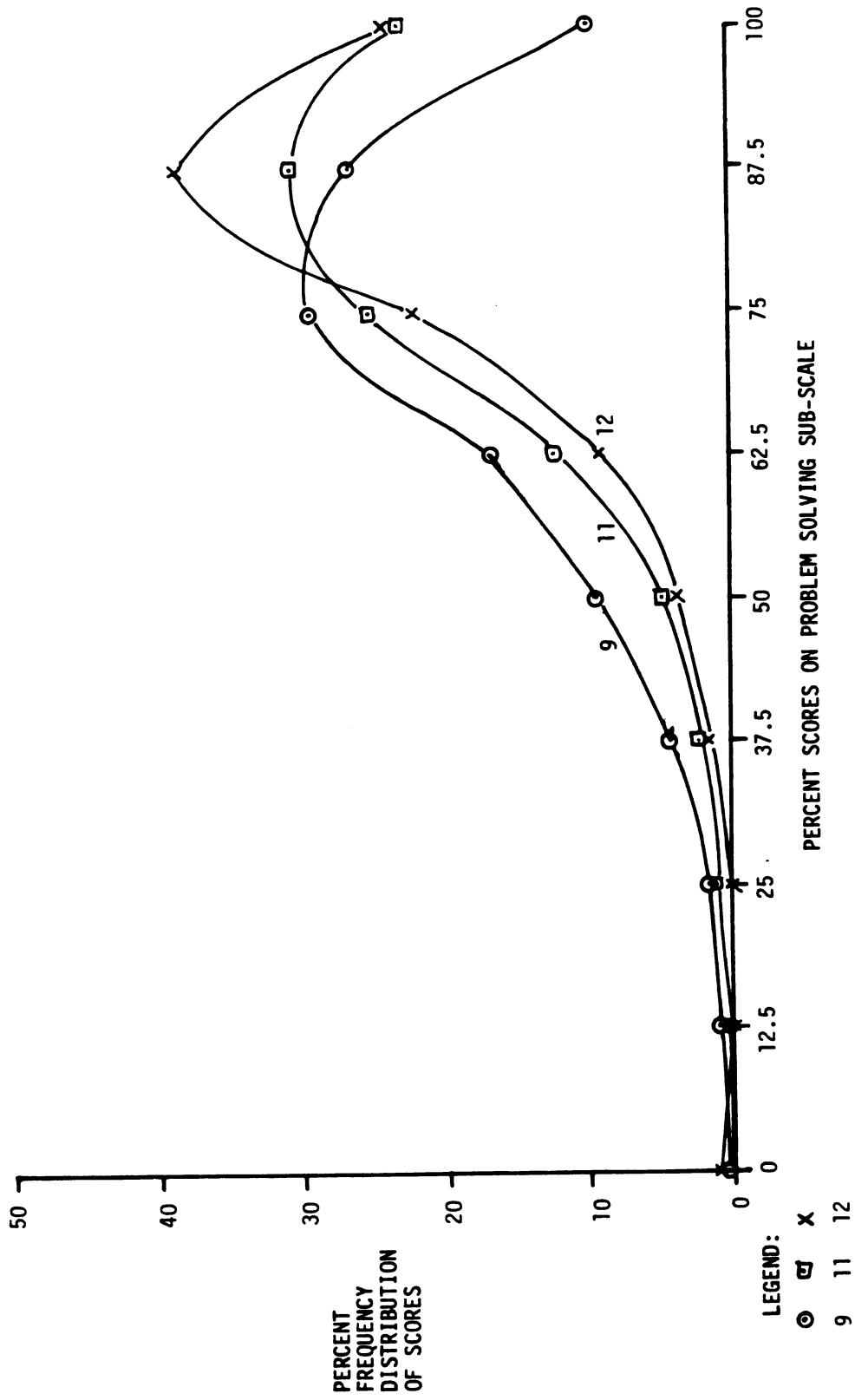


Figure 4.15.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Problem Solving sub-scale.

Question 4.3. What is the distribution of the general level of adult functional competency among high school entering freshmen in the population and among junior and senior class students in the population at the end of their school year?

The distribution of general levels of adult functional competency among high school entering freshmen, juniors, and seniors in the population, as measured by Total Survey performance on the High School APL Survey, is provided in Tables 7-9 of Appendix N. These tables include the total score, expressed as raw score and percent of total possible score (TPS); the frequency distribution of student scores, expressed both numerically and as percent of study group; and the percentile rank (PR) of each score. These data are summarized according to grade level within eight intervals in Table 10 of Appendix N and are graphically illustrated in Figure 4.16.

Total Survey performance, as indicated in Figure 4.16, for freshman, junior, and senior study groups is seen to follow the trend observed on other sub-scales where higher grade-level students tended to score higher. More pronounced differences are observed between freshmen and junior or senior groups than between the upper classes.

Percentile rank data are presented in Tables 7-9 of Appendix N and can be used to determine the percentage of students in each study group who scored at or below any given score. The following rating scale comparisons between study groups and national norm groups are presented here as extracted from Tables 7-9 of Appendix N.

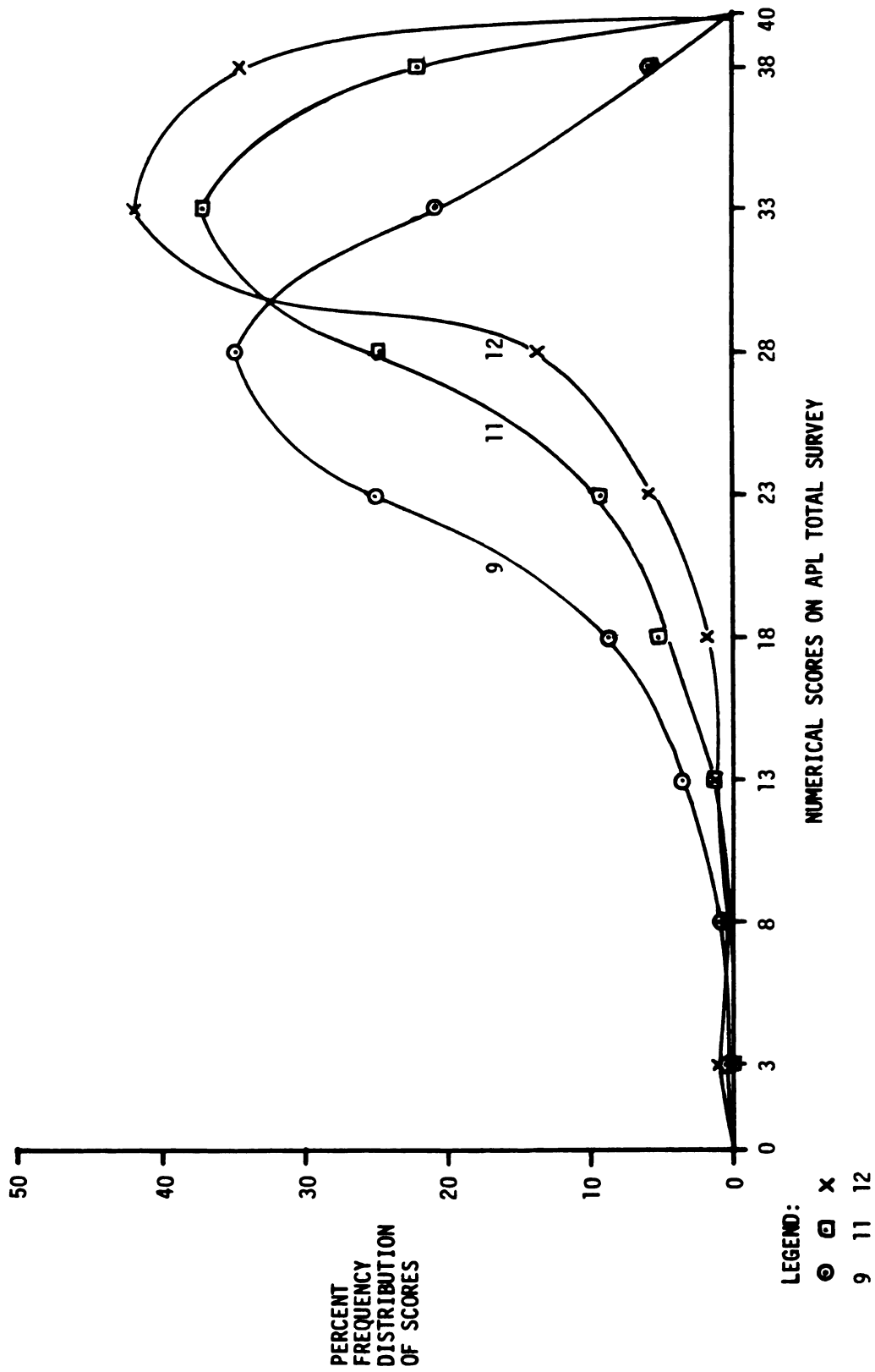


Figure 4.16.--Comparison of APL Test performance by ninth, eleventh, and twelfth-grade study groups on the Total Survey.

For the eleventh grade:

<u>Ratings</u>	<u>Score Range</u>	<u>% of Study Group (SG)</u>	<u>% of Norm Group (NG)</u>	<u>% Difference Among Groups (SG - NG)</u>
ABOVE AVERAGE	35-40	30.5	25	+ 5.5
AVERAGE	27-34	49.5	60	-10.5
BELOW AVERAGE	0-26	20.0	15	+ 5.0

For the twelfth grade:

<u>Ratings</u>	<u>Score Range</u>	<u>% of Study Group (SG)</u>	<u>% of Norm Group (NG)</u>	<u>% Difference Among Groups (SG - NG)</u>
ABOVE AVERAGE	36-40	34.3	25	+ 9.3
AVERAGE	29-35	49.4	60	-10.6
BELOW AVERAGE	0-28	16.3	15	+ 1.3

It can be seen from these comparisons of general adult functional competency between study groups and comparable national norm groups that:

1. A larger number of students in both junior and senior study groups scored in the ABOVE AVERAGE category than their counterparts in the national norm group;
2. Fewer students in the junior and senior study groups scored in the AVERAGE category than in the national norm groups; and that

3. More students in the junior and senior study groups scored in the BELOW AVERAGE category than would have been anticipated on the basis of performance by students in the national norm groups.

Performance differences in regard to the comparison of study and norm groups on this general indicator of adult functional competency are most noticeable at the ABOVE AVERAGE level for seniors and at the BELOW AVERAGE level for juniors.

Significance

Apparent similarities or differences that are reported here between study groups and among study and national norm groups were tested for significance and the findings of these tests are discussed in the next section of this chapter.

Hypotheses

Previously observed similarities and differences in adult functional competency levels among study groups and between junior or senior study and comparable norm groups were tested for significance and the findings of these tests are reported here according to the following five research hypotheses:

Hypothesis 1: Comparison of Junior Groups

H₁: As measured by mean scores of performance on the High School APL Survey, there are no significant differences between adult functional competency levels of high school

juniors in the population and adult functional competency levels among high school juniors in the United States

$$(H_1: M_{11}(SG) = M_{11}(NG)).$$

This hypothesis was tested on comparison of mean scores between eleventh-grade study and norm groups on each of the five content and skill area sub-scales and on the total survey. Comparative data for these tests are summarized in Table 4.4. Differences in mean scores on the Computation and Total Survey were tested at the 0.01 level of significance. All other sub-scale differences were tested for significance at the 0.001 level.

H₁ findings.--The differences in mean scores on all scales were not statistically significant. Therefore, this null hypothesis fails to be rejected as no statistically significant differences were found between levels of adult functional competency among the study group of high school juniors and adult functional competency levels among high school juniors in the United States.

Hypothesis 2: Comparison of Senior Groups

H₂: As measured by mean scores of performance on the High School APL Survey, there are no significant differences between adult functional competency levels of high school seniors in the population and adult functional competency levels among high school seniors in the United States

$$(H_2: M_{12}(SG) = M_{12}(NG)).$$

Table 4.4.--Comparisons of study group (SG) APL Test performance with APL Test performance by normative groups (NG).

APL Scales	Number of Items	Grade 11SG vs. 11NG			Grade 12SG vs. 12NG		
		Mean Diff. (XSG-XNG)	σ Diff.	t-Score of Diff.	Mean Diff. (XSG-XNG)	σ Diff.	t-Score of Diff.
				Sig.*			Sig.*
<u>Content Areas</u>	(40)						
Community Resources	8	0.1	0.06	1.67	NS	0.2	0.06
Occupational Knowledge	8	0.2	0.08	2.38	NS	0.0	0.08
Health	8	0.1	0.07	1.49	NS	0.2	0.07
Government and Law	8	-0.2	0.08	-2.58	NS	0.1	0.08
Consumer Economics	8	0.1	0.08	1.25	NS	0.2	0.08
<u>Skills</u>	(40)						
Identification of Facts and Terms	6	-0.2	0.07	-2.86	NS	-0.1	0.07
Reading	9	-0.1	0.07	-1.37	NS	0.2	0.08
Writing	8	0.1	0.06	1.59	NS	0.1	0.07
Computation	9	0.1	0.1	0.96	NS	0.3	0.10
Problem Solving	8	0.1	0.07	1.47	NS	0.2	0.07
Total Survey	40	0.1	0.29	0.34	NS	0.76	0.29
							2.54
							NS

*Level of significance determined from table of t-values (two-tailed test) at the .001 level for most scales. The 0.01 level was used as criterion for Computation and Total Survey scales. NS = not significant.

Table value is 2.58 for significance at the 0.01 level.

This hypothesis was tested by comparison of mean scores between senior study and norm groups on each of the five content and skill area sub-scales and on the total survey. Comparative data for these tests are summarized in Table 4.5. Differences in mean scores on the Computation and Total Survey scales were tested at the 0.01 level of significance. All other sub-scale differences were tested at the 0.001 level of significance.

H₂ findings.--Differences in mean scores on all but the Computation sub-scale were not found to be statistically significant. The difference in mean scores on the Computation sub-scale was statistically significant at the 0.01 level. Therefore, this null hypothesis fails to be rejected for all but the Computational aspect of adult functional competency as no statistically significant differences (except for differences in Computational skill) were found between levels of adult functional competency among high school seniors in the population and adult functional competency levels among high school seniors in the United States.

This hypothesis is rejected in regard to the Computational aspect of adult functional competency and apparently there is a statistically significant difference between the computational skill level among seniors in the population and the level of computational skill among high school seniors in the United States. High school seniors in the population may have higher levels of computational skill than their counterparts in the United States.

Table 4.5.--Comparisons of APL Test performance among 9,11, and 12th grade study groups (11 vs. 9, 12 vs. 9, 12 vs. 11).

APL Scales	Number of Items	Grades 11 vs. 9 (N ₉ =1,049; N ₁₁ =509)				Grades 12 vs. 9 (N ₉ =1,049; N ₁₂ =501)				Grades 12 vs. 11 (N ₁₁ =509; N ₁₂ =501)			
		Mean Score Diff.	Diff.	t-Score of Diff.	Sig.*	Mean Score Diff.	Diff.	t-Score of Diff.	Sig.*	Mean Score Diff.	Diff.	t-Score of Diff.	Sig.*
Content Areas													
(40)													
Community Resources	8	0.5	0.07	7.41	S**	0.7	0.07	10.00	S**	0.2	0.08	2.60	NS
Occupational Knowledge	8	1.2	0.09	12.94	S**	1.7	0.09	19.54	S**	0.5	0.10	4.83	S**
Health	8	0.6	0.06	9.55	S**	0.8	0.07	11.39	S**	0.2	0.08	2.55	NS
Government and Law	8	0.7	0.07	10.12	S**	1.1	0.08	12.97	S**	0.4	0.09	4.32	S**
Consumer Economics	8	1.0	0.07	13.38	S**	1.4	0.09	16.13	S**	0.4	0.09	4.41	S**
Skills													
(40)													
Identification of Facts and Terms	6	1.1	0.08	13.80	S**	1.3	0.08	16.91	S**	0.2	0.09	2.26	NS
Reading	9	0.6	0.08	7.53	S**	1.1	0.08	13.59	S**	0.5	0.09	5.30	S**
Writing	8	0.4	0.07	5.72	S**	0.6	0.07	8.25	S**	0.2	0.08	2.49	NS
Computation	9	1.3	0.11	11.54	S***	2.0	0.11	17.94	S***	0.7	0.13	5.36	S***
Problem Solving	8	0.6	0.08	7.73	S**	0.8	0.08	10.50	S**	0.2	0.09	2.31	NS
Total Survey	40	4.1	0.32	12.91	S***	5.8	0.33	17.82	S***	1.7	0.26	6.57	S***

*Level of significance determined from table of t-values (two-tailed test) at the 0.001 level for most scales. The 0.01 level was used as criterion for significance on the Computation and Total Survey scales.

**Table value is 3.29 for significance at the 0.001 level.

***Table value is 2.58 for significance at the 0.01 level.

Hypothesis 3: Comparison of
Freshman and Junior Study Groups

H₃: As measured by mean scores of performance on the High School APL Survey, there are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of students in the population at the end of their junior year of high school
(H₃: M₁₁(SG) = M₉(SG)).

This hypothesis is tested on comparison of mean scores between freshman and junior study groups on each of the five content and skill area sub-scales and on the total survey. Comparative data for these tests are summarized in Table 4.5. Mean differences, expressed as percent of total possible score, are also reported for each sub-scale in Table 4.6. These percent differences are illustrated in Figures 4.17-4.20.

Differences in mean scores were tested for significance at the 0.01 level for Computation and Total Survey scales and at the 0.001 level for all other scores.

H₃ findings.--Differences in mean scores between junior and freshman groups were found to be from 6.25 on Community Resources to 18.33 percent on Identification of Facts and Terms. An average overall percent difference of 10.2 was found between freshman and junior study groups. These differences are statistically significant. Thus, the null hypothesis is rejected for each sub-scale and for the total

Table 4.6.--Comparisons of APL Test performance among 9,11, and 12th grade study groups for scale scores expressed as percent of total possible score on each scale (11 vs. 9, 12 vs. 9, 12 vs. 11).

APL Scales	Number of Items	Grades 11 vs. 9			Grades 12 vs. 9			Grades 12 vs. 11		
		% Mean Diff. ($\bar{X}_{11}-\bar{X}_9$)	Sig. of Diff.		% Mean Diff. ($\bar{X}_{12}-\bar{X}_9$)	Sig. of Diff.		% Mean Diff. ($\bar{X}_{12}-\bar{X}_{11}$)	Sig. of Diff.	
Content Areas										
(40)										
Community Resources	8	6.25	S*		8.75	S*		2.50		NS
Occupational Knowledge	8	15.00	S*		21.25	S*		6.25		S*
Health	8	7.50	S*		10.00	S*		2.50		NS
Government and Law	8	8.75	S*		13.75	S*		5.00		S*
Consumer Economics	8	12.50	S*		17.50	S*		5.00		S*
Skills										
(40)										
Identification of Facts and Terms	6	18.33	S*		21.67	S*		3.33		NS
Reading	9	6.69	S*		12.22	S*		5.56		S*
Writing	8	5.00	S*		7.50	S*		2.50		NS
Computation	9	14.44	S**		22.22	S**		7.78		S**
Problem Solving	8	7.50	S*		10.00	S*		2.50		NS
Total Survey	40	10.25	S**		14.50	S**		4.25		S**

*Determined at the 0.001 level of significance.

**Determined at the 0.01 level of significance.

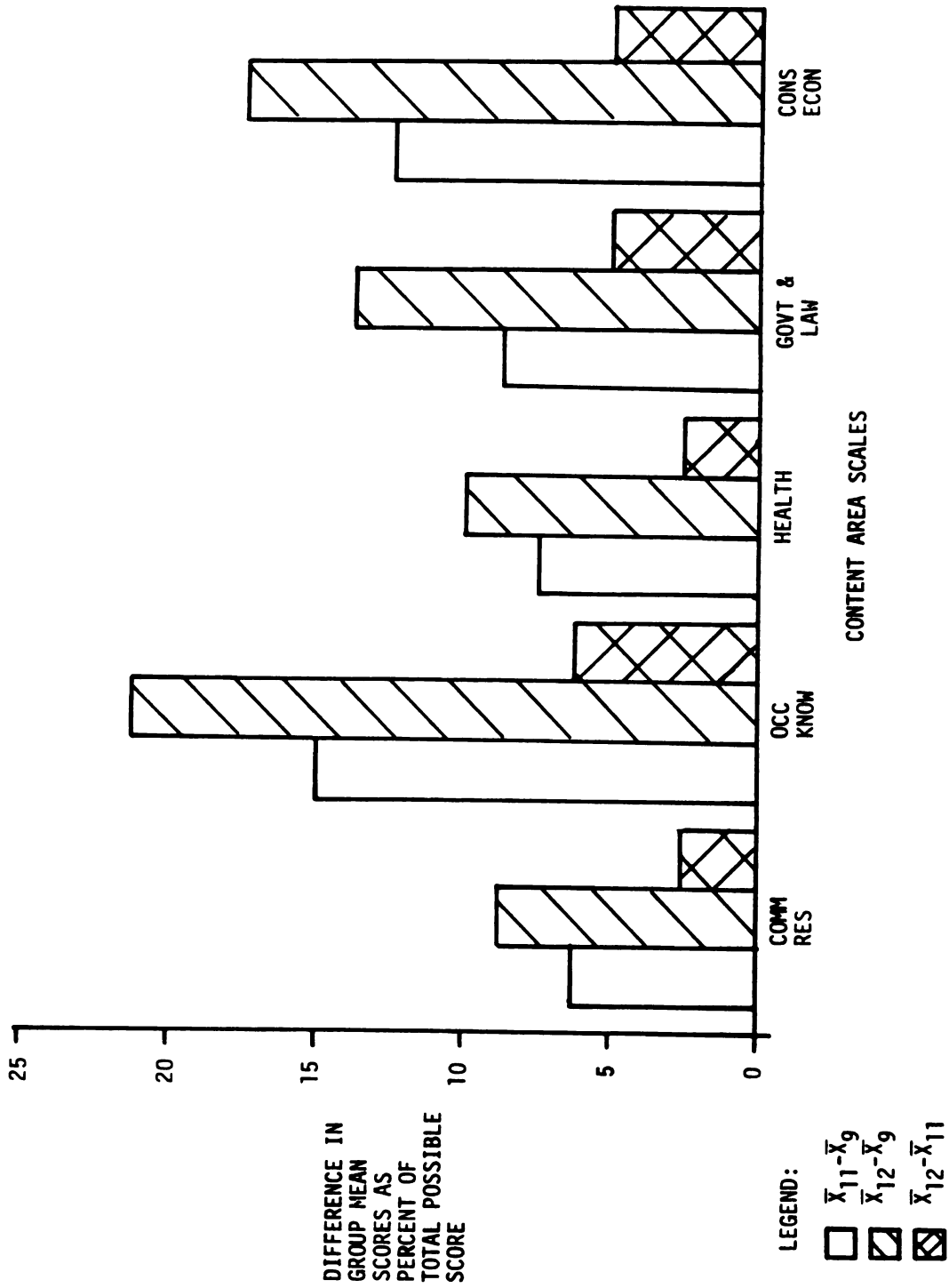


Figure 4.17 ---Comparison of differences in APL Test performance by ninth, eleventh, and twelfth-grade study groups on each content area scale.

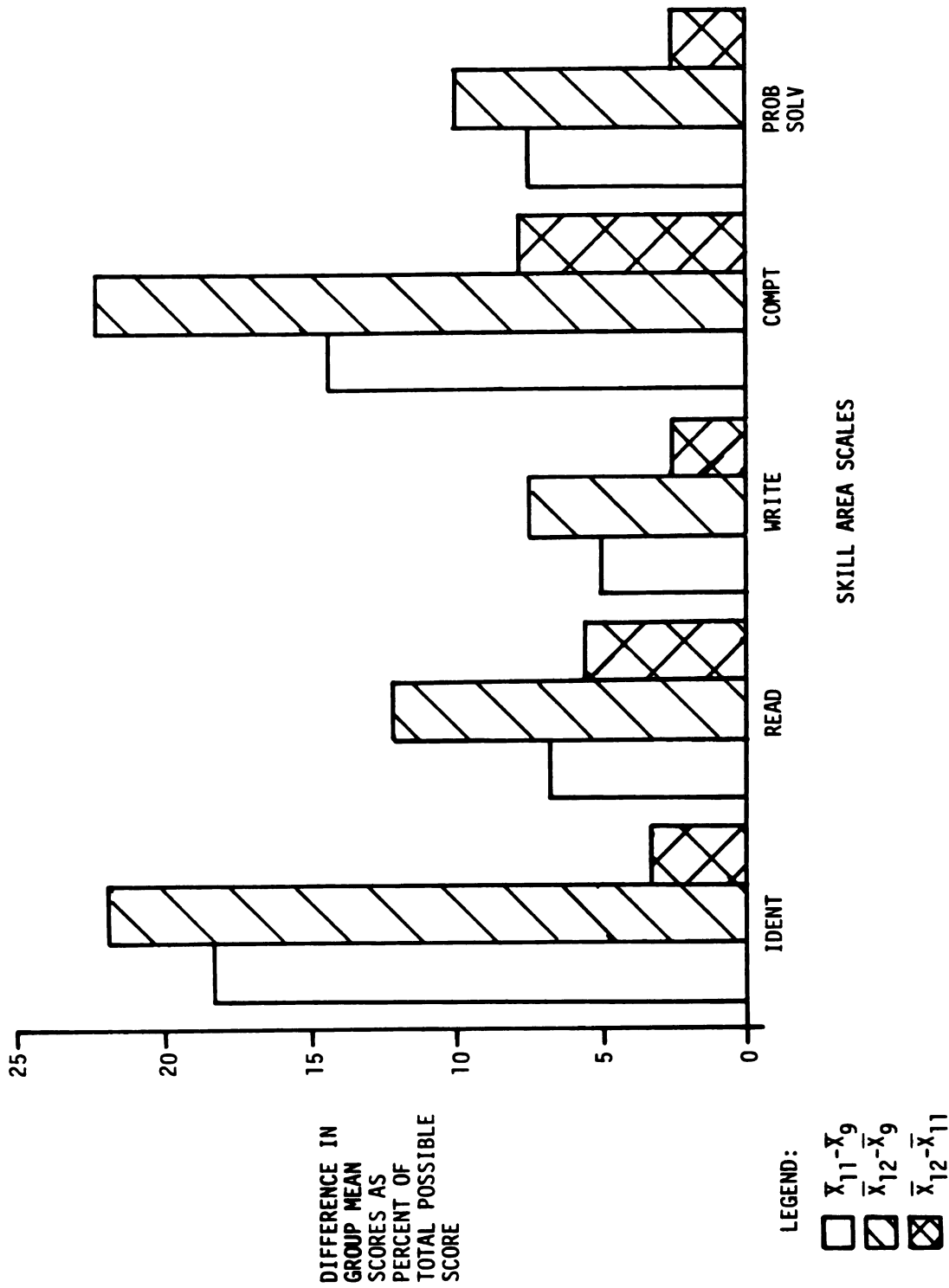


Figure 4.18.--Comparison of differences in APL Test performance by ninth, eleventh, and twelfth-grade study groups on each skill area scale.

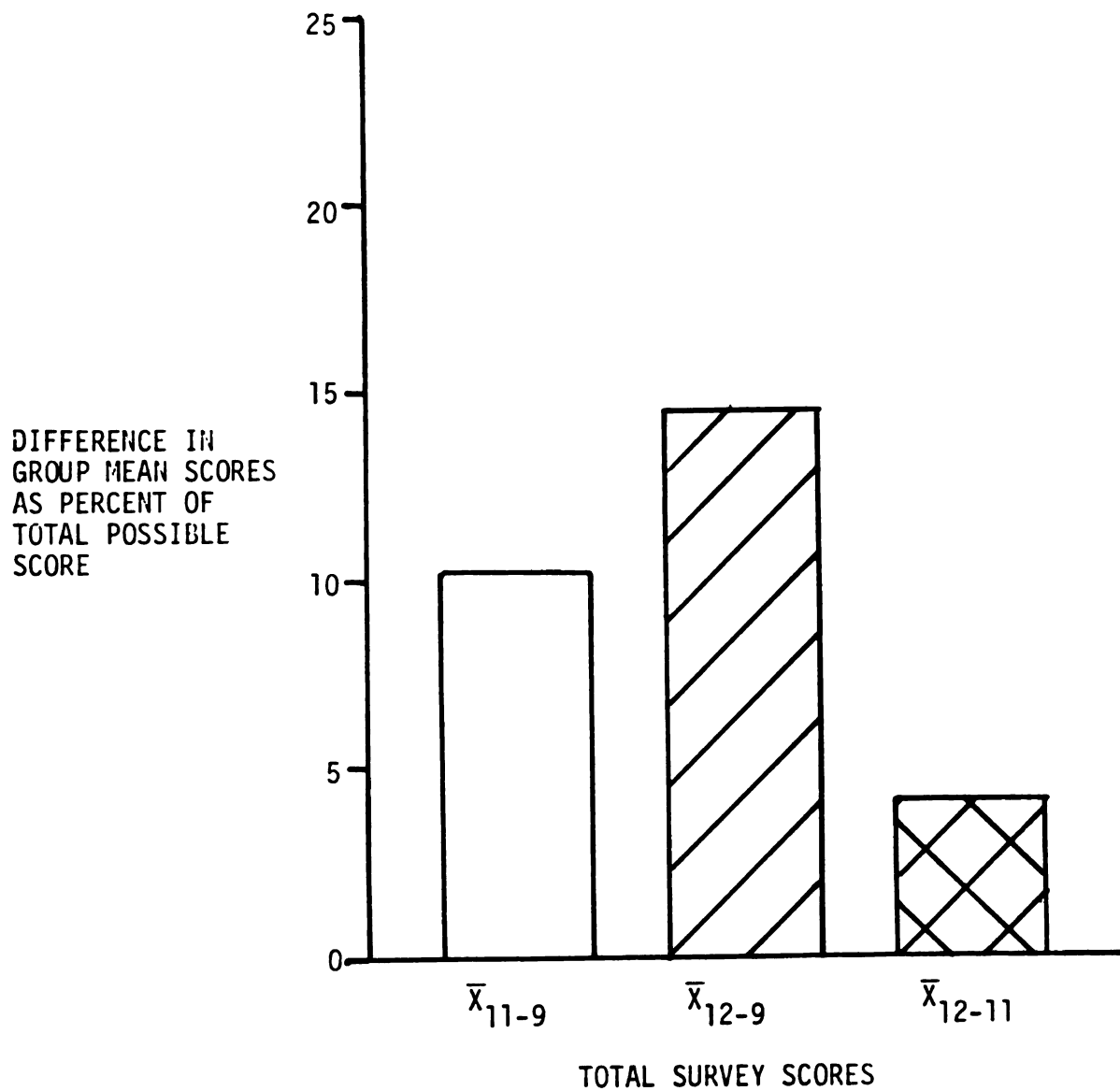


Figure 4.19.--Comparison of differences in APL Test performance by ninth, eleventh, and twelfth-grade study groups on total survey.

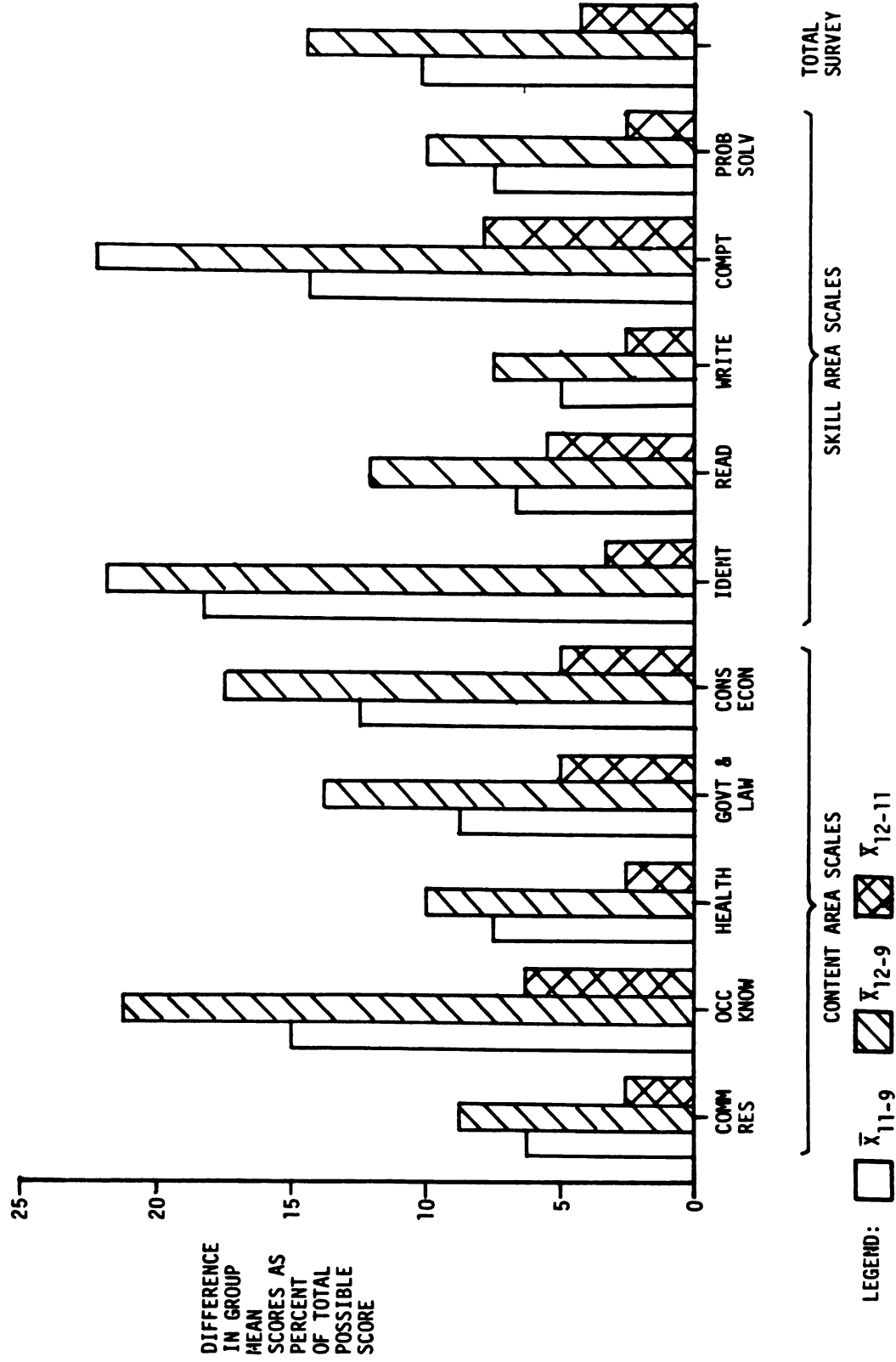


Figure 4.20.--Comparison of differences in APL Test performance by ninth, eleventh, and twelfth-grade study groups on each content or skill area and on the total survey.

survey as there are apparently statistically significant differences between adult functional competency levels among entering freshmen in the population and adult functional competency levels among juniors in the population at the end of their school year. In each case the competency level of juniors was found to be higher than that of entering freshmen.

Hypothesis 4: Comparison of
Freshman and Senior Study Groups

H_4 : As measured by mean scores of performance on the High School APL Survey, there are no significant differences between adult functional competency levels of students in the population upon entry into high school and adult functional competency levels of high school seniors in the population at the end of their school year

$(H_4: M_{12}(SG) = M_9(SG))$.

This hypothesis was tested by comparing mean scores between freshman and senior study groups in each of the five content and skill area sub-scales and on the total survey. Comparative data for these tests are summarized in Tables 4.5 and 4.6. Percent differences are illustrated in Figures 4.17-4.20.

H₄ findings.--Mean scores differ from 7.5 on Writing to 22.22 percent on Computation, with an average mean score difference of 14.5 percent overall. These differences are statistically significant at the 0.01 level for the Computation sub-scale and for the Total Survey and at the 0.001 level for all other sub-scales. The null hypothesis

is rejected and the alternate hypothesis (H_{4a}) is accepted as there apparently are significant differences between adult functional competency levels among entering freshmen and seniors in the population at the end of their school year. In each instance, performance levels of the senior group were higher than that of the entering freshmen.

Hypothesis 5: Comparison of
Junior and Senior Study Groups

H_5 : As measured by mean scores of performance on the High School APL Survey, there are no significant differences between adult functional competency levels of students in the population at the end of their junior year of high school and the adult functional competency levels of high school seniors in the population at the end of their school year ($H_5: M_{12}(SG) = M_{11}(SG)$).

This hypothesis was tested by comparing mean scores between junior and senior study groups on each of the five content and skill area sub-scales and on the total survey. Data produced for these comparisons are summarized in Tables 4.5 and 4.6. Percent differences in performance levels between junior and senior study groups are illustrated in Figures 4.17-4.20.

H5 findings.--Differences in mean scores between senior and junior study groups vary from as little as 2.5 percent on several scales to a high of 7.78 percent on the Computation scale, with an overall average difference of 4.3 percent. Mean scores for seniors were higher than for juniors on all sub-scales.

Significant differences.--Statistically significant differences in performance were found at the 0.001 level in respect to Occupational Knowledge, Government and Law, Consumer Economics, and Reading sub-scales; and at the 0.01 level on the Computation and Total Survey scales.

The null hypothesis is rejected in regard to these content and skill areas of adult functional competency as measured by performance on the total survey. Apparently there are significant differences in the adult functional competency levels of juniors and seniors in the population in three content areas, two skill areas, and in general as indicated on the total survey.

Other differences.--Mean score differences between junior and senior study groups were not found to be statistically significant at the 0.001 level in regard to Community Resources, Health, Identification of Facts and Terms, Writing, and Problem Solving. The null hypothesis is not rejected in regard to these two content and three skill areas of adult functional competency.

Summary of Findings

In this chapter, research data have been presented and analyzed in terms of the major research questions and hypotheses of the study. Within the limitations of the study, primary findings were:

Overall Adult Functional Competency Levels of Entering Freshmen, Juniors, and Seniors

The overall trend of adult functional competency among entering freshmen, juniors, and seniors as measured by performance on the

High School APL Survey was for higher levels of adult functional competency among seniors than among juniors than among freshmen.

The overall rating of adult functional competency level among junior and senior study groups was AVERAGE in comparison to adult functional competency levels among comparable national norm groups.

Content, Skill Area, and General
Adult Functional Competency
Levels Among Entering Freshmen,
Juniors, and Seniors

Content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors were determined, are summarized in Tables 4.1-4.2, and are illustrated in Figures 4.2-4.5.

When apparent differences between junior or senior study group performance and performance by comparable norm groups were tested for statistical significance (H_1 and H_2), the only difference in adult functional competency levels that was found to be significant was between study and norm group performance by seniors on the Computation sub-scale. Seniors in the study group may have had higher levels of adult functional competency in regard to computational skills than their comparable norm group in the United States.

All other apparent differences between junior or senior study groups and comparable national norm groups were not found to be statistically significant. National norms for performance by entering freshmen were not available for comparison.

Strengths and Weaknesses in Adult
Functional Competency Levels Among
Entering Freshmen, Juniors, and Seniors

Possible strengths and weaknesses in adult functional competency among entering freshmen, juniors, and seniors were reported in terms of content, skill area, and general adult functional competency. Strengths and weaknesses were determined from an analysis of performance by study groups on the High School APL Survey in relation to expectations of performance based solely on the level of difficulty of content, skill area, and total survey scales.

Strengths.--Performance on Health and Problem Solving sub-scales by each study group was higher than expected. Performance by the freshman study group on the Government and Law sub-scale was higher than would have been expected for juniors. Performance by seniors on the Reading subscale was higher than expected. Senior study group performance in regard to Computation was lower than performance by this group on other scales. Low performance on the Computation scale was as expected on analysis of scale difficulty; but, as mentioned earlier, seniors in the study group may have higher levels of computational skill than their comparable norm group in the United States. Performance by each study group on the Total Survey was higher than expected.

Weaknesses.--Performances by all study groups on the Identification of Facts and Terms and Occupational Knowledge sub-scales were lower than expected.

Distribution of Content, Skill
Area, and General Adult Functional
Competency Among Entering Freshmen,
Juniors, and Seniors

The distribution of content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors, as measured by performance on the High School APL Survey, is summarized in Tables 1-10 of Appendix N. These distributions of student performance scores are illustrated as percent of total possible performance in Figures 4.6-4.16.

Percentile rank data are presented in Tables 7-9 of Appendix N and can be used to determine the percentage of students in each study group who scored at or below any given score.

A comparison of performance ratings for the general level of adult functional competency among junior and senior study groups shows:

1. That 9.3 percent more seniors and 5.5 percent more juniors scored in the ABOVE AVERAGE range than comparable norm groups;
2. That 10.6 percent fewer seniors and 10.5 percent fewer juniors scored in the AVERAGE range than comparable norm groups; and
3. That 1.3 percent more seniors and 5.0 percent more juniors scored in the BELOW AVERAGE range than comparable norm groups in the United States.

Differences in Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors

Differences in adult functional competency levels among high school entering freshmen, juniors, and seniors in the population were determined, are summarized in Tables 4.5-4.6, and illustrated in Figures 4.17-4.20.

Statistically significant differences were found in regard to all aspects of adult functional competency between the freshman study group and both upper-class study groups (H_3 and H_4). Scores by upper-class students were higher on all scales than scores by freshmen.

Differences between freshman and junior study group adult functional competency levels were greatest in regard to Identification of Facts and Terms, Occupational Knowledge, and Computation skills. Differences were least in regard to Writing, Community Resources, and Reading. Mean score differences were from a low of 5 percent to a high of 18.33 percent of total possible performance on each adult functional competency scale, with 10.2 percent as the average of sub-scale differences.

Differences between freshman and senior study group adult functional competency levels were from 7.5 percent on Writing to 22.22 percent on Computation, with an average mean score difference of 14.5 percent overall. Mean score differences between freshman and senior study group adult functional competency levels were larger than the differences between freshman and junior study groups on all scales.

Differences in adult functional competency levels between junior and senior study groups were found to be statistically significant (H_5) only in regard to: Occupational Knowledge, Government and Law, Consumer Economics, Reading, Computation, and the Total Survey. Differences in adult functional competency levels between junior and senior study groups were not found to be statistically significant in regard to: Community Resources, Health, Identification of Facts and Terms, Writing, and Problem Solving.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

In this chapter, essential elements of the study are summarized, findings are reviewed, conclusions are stated, implications are discussed, and recommendations are made. Suggestions for future studies are also included.

Summary

The purpose of this research has been to study functional literacy among students of secondary schools in the DODDS-Pacific Region.

Functional literacy was studied in terms of a general theory of adult functional competency that emerged from the United States Office of Education funded APL Project (Northcutt, 1973). That project identified competencies that are functional (essential) to adult life. This research obtained, analyzed, and compared levels of functional competency among entering freshmen, juniors, and seniors according to APL Project competencies as refined by the APL Department staff at American College Testing. Competencies were measured by student performance on the High School APL Survey (HS-1).

The population that was studied can be described as characteristically unique in its location on U.S. military installations

in foreign countries throughout the Pacific region. Although unique in its location, information has been presented here to indicate that the performance by members of the population on traditional measures of academic capability compare favorably with the population of students within the United States.

Reliability, validity, and normative data were reviewed for the High School APL Survey (HS-1), which was used to measure adult functional competency levels in this study. While sub-scales are not extremely reliable, the content validity is excellent and the reliability of the total survey (0.85-0.87) is acceptable.

Data on adult functional competency levels were collected by administering the High School APL Survey (HS-1) to 1,049 freshmen, 509 juniors, and 501 senior students in the population.

Ninth-grade students were tested in September of school years 1977/78 and 1978/79. Most schools conducted the testing of freshmen in the Fall of 1977; two of the schools tested freshmen students in September of 1978. All eleventh-grade students in the population were tested in May of 1978; all twelfth-grade students were tested in May of 1977.

Machine and hand-scored test performance data for each student were keypunched onto tabulating cards for storage and analysis. Computer programs were written and used to verify the accuracy of the data preparation, to compute school mean scores, and to provide descriptive statistics for test performance by each study group.

Observed differences in adult functional competency levels, among the study groups and between junior or senior study groups

and comparable norm groups in the United States, were statistically tested for significance on evaluation of t-scores (two-tailed) for differences in group mean scores. For most differences in student group performance to be recognized, the level of significance had to be at or above the 0.001 level. Differences on the Computation subscale and on the Total Survey were recognized as being significant at the 0.01 level.

Major Research Findings

Research data were collected, analyzed, and evaluated in terms of the previously stated research questions and hypotheses. Within the limitations of the study, the major findings were:

Overall Adult Functional Competency Levels of Entering Freshmen, Juniors, and Seniors

The overall trend of adult functional competency among entering freshmen, juniors, and seniors, as measured by performance on the High School APL Survey, was for higher levels of adult functional competency among seniors than among juniors than among freshmen.

The overall rating of adult functional competency level among junior and senior study groups was AVERAGE in comparison to adult functional competency levels among comparable national norm groups.

Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors

Content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors were determined,

are summarized in Tables 4.1-4.2, and are illustrated in Figures 4.2-4.5.

When apparent differences between junior or senior study group performance and performance by comparable norm groups were tested for statistical significance (H_1 and H_2), the only difference in adult functional competency levels that was found to be significant was between study and norm group performance by seniors on the Computation sub-scale. Seniors in the study group may have had higher levels of adult functional competency in regard to computational skills than their comparable norm group in the United States.

All other apparent differences between junior or senior study groups and comparable national norm groups were not found to be statistically significant. National norms for performance by entering freshmen were not available for comparison.

Strengths and Weaknesses in Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors

Strengths and weaknesses, in terms of content, skill area, and general adult functional competency, were determined from an analysis of performance by study groups on the High School APL Survey (HS-1). Observed performance was compared to expectations of performance based solely on the level of difficulty of content, skill area, or total survey scales.

Strengths.--Performance on Health and Problem Solving sub-scales by each study group was higher than expected. Performance by the freshman study group on the Government and Law sub-scale was

higher than would have been expected for juniors. Performance by seniors on the Reading sub-scale was higher than expected. Senior study group performance in regard to Computation was lower than performance by this group on other scales. Low performance on the Computation scale by seniors was as expected on analysis of scale difficulty; but, as mentioned earlier, seniors in the study group may have higher levels of computational skill than their comparable norm group in the United States. Performance by each study group on the Total Survey was higher than expected.

Weaknesses.--Performances by all study groups on the Identification of Facts and Terms and Occupational Knowledge sub-scales were lower than expected.

Distribution of Content, Skill Area, and General Adult Functional Competency Among Entering Freshmen, Juniors, and Seniors

The distribution of content, skill area, and general adult functional competency among entering freshmen, juniors, and seniors, as measured by performance on the High School APL Survey, is summarized in Tables 1-10 of Appendix N. These distributions of student performance scores are illustrated as percent of total possible performance in Figures 4.6-4.16.

Percentile rank data are presented in Tables 7-9 of Appendix N and can be used to determine the percentage of students in each study group who scored at or below any given score.

A comparison of performance ratings for the general level of adult functional competency among junior and senior study groups shows:

1. That 9.3 percent more seniors and 5.5 percent more juniors scored in the ABOVE AVERAGE range than comparable norm groups;
2. That 10.6 percent fewer seniors and 10.5 percent fewer juniors scored in the AVERAGE range than comparable norm groups; and
3. That 1.3 percent more seniors and 5.0 percent more juniors scored in the BELOW AVERAGE range than comparable norm groups in the United States.

Differences in Content, Skill Area, and General Adult Functional Competency Levels Among Entering Freshmen, Juniors, and Seniors

Differences in adult functional competency levels among high school entering freshmen, juniors, and seniors in the population were determined, are summarized in Tables 4.5-4.6, and are illustrated in Figures 4.17-4.20.

Statistically significant differences were found in regard to all aspects of adult functional competency between the freshman study group and both upper-class study groups (H_3 and H_4). Scores by upper-class students were higher on all scales than scores by freshmen.

Differences between freshman and junior study group adult functional competency levels were greatest in regard to Identification of Facts and Terms, Occupational Knowledge, and Computation skills. Differences were least in regard to Writing, Community Resources, and Reading. Mean score differences were from a low of 5 percent to a high of 18.33 percent of total possible performance on each adult

functional competency scale with 10.2 percent as the average of sub-scale differences.

Differences between freshman and senior study group adult functional competency levels were from 7.5 percent on Writing to 22.22 percent on Computation, with an average mean score difference of 14.5 percent overall. Mean score differences between freshman and senior study group adult functional competency levels were larger than the differences between freshman and junior study groups on all scales.

Differences in adult functional competency levels between junior and senior study groups were found to be statistically significant (H_5) only in regard to: Occupational Knowledge, Government and Law, Consumer Economics, Reading, Computation, and the Total Survey. Differences in adult functional competency levels between junior and senior study groups were not found to be statistically significant in regard to: Community Resources, Health, Identification of Facts and Terms, Writing, and Problem Solving.

Conclusions

The purpose of this study was to determine levels of adult functional competency among entering freshmen, juniors, and seniors of DODDS high schools in the Pacific Region. The findings with respect to adult functional competency, as measured by performance on the High School APL Survey (HS-1), seem to support the following general conclusions about adult functional competency among these students:

1. Eleventh and twelfth-grade students among DODDS high schools in the Pacific Region ARE APPARENTLY AS ABLE AS THEIR COUNTERPARTS IN THE UNITED STATES to utilize abilities to identify facts and terms, read, write, compute, and solve problems characteristic of everyday adult-life situations both generally and according to the following five content areas: (a) Community Resources, (b) Occupational Knowledge, (c) Consumer Economics, (d) Health, and (e) Government and Law.

2. At the end of their school year, seniors among DODDS high schools in the Pacific Region ARE BETTER PREPARED TO FUNCTION AS ADULTS IN EVERYDAY LIFE SITUATIONS than are entering freshmen.

3. In their preparation for adult daily living and as measured by performance on the High School APL Survey (HS-1):

a. Entering freshmen, while not as well prepared as juniors or seniors, ARE APPARENTLY BETTER PREPARED THAN WOULD HAVE BEEN EXPECTED to handle tasks involving Problem Solving skills and to deal with topics in Health, Government and Law.

b. Juniors, while not as well prepared as seniors, ARE APPARENTLY BETTER PREPARED THAN WOULD HAVE BEEN EXPECTED to handle tasks involving Problem Solving skills and in dealing with topics in Health.

c. Seniors ARE APPARENTLY BETTER PREPARED THAN WOULD HAVE BEEN EXPECTED in terms of tasks involving Reading, Computation, and Problem Solving skills and in regard to topics in the area of Health.

d. NEITHER freshmen, juniors, or seniors ARE APPARENTLY AS WELL PREPARED AS THEY COULD BE to handle tasks involving Identification of Facts and Terms or to deal with topics involving Occupational Knowledge.

e. Juniors and seniors ARE APPARENTLY BETTER PREPARED GENERALLY THAN WOULD HAVE BEEN EXPECTED.

4. As many as 16 percent of the seniors attending DODDS-Pacific high schools may have BELOW AVERAGE PREPARATION to perform tasks associated with everyday adult-life situations; and, in terms of the adult performance level (APL) definition of adult functional competency, this group can be expected to function with minimal success in adult life.

Discussion

Throughout this study, no effort has been made to address the obvious question of what, if any, effect the school has on adult functional competency levels among the students who were studied.

The complexities of this question can be suggested on consideration of potential sources of student learning in regard to daily living skills. One certainly would not want to discount the role of parents, relatives, other siblings, and peers; nor would one want to rule out the possibility that businesses, community groups, churches, public libraries, and the media may have an important impact. Following this same line of thinking, it is reasonable to assume that the school must at least contribute to the development of adult functional competency among its students since much of what is done in

schools is intended for development of skills and competencies inherent in the APL definitions of functional competency.

The findings of this research would seem to suggest that schools have an effect on adult functional competency levels among students since there was an observable direct relationship between level of adult functional competency and grade level in school. While no attempt has been made here to establish a causal relationship between schooling and development of adult functional competency among students, the findings of this research have definite implications for curriculum planning which attempts to address the issue of functional competency development through schooling.

In exploring this idea of schooling for adult functional competency, one might ask whether the findings of this research are logically consistent with the kinds of things that are done in secondary schools and in particular among DODDS high schools in the Pacific Region.

On examination it appears that, in the area of skills, these schools have emphasized reading, writing, and mathematics. In the content area, these schools have included coursework in social studies, science, career education, and more recently health as part of the minimum curriculum for graduation. (See "Curriculum," Chapter III.) In terms of minimum requirements, more emphasis is placed on English and social studies than on other skill or subject areas.

The findings of this research with respect to adult functional competency levels among seniors at the end of their school experience when compared to adult functional competency levels among

entering freshmen show higher levels among seniors on all factors of adult functional competency. Further comparing these groups, it is observed that differences among groups were over 10 percent generally and specifically in regard to Occupational Knowledge, Consumer Economics, Government and Law, Computation, Identification of Facts and Terms, and Reading; but below 10 percent on all other scales, which included Health and Writing.

Given these findings, it is not possible to state with any degree of certainty that schooling has or hasn't had an impact on adult functional competency levels among students. However, in several respects, differences larger than 10 percent were found among student adult functional competency levels in areas that are emphasized in the minimum curriculum of these schools. Computational skills, Government and Law, and Reading are good examples of this.

Small differences in Writing skills among freshman and senior groups appear to be inconsistent with school emphasis on writing skill development implied by the four-credit English requirement for graduation. The degree to which writing skills are actually emphasized in these schools was not examined. Health, on the other hand, had not been widely taught until recently, and differences between freshman and senior group adult functional competency levels on the Health sub-scale were below 10 percent.

For the most part, these observations of student adult functional competency levels are logically consistent with the school curriculum and this consistency suggests that there may be a positive relationship between schooling and development of adult functional

competency among students. Future research might investigate the origins of adult functional competency in order to establish a better perspective of the role of the secondary school in preparing students for adult daily living.

Recommendations

Assuming that schools, communities, parents, and educators may want to address the issue of adult functional competency development through schooling, there are several implications for program development that are suggested by this research.

First, program planning should begin with the basic premise that the present curriculum among these DODDS-Pacific high schools is adequate in many respects. The groups of juniors and seniors, for which adult functional competency levels were determined, were as well prepared for adult daily living as their counterparts in the United States.

Second, it should be recognized that observed differences in adult functional competency levels among freshmen and seniors may not be in proportion to the emphasis these schools have placed on key requirements in the minimum curriculum. Priorities for, and contents of, existing programs should be reviewed, and, if necessary, revised based on this assessment of student needs in order to ensure maximum effectiveness of the minimum program.

Third, remedial programs should be instituted for approximately 16 percent of the student population among DODDS-Pacific high schools. This percentage of students was identified as having BELOW

AVERAGE levels of adult functional competency, and for these students--without remedial programs--the APL definition of adult functional competency predicts minimal success in adult life.

Suggestions for Future Studies

Several questions were answered and many more are suggested by the findings of this study. Future work in this area might profitably:

1. Investigate the nature and specific needs of Below Average students who, at the end of their senior year in high school, were identified in this study as being ill prepared for adult daily living. The results of such a study would be of immediate interest to curriculum planners in their development of remedial programs for these students.

2. Study the school, community, peer, and/or parent impact on the development of student adult functional competencies. As mentioned earlier, this type of study might help establish a perspective on the role of the school in developing adult functional competency which would be useful to administrators in determining requisite actions and in establishing priorities.

3. Explore areas of adult functional competency that were identified as possible weaknesses in order to determine if these observed deficiencies have any effect on the post-high school adjustment of students to everyday living as adults in the United States. This information would aid decision makers in determining the scope of the problem, thereby establishing or obviating the need for action.

4. Attempt to verify the theoretical assumption that, for this or any group of students, the APL construct is a valid criterion measurement of success in adult life. Inasmuch as the APL definition of adult functional competency equates success in adult life with income, job status, and education, this suggested verification would be conducted as a follow-up study to this present research. As a follow-up study, the research would attempt to determine how closely performance on the High School APL Survey (HS-1) corresponds to objective measures of the three success factors implicit in the APL definition. Findings of such a study could result in a modification of the APL definition for and based on the specific needs of specific populations.

5. Investigate the relationship of adult functional competency and traditional academic capability by comparing measures of both to determine the extent to which the development of traditional academic capability implies acquisition of adult functional competency. Results of this type of fundamental study could have multiple implications for the process of literacy education in secondary schools.

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APPENDICES

APPENDIX A

APL GOALS AND OBJECTIVES, AND DEFINITIONS OF THE APL SKILLS

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APPENDIX A

APL GOALS AND OBJECTIVES, AND DEFINITIONS OF THE APL SKILLS

1. GOALS AND OBJECTIVES

Content Area: Community Resources

Goal: To understand how individuals use community resources, including transportation systems, to achieve a more satisfactory way of life.

Major Objective: 1. The individual should know when and how to use recreational resources. This means that he or she should know:

Objective: A. About the types of services offered by various facilities, both public and private, for recreation and entertainment.

Examples:

- What types of activities are available or allowed in public parks
- Where to go to see a movie or play
- What types of museums or cultural activities are available in an area

Objective: B. How to schedule activities at or through the various facilities.

Examples:

- Reading a theater schedule
- Calling for movie information
- Checking the newspaper for T.V. programs
- Subscribing to a series (concert, movie, sports, etc.)

Objective: C. What types of equipment, or preparation, or previous experience might be required for participation in various activities.

Examples:

- Licenses required for special recreational activities
- Renting equipment such as bowling balls, canoes, bicycles, rowboats
- Necessity of auditions for some activities
- Making reservations for some facilities

Major Objective: 2. The individual should know when and how to use informational resources. This means that he or she should know:

Objective: A. Which agencies or facilities (e.g., library, television, radio, newspaper, bulletin board) provide various types of information.

Examples:

- Where to go for information about mailing a package
- Types of information provided by state university extension services
- Getting weather reports
- Making maximum use of radio

Objective: B. How to gain access to the various agencies.

Examples:

- Getting permission to use facilities such as a bulletin board
- Getting telephone information for a distant city
- Filling out an application for a library card
- Using the card catalog

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey (HS-1) (Iowa City: ACT, 1976), pp. 43-56.

Objective: C. The circumstances under which various types of information might be helpful.

Examples:

- Need for information when buying a house
- Need for information about poisons
- Need for information when doing a home-repair job

Major Objective: 3. The individual should know how and when to use various community services. This means that he or she should know:

Objective: A. Which agencies or departments provide various types of services.

Examples:

- Services offered by police
- Services offered by fire department
- Services offered by post office
- Services offered by Humane Society

Objective: B. How to apply for or gain access to various types of community services.

Examples:

- Where to write emergency numbers for easy access
- Using a fire call/alarm box
- Applying for welfare

Major Objective: 4. The individual should know how to use transportation systems and services. This means that he or she should:

Objective: A. Know how to determine the appropriate mode of transportation.

Examples:

- Factors such as cost, time, accessibility and convenience
- Modes such as car, taxi, bus, train, plane, foot, bicycle

Objective: B. Know how to use transportation schedules.

Examples:

- Determining which bus to take to arrive at a certain time
- Figuring out arrival times
- Understanding the special exceptions noted on a schedule

Objective: C. Know how to calculate fares and other costs of transportation.

Examples:

- Calculating a plane fare
- Figuring gas mileage
- Using transfers to advantage

Objective: D. Know how to use road, city, and special transportation maps.

Examples:

- Finding the nearest bus stop on a city bus map
- Calculating distance using a road map
- Determining a route (navigating)

Objective: E. Know how to make reservations and other travel arrangements.

Examples:

- Making hotel reservations by phone
- Buying a commuter ticket
- Using a travel agency
- Understanding confirmations

Objective: F. Know how to drive safely and legally.

Examples:

- Knowing rules of the road (passing, speeding, etc.)
- Knowing how to drive in special weather conditions
- Reading and understanding road signs

Objective: G. Know how to apply for and obtain the various documents associated with travel.

Examples:

- License tests (written and behind-the-wheel)
- Having valid registration
- Using license plates
- Needing a passport

Objective: H. Understand how time zones and daylight saving time may affect travel plans.

Examples:

- How time zones affect long-distance phone calls when making reservations
- How time zones affect travel plans
- How daylight saving time affects work schedules of service workers in the travel industry

Objective: I. Understand how modern transportation causes public problems.

Examples:

- Relation of cars to air pollution
- Concept of carpooling
- Traffic jams and parking problems
- Advantages and disadvantages of mass transit

Content Area: Occupational Knowledge

Goal: To develop knowledge about occupations that will enable individuals to secure employment that fits their particular needs and interests.

Major Objective: 1. The individual should understand how education, interests, and experience affect the kinds of employment one can or should pursue. This means that he or she should know:

Objective: A. Which educational and job experiences are required or recommended for specific occupational categories (or families) and how these requirements relate to the duties of the jobs in those categories.

Examples:

- What clerical jobs entail
- How much experience is required for technical jobs
- Understanding why social service jobs require special training

Objective: B. The minimum qualifications for specific jobs.

Examples:

- How much training it takes to be a secretary/stenographer
- What skills are required for librarians
- What legal job requirements are for bus drivers

Objective: C. How vocational testing and counseling can help individuals identify job interests and abilities.

Examples:

- Where to go for vocational testing
- What information the counselor needs to help the client
- Understanding the relationship between ability and interest

Objective: D. What factors outside the individual might affect his or her job choices or interests.

Examples:

- Need for certain types of hours
- Location of facilities relative to home
- Job benefits such as pension, insurance, vacation

Objective: E. How to read and assess job descriptions.

Examples:

- Match between interests and job description
- Match between needs and job description

Major Objective: 2. The individual should know how to apply for a job. This means that he or she should:

Objective: A. Know how to use various sources to identify job opportunities.

Examples:

- Differences between types of sources (newspapers, agencies, word-of-mouth)
- Fees
- Which to use in particular circumstances

Objective: B. Know how to inquire about or apply for a job.

Examples:

- Writing a letter of inquiry about a job
- Asking for an application form
- Calling to set up an appointment or interview

Objective: C. Know how to fill out the various forms associated with employment.

Examples:

- What information to put on an application form
- What function a W-4 form serves
- A job evaluation form

Objective: D. Understand the compilation, construction, and importance of a resume or a description of previous jobs.

Examples:

- What to include in a resume
- How an employer uses a job history
- What information legally does not need to be reported
- Need for neatness and accuracy

Objective: E. Understand the importance of job interviews and know how to act accordingly.

Examples:

- Appropriate dress
- Promptness
- Need to anticipate obvious questions
- Relationship of interview to rest of hiring process

Major Objective: 3. The individual should know how to maintain a job. This means that he or she should:

Objective: A. Know the standards of behavior for various types of employment.

Examples:

- Need to obey company rules about promptness, lunch hours, and so forth
- How to deal with problems with other employees
- Understanding the influence of attitude

Objective: B. Understand how and why employers make decisions about promotion and dismissal.

Examples:

- Relationship between availability of jobs and opportunities for promotion
- Difference between lay-offs and firings
- Need for continuing education/growth

Objective: C. Know the legal restrictions that govern employers and employees.

Examples:

- Federal regulations governing working conditions
- Contracts
- Labor unions and unionism

Objective: D. Understand the financial aspects of employment.

Examples:

- Computing salaries
- Comparing benefits
- Calculating hours to figure amount of overtime
- Figuring out sick time

Content Area: Consumer Economics

Goal: To know how to manage a family economy and to demonstrate an understanding of sound purchasing practices.

Major Objective: 1. The individual should know how to plan family or individual budgets. This means that he or she should know:

Objective: A. What a budget is and how it should be used.

Examples:

- Advantages of making a budget
- Logical budget categories
- Using a budget to set realistic limits on spending

Objective: B. How to determine individual needs and resources.

Examples:

- Sources of income (salary, interest)
- Factors that determine need (family size, occupation)
- Setting priorities: needs versus luxuries or extras

Objective: C. How economic factors affect budgeting.

Examples:

- Inflation as a budget problem
- Seasonal employment and its effect on predictable income
- Using lists to prevent impulse shopping
- International trade

Major Objective: 2. The individual should understand the effective use of money, money substitutes, and financial services.
This means that he or she should:

Objective: A. Know how and why income and sales taxes are collected.

Examples:

- Sales tax as regressive
- Computing specific sales tax
- Filling out a 1040 form

Objective: B. Understand the relationship among various denominations of money and among various weights and measures.

Examples:

- Converting paper money to coins
- Figuring out the square yardage for carpeting
- Cutting a recipe in half

Objective: C. Know how to use various media of exchange.

Examples:

- Filling out a request for money order
- Cashing a check
- Using credit cards

Objective: D. Know the various types of banking services.

Examples:

- Opening a savings account
- Balancing a check book
- Requesting a loan
- Trusts

Objective: E. Know how to select, purchase, and maintain insurance policies.

Examples:

- Determining insurance needs
- Figuring out when insurance payments are due
- Finding best insurance policy for particular needs

Objective: F. Know how to figure costs and change.

Examples:

- Cost per unit price
- Totaling a bill
- Adding service charges
- Figuring change

Major Objective: 3. The individual should know how to apply the principles of consumer economics when buying, selling, or leasing goods or services. This means that he or she should:

Objective: A. Know how to use catalogs, consumer guides, and other reference documents to select goods and services.

Examples:

- Using a catalog to scrutinize available products
- Using a consumer guide to find the best buy
- Using advertisements to establish product capabilities

Objective: B. Understand the principles of comparison shopping and the relation of price to quality.

Examples:

- Understanding the concepts of brand name versus house brand
- Effectively using size-cost comparisons
- Knowing which is best store to buy specific products

Objective: C. Know various packaging techniques and which are most cost-effective in terms of quality and storage.

Examples:

- Size of package as a storage factor
- Shelf-life as a buying factor
- Comparing fresh, frozen, canned, and prepackaged foods for cost and nutritional value

Objective: D. Know how to place orders.

Examples:

- Ordering in restaurants
- Tipping
- Placing mail or catalog orders

Objective: E. Know where to go to purchase particular goods and services.

Examples:

- Types of stores (cooperatives, department, retail, wholesale)
- What is available where
- Rental services

Objective: F. Know the laws that have been passed to protect consumers.

Examples:

- Listing of ingredients in particular order
- Dating of particular types of consumer goods (prescriptions, dairy products)
- Flammability regulations on drapes and cloth
- Exit regulations for public establishments

Major Objective: 4. The individual should understand the economic factors involved in maintaining consumer goods. This means that he or she should:

Objective: A. Know the basic procedures for the care and upkeep of personal possessions.

Examples:

- Reading a care label on clothing
- Knowing how to clean stains on carpets
- Understanding the relationship between care and durability

Objective: B. Understand the relationship of price to the quality and the life of consumer goods.

Examples:

- Knowing that brand names usually cost more
- Factors other than price that determine quality
- Deciding when quality and durability should be sacrificed to price and ease of use

Objective: C. Understand the principles of crime prevention.

Examples:

- How to protect a car against theft
- How to list possessions for insurance purposes
- What to do at the scene of a theft or break-in to help police solve it

Major Objective: 5. The individual should understand marketing techniques and how these affect the individual, consumers in general, and the economy. This means that he or she should:

Objective: A. Know various modes and techniques of advertising, including inappropriate or illegal techniques.

Examples:

- Bait-and-switch techniques
- Price-fixing
- Appeals to emotions and peer pressure

Objective: B. Know where to go for help in solving consumer complaints or problems.

Examples:

- Better Business Bureau
- Complaint department or manager within store or industry
- Boycotts

Objective: C. Know the relationship among cost, availability, and need.

Examples:

- Regulating supply through tariffs
- Influencing demand through advertising (e.g., the Pet Rock phenomenon)
- Adjusting price because of lower supply (e.g., sugar "shortage" in 1974)

Objective: D. Understand the implications of consumption in light of finite world resources.

Examples:

- Conservation of resources
- Recycling of resources
- Interdependence of nations

Content Area: Mental and Physical Health

Goal: To understand the principles and practices that lead to good mental and physical health.

Major Objective: 1. The individual should know where, when, and why to seek medical help. This means that he or she should:

Objective: A. Recognize obvious signs of illness and know which require professional attention.

Examples:

- Normal temperature versus fever
- Brief versus persistent cough
- Symptoms of contagious diseases

Objective: B. Know the various types of medical facilities typically available in a community.

Examples:

- Public Health Service
- Hospital emergency rooms
- Private clinics
- Mental health clinics
- Ambulances

Objective: C. Know how and why to follow medical instructions.

Examples:

- Following dosage directions on a prescription label
- Getting adequate exercise to restore health
- Keeping a person who is ill in bed

Objective: D. Know how and why to communicate information about health problems to others.

Examples:

- Calling a doctor to explain symptoms over the phone
- Calling an employer to explain an absence
- Filling out a Public Health Service form

Major Objective: 2. The individual should know what personal habits promote good health. This means that he or she should:

Objective: A. Know the basic principles of health maintenance.

Examples:

- The relation of cleanliness to health
- The relation of a regular exercise program to health
- Need for adequate sleep

Objective: B. Know the basic principles of nutrition.

Examples:

- Four basic food groups
- Special types of diets (low cholesterol, low salt, diabetic)
- Meal planning

Objective: C. Understand the relationship between drugs and health.

Examples:

- Immunization programs
- Side-effects of drugs (allergic reactions)
- Over-the-counter versus prescription drugs
- Alcohol
- Nicotine

Major Objective: 3. The individual should know how to apply principles of health to planning and raising a family. This means that he or she should:

Objective: A. Understand the physical and psychological influences of pregnancy and the need for proper prenatal care.

Examples:

- How smoking affects a fetus
- Normal-term pregnancy
- Special dietary needs of a pregnant woman
- Congenital defects

Objective: B. Understand the importance of family planning and the effectiveness of various birth control methods.

Examples:

- Population growth as a worldwide phenomenon
- Financial and social issues in family planning
- Selecting appropriate birth control method

Objective: C. Know basic child-rearing practices.

Examples:

- Stages of child development
- Need for discipline
- Problems of child abuse

Objective: D. Understand the special health needs and concerns of adolescents.

Examples:

- Acne and skin problems
- Emotional swings
- Peer group influences
- Sexual maturation

Major Objective: 4. The individual should know how to deal with potential hazards and accidents. This means that he or she should:

Objective: A. Recognize potential hazards.

Examples:

- Improper storage of flammables
- Medicines and cleaning fluids in reach of children
- Frayed cords and other faulty equipment

Objective: B. Know where and when to apply basic safety measures.

Examples:

- Use of fire extinguishers
- Fire escape procedures
- What to do when caught in a severe storm

Objective: C. Know when and how to apply first aid.

Examples:

- Shock treatment
- Treatment of dog bite or snake bite
- Immobilizing broken bones

Objective: D. Know how and whom to ask for help in emergencies.

Examples:

- Reporting a fire
- Requesting an ambulance
- Knowing where to get help if there is a street fight

Content Area: Government and Law

Goal: To understand how the structures of government and the functions of the legal system delineate rights and obligations.

Major Objective: 1. The individual should understand the structure and functioning of the federal government. This means that he or she should know about the:

Objective: A. Composition and operation of both houses of Congress.

Examples:

- How senators and representatives are allotted per state
- Passage of a bill through House and Senate
- Committee system

Objective: B. Composition and operation of the executive branch of government.

Examples:

- Functioning electoral college
- Composition of the cabinet
- Presidential succession

Objective: C. Relationships between and among the three branches of government.

Examples:

- Presidential veto power
- Senate approval of treaties
- Supreme Court's ruling about constitutionality

Objective: D. Relationships between and among the federal, state, and local governments.

Examples:

- Revenue sharing
- Overlapping jurisdictions
- States' rights
- Home rule

Major Objective: 2. The individual should understand the relationship between individual citizens and the selection and maintenance of government. This means that he or she should:

Objective: A. Know about the electoral process and the individual's role in it.

Examples:

- Voter registration
- Balloting
- Types of elections

Objective: B. Know about the Constitutional guarantees of individual rights.

Examples:

- Due process
- Habeas corpus
- Bill of Rights

Objective: C. Understand how the individual can try to influence her or his representatives.

Examples:

- Letter writing
- Citizen's lobbies
- Access to representatives' voting record
- Referenda

Objective: D. Know what kinds of demands the government may and does make on individuals.

Examples:

- Jury duty
- Selective Service
- Required legal documents (e.g., birth certificate)

Major Objective: 3. The individual should understand the relationship between individual citizens and the legal and penal systems. This means that he or she should know:

Objective: A. The composition and operation of the judicial branch of government.

Examples:

- Presidential appointment of federal judges
- Appeal process
- Court jurisdictions
- Types of trials

Objective: B. Which acts society deems criminal.

Examples:

- Felonies
- Misdemeanors
- "White collar" versus "blue collar" crimes

Objective: C. When and how to hire a lawyer or gain access to other forms of legal aid.

Examples:

- When a lawyer is needed
- How to gain access to legal aid
- How to use Small Claims Court

Objective: D. An individual's rights when arrested, held, tried, paroled, or pardoned.

Examples:

- Rights of accused (including procedures of arrest)
- Warrants
- Bail
- Parole

Major Objective: 4. The individual should understand the relationship between individual citizens and government services. This means that he or she should understand:

Objective: A. How various kinds of taxes are collected.

Examples:

- Types of taxes
- Collection of taxes
- Tax forms

Objective: B. The relationship between taxes and social services.

Examples:

- Government needs money to operate
- Types of services provided by taxes
- Taxing jurisdictions (restrictions on uses of tax funds)

Objective: C. The reasons for social legislation.

Examples:

- Types of social legislation
- Societal responsibility and economic interdependence
- American ideals and concept of democracy

2. DEFINITIONS OF THE APL SKILLS

Identification of Facts and Terms

Items that focus on identification skills ask students to recall or recognize important facts and terms typically used in the five content areas defined by the APL. The emphasis here is on important, useful factual knowledge, not trite recall of trivia.

Reading

Items that focus on reading skills present a brief written stimulus chosen from a realistic document (sign, advertisement, announcement, leaflet) in the given content area. Students then answer questions that probe their understanding of the written material. In some cases, the written material directly contains the correct answer; in others, students must interpret what they have read or translate it into other words.

Writing

Items that focus on writing skills test neither mere penmanship nor complex composition skills. Rather, these items tap the kinds of writing skills that adults use in everyday living—making lists, filling out forms, writing notes, and addressing envelopes. In the context of a machine-scored test, where there can be no real writing, these items ask students to demonstrate that they can recognize appropriately written materials, that they know where on a form certain information would be written, and that they know what types of information belong on certain forms or documents.

Computation

Items that focus on computation skills require that students understand specific problems and manipulate simple numerical quantities (time, money, weights, calories, numbers) to arrive at appropriate solutions. The items are not abstract computation but are always set in the context of real life situations (fuel reduction, mileage, taxes, diets). Hence, they represent real, not academic, computation skills.

Problem Solving

Items that focus on problem solving skills ask students to select appropriate solutions to the kinds of problems they face in everyday life—what agency or organization they should turn to for help in certain situations, how they can alleviate or eliminate certain problems, what procedures or tactics are appropriate for given situations. All the problems are set in the contexts defined by the APL content areas; hence, they are rooted in reality.

APPENDIX B

APL PROJECT FINDINGS

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APL PROJECT FINDINGS

1. Summary

Area	APL Competency Levels ^a		
	1	2	3
Occupational Knowledge	19.1%	31.9%	49.0%
Consumers Economics	29.4	33.0	37.6
Government and Law	25.8	26.2	48.0
Health	21.3	30.3	48.3
Community Resources	22.6	26.0	51.4
Reading	21.7	32.2	46.1
Problem Solving	28.0	23.4	48.5
Computation	32.9	26.3	40.8
Writing	16.4	25.5	58.1
Overall Competency	19.7	33.9	46.3

^aLegend: APL 1 = Adults Who Function With Difficulty
 APL 2 = Functional Adults
 APL 3 = Proficient Adults

2. Results According to Demographic Factors

Variable	Competency Levels			Variable	Competency Levels			
	1	2	3		1	2	3	
Education								
0-3 year	85%	10%	6%	Age	16%	35%	49%	
4-5	84	16	0		11	29	60	
6-7	49	37	14		19	32	49	
8-11	18	55	27		28	37	35	
HIS Completed	11	37	52		35	40	24	
Some college	9	27	64	Sex				
College Grad plus	2	17	80		Male	17%	31%	52%
Family Income								
Under \$5,000	40%	39%	21%	Female	23	35	42	
\$5,000-\$6,999	20	44	36	Occupational Status				
\$7,000-\$9,999	24	39	37		Employed	15%	28%	57%
\$10,000-\$14,999	14	34	52		Unemployed	36	30	34
\$15,000 plus	8	26	66		Housewives	27	38	35
Job Status								
Unskilled	30%	38%	32%	Number in Household	21%	23%	56%	
Semi-skilled	29	42	29		1 person	20	35	45
Skilled	24	33	43		2-3	19	31	50
Clerical-Sales	8	38	54		4-5	21	33	46
Professional	11	28	61		6-7	43	22	35
				8 plus				
Ethnicity								
White	16%	34%	50%	Region	16%	36%	48%	
Black	44	39	17		Northeast	15	42	43
Spanish-surname	56	26	18		North Central	25	37	38
Other	26	41	33		South	15	35	50
					West			

APPENDIX C

A SAMPLING OF FEDERAL ADULT BASIC EDUCATION APL RESOURCE DEVELOPMENT PROJECTS AND FUNDING (OCT. 1976-SEPT. 1977)

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A SAMPLING OF FEDERAL ADULT BASIC EDUCATION APL RESOURCE DEVELOPMENT PROJECTS AND FUNDING (OCT. 1976-SEPT. 1977)

State	Products	# of Projects	Funding
Alabama	APL Modules Videotapes APL Guide Directory of Services	13	\$308,000 +
Alaska	Curriculum Guides	2	\$127,000 +
Arkansas	Needs Assessment Program Implementation	2	\$ 46,000
California	Job Descriptions Curriculum Modules Curriculum Guides	4	\$304,000
Dist. of Columbia	Inservice Training	1	Not Funded
Florida	Curriculum Guides Cassette Tapes	6	\$119,000
Idaho	Inst. Materials APL Curriculum Metric Lrng. Pkg. Training Videotapes	4	\$ 20,000
Illinois	APL Curricula Student "Intake Model" Teacher Comp. List Test Procedures	4	\$176,000
Indiana	Teacher Guide Consumer Guide Audio-Tapes Correspondence Curriculum Cons. & Economic Curriculum Inst. Modules Counselor Guide APL I/II	6	\$198,000
Iowa	Curriculum Materials	1	\$ 4,000

State	Products	# of Projects	Funding
Kansas	Curriculum Guide	3	\$ 47,000
Louisiana	Pilot Project	1	\$127,000
Maryland	Curriculum Guides Tests	1	\$ 6,000
Massachusetts	Curriculum Guide Bibliography of Materials	2	Not Specified
Michigan	Curriculum Guides Tests	1	\$294,000
Minnesota	Curriculum Kits	1	\$ 30,000
Mississippi	ETV Materials	8	\$ 88,000
Missouri	APL Curriculum	1	\$118,000
Montana	External HS Diploma Based on APL Competencies	2	\$ 29,000
Nebraska	Curriculum Materials	3	\$ 20,000
New Jersey	Curriculum Units Testing Materials Assessment Model	6	\$245,000
New York	ESL Learning Modules Employability Skills Units	5	Not Specified
North Dakota	Curriculum Materials State Clearinghouse	2	\$ 31,000
Ohio	Needs Assessment Curriculum Materials Field Testing	2	\$ 30,000 +
Oregon	Comp.-Based Mtls. Dev. Inservice Training	7	\$220,000
Pennsylvania	Reading Materials Assessment of Lit. Levels Dev. of HS Diploma Model Health Curriculum Guide ESL Materials	5	\$400,000

State	Products	# of Projects	Funding
Rhode Island	Learning Activity Package	1	Not Specified
South Carolina	Reading Materials Adult HS Diploma Program	1	Not Funded
Tennessee	APL Modules	2	\$145,000
Texas	Det'm HS Cr. for APL Test Performance APL Teacher Trng. Mtls. ABE Teacher Comp. Assess. Model Program CBAE Field Testing	14	\$477,000
Utah	Training Materials Curriculum Development	3	\$ 54,000
Virginia	APL Workshops	1	Not Specified
Washington	GED/APL Integration	4	\$ 56,000
West Virginia	APL Pilot Evaluation Program	2	\$ 22,500
Wisconsin	Bilingual Curriculum Career Curriculum	3	\$ 72,000
Totals = 34 states + D.C.		124	\$3,813,500

Abstracted from: Bureau of Occupational and Adult Education (DHEW/OE), Division of Adult Education, Adult Competency Education Profile (Washington, D.C.: Government Printing Office, 1977).

APPENDIX D

MINIMAL COMPETENCY STANDARDS--STATE ACTIVITY

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MINIMAL COMPETENCY STANDARDS--STATE ACTIVITY

State	Activity
Arizona	State Department of Education Ruling--1975 <u>Requirements</u> --Junior High School and High School: Beginning January 1, 1976, school districts are required to have students receiving the standard 8th-grade certificate able to read, write, and compute at the 6th-grade level. High school students must demonstrate an ability to read, write, and compute at the 9th-grade level before graduation.
California	Legislation--SB 1112-1972 SB 1243-1975 <u>Requirements</u> --High School: 16- and 17-year-olds may leave high school early if they pass the California High School Proficiency Tests setting minimum standards in reading and mathematics. Adults may also take the test and receive a high school diploma. Legislation--AB 3408-1976 <u>Requirements</u> --Junior High School and High School: This law requires districts to establish standards of proficiency in the basic skills. Students are to be tested once between grades seven and nine and twice between grades ten and eleven. Conferences and remedial work are required. No high school diploma may be issued after June 1980 unless a proficiency test has been passed.
Colorado	Legislation--SB 180-1975 <u>Requirements</u> --Junior High School and High School: The school districts that require proficiency tests for 12th grade graduation must give the proficiency tests as early as the 9th grade, report the scores to parents at least once each semester if the students fail the test, and provide remedial or tutorial services during the school day in the subject area in which a deficiency is noted.
Delaware	State Board of Education Ruling--1976 <u>Requirements</u> --The state department of education is to develop, by January 1977, a list of general competencies to be used as a prerequisite for high school graduation. They are to select a test instrument, work on additional competency statements, and by July 1977 have a plan for competency based education for 9th grade to be used at the beginning of the 1977-78 school year.

State	Activity
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Florida	CSSB 340-1975
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Requirements--High School: The law originally set up the "early out" test in Florida allowing students over the age of 14 with parent approval and age 16 without parent approval to take an examination in order to leave high school early. Implementation of this law was delayed, and the age requirement was removed by 1976 legislation. The state department has made provision to use the American Council on Education's GED high school equivalency test for a trial period. Emphasis is now on school districts working with community colleges in developing an educational plan for those students who demonstrate readiness for leaving school early.

	CSSB 107-1976
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Requirements--Elementary, Junior High School, and High School: This bill amends the Educational Accountability Act, provides that students must possess minimum skills necessary to function and survive in today's society. Students are to be tested in the basic skill areas in grades 3, 5, 8, and 11. Information is to be used to improve the state system of education by identifying needs and assessing how well districts and schools are meeting minimal standards. After July 1, 1977, pupil progression must be based on performance rather than social promotion. By the 1978/79 school year school districts must have a high school graduation program that will include the mastery of basic skills and the satisfactory performance in functional literacy in addition to the minimum number of credits required by the school board. Remediation programs and special differentiated diplomas for students with varying achievement levels must be provided.

Georgia	State Board of Education Ruling--1976
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Requirements--Elementary: The state board of education mandated that all fourth-graders in the state take a criterion referenced reading test. The results of this test are being studied in order to establish cut-off scores for grade-to-grade promotion.

High School: A one-year study is underway investigating the possibility of changing high school graduation requirements so as to include minimal proficiency standards for life role skills, including specific recommendations for the students as the learner, the individual, the citizen, the consumer, and the producer.

Maryland	Legislation--HB 1433-1976
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Requirements--Elementary: This law requires the state board of education to prescribe progressively advanced minimum reading levels for grades two through 12, and further provides that pupils may not enter grades three through eight until it has been determined that they have met the minimum level for the previous grade, with certain exceptions for special students.

State	Activity
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Maryland (cont'd)	State Department of Education--1975
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Requirements--Elementary, Junior High School, and High School: The state department of education has developed a Maryland basic mastery test for reading which is now being administered in grades six, nine, and twelve. This "survival reading test" (forms b and c, 9th and 12th grade level) is also being administered in the fall of each school year to grades seven and 11 as a part of the statewide accountability program.

Michigan	State Board of Education Ruling--1976
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Requirements--High School: The state board has proposed a 12th grade minimal competency test covering life goal skills in four areas: (a) personal, family, and money, (b) civic and social responsibilities, (c) aesthetic and humanistic, and (d) employment. Statewide hearings will be conducted on this test during the early part of 1977, with official state board action coming later in the year.

Missouri	State Board of Education--1976
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Requirements--Junior High School: The state department of education has been requested to develop a basic skills test to measure the application of basic skills in areas of reading, mathematics, and government/economics. Three forms of the test will be pilot tested in the spring of 1977 with 8th graders. All districts will be mandated to give the test at the 8th grade by July 1, 1978. At this time the state board has not made high school graduation contingent upon successful completion of the test.

Nebraska	State Department of Education--1975
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Requirements--Elementary, Junior High School, and High School: School districts are required to establish a minimal performance level in reading, writing, and arithmetic. Schools are to readminister the evaluation instrument until mastery has been demonstrated by all students. The state department of education has developed a test instrument which schools may use or they may develop their own assessment device.

New Jersey	Legislation--A. 1736-1976
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Requirements--Elementary, Junior High School, and High School: The law mandates that the state set minimum reading and mathematics standards for local districts and that the local districts provide remedial work and interim goals for students to meet as they move toward these state standards.

State	Activity
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New York	Board of Regents Mandate--1976
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Requirements--High School: Beginning with the graduation class of June 1979, high school students must be able to pass a basic competency test in reading and mathematics. The Board of Regents has under consideration plans for incorporating additional testing areas for the graduation requirements effective June 1980. These additional tests would include the areas of: (a) civics and citizenship, (b) practical science, including health and drug education, and (c) writing and language skills.

Oregon	State Board of Education Ruling--1972 and 1976
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Requirements--High School: Local school districts, by the end of 1978, must have established a program of high school courses leading to graduation based on proficiency in the basic skill areas of reading, listening, analysis, speaking, writing, and computation. Between 1978 and 1981 school districts are to move from assessing these basic skill areas in three program areas to include the remainder of the program areas required for high school graduation. Districts have the option of measuring competency in personal development, social responsibility, and career development or in program areas which replace these categories.

Vermont	Board of Education Ruling--1976
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Requirements--High School: The Vermont Board of Education has adopted minimal competency standards for local districts to use in setting criteria for high school graduation.

Virginia	Legislation--HB 256-1976
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Requirements--Elementary: The Virginia Standards of Quality Act requires that each school division give highest instructional priority to developing reading, communications, and mathematics skills of all students with particular attention to be given to primary grades (1-3) and the intermediate grades (4-6). By September 1978, the state board of education, in cooperation with local districts, shall establish specific minimum statewide educational objectives and a uniform statewide test in reading, communications, and mathematics skills. The test is to measure yearly progress for individual students.

State	Activity
Washington	Legislation--SB 3026-1976
<u>Requirements</u>--Elementary and Junior High School: School districts are required, with community participation, to develop learning objectives for grades K-8 and measure for these objectives at least annually for all students. State funds are to be withheld from districts not meeting the standards.	
Legislation--HB 1345-1976 <u>Requirements</u>--Elementary and High School: This law requires all fourth grade students be given a standardized achievement test in reading, mathematics, and language arts, with the results to be used by districts and parents to compare their children's achievement level with other pupils in the district, the state, and nation. Also required is a sample test to be given to 8th and 11th graders for the same purpose.	

APPENDIX E

COMPETENCY PERFORMANCE INDICATORS SALEM PUBLIC SCHOOLS, SALEM, OREGON

APPENDIX E

COMPETENCY PERFORMANCE INDICATORS SALEM PUBLIC SCHOOLS, SALEM, OREGON

Each student shall demonstrate the knowledge and skills necessary to function in the following areas:

1.0 Personal Development--Each student shall demonstrate competencies necessary to

1.1 Read

1.1.1 *Read a 200 word newspaper article and answer questions.*

The student will select an article (approximately 200 words in length) from the front page of a recent Salem daily newspaper, read the article and within a fifteen minute period use the article to answer to the teacher's satisfaction four out of five factual recall questions composed by the teacher.

1.1.2 *Read and state three conditions of an apartment rental agreement.*

Given a standard written rental agreement for an apartment, the student will read the document and then select and accurately paraphrase a minimum of three conditions, responsibilities, and/or obligations which either party to the agreement must fulfill.

1.2 Listen

1.2.1 *Listen to a 100-200 word oral communication and recall five specific details.*

Given a 100-200 word oral communication, without further assistance the student will recall and cite (in written or oral form, at the student's option) at least five specific details dealing with a given topic or aspect of the subject dealt with in the communication. The teacher will select the communication and judge the adequacy of the stated details.

1.3 Analyze (Satisfactory completion of 1.7.1 and 2.6.1 fulfills this competency.)

1.4 Speak

1.4.1 *Summarize the important points of a discussion.*

After a discussion of at least five minutes with two or three fellow students, the student will explain to the teacher at least five points made in the discussion. The teacher will confirm the accuracy of the points by checking with the original group.

1.5 Write

1.5.1 *Write an appropriate, legible response to a job notice.*

Given a dictionary and the want ad section of a recent Salem daily newspaper, the student will select one job notice and write an appropriate response to the notice using standard English spelling and acceptable letter form, grammar and sentence structure which meet criteria established in currently-used Salem School District secondary language arts and/or business education textbooks. The letter will be written in cursive or manuscript handwriting, at the option of the student, and will rank at least "Fair" on the Zaner-Bloser Evaluation Scales for Cursive or Manuscript Handwriting.

1.6 Compute

1.6.1 *Compute miles per gallon of gasoline.*

Given three problems each showing the total gas consumption and miles traveled by a car, the student will compute the gasoline consumption to within one mile per gallon for each case.

1.6.2 *Determine simple interest rate.*

Given the price of an item and a whole number annual interest rate, the student will determine the simple interest rate charges for the first month within 2% accuracy.

1.6.3 *Measure a solid object in both metric and English measures.*

Given a rectangular solid and appropriate measuring devices, the student will determine its width, length, depth, volume, and weight in either metric and/or English measure to within 5% accuracy. One dimension must include both the metric and English measure.

1.6.4 *Balance a checkbook.*

Given a simulated series of entries, the student will maintain a correct balance in a checkbook over ten withdrawals interspersed between three deposits.

1.6.5 *Make correct monetary change.*

Given five simulated situations (not paper and pencil tests), the student will make the correct change involving dollars and cents, five consecutive times without the aid of a calculating device.

1.7 Basic scientific and technological processes

1.7.1 *Cite effects of computer processing on everyday activities.*

The student will identify at least five specific ways in which the student has been affected by the computer.

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2.0 Social responsibility--Each student shall demonstrate the competencies required to function effectively and responsibly as

2.1* Citizen in the community, state, and nation

2.1.1 *Describe services available through social and government agencies.*

Given a listing of at least eight social and government agencies registered with the Oregon Secretary of State and/or listed in the Interact "Directory of Community Services," the student will explain, orally or in writing, two services offered by at least three of the agencies which are available to meet his/her needs as a citizen. Where prerequisite steps are required, the student will describe at least three steps to attain each of two services. Success will be measured against published information of each agency.

*The State Department guidelines offered districts the option to group "community, state, and nation as one or three categories." The Salem Public Schools established but one competency category. Satisfactory completion of 2.1 is equivalent to 2.1, 2.2, and 2.3 in those districts which chose to establish three categories.

2.1.2 *Demonstrate knowledge of voting process.*

The student will demonstrate a knowledge of the voting process by citing the requirements for registering to vote, by citing at least two additional sources of information on issues and/or candidates than is found in the voter's pamphlet, and by properly marking a sample ballot.

2.1.3 *Identify payroll deductions and spendable income.*

Given a simulated pay-check stub, the student will demonstrate an ability to distinguish between 5 to 7 payroll deductions and spendable income by identifying the various deductions; distinguish among the deductions as taxes, insurance plans, or charity by properly categorizing all listed deductions; and identify take-home pay as spendable income.

2.1.4 *Complete simple tax forms.*

Given the necessary tax forms, and simulated W-2 forms and expenses, the student will correctly complete the least complex state and federal income tax forms for either a single taxpayer or family, at the student's option.

2.4 Citizen in interaction with the environment

2.4.1 *Identify environmental problems.*

After developing a comprehensive list of common environmental problems confronting society, the student will identify at least five which are common to American urban areas and five which are common to American rural areas.

2.4.2 *Identify helpful and harmful effects of garden and household chemicals.*

For each of five actual samples of common garden and household chemicals, the student will correctly explain the use, describe one helpful and one harmful effect, and describe one safe storage practice.

2.5 Citizen on the streets and highways

2.5.1 *Pass written Oregon Driver's Examination or cite proper highway conduct for pedestrians, bicyclists, and motorists.*

The student will, without aid, demonstrate functional knowledge of pedestrian and vehicular safety in the use of public thoroughfares (highways, roads, streets) either by satisfactorily meeting the Department of

Motor Vehicles' standards on the written portion of the Oregon Driver's Examination or by identifying, in a method of the student's choice, at least five safe highway practices and/or responsibilities for each of the following: (a) pedestrians, (b) bicyclists, and (c) motorists as described by the National Safety Council, the American Automobile Association, and/or their affiliates.

2.6 Consumer of goods and services

2.6.1 *Plan monthly budgets.*

Given samples of low and average income levels, as determined by the Bureau of Labor Statistics of the U.S. Department of Labor, and a simulated family situation, the student will plan monthly budgets based on current wages and current prices for three consecutive months according to criteria outlined in Personal Finance Education Guide, Oregon Department of Education, 1972, p. 16 and 17, so that expenses do not exceed income.

2.6.2 *Cite advantages and disadvantages of various credit plans.*

Given a simulated credit buying situation, the student will explain at least two advantages and two disadvantages of two distinctly different credit plans according to criteria outlined in Personal Finance Education Guide, Oregon Department of Education, 1972, p. 30-45.

2.6.3 *Recognize factors which influence purchase of consumer goods.*

Given a case study found appropriate to both student and teacher, the student will demonstrate knowledge of the factors affecting consumer purchases by noting five personal factors, one societal factor, and two marketing factors that influence purchasing decisions of consumers, which are consistent with the factors outlined in Personal Finance Education Guide, Oregon Department of Education, 1972, p. 48-77.

3.0 Career Development--Each student shall demonstrate competencies required to function effectively within a career cluster or broad range of occupations, such as in

3.1 Work habits

3.1.1 *Demonstrate safe working practices.*

Given specific work assignments and necessary safety instruction, the student will demonstrate safe working practices in performing all assigned tasks when observed at least 15 times within a two-month period.

3.1.2 *Report grooming requirements.*

The student will report the dress and grooming requirements of at least three local businesses for an occupation connected with satisfaction of either the 3.2.1 or the 3.3.1 competency indicator.

3.2 Positive attitudes (Satisfactory completion of 3.3.1 fulfills this performance indicator.)

3.3 Interpersonal relationships

3.3.1 *Identify and provide alternative solutions to work setting interpersonal difficulties.*

Given at least three appropriate case studies involving human interactions in a work setting, the student will identify at least one problem that prevented acceptable working relations between people in each case, and at least one alternative solution, according to criteria provided in any of the following references: Grady Kimbrell and Ben S. Vineyard, Succeeding in the World of Work, Bloomington, Ill.: McKnight and McKnight Publishing Company, 1970; Ellwood Chapman, Your Attitude Is Showing, Chicago: Science Research Associates, 1964; Career Cluster Guides, Oregon State Department of Education, periodically distributed and revised; and/or David Johnson, Reaching Out--Interpersonal Effectiveness and Self-Actualization, Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972.

3.4 Career Decisions

3.4.1 *Identify requirements and training for a chosen occupation.*

The student will identify at least one occupation consistent with his/her known interests, aptitudes, and values; and identify and list, in a method of the student's choice, the requirements and training needed for

entry into the identified occupation. The requirements and training cited are to be consistent with information provided in Career Information System, Eugene, Or.: University of Oregon, 1974; Douglas McClane, ed., Mapping Your Education, Portland, Or.: Graphic Arts Center, 1973; and/or Occupational Outlook Handbook, Washington, D.C.: U.S. Government Printing Office, 1973.

3.5 Entry level competencies

3.5.1 *Demonstrate minimum employability.*

The student will demonstrate minimum employability by achieving the minimal performance objectives for employment as identified in any one Salem School District career cluster or special vocational education program; OR by holding one job or a series of jobs for one employer in which the employer verifies at least 100 hours of employment over a period of time not less than 9 weeks nor more than 18 weeks and that the student possesses certain basic occupational skills. Such verification shall be made on a district developed form or on an approved district cooperative work experience training plan.

3.5.2 *Prepare an application and engage in a simulated interview.*

Given a real or simulated setting, as determined appropriate by the instructor and student, the student will prepare an application form, a letter of application and a personal resumé (data sheet) for an interview. The student will then participate in an employment interview (real or simulated). Each product/activity must meet the standards outlined in Grady Kimbrell and Ben S. Vineyard, Succeeding in the World of Work, Bloomington, Ill.: McKnight and McKnight Publishing Company, 1970.

3.5.3 *Outline steps to seek employment.*

Given a real or simulated setting found appropriate by both teacher and student, the student will list or role-play without the use of references, the steps to take when seeking employment, meeting criteria outlined in Gerald Leadham, So Now You're on Your Own, Oregon Department of Education, 1971, or by using similar criteria developed by the teacher and shared with the student prior to the test situation.

Success on each competency indicator is to be judged by criteria specified in each performance objective. Individuals who will certify satisfactory completion of each indicator will be designated by the building principal, unless otherwise directly stipulated in the indicators.

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APPENDIX F

DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS
REQUIREMENTS FOR EDUCATORS

APPENDIX F

DEPARTMENT OF DEFENSE DEPENDENTS SCHOOLS REQUIREMENTS FOR EDUCATORS

READ THIS BROCHURE CAREFULLY AND FOLLOW THE INSTRUCTIONS PRECISELY. YOU WILL NOT BE CONSIDERED IF YOU DO NOT MEET THE REQUIREMENTS FOR THE POSITION(S) FOR WHICH YOU ARE APPLYING, OR IF YOU FAIL TO PROVIDE THE NECESSARY INFORMATION IN THE MATTER AND FORMAT REQUESTED.

NO PROVISION EXISTS FOR WAIVER OF ANY REQUIREMENT

I. GENERAL REQUIREMENTS

To be accepted for consideration the applicant must be available for processing in one of the fifty states, Puerto Rico, the Virgin Islands, or Guam and must possess ALL of the following:

• QUALIFICATIONS STANDARDS

A. PERSONAL

1. United States citizenship.
2. Physical ability to perform the duties efficiently and without hazard to self or others; freedom from chronic conditions requiring medical care or medication, or special assignment consideration due to altitude, temperature, humidity, or other climatic conditions. Favorable physical characteristics, emotional stability, socially acceptable personal habits, loyalty to the United States, and ability to work successfully with students, parents, and school administrators in a military community.
3. AVAILABLE FOR WORLDWIDE PLACEMENT. Applicants who are planning to go overseas (including military and civilian dependents), or who already reside overseas, and as a result, are not available for placement on a world-wide basis, do not apply through this office. Applications may be filed with the civilian personnel office upon arrival overseas at the United States military installations nearest your residence.

B. EDUCATION

1. Degree and Legal Standards.
 - a. A baccalaureate degree from an institution accredited by a regional accrediting association, and shall meet the legal standards for teachers in the state in which employed. Graduates of nonaccredited institu-

tions may have their undergraduate work validated by admittance to graduate standing and completion of a minimum of five semester hours of credit in a regionally accredited graduate college.

- b. Where a master's degree or graduate work is required, the work must have been taken in a regionally accredited institution. Work in a foreign university will be accepted only if the work is evaluated and is declared the equivalent of similar graduate work in an American institution. The evaluation must also declare that the foreign university is an established and internationally recognized institution.
- c. A school nurse must have completed a baccalaureate degree in nursing from a collegiate or university program in nursing accredited by the National League for Nursing.

2. General Preparation.

At least 40 semester hours of work in general education well distributed over such subject matter fields as English, History, Social Science, Mathematics, Fine Arts, Languages, Science, Philosophy, Religion, and Psychology.

3. Professional Preparation.

At least 18 semester hours of course work in the field of professional teacher education. All teachers shall have had student teaching or served an internship as part of an approved teacher education program in a higher institution accredited by one of the six regional accrediting associations, and shall have satisfactorily completed course work in such areas as learning process, measurement, philosophy, psychology, social foundations, and curriculum totaling at least 18 semester hours.

Source: DODDS, "Overseas Employment Opportunities for Educators," Department of Defense Dependents Schools Announcement for 1977-78 School Year (Alexandria, Va.: DODDS, 1977), pp. 2-7.

(NOTE: Nurses, Psychologists, and Social Workers are excluded from this requirement.)

4. Certification.

A valid certificate or credential issued by a state or state approved college or university. If the graduating institution or state does not issue special certificates or credentials for elementary art, elementary music, or elementary physical education, the applicant must have satisfactorily completed a major or minor as defined by the graduating institution in the subject field(s) for which applying. (NOTE: Vocational-Occupational Instructors may substitute appropriate education, training and practical experience as outlined under category 323, Training Instructor (Vocational) below.)

C. EXPERIENCE

1. Teachers must have not less than one year of successful full-time professional employment as a teacher, counselor, librarian, or administrator in a K-12 educational institution during the past five years. Experience during the current school year will be tentatively accepted pending satisfactory completion, provided employment is on a full-time basis.
2. School nurses must have not less than one year of successful full-time professional employment as a school nurse or public health nurse during the past five years.
3. Training Instructors (Vocational) must have one year of experience in teaching or instruction in an adult education program, secondary school, college, or industrial establishment in the particular occupational-vocational or subject field(s) for which applying.
4. One year of the required experience for elementary school applicants must have been in the grade level or subject field for which applying within the last five years.
5. For junior and senior high school applicants one year of experience must have been in the subject field, however, it may be in either one of the two categories for which the applicant is applying.
6. Practice, student, and substitute teaching experience are *not qualifying* for this

experience.

7. Work experience gained immediately prior to military service, or while in the military service, that is judged as teaching experience as described, will be creditable toward the one year teaching experience requirement in the past five years for employment purposes.

II. POSITION CATEGORIES AND SPECIAL REQUIREMENTS

A. ELEMENTARY SCHOOL POSITIONS (Kindergarten through grade 8)

One year of the required experience in grades one through three or in grades four through six is qualifying for grades one through three or grades four through six respectively. Teachers selected for category 101, 102, or 103 may be assigned to any of these categories or non-graded. Additionally, those selected in category 104, 105, or 106 may be assigned to any of these categories or nongraded.

- 100 KINDERGARTEN. 9 semester hours of course work related to early childhood education.
- 101 ELEMENTARY TEACHER, GRADE 1.
- 102 ELEMENTARY TEACHER, GRADE 2.
- 103 ELEMENTARY TEACHER, GRADE 3.
- 104 ELEMENTARY TEACHER, GRADE 4.
- 105 ELEMENTARY TEACHER, GRADE 5.
- 106 ELEMENTARY TEACHER, GRADE 6.
- 107 ELEMENTARY TEACHER, GRADES 7 and 8. Experience at this level must include teaching in a nondepartmentalized situation or self-contained classroom.
- 108 ELEMENTARY TEACHER, ART. 24 semester hours in art.
- 109 ELEMENTARY TEACHER, MUSIC. 24 semester hours in music.
- 110 ELEMENTARY TEACHER, PHYSICAL EDUCATION. 20 semester hours in physical education & health.
- 111 ELEMENTARY LIBRARIAN. 18 semester hours in library science. Experience as a librarian or teacher is qualifying. Training and/or experience in instructional materials center concepts is desired.
- 112 TEACHER, AUDIO-VISUAL. 15 semester hours in the audio-visual field.

B. JUNIOR HIGH/MIDDLE SCHOOL POSITIONS

- Junior High/Middle school teachers must be fully qualified to teach in two or more subject matter fields. (*Nurses, Social Workers, Psychologists, Special Education, Mathematics, Industrial Arts, Physical Science, Librarian, Music, Guidance Counselors, and Vocational Instructors and Jr. ROTC Instructors are excluded from this requirement.*) Unless you are fully qualified in at least two categories, i.e., English/Social Studies, Biological Science/Physical Education, etc., your application will not be processed. (Experience in the same subject field but at a different level is *NOT* qualifying as a second category, i.e., 201 Teacher, English/301 Teacher, English; 308 Teacher, Art/108 Teacher, Art.) Junior High School teachers are occasionally required to teach one or more subjects on the Senior High Level.
- 201 TEACHER, ENGLISH. 24 semester hours in English including appropriate distribution of courses in literature and composition. 5 semester hours in speech and/or journalism may be counted toward meeting this requirement.
You must also qualify in one other category.
- 202 TEACHER, SPEECH. A major of 24 semester hours or more in speech and dramatic arts or a minimum of 8 semester hours in speech plus sufficient additional work in English to total at least 24 semester hours.
You must also qualify in one other category.
- 203 TEACHER, JOURNALISM. A major in journalism of 24 semester hours or more, or a minimum of 5 semester hours in journalism plus sufficient additional work in related fields to total at least 24 semester hours.
You must also qualify in one other category.
- 204 TEACHER, MATHEMATICS. 20 semester hours of credit in mathematics. 1 semester hour may be allowed for each unit of high school mathematics, but not to exceed 2 hours.
- 205 TEACHER, SOCIAL STUDIES. 24 semester hours in the field of social studies, appropriately distributed in the subjects to which assigned.
You must also qualify in one other category.
- 206 TEACHER, SCIENCE. 24 semester hours in the field of science appropriately distributed in the subjects to which the teacher is assigned. For teachers of biology, chemistry and physics, a minimum of 9 semester hours is required in the assigned subject. *Except for teachers of chemistry or physics, must also qualify in one other category.*
- 207 TEACHER, HEALTH. 20 semester hours in the field of health including appropriate distribution of courses in biological and behavior science, safety, drug education, ecology, public health services, and mental health.
You must also qualify in one other category.
- C. SENIOR HIGH SCHOOL POSITIONS
- Senior High School teachers must be fully qualified to teach in two or more subject matter fields.
(*Nurses, Social Workers, Psychologists, Special Education, Mathematics, Industrial Arts, Training Instructors, Physical Science, Librarian, Music, Guidance Counselors, and Vocational Instructors and Junior ROTC Instructors are excluded from this requirement.*) Unless you are fully qualified in at least two categories, i.e., Art/English, Physical Education/Home Economics, etc., your application will not be processed. (Experience in the same subject field but at a different level is *NOT* qualifying as a second category, i.e., 301 Teacher, English/201 Teacher, English; 308 Teacher, Art/108 Teacher, Art.) Senior High School teachers are occasionally required to teach one or more subjects on the Junior High level.
- 301 TEACHER, ENGLISH. 24 semester hours in English, including appropriate distribution of courses in literature and composition. 5 semester hours in speech and/or journalism may be counted toward meeting this requirement.
You must also qualify in one other category.
- 302 TEACHER, SPEECH. A major of 24 semester hours or more in speech and dramatic arts or a minimum of 8 semester hours in speech plus sufficient additional work in English to total at least 24 semester hours.
You must also qualify in one other category.
- 303 TEACHER, JOURNALISM. A major in journalism of 24 semester hours or more, or a minimum of 5 semester hours in journalism plus sufficient additional work in related fields to total at least 24 semester hours.
You must also qualify in one other category.
- 304 TEACHER, MATHEMATICS. 20 semester hours of credit in mathematics. 1 semester hour may be allowed for each unit of high

- school mathematics, but not to exceed 2 hours.
- 305 TEACHER, SOCIAL STUDIES. 24 semester hours in the field of social studies, appropriately distributed in the subjects to which assigned. *You must also qualify in one other category.*
- 306 TEACHER, SCIENCE. 24 semester hours in the field of science appropriately distributed in the subjects to which the teacher is assigned. For teachers of biology, chemistry and physics, a minimum of 9 semester hours is required in the assigned subject. *Except for teachers of chemistry or physics, must also qualify in one other category.*
- 307 TEACHER, HEALTH. 20 semester hours in the field of health including appropriate distribution of courses in biological and behavior science, safety, drug education, ecology, public health services, and mental health. *You must also qualify in one other category.*
- 308 TEACHER, ART. 24 semester hours in art. *You must also qualify in one other category.*
- 309 TEACHER, BUSINESS. 24 semester hours in business with at least one college course in each high school subject to which assigned. *You must also qualify in one other category.*
- 310 TEACHER, HOME ECONOMICS. 24 semester hours in home economics. *You must also qualify in one other category.*
- 311 TEACHER, MUSIC. 24 semester hours in music. A music teacher is normally required to teach both vocal and instrumental.
- 312 TEACHER, PHYSICAL EDUCATION. 20 semester hours in physical education. *You must also qualify in one other category.*
- 313 TEACHER, INDUSTRIAL ARTS. 20 semester hours in Industrial Arts including at least one course in each subject taught. (Some Industrial Arts positions require American Industries and IACP.)
- 314 TEACHER, LATIN. 20 semester hours in Latin. 1 semester hour may be allowed for each unit of high school Latin, but not to exceed 2 hours. *You must also qualify in one other category.*
- 315 TEACHER, FRENCH. 20 semester hours in French. 1 semester hour may be allowed for each unit of high school French but not to exceed 2 hours. *You must also qualify in one other category.*
- 316 TEACHER, SPANISH. 20 semester hours in Spanish. 1 semester hour may be allowed for each unit of high school Spanish, but not to exceed 2 hours. *You must also qualify in one other category.*
- 317 TEACHER, GERMAN. 20 semester hours in German. 1 semester hour may be allowed for each unit of high school German, but not to exceed 2 hours. *You must also qualify in one other category.*
- 318 TEACHER, READING. A major in reading of at least 24 semester hours, or a minimum of one course in reading plus sufficient additional work in English and/or related fields to total at least 24 semester hours. One year of the required experience must have been teaching reading. *You must also qualify in one other category.*
- 319 LIBRARIAN. 18 semester hours in library science. One year of the required experience must have been as a librarian. Training and/or experience in instructional materials center concepts is desired.
- 320 TEACHER, LIBRARIAN. 18 semester hours in library science. *You must also qualify in one other category.*
- 321 TEACHER, DRIVER EDUCATION. A valid certificate for Driver Education issued by a state. *You must also qualify in one other category.*
- 322 TEACHER, AUDIO-VISUAL. 12 semester hours in the audio-visual field. One of the required year's experience must have been in audio-visual. *You must also qualify in one other category.*
- 323 TRAINING INSTRUCTOR (VOCATIONAL). This includes but is not limited to such fields as cosmetology, auto mechanics, electronics, medical/dental assistant, and refrigeration and air conditioning. A valid teaching certificate for the field of specialization and a state license if one is required.
- NONCERTIFIED APPLICANTS:** Applicants without a teaching certificate must have graduated from an accredited high school. A formal vocational training program in the specialty at or above the high school level must also be completed. In addition, noncertified applicants must have successful experience as an instructor in the field, or performed duties involving the supervision of fellow workers in the occupation, or satisfactorily completed a program in the basic principles of instruction which included practice teaching. **EXPERIENCE:** Noncertified applicants must have two and one-half years of experience at the journeyman level in the specialty for which applying. Study completed above the high school level may be substituted at the rate of one year for nine months of experience if such study included six semester hours in a subject directly related

to the specialty for which applying. If you do not have an associate or higher degree in the particular specialty for which applying, you must have at least one full year of practical experience.

- 324 **WORK-EXPERIENCE COORDINATOR.** Minimum of fifteen (15) semester hours in related fields such as social studies, business, guidance, vocational-occupational subjects, career education, home economics and at least 3 semester hours in career counseling and/or vocational/occupational counseling. One year of work experience in a career other than education is desirable. Experience as a coordinator of a work experience or similar program is desirable.

- 325 **TEACHER. COMPUTER SCIENCE.** Must have a major in computer science of 24 semester hours or more, or a minimum of 9 semester hours in computer science with sufficient additional coursework to qualify as a teacher of mathematics, science, or business. Coursework must include programming in Basic, FORTRAN IV, or ANS COBOL.

You must also qualify in one other category.

- 399 **JUNIOR ROTC INSTRUCTOR.** All candidates must be retired military who are certified to teach junior ROTC. Information on obtaining certification may be obtained by writing (Air Force): Junior ROTC Building 501, Maxwell AFB, Alabama 36112 or (Army): Commander, First ROTC Region, ATTN: ATOA-PA, Fort Bragg, North Carolina 28307. **ALL CANDIDATES MUST HAVE ONE YEAR'S EXPERIENCE TEACHING JUNIOR ROTC.** In addition, retired officers must possess a degree and either a teaching certificate or 12 hours in education courses.

D. PUPIL PERSONNEL SERVICES

- 400 **COUNSELOR/COUNSELOR-TEACHER.** 18 semester hours of graduate preparation in guidance and counseling for elementary and/or high school levels. Three years experience is required, including one year of counseling at the grade levels assigned. Counselor-Teachers must also qualify in one other category. Drug Education orientation is also desired.
- 401 **GUIDANCE COUNSELOR.** Master's Degree in guidance or psychology. Five years of experience is required, including two years within the last five involving full-time counsel-

ing duties at the grade levels assigned. Drug Education orientation is also desired.

- 402 **DORMITORY COUNSELOR.** 18 semester hours of preparation in guidance-counseling, psychology, recreation, or related fields. Drug education orientation is also desired. (Duties include the control of dormitory living of boys and girls, insuring that conditions are conducive to developing sound study habits; that skill in leisure time pursuits are stimulated; and that a wholesome, homelike atmosphere is maintained.)

You must also qualify in one other category.

- 403 **SCHOOL PSYCHOLOGIST.** Master's Degree in Psychology. 24 semester hours of graduate preparation in related fields. One year of professionally related work within the past five years.

NOTE: The 18 semester hours of course work in the field of professional teacher education as described under General Requirements, subparagraph B3, Professional Preparation, are not required for School Psychologist.

- 404 **SCHOOL SOCIAL WORKER.** Master's Degree in social work. 24 semester hours of graduate preparation in related fields. One year of professional experience must be in secondary or elementary schools within the past five years.

NOTE: The 18 semester hours of course work in the field of professional teacher education as described under General Requirements, subparagraph B3, Professional Preparation, are not required for School Social Worker.

- 405 **TEACHER, MENTALLY RETARDED.** 15 semester hours in special education including remedial methods and psychology of the retarded child and such courses as measurements, nature and needs of mentally retarded, speech and language development, arts and crafts for atypical children, and adapted physical education. One year of the required experience must have been teaching handicapped children as appropriate.

- 406 **TEACHER, PHYSICALLY HANDICAPPED.** 15 semester hours in special education including remedial methods and such courses as nature of crippling, special health problems, methods and materials of teaching physically handicapped, and educational measurements. One year of the required experience must have been teaching handicapped children as appropriate.

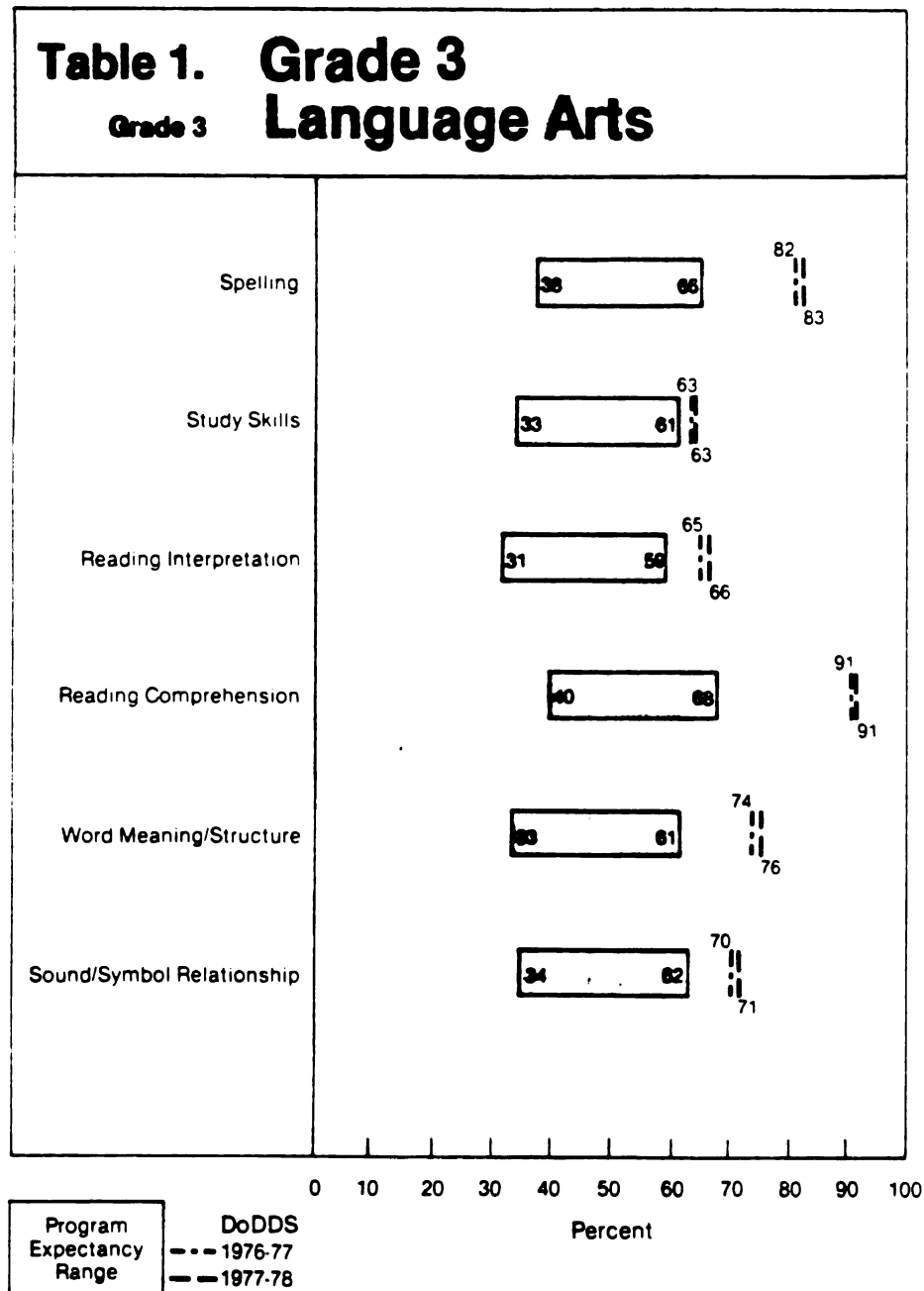
- 407 **TEACHER, BLIND.** 15 semester hours in special education including remedial methods and such courses as nature and needs of the blind, Braille and anatomy, physiology, hygiene of the eye, etc. One year of the required experience must have been teaching children with visual handicaps as appropriate.
- 408 **TEACHER, DEAF AND HARD OF HEARING.** 15 semester hours in special education including remedial methods and such courses as anatomy of the ear, speech mechanism, methods of auditory training, psychology of the handicapped child, child development, and educational measurements. One year of the required experience must have been teaching the deaf or hard of hearing, as appropriate.
- 409 **TEACHER REMEDIAL READING OR READING IMPROVEMENT.** 15 semester hours in reading, including experience and training as a special teacher of reading, remedial and/or developmental. One year of the required experience must have been teaching remedial reading or reading improvement, as appropriate.
- 410 **TEACHER, SPEECH CORRECTION.** 15 semester hours in speech, including training in the use of the audiometer and such courses as speech correction, speech science, therapy, pathology, phonetics, and clinical methods. One year of the required experience must have been in speech correction, as appropriate.
- 411 **NURSE, BS degree in Nursing; current RN registration, School Nurse registration or equivalent college course.** One year of experience must be in school nursing or public health.
NOTE: The 18 semester hours of course work in the field of professional teacher education as described under General Requirements, subparagraph B3, Professional Preparation, are not required for Nurses.
- 412 **LEARNING DISABILITIES.** 24 semester hours in special education; a majority of these in learning disabilities including course work in such fields as education diagnosis, prescriptive teaching, behavior modification, developmental task analysis or related fields. One year of the required experience must have been teaching children with learning disabilities, as appropriate.
- E. ADMINISTRATIVE POSITIONS**
 Vacancies in these categories are extremely limited.
- 500 **EDUCATION SPECIALIST** (appropriate field such as: Foreign Languages, Pupil Personnel Services, Art, Testing). Master's degree in any field provided the requirements of paragraph I.B.3. are fully met. In addition, five years of professional experience is required, two of which must have been concerned with such tasks as developing curricula, evaluating instructional material, advising teachers on specialized techniques, and conducting in-service training for teachers within the past five years. Experience as a Principal, Assistant Superintendent, or Superintendent may be substituted for the years not specified in the operational field.
- 601 **ASSISTANT PRINCIPAL.** Master's degree with courses in administration, curriculum, supervision, guidance and related fields. Five years of appropriate professional experience in education as required.
- 602 **PRINCIPAL.** 45 semester hours of graduate credits, including master's degree. Not less than 20 semester hours of graduate work shall have been in administration and supervision, and course work in educational philosophy, psychology, supervision, curriculum, and administration. Five years of professional experience in education are required, at least one of which must have been in school administration within the past five years, and may require more specialized experience depending on assignment.
- 603 **DIRECTOR OF SCHOOLS, SUPERINTENDENT, DISTRICT SUPERINTENDENT, ASSISTANT SUPERINTENDENT, SUPERINTENDENT OF SCHOOLS (SCHOOL COMPLEX).** At least 60 hours of graduate credit, inclusive of the Master's degree with not less than 30 semester hours of graduate credit in administration, supervision and related fields. Not less than seven years' experience in the field of education with a minimum of three years' experience within the last five years as an administrator or assistant administrator of a sizeable school complex or school district including both elementary and secondary schools.

APPENDIX G

SUMMARY RESULTS OF THE DODDS LANGUAGE ARTS AND MATHEMATICS ASSESSMENT, GRADES 3 AND 6 (1978)

APPENDIX G

SUMMARY RESULTS OF THE DODDS LANGUAGE ARTS AND MATHEMATICS ASSESSMENT, GRADES 3 AND 6 (1978)



Source: Summary Results of the DODDS Language Arts and Mathematics Assessment, Grades 3 and 6 (1978) (Alexandria, Va.: DODDS, 1979).

Table 2. Grade 3 Math

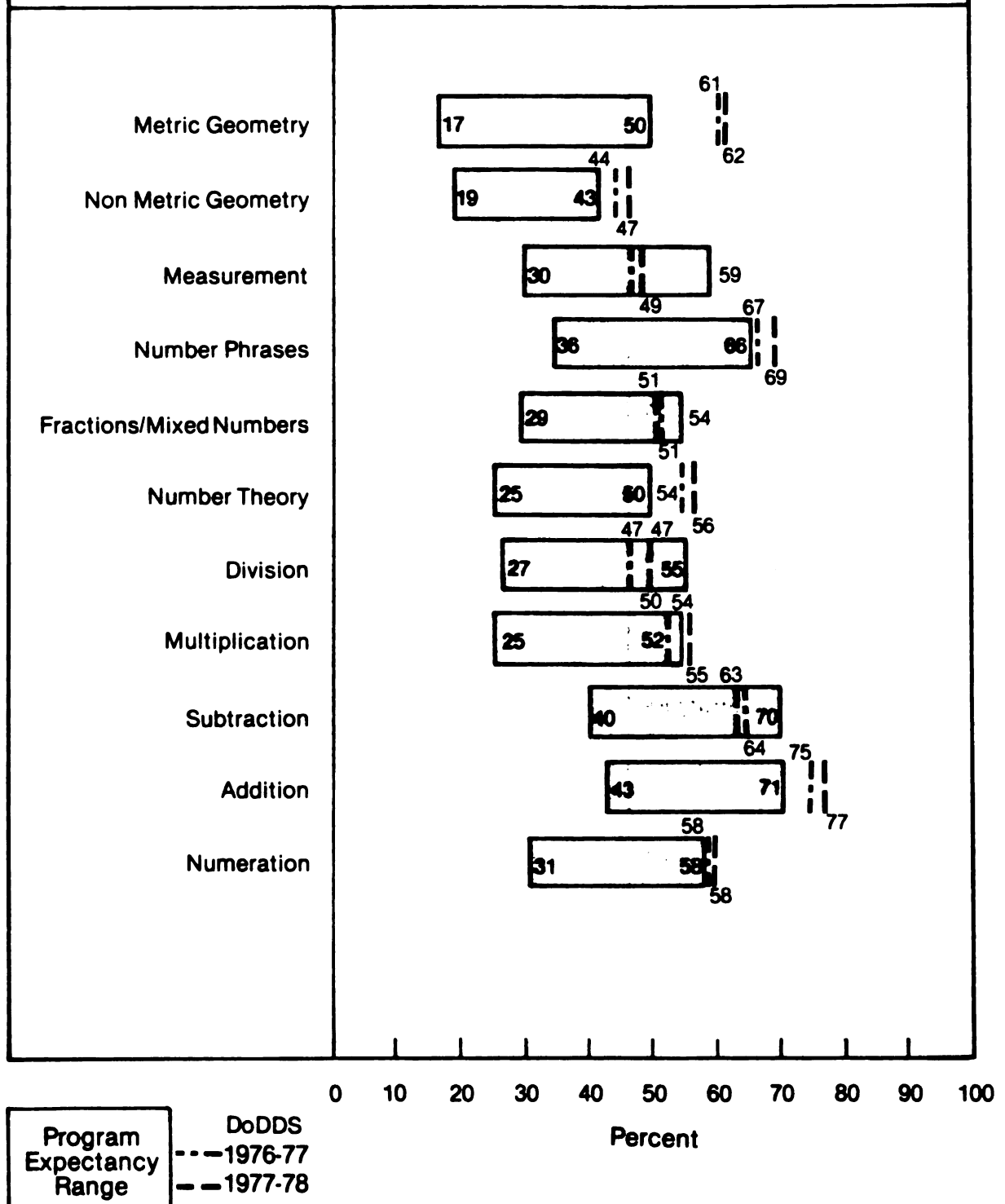


Table 3. Grade 6. Language Arts

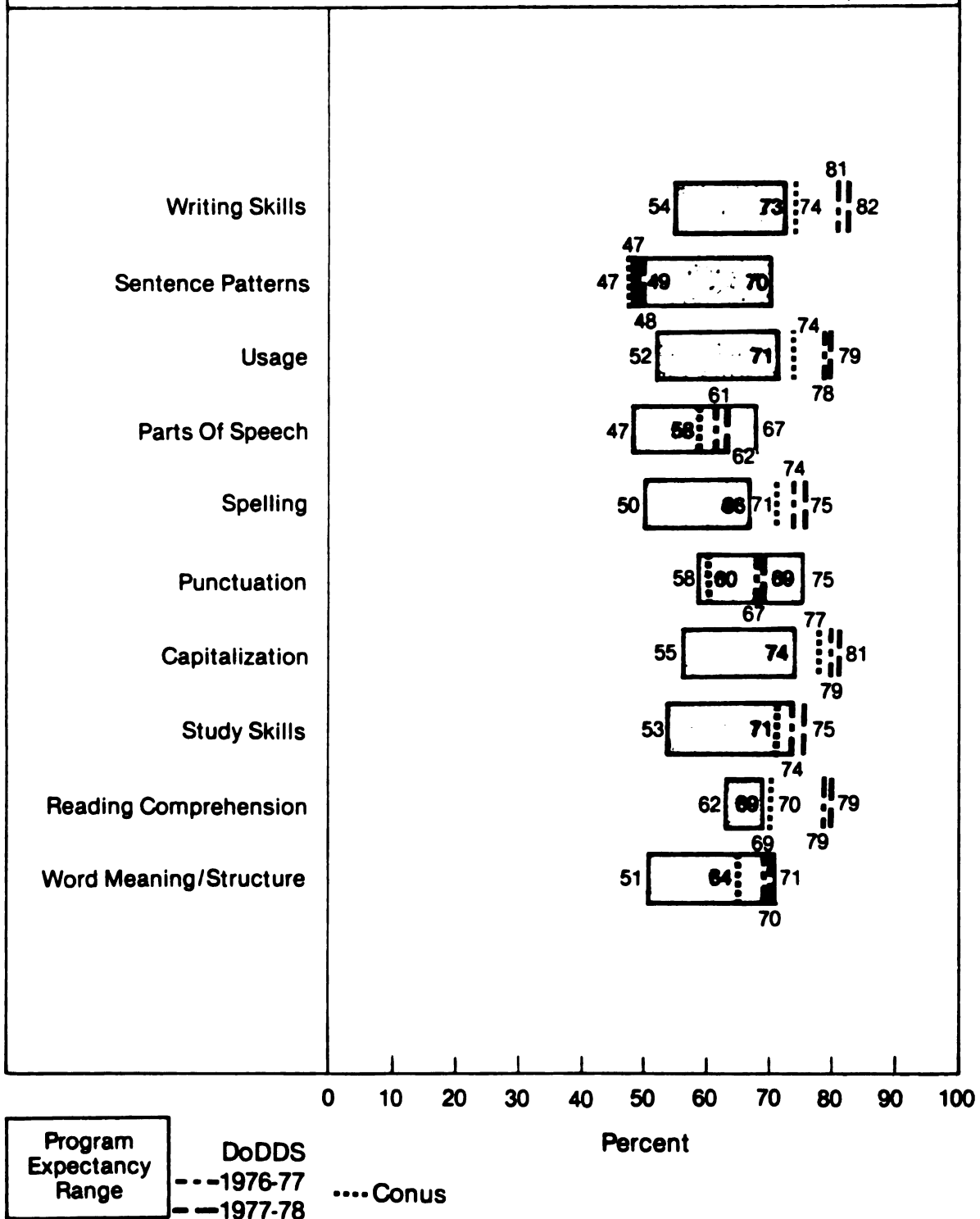
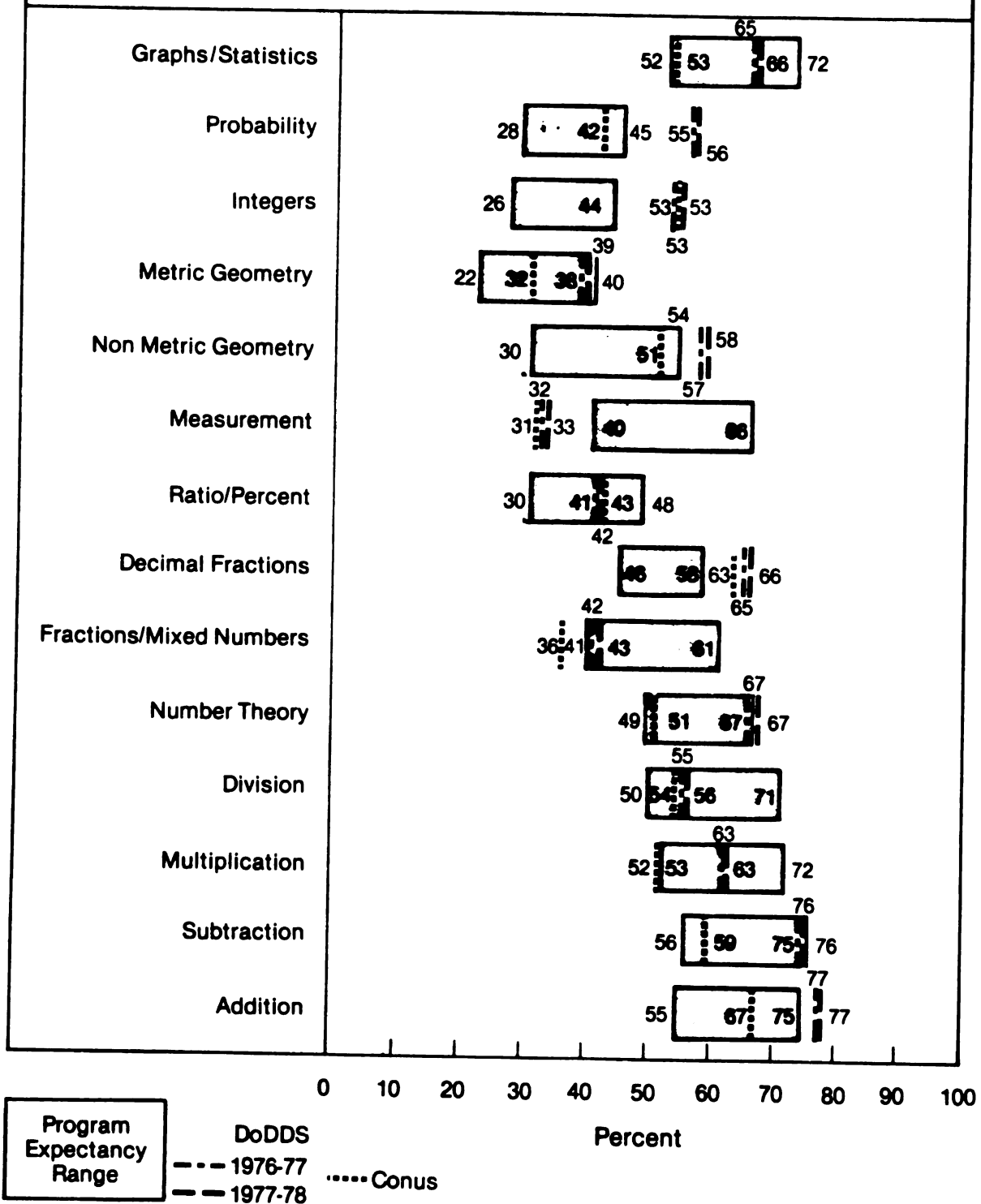


Table 4 **Grade 6.**
Grade 6 **Math**



APPENDIX II

DODDS LANGUAGE ARTS ASSESSMENT RESULTS 1977-78

APPENDIX H

DODDS LANGUAGE ARTS ASSESSMENT RESULTS 1977-78

Table 1. Error Count for Eighth and Eleventh Grade Essays

	<u>Average Number of Words Per Essay</u>		<u>Average Number of Sentences Per Essay</u>	
	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>
DoDDS	159.0	225.6	10.72	14.40
National Assessment	128.5	137.2	9.30	9.40
.....				
Mechanics: Word Errors				
	<u>Average Number of Errors Per Essay</u>		<u>Average Number of Errors Per 100 Words</u>	
	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>
Spelling:				
DoDDS	5.7	5.7	3.6	2.5
National Assessment	5.3	3.4	2.6	3.0
Word Choice:				
DoDDS	0.7	1.1	0.4	0.5
National Assessment	0.8	0.6	0.7	0.6
	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>
Capitalization:				
DoDDS	1.2	0.6	0.8	0.3
National Assessment	.	.	.	.
Mechanics: Sentence Errors				
Punctuation:				
DoDDS	2.2	3.4	2.1	2.4
National Assessment	3.0	.	3.2	.
Agreement:				
DoDDS	1.0	0.8	0.9	0.6
National Assessment	1.0	0.6	1.1	0.6

Source: DODDS Language Arts Assessment Results 1977-78 (Alexandria, Va.: DODDS, 1979).

Table 1. Error Count for Eighth and Eleventh Grade Essays (Cont'd)

	<u>Average Number of Errors Per Essay</u>		<u>Average Number of Errors Per 100 Words</u>	
	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>
Mechanics: Sentence Errors				
Run-on:				
DoDDS	1.2	0.9	1.1	0.6
National Assessment	1.0	0.6	1.1	0.6
Awkward:				
DoDDS	2.6	3.9	2.4	2.7
National Assessment	2.6	1.8	*	*
End Marks:				
DoDDS	0.4	0.4	0.4	0.3
National Assessment	*	*	*	*

*Not available. The National Assessment scoring criteria did not include this data category.

**Table 2. Range of Pupil Performance
(Percentages of students by performance level)**

<u>Errors Per 100 Words</u>	<u>Spelling</u>		<u>Usage</u>		<u>Capitalization</u>	
	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>	<u>8th</u>	<u>11th</u>
0 or 1 error per 100 words	29.5	38.5	93.5	95.0	80.0	95.5
2 or 3 errors per 100 words	28.0	35.0	6.0	5.0	14.5	3.5
4 or more errors per 100 words	42.5	14.0	.5	*	4.5	1.0

**Table 3. Grade 8
Language Arts Results**

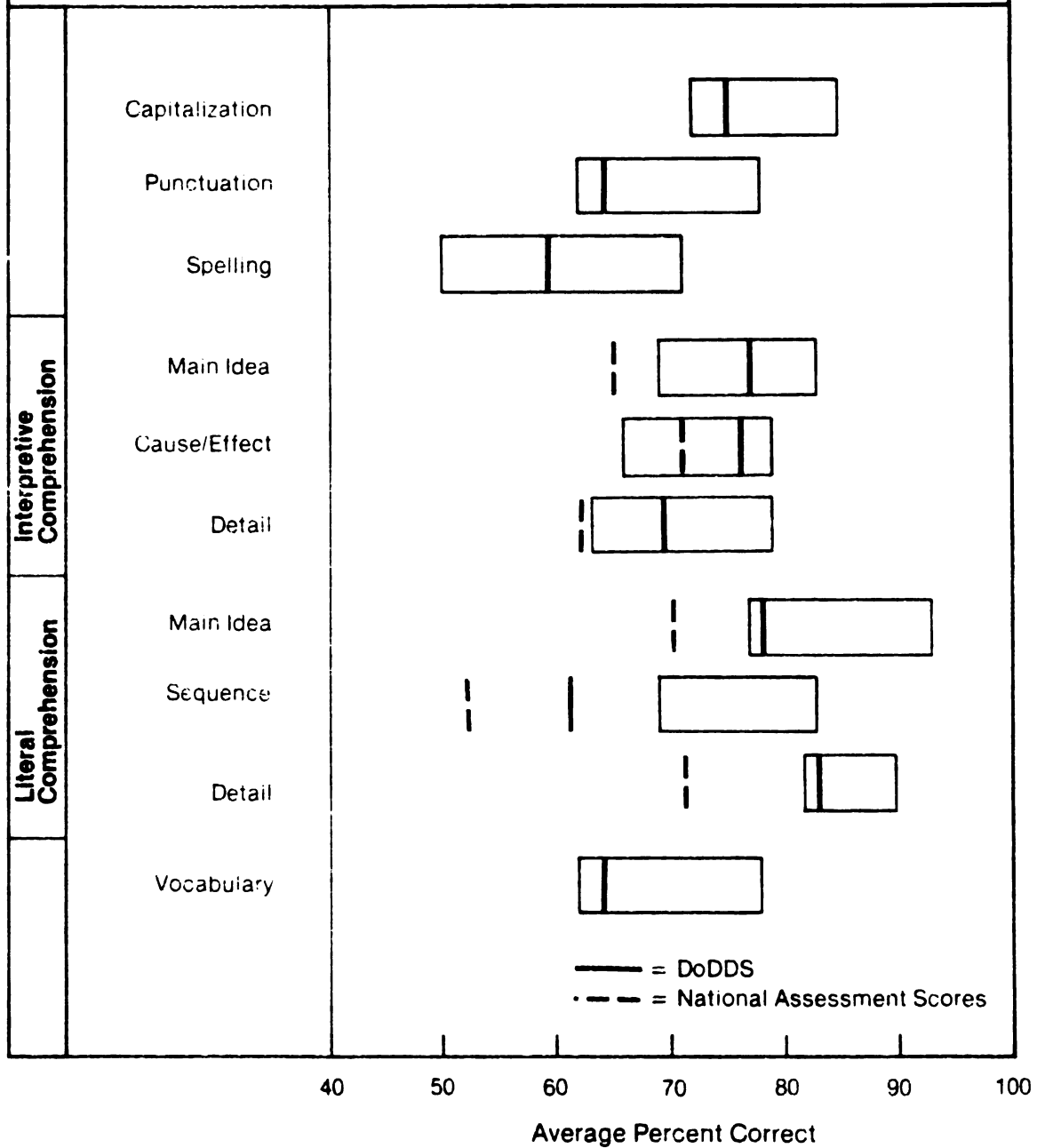
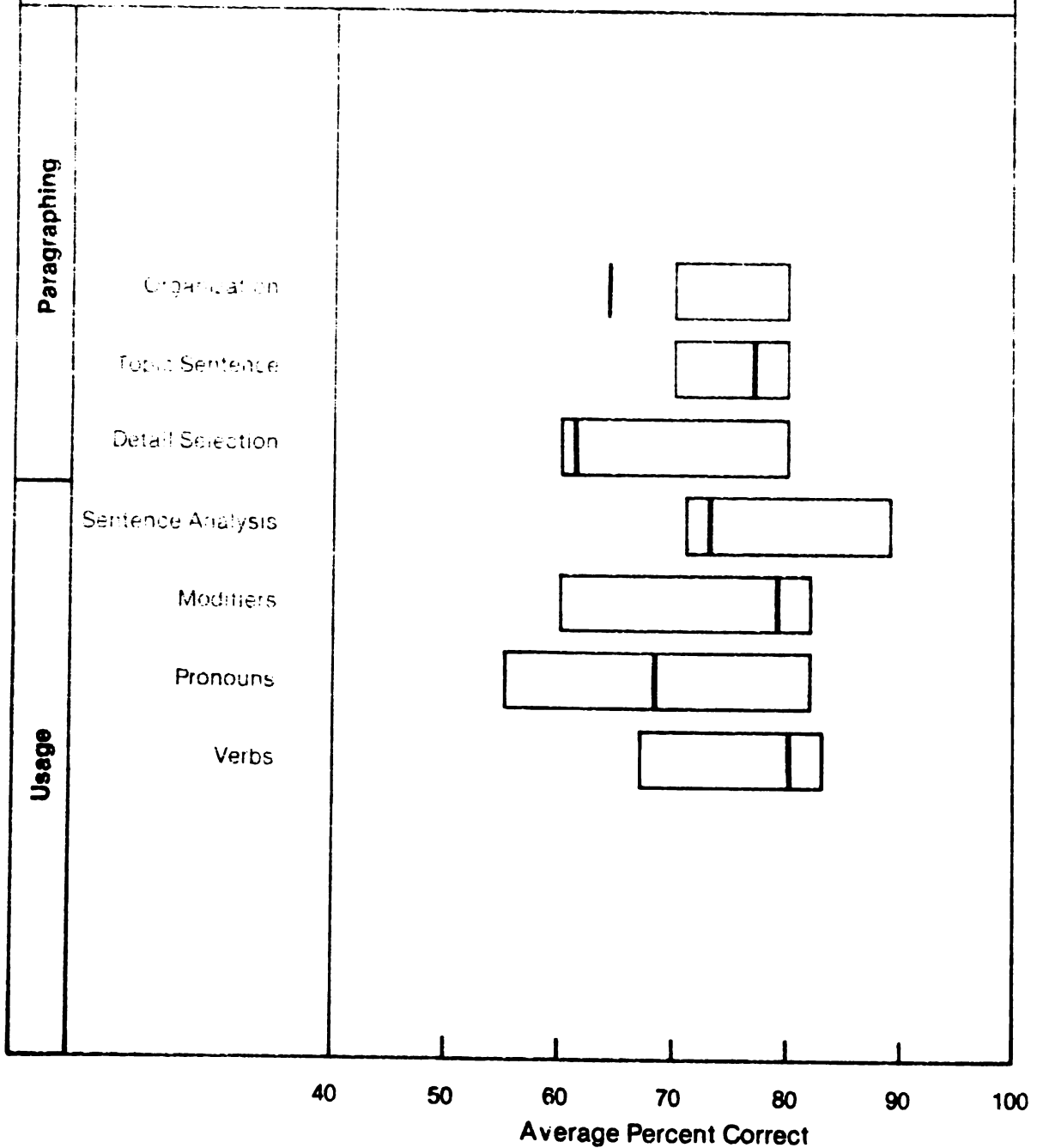


Table 3. **Grade 8**
(Continued)
Language Arts Results



**Table 4. Grade 11
Language Arts Results**

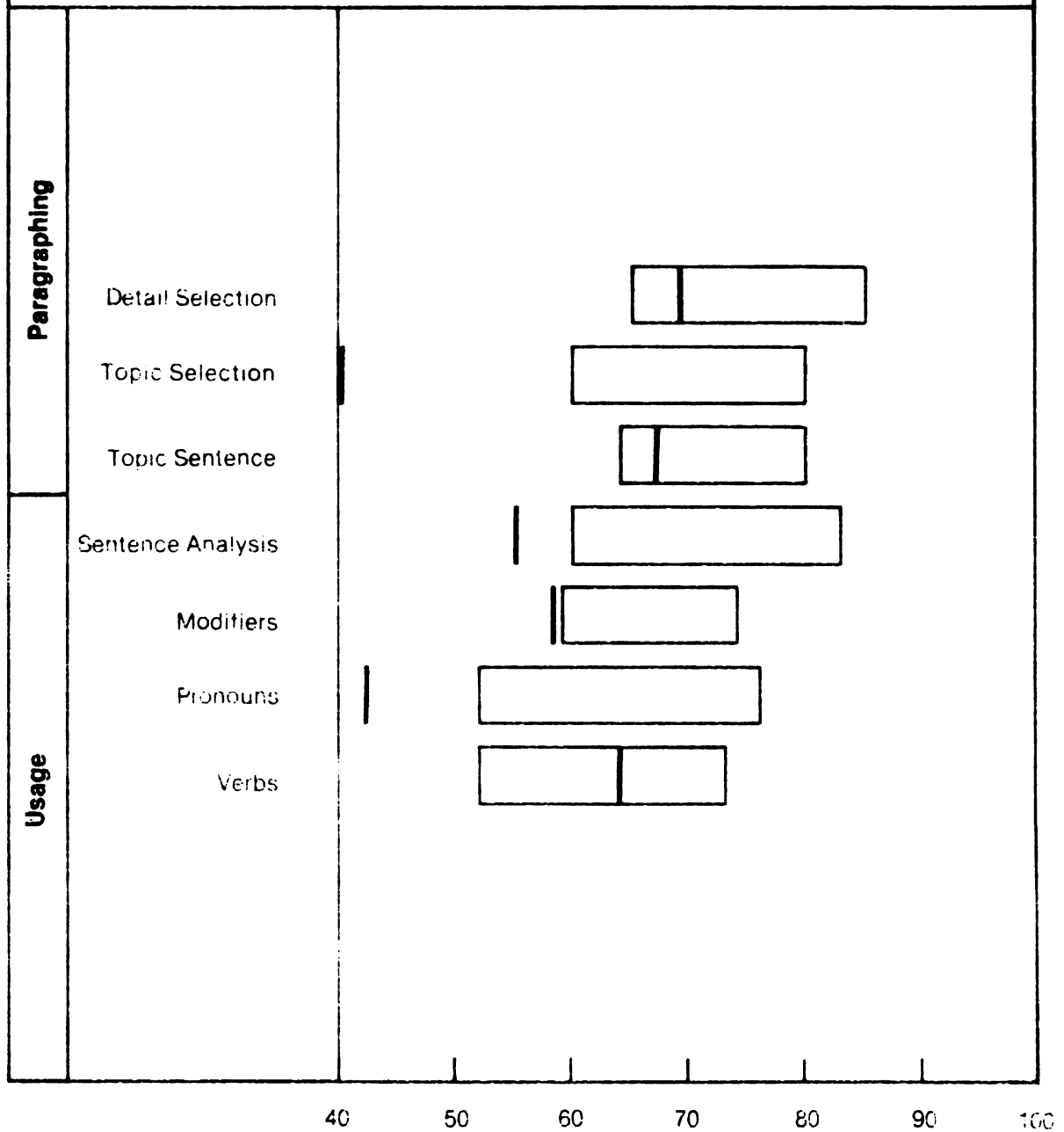
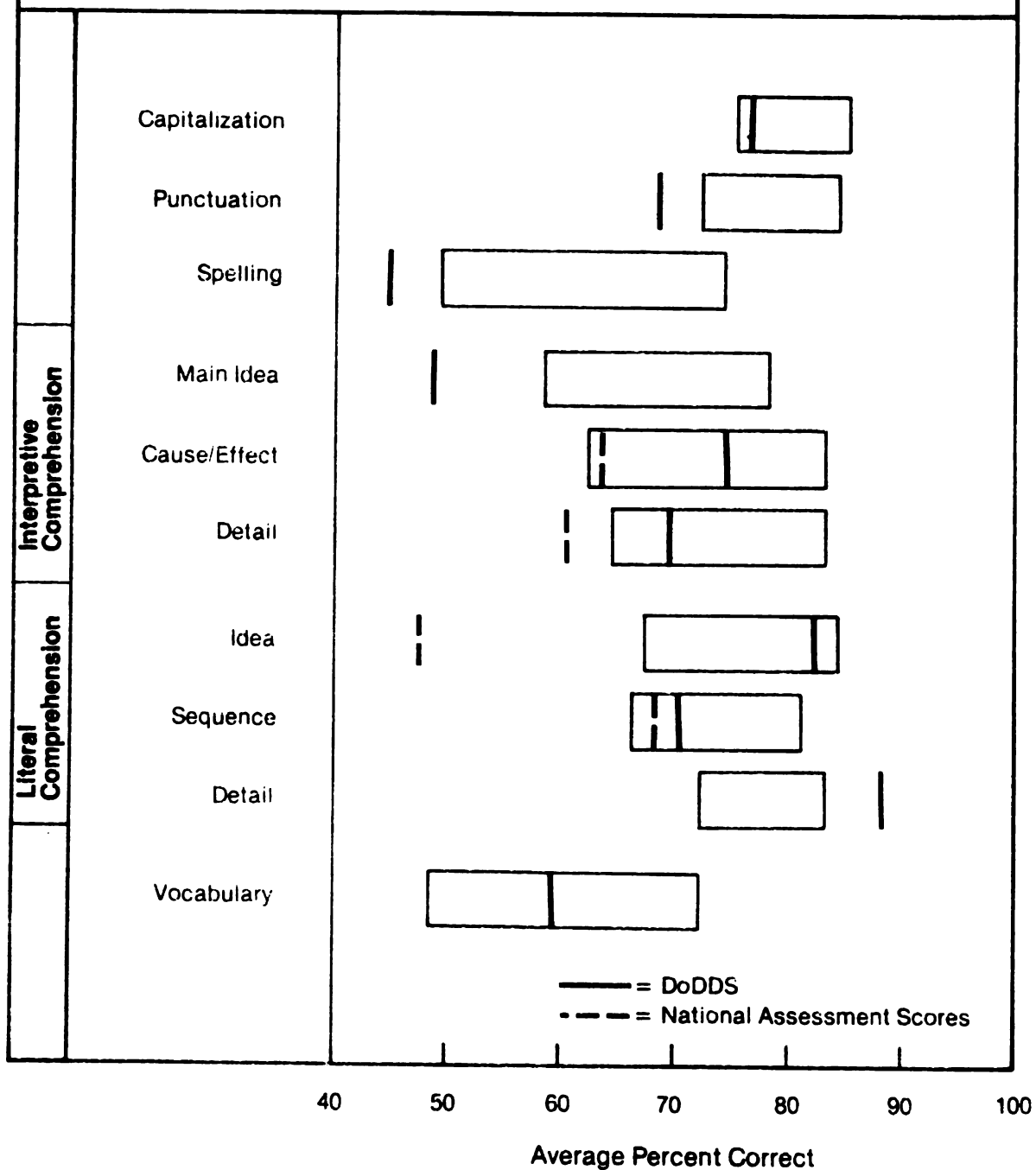


Table 4.
(Continued)

Grade 11 Language Arts Results



APPENDIX I

FORM HS-1: ITEM CLASSIFICATION BY CONTENT AND SKILL

APPENDIX I

FORM HS-1: ITEM CLASSIFICATION BY CONTENT AND SKILL

1. Form HS1: Item Classification by Content Area

Content Area	Item Number	Item Descriptors	Major Objective and Objective	Skill ^a
Community Resources	1	envelope	3B	W
	2	Social Security number application	3B	W
	3	cost of bowling lesson	1A	C
	4	housing complaint	3A	PS
	5	library use	2A	PS
	6	right of way	4F	I
	7	bus schedule	4B	R
	8	road map	4D	R
Occupational Knowledge	9	help finding job as sales clerk	2A	PS
	10	job application	2C	W
	11	co-worker relationships	3A	PS
	12	equal opportunity employer sign	3C	R
	13	overtime pay	3D	C
	14	open shop	3C	I
	15	job ads	1C	R
	16	employment agency fee	2A	C
Health	17	bleach antidote	4C	R
	18	first aid kit list	4C	W
	19	federal food and drug laws	2C	I
	20	diet for pregnant woman	3A	W
	21	high-protein meal	2B	PS
	22	calories	2C	C
	23	prescription label	1C	C
	24	cigarette carcinogen content	2A	R
Government and Law	25	availability of lawyers	3C	PS
	26	taxes and services	4B	I
	27	majority needed to pass bill	1A	C
	28	public meetings	2B	I
	29	letter to congressman	2C	W
	30	lease	2D	W
	31	parole	3D	C
	32	rights after arrest (Miranda)	3D	R
Consumer Economics	33	cereal by weight	3B	R
	34	motorcycle owner's manual	4A	R
	35	credit check	2C	I
	36	bait and switch	3F	PS
	37	sale rationale	5C	PS
	38	household heat/oil consumption	5D	C
	39	income tax return	2A	C
	40	budget	1A	W

^aThis code identifies the skill to which the item was written (I=Identification of Facts and Terms, R=Reading, W=Writing, C=Computation, PS=Problem Solving).

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey (HS-1) (Iowa City: ACT, 1976), pp. 57-58.

2. Form HS1: Item Classification by Skill

Skill	Item Number	Content Area
Identification of Facts and Terms (N=6)	6	Community Resources
	14	Occupational Knowledge
	19	Health
	26	Government and Law
	28	Government and Law
	35	Consumer Economics
Reading (N=9)	7	Community Resources
	8	Community Resources
	12	Occupational Knowledge
	15	Occupational Knowledge
	17	Health
	24	Health
	32	Government and Law
	33	Consumer Economics
	34	Consumer Economics
Writing (N=8)	1	Community Resources
	2	Community Resources
	10	Occupational Knowledge
	18	Health
	20	Health
	29	Government and Law
	30	Government and Law
	40	Consumer Economics
Computation (N=9)	3	Community Resources
	13	Occupational Knowledge
	16	Occupational Knowledge
	22	Health
	23	Health
	27	Government and Law
	31	Government and Law
	38	Consumer Economics
	39	Consumer Economics
Problem Solving (N=8)	4	Community Resources
	5	Community Resources
	9	Occupational Knowledge
	11	Occupational Knowledge
	21	Health
	25	Government and Law
	36	Consumer Economics
	37	Consumer Economics

APPENDIX J

FORM HS-1: DEMOGRAPHIC SUMMARY DESCRIPTION OF THE
STANDARDIZATION SAMPLE

APPENDIX J

FORM HS-1: DEMOGRAPHIC SUMMARY DESCRIPTION OF THE STANDARDIZATION SAMPLE

		Grade 11	Grade 12
Sex (2165, 2036) ^a	Male	46.3 ^b	47.3 ^b
	Female	53.7	52.7
Age (2167, 2038)	16 or under	45.1	2.0
	17	50.1	45.4
	18	4.4	49.5
	19	0.4	3.0
	20 or over	0.0	0.1
Ethnic Group (2147, 2023)	American Indian	0.4	1.3
	Black	12.0	12.0
	Mexican American	3.4	3.4
	Oriental	1.0	0.9
	Puerto Rican	1.0	0.4
	White	80.1	79.8
Educational Program (2147, 2029)	Other	2.1	2.0
	Clerical	6.0	7.5
	College Preparatory	42.6	47.4
	General	36.8	33.9
	Vocational/Technical	8.6	7.0
Occupation of Head of Household (2114, 1985)	Other	6.0	4.2
	Laborer	2.2	3.8
	Service Worker	4.8	3.5
	Machine Operator	7.4	7.3
	Craftsman-Foreman	12.4	11.2
	Sales Worker	8.7	8.4
	Clerical/Office Worker	5.3	5.1
	Manager/Office	10.2	11.5
	Farmer	1.0	1.4
	Professional/Technical Worker	14.1	16.3
Family Annual Income (1669, 1625)	Other	33.9	31.5
	Less than \$5,000	5.8	6.3
	\$5,000-\$6,999	8.0	5.9
	\$7,000-\$9,999	11.8	12.6
	\$10,000-\$14,999	24.8	24.6
	\$15,000 or more	49.6	50.6

^aNumber of responses in grades 11 and 12 respectively

^bPercentage of the number of students responding

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey (HS-1) (Iowa City: ACT, 1976), p. 21.

APPENDIX K

APL TEST NORMATIVE GROUP SUMMARY STATISTICS BASED ON
INDIVIDUAL RESPONSES FOR TOTAL SAMPLES

APPENDIX K

APL TEST NORMATIVE GROUP SUMMARY STATISTICS BASED ON INDIVIDUAL RESPONSES FOR TOTAL SAMPLES

APL Scales	Number of Items	Grade 11 (N=2,167)		Grade 12 (N=2,040)	
		Mean	S.D.	Mean	S.D.
<u>Content Areas</u>	(40)				
Community Resources	8	6.7	1.3	6.8	1.3
Occupational Knowledge	8	6.2	1.6	6.5	1.6
Health	8	6.3	1.5	6.4	1.5
Government and Law	8	6.0	1.6	6.1	1.5
Consumer Economics	8	5.6	1.7	5.9	1.7
<u>Skills</u>	(40)				
Identification of Facts and Terms	6	4.8	1.3	4.9	1.3
Reading	9	7.1	1.5	7.3	1.5
Writing	8	6.5	1.4	6.7	1.4
Computation	9	6.0	2.2	6.5	2.1
Problem Solving	8	6.3	1.4	6.4	1.4
Total Survey	40	30.71	6.01	31.74	5.94

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey (HS-1) (Iowa City: ACT, 1976), pp. 22-23.

APPENDIX L

STATISTICAL CHARACTERISTICS OF THE HIGH SCHOOL

APL SURVEY HS-1

APPENDIX L

STATISTICAL CHARACTERISTICS OF THE HIGH SCHOOL
APL SURVEY HS-1

1. Form HS1: Statistical Characteristics
Grade 11
(N=2,167)

	Number of Items	Reliability		Standard Error ^b of Measurement	Mean Difficulty	Discrimination ^c
		KR-20	Split-Half ^a			
Content Areas						
Community Resources	8	.51	.55	0.91	83.2	.49
Occupational Knowledge	8	.58	.62	1.04	77.4	.48
Health	8	.54	.50	1.02	78.3	.51
Government and Law	8	.55	.57	1.07	74.6	.50
Consumer Economics	8	.55	.56	1.14	70.3	.51
Skills						
Identification of Facts and Terms	6	.55	.57	0.87	79.4	.56
Reading	9	.51	.53	1.05	79.3	.47
Writing	8	.49	.50	1.00	81.5	.48
Computation	9	.70	.71	1.20	67.2	.54
Problem Solving	8	.42	.44	1.07	78.1	.45
Total Survey	40	.85	.85	2.32	76.8	.42

^aOdd versus even items.

^bBased on KR-20.

^cMedian point biserial correlation between item and part.

Source: American College Testing Program, APL Department, User's Guide: High School APL Survey (HS-1) (Iowa City: ACT, 1976), pp. 38-39.

2. Form HS1: Statistical Characteristics

Grade 12
(N=2,040)

	Number of Items	Reliability		Standard Error ^b of Measurement	Mean Difficulty	Discrimination ^c
		KR-20	Split-Half ^a			
Content Areas						
Community Resources	8	.51	.54	0.91	84.7	.51
Occupational Knowledge	8	.64	.64	0.96	81.0	.51
Health	8	.54	.53	0.95	80.3	.51
Government and Law	8	.54	.55	1.02	76.7	.49
Consumer Economics	8	.57	.62	1.11	74.0	.51
Skills						
Identification of Facts and Terms	6	.57	.57	0.85	82.2	.56
Reading	9	.51	.51	1.05	80.6	.48
Writing	8	.54	.55	0.95	83.5	.51
Computation	9	.71	.71	1.13	71.6	.52
Problem Solving	8	.46	.50	1.03	80.3	.47
Total Survey	40	.86	.87	2.21	79.4	.40

^aOdd versus even items.^bBased on KR-20.^cMedian point biserial correlation between item and part

APPENDIX M

PROGRAM DCHECK SOURCE DOCUMENTATION FOR VERIFICATION
OF DATA PREPARATION AND SUMMARIES FROM COMPUTATION
OF DESCRIPTIVE STATISTICS BY SCHOOL

APPENDIX M

PROGRAM DCHECK SOURCE DOCUMENTATION FOR VERIFICATION OF DATA PREPARATION AND SUMMARIES FROM COMPUTATION OF DESCRIPTIVE STATISTICS BY SCHOOL

UNIVAC OS/3 BASIC FORTRAN, VERSION 5.0
THIS COMPILATION DONE ON 79/04/26 AT 07.38

```

0001      PROGRAM DCHECK
0002 C     THIS IS A PROGRAM TO CHECK THE VALIDITY OF INPUT DATA ON APL TESTS
0003 C     FOR 9,11, AND 12 GRADE STUDENTS AMONG DOD SCHOOLS THROUGHOUT THE
0004 C     PACIFIC REGION.
0005      DIMENSION ILL(5),ITN(5),KILL(5),KITN(5),ITOL(2),AILL(5),AITN(5)
0006      DIMENSION NAME(6)
0007      IBUG=0
0008      KSCR =0
0009      KSTU=0
0010      KSCH =1
0011      DO 100 I=1,5
0012      KILL(I)=0
0013      KITN(I)=0
0014 100 CONTINUE
0015      DO 1000 I =1,5000
0016      READ(1,10) ISCH, NAME, IGRD, ISCR, (ITN(K), K=1,5), (ILL(N), N=1,5)
0017 10 FORMAT(I4,2X,6A4,2X,I2,2X,I2,2X,5(I1,1X),5(I1,1X))
0018 600 CONTINUE
0019      IF (ISCH.EQ.9999.AND.KSTU.EQ.0) GO TO 2000
0020      IF (ISCH.EQ.KSCH) GO TO 200
0021      IF (KSTU.NE.0) GO TO 400
0022      WRITE(3,20) ISCH, IGRD
0023 20 FORMAT(I11,2X,21HAPL TEST RESULTS FOR ,I4,7H GRADE ,I2// 5X,12HST
0024 1UDENT NAME ,9X,2X,5HGRADE,5X,11HTOTAL SCORE,2X,I2X,14HCONTENT SCOR
0025 2ES,18X,12HSKILL SCORES/ 53X,4HCOMM,6H OCC ,7HHEALTH,6HGOVT , 4H
0026 3CONS,5X,7HIDENT ,6HREAD ,7HWHITE ,6HCOMPT ,4HPROB,1X,5HEROR)
0027      WRITE(3,25)
0028 25 FORMAT(53X,3HRES,2X,4HKNOW,8X,5H LAY,1X,4HECON,30X,5HSOLVE,6H CO
0029 1DE/)
0030      KSCH=ISCH
0031 200 CONTINUE
0032      KSTU=KSTU+1
0033      KSCR=KSCR+ISCR
0034      ITOL(1) =0
0035      ITOL(2)=0
0036      DO 300 I=1,5
0037      ITOL(1)=ITOL(1)+ITN(I)
0038      KITN(I)=KITN(I)+ITN(I)
0039      ITOL(2)=ITOL(2)+ILL(I)
0040      KILL(I)=KILL(I)+ILL(I)
0041 300 CONTINUE
0042      IF (IBUG.EQ.1) WRITE(3,29) ITOL
0043 29 FORMAT(5X,2I2)
0044      IE=0
0045      IF (ISCR.NE.ITOL(1)) IE=1
0046      IF (ISCR.NE.ITOL(2)) IE=2
0047      WRITE(3,30) NAME, IGRD, ISCR, (ITN(K), K=1,5), (ILL(N), N=1,5), IE
0048 30 FORMAT(2X,6A4,4X,I2,11X,I2,10X,2(I1,4X),11,6X,11,4X,11,9X,11,5X,3(
0049 1I1,6X),11,3X,11)

```

```

0050      GO TO 1000
0051      400 WRITE(3,40) NSCH,16RD
0052      40 FORMAT(1H1,23X,29HAPL SURVEY SUMMARY STATISTICS/26X,4HFOR ,14,7H 6
0053      1RADE ,12 //5X,10HSTATISTICS,23X,11HTOTAL SCORE,14X,
0054      2 14HCONTENT SCORES,14X,12HSKILL SCORES/ 53X,4HCOMM,6H OCC ,7HMEA
0055      3LTH ,6HGOVT ,4HCONS,5X,7HIDENT ,6HREAD ,7HWRITE ,7HCOMPT )
0056      WRITE(3,45)
0057      45 FORMAT(1H+,T113,4HPROB/ 53X,3HRES,2X,4HKNOW,8X,5H LAM,1X,4HECON,3
0058      12X,5HSOLVE//)
0059      WRITE(3,46) NSTU
0060      46 FORMAT(5X,25HNUMBER OF STUDENTS TESTED ,11X,15/)
0061      WRITE(3,50)KSCR,(KITN(K),K=1,5),(KILL(N),N=1,5)
0062      50 FORMAT(5X,13HSCHOOL TOTALS,23X,15,6X,5(14,2X),5X,5(14,3X)/)
0063      ASCR=(FLOAT(KSCR))/(NSTU)
0064      DO 500 I=1,5
0065      AITN(I)=(FLOAT(KITN(I)))/(NSTU)
0066      AILL(I)=(FLOAT(KILL(I)))/(NSTU)
0067      500 CONTINUE
0068      WRITE(3,60) ASCR,(AITN(K),K=1,5),(AILL(N),N=1,5)
0069      60 FORMAT(5X,11HMEAN SCORES,26X,F4.1,7X,5(F3.1,3X),5X,5(F3.1,4X))
0070      DO 900 I=1,5
0071      KILL(I)=0
0072      KITN(I)=0
0073      900 CONTINUE
0074      NSTU=0
0075      ITOL(1)=0
0076      ITOL(2)=0
0077      KSCR=0
0078      GO TO 600
0079      1000 CONTINUE
0080      2000 CONTINUE
0081      STOP
0082      END

```

APL SURVEY SUMMARY STATISTICS
FOR 6404 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES				
		COMM RES	OCC KNOW	HEALTH GOVT & LAW	COMS ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	10									
SCHOOL TOTALS	247	60	43	56	44	44	26	63	58	50
MEAN SCORES	24.7	6.0	4.3	5.6	4.4	4.4	2.6	6.3	5.8	5.0

APL SURVEY SUMMARY STATISTICS
FOR 6404 GRADE 11

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES					
		COMM RES	OCC KNOW	HEALTH GOVT & LAW ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE		
NUMBER OF STUDENTS TESTED	9										
SCHOOL TOTALS	253	62	43	50	51	47	35	60	53	50	55
MEAN SCORES	28.1	6.9	4.8	5.6	5.7	5.2	3.9	6.7	5.9	5.6	6.1

APL SURVEY SUMMARY STATISTICS
FOR 6404 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES					
		COMM RES	OCC KNOW	HEALTH GOVT & LAW ECON	IDENT	READ	WRITE	COMPT SOLVE			
NUMBER OF STUDENTS TESTED	12										
SCHOOL TOTALS	393	80	78	82	77	76	59	91	81	82	80
MEAN SCORES	32.7	6.7	6.5	6.8	6.4	6.3	4.9	7.6	6.7	6.8	6.7

APL SURVEY SUMMARY STATISTICS
FOR GRADE 9

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT CONS LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	147					
SCHOOL TOTALS	4071	961 734	873 767 736	545	949 910 778	889
MEAN SCORES	27.7	6.5 5.0	5.9 5.2 5.0	3.7	6.5 6.2 5.3	6.0

APL SURVEY SUMMARY STATISTICS
FOR GRADE 11

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT CONS LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	91					
SCHOOL TOTALS	2994	651 594	607 571 571	462	654 636 623	619
MEAN SCORES	32.9	7.2 6.5	6.7 6.3 6.3	5.1	7.2 7.0 6.8	6.8

APL SURVEY SUMMARY STATISTICS
FOR GRADE 12

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT CONS LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	55					
SCHOOL TOTALS	1934	409 366	399 379 354	267	442 391 424	390
MEAN SCORES	35.2	7.4 7.1	7.3 6.9 6.5	5.2	8.0 7.1 7.7	7.1

APL SURVEY SUMMARY STATISTICS
FOR 6407 GRADE 11

STATISTICS	TOTAL SCORE	COMM RES	OCC KNOW	CONTENT SCORES HEALTH GOVT & LAW ECON	IDENT	SKILL SCORES READ WRITE CMPT	PROB SOLVE
------------	-------------	----------	----------	--	-------	---------------------------------	------------

NUMBER OF STUDENTS TESTED	60						
---------------------------	----	--	--	--	--	--	--

SCHOOL TOTALS	1896	421	354	409	368	344	271	945	410	380	390
---------------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

MEAN SCORES	31.6	7.0	5.9	6.8	6.1	5.7	4.5	7.4	6.8	6.3	6.5
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APL SURVEY SUMMARY STATISTICS
FOR 6407 GRADE 12

STATISTICS	TOTAL SCORE	COMM RES	OCC KNOW	CONTENT SCORES HEALTH GOVT & LAW ECON	IDENT	SKILL SCORES READ WRITE CMPT	PROB SOLVE
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NUMBER OF STUDENTS TESTED	59						
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SCHOOL TOTALS	1904	425	373	392	371	343	273	445	411	387	386
---------------	------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

MEAN SCORES	32.3	7.2	6.3	6.6	6.3	5.8	4.6	7.5	7.0	6.6	6.6
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APL SURVEY SUMMARY STATISTICS
FOR GRADE 9

STATISTICS		TOTAL SCORE		CONTENT SCORES		SKILL SCORES		PROB SOLVE			
		COMM OCC RES KNOW	HEALTH GOV & LAW ECON	IDENT	READ	WRITE	COMPT				
NUMBER OF STUDENTS TESTED		30									
SCHOOL TOTALS		134	154	177	153	137	106	192	184	144	179
MEAN SCORES		6.1	5.1	5.9	5.1	4.6	3.5	6.4	6.1	4.8	6.0

APL SURVEY SUMMARY STATISTICS
FOR GRADE 11

STATISTICS	TOTAL SCORE	COMM RES	OCC KNOW	CONTENT SCORES HEALTH GOVT & LAW ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE		
NUMBER OF STUDENTS TESTED	22										
SCHOOL TOTALS	656	151	128	129	132	116	98	144	147	133	134
MEAN SCORES	29.8	6.9	5.8	5.9	6.0	5.3	4.5	6.5	6.7	6.0	6.1

APL SURVEY SUMMARY STATISTICS
FOR GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES				
		COMM CLS	OCC KNOW	HEALTH ECON	GOVT & LAW	IDENT	READ	WRITE	COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	10									
SCHOOL TOTALS	303	67	59	66	57	59	42	69	66	66
MEAN SCORES	30.8	6.7	5.9	6.6	5.7	5.9	4.2	6.9	6.6	6.6

APL SURVEY SUMMARY STATISTICS
FOR 6500 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES			
		COMM OCC RES KNOW	HEALTH	GOVT & LAW	ECON	IDENT	READ	WRITE	COMPT PROB SOLVE

NUMBER OF STUDENTS TESTED 3

SCHOOL TOTALS	69	22	18	17	15	17	12	20	18	20	19
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MEAN SCORES	29.7	7.3	6.0	5.7	5.0	5.7	4.0	6.7	6.0	6.7	6.3
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APL SURVEY SUMMARY STATISTICS
FOR 6500 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES				SKILL SCORES			
		COMM OCC RES KNOW	HEALTH	GOVT & LAW	ECON	IDENT	READ	WRITE	COMPT PROB SOLVE

NUMBER OF STUDENTS TESTED 6

SCHOOL TOTALS	149	35	24	34	27	29	20	36	41	21	31
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MEAN SCORES	24.8	5.8	4.0	5.7	4.5	4.8	3.3	6.0	6.8	3.5	5.2
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APL SURVEY SUMMARY STATISTICS
FOR 6501 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM RES	OCC KNOW	HEALTH GOVT CONS	IDENT	READ	WRITE COMPT

NUMBER OF STUDENTS TESTED	112							
SCHOOL TOTALS	2993	725	549	646	509	395	726	558
MEAN SCORES	26.7	6.5	4.9	5.8	5.0	3.5	6.5	5.0

APL SURVEY SUMMARY STATISTICS
FOR 6501 GRADE 11

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM RES	OCC KNOW	HEALTH GOVT CONS	IDENT	READ	WRITE COMPT

NUMBER OF STUDENTS TESTED	69							
SCHOOL TOTALS	2238	481	435	452	435	318	507	465
MEAN SCORES	32.4	7.0	6.3	6.6	6.3	4.6	7.3	6.7

APL SURVEY SUMMARY STATISTICS
FOR 6501 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM RES	OCC KNOW	HEALTH GOVT CONS	IDENT	READ	WRITE COMPT

NUMBER OF STUDENTS TESTED	45							
SCHOOL TOTALS	1479	322	294	302	279	282	219	342
MEAN SCORES	32.9	7.2	6.5	6.7	6.2	6.3	4.9	7.6

APL SURVEY SUMMARY STATISTICS
FOR 6503 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM OCC RES KNOW	HEALTH GOVT LAW ECON	CONS	IDENT	READ	WRITE

NUMBER OF STUDENTS TESTED	24										
SCHOOL TOTALS	610	149	104	131	129	97	82	150	153	98	127
MEAN SCORES	25.4	6.2	4.3	5.5	5.4	4.0	3.4	6.2	6.0	4.1	5.3

APL SURVEY SUMMARY STATISTICS
FOR 6503 GRADE 11

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM OCC RES KNOW	HEALTH GOVT LAW ECON	CONS	IDENT	READ	WRITE

NUMBER OF STUDENTS TESTED	15										
SCHOOL TOTALS	464	103	99	100	82	84	72	102	102	88	104
MEAN SCORES	31.2	6.9	6.6	6.7	5.5	5.6	4.8	6.8	6.8	5.9	6.9

APL SURVEY SUMMARY STATISTICS
FOR 6503 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM OCC RES KNOW	HEALTH GOVT LAW ECON	CONS	IDENT	READ	WRITE

NUMBER OF STUDENTS TESTED	11										
SCHOOL TOTALS	354	82	71	70	66	69	51	83	75	73	76
MEAN SCORES	32.5	7.5	6.5	6.4	6.0	6.3	4.6	7.5	6.8	6.6	6.9

APL SURVEY SUMMARY STATISTICS
FOR 6602 GRADE 9

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT COMS & LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT PROB SOLVE
NUMBER OF STUDENTS TESTED	57				
SCHOOL TOTALS	1593	382	292 335 309 275	214 383 362 265	369
MEAN SCORES	27.9	6.7 5.1 5.9 5.4 4.8		3.8 6.7 6.4 4.6	6.5

APL SURVEY SUMMARY STATISTICS
FOR 6602 GRADE 11

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT COMS & LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT PROB SOLVE
NUMBER OF STUDENTS TESTED	23				
SCHOOL TOTALS	743	157 154 153 138 141		116 173 153 141	160
MEAN SCORES	32.3	6.8 6.7 6.7 6.0 6.1		5.0 7.5 6.7 6.1	7.0

APL SURVEY SUMMARY STATISTICS
FOR 6602 GRADE 12

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT COMS & LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT PROB SOLVE
NUMBER OF STUDENTS TESTED	74				
SCHOOL TOTALS	792	172 156 162 153 149		123 180 166 159	164
MEAN SCORES	10.7	7.2 6.5 6.7 6.4 6.2		5.1 7.5 6.9 6.6	6.8

APL SURVEY SUMMARY STATISTICS
FOR 6606 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES COMM OCC HEALTH GOVT CONS RES KNOW & LAW ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	166						
SCHOOL TOTALS	4245	1041 748 944 801 711	549	1039	998	729	930
MEAN SCORES	25.6	6.3 4.5 5.7 4.8 4.3	3.3	6.3	6.0	4.4	5.6

APL SURVEY SUMMARY STATISTICS
FOR 6606 GRADE 11

STATISTICS	TOTAL SCORE	CONTENT SCORES COMM OCC HEALTH GOVT CONS RES KNOW & LAW ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	83						
SCHOOL TOTALS	2476	561 482 522 453 458	369	565	534	484	524
MEAN SCORES	29.8	6.8 5.8 6.3 5.5 5.5	4.4	6.8	6.4	5.8	6.3

APL SURVEY SUMMARY STATISTICS
FOR 6606 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES COMM OCC HEALTH GOVT CONS RES KNOW & LAW ECON	IDENT	READ	WRITE	COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	108						
SCHOOL TOTALS	3402	748 677 696 651 630	503	787	714	711	687
MEAN SCORES	31.5	6.9 6.3 6.4 6.0 5.8	4.7	7.3	6.6	6.6	6.4

APL SURVEY SUMMARY STATISTICS
FOR 7401 GRADE 9

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM OCC RES KNOW	HEALTH GOVT ECON	COMPT LAW	IDENT	READ	WRITE

NUMBER OF STUDENTS TESTED	223						
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SCHOOL TOTALS	5050	1390	1016	1247	1114	1083	757	1415	1363	1021	1294
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MEAN SCORES	26.2	6.2	4.6	5.6	5.0	4.9	3.4	6.3	6.1	4.6	5.8
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APL SURVEY SUMMARY STATISTICS
FOR 7401 GRADE 12

STATISTICS	TOTAL SCORE	CONTENT SCORES			SKILL SCORES		
		COMM OCC RES KNOW	HEALTH GOVT ECON	COMPT LAW	IDENT	READ	WRITE

NUMBER OF STUDENTS TESTED	174						
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SCHOOL TOTALS	5616	1203	1122	1139	1071	1081	855	1296	1176	1162	1127
---------------	------	------	------	------	------	------	-----	------	------	------	------

MEAN SCORES	32.3	6.9	6.4	6.5	6.2	6.2	4.9	7.4	6.8	6.7	6.5
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APL SURVEY SUMMARY STATISTICS
FOR 8602 GRADE 9

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT CONS & LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	193					
SCHOOL TOTALS	5188	1164	927 1121 1024 932	689	1250 1194	930 1126
MEAN SCORES	26.9	6.1	4.8 5.8 5.3 4.8	3.6	6.5 6.2	4.8 5.8

APL SURVEY SUMMARY STATISTICS
FOR 8602 GRADE 11

STATISTICS	TOTAL SCORE	COMM OCC RES KNOW	CONTENT SCORES HEALTH GOVT CONS & LAW ECON	IDENT	SKILL SCORES READ WRITE COMPT	PROB SOLVE
NUMBER OF STUDENTS TESTED	137					
SCHOOL TOTALS	3946	892	758 849 742 705	585	925 856	749 831
MEAN SCORES	28.8	6.5	5.5 6.2 5.4 5.1	4.3	6.8 6.2	5.5 6.1

APPENDIX N

SOURCE DOCUMENTATION AND TABULATIONS OF GRADE LEVEL
DESCRIPTIVE STATISTICS FROM INDIVIDUAL
APL TEST PERFORMANCE DATA

APPENDIX N

SOURCE DOCUMENTATION AND TABULATIONS OF GRADE LEVEL DESCRIPTIVE STATISTICS FROM INDIVIDUAL APL TEST PERFORMANCE DATA

UNIVAC 05/3 BASIC FORTRAN, VERSION 4.0
THIS COMPILATION DONE ON 79/05/11 AT 11.51

// PARAM LST=3

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0001      PROGRAM GSTAT
0002 C      THIS IS A PROGRAM TO PRODUCE DESCRIPTIVE STATISTICS FOR APL TEST
0003 C      DATA FOR 9,11,AND 12 GRADE STUDENTS AMONG DOD SCHOOLS THROUGHOUT
0004 C      THE PACIFIC REGION.
0005      DIMENSION ILL(5),ITN(5),KILL(5),KITN(5),          AILL(5),AITN(5)
0006      DIMENSION ITNF(5,10),ILLF(5,10),ISCRF(41),KIN(41),SITN(5)
0007      DIMENSION SILL(5)
0008      SSCR=0.0
0009      KSCR =0
0010      KSTU=0
0011      NGRD=9
0012      KGRD=1
0013      DO 100 I=1,5
0014          KITN(I)=0
0015          KILL(I)=0
0016          SITN(I)=0.0
0017          SILL(I)=0.0
0018      DO 100 K=1,10
0019          ITNF(I,K)=0
0020          ILLF(I,K)=0
0021 100 CONTINUE
0022      DO 101 N=1,41
0023          ISCRF(N)=0
0024 101 CONTINUE
0025      DO 1000 I =1,5000
0026          READ(1,10) ISCH,          IGRD,ISCR,(ITN(K),K=1,5),(ILL(N),N=1,5)
0027      10 FORMAT(I4,          20X,I2,2X,I2,2X,5(I1,1X),5(1X,I1))
0028 600 CONTINUE
0029      IF (ISCH.EQ.9999.AND.KSTU.EQ.0) 60 TO 2000
0030      IF (IGRD.EQ.KGRD) 60 TO 200
0031      IF (KSTU.NE.0) 60 TO 400
0032      WRITE(3,19)
0033      19 FORMAT(1H1,73X,20HDODDS-PACIFIC REGION /)
0034      WRITE(3,20) IGRD
0035      20 FORMAT(64X,42HDISTRIBUTION OF APL TEST SCORES FOR GRADE ,I2//
0036      163X,14HCONTENT SCORES,10X,12HSKILL SCORES/42X,5HSCORE,9X,4HCOMM,
0037      2          6H OCC ,7HHEALTH ,6HGOVT , 4H
0038      3CONS,8X,7HIDENT ,6HREAD ,7HWRITE ,6HCOMPT ,4HPROB)
0039      WRITE(3,25)
0040      25 FORMAT(56X,3HRES,2X,4HKNOW,8X,5HE LAW,1X,4HECON,34X,5HSOLVE/)
0041      KGRD=IGRD
0042 200 CONTINUE
0043 C      THIS SECTION OF THE PROGRAM INCREMENTALLY SETS STUDENT NUMBER,
0044 C      TOTAL SURVEY SCORE, SUM OF VALUES SQUARED, AND INDIVIDUAL SCORE
0045 C      TOTALS.
0046      KSTU=KSTU+1
0047      KSCR=KSCR+ISCR
0048      SSCR=SSCR+((FLOAT(ISCR))*2)

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0049      DO 300 I=1,5
0050      KITN(I)=KITN(I)+ITN(I)
0051      KILL(I)=KILL(I)+ILL(I)
0052 C      THIS SUB-SECTION OF THE PROGRAM COUNTS FREQUENCY DISTRIBUTION
0053 C      ON SUB-SCALES.
0054      DO 300 K=1,10
0055      IK=K-1
0056      IF(ITN(I).EQ.IK) ITNF(I,K)=ITNF(I,K)+1
0057      IF(ILL(I).EQ.IK) ILLF(I,K)=ILLF(I,K)+1
0058 300 CONTINUE
0059      DO 301 N=1,41
0060      IN=N-1
0061      IF(ISCR.EQ.IN) ISCRF(N)=ISCRF(N)+1
0062      KIN(N)=IN
0063 301 CONTINUE
0064      GO TO 1000
0065 400 CONTINUE
0066 C      THIS SECTION PRINTS FREQUENCIES IN THE TABLE UNDER HEADING #1.
0067      DO 700 K=1,10
0068      IK = K-1
0069      WRITE(3,21) IK,(ITNF(I,K),I=1,5),(ILLF(I,K),I=1,5)
0070 21 FORMAT(43X,I1,10X,5(I4,2X),5X,5(I4,3X)/)
0071 700 CONTINUE
0072 C      THIS SECTION WRITES A HEADING AND PRINTS OUT THE FREQUENCY DIST-
0073 C      RIBUTION FOR TOTAL SURVEY SCORES.
0074      WRITE (3,19)
0075      WRITE(3,22) NGRD
0076 22 FORMAT(55X,57HFREQUENCY DISTRIBUTION OF TOTAL SURVEY SCORES FOR
0077 1GRADE ,I2//67X,11HTOTAL SCORE ,5X,9HFREQUENCY//)
0078      DO 710 N=1,41
0079      WRITE(3,30) KIN(N),ISCRF(N)
0080 30 FORMAT(68X,I4,14X,I4)
0081 710 CONTINUE
0082 C      THIS SECTION CALCULATES GROUP STATISTICS
0083 C      THIS SUB-SECTION CALCULATES THE AVG FOR EACH SCALE AND THE STD
0084 C      DEV FOR EACH SCALE.
0085      ASCR=(FLOAT(KSCR))/(KSTU)
0086      SSCR=SQRT((SSCR/KSTU)-(ASCR**2))
0087      DO 500 I=1,5
0088      AITN(I)=(FLOAT(KITN(I)))/(KSTU)
0089      AILL(I)=(FLOAT(KILL(I)))/(KSTU)
0090 C      THIS SUB-SECTION INCREMENTALLY CALCUALTES THE SUM OF SQUARES FOR
0091 C      SUB-SCALES
0092      DO 720 K=1,10
0093      IK=K-1
0094      IF(ITNF(I,K).NE.0) SITN(I)=SITN(I)+(ITNF(I,K)*(IK**2))
0095      IF(ILLF(I,K).NE.0) SILL(I)=SILL(I)+(ILLF(I,K)*(IK**2))
0096 720 CONTINUE
0097 C      THIS SUB-SECTION CALCULATES THE MEAN OF THE SUM OF SQUARES & STD
0098 C      DEV.
0099      SITN(I)=SQRT((SITN(I)/KSTU)-(AITN(I)**2))
0100      SILL(I)=SQRT((SILL(I)/KSTU)-(AILL(I)**2))
0101 500 CONTINUE
0102      WRITE(3,35)
0103 35 FORMAT(1H1,28X,20HDOODDS-PACIFIC REGION /)
0104      WRITE(3,40) NGRD

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0105 40 FORMAT(1H ,23X,29HAPL SURVEY SUMMARY STATISTICS/26X,4HFOR , 7H 6
0106 1RADE ,12 //5X,10HSTATISTICS,23X,11HTOTAL SCORE,14X,
0107 2 14HCONTENT SCORES,18X,12HSKILL SCORES/ 53X,4HCOMM,6H OCC ,2HHE)
0108 WRITE(3,41)
0109 41 FORMAT(1H+,T66, SHA
0110 3LTH ,6HGOVT ,4HCONS,8X,7HIDENT ,6HREAD ,7HWRITE ,7HCOMPT )
0111 WRITE(3,45)
0112 45 FORMAT(1H+,T115,4HPROB/ 53X,3HRES,2X,4HKNOW,8X,5H LAW,1X,4HECON,3
0113 14X,5HSOLVE//)
0114 WRITE(3,46) KSTU
0115 46 FORMAT(5X,25HNUMBER OF STUDENTS TESTED ,11X,15//)
0116 WRITE(3,50)KSCR,(KITN(K),K=1,5),(KILL(N),N=1,5)
0117 50 FORMAT(5X,13HSCHOOL TOTALS,23X,15,6X,5(I4,2X),5X,5(I4,3X)//)
0118 WRITE(3,60) ASCR,(AITN(K),K=1,5),(AILL(N),N=1,5)
0119 60 FORMAT(5X,11HMEAN SCORES,26X,F4.1,7X,5(F3.1,3X),5X,5(F3.1,4X))
0120 WRITE(3,70)SSCR,(SITN(K),K=1,5),(SILL(K),K=1,5)
0121 70 FORMAT(5X,18HSTANDARD DEVIATION,19X,F4.2,7X,5(F4.2,2X),5X,5(F4.
0122 12,3X))
0123 C THIS SECTION IS TO RE-SET ALL VARIABLES.
0124 DO 900 I=1,5
0125 KITN(I)=0
0126 KILL(I)=0
0127 SITN(I)=0.0
0128 SILL(I)=0.0
0129 DO 900 K=1,10
0130 ITNF(I,K)=0
0131 ILLF(I,K)=0
0132 900 CONTINUE
0133 KSTU=0
0134 KSCR=0
0135 SSCR=0
0136 DO 910 N=1,41
0137 ISCRF(N)=0
0138 910 CONTINUE
0139 NSRD=IGRD
0140 GO TO 600
0141 1000 CONTINUE
0142 2000 CONTINUE
0143 STOP
0144 END

```

COMPILATION COMPLETE 0 ERRORS

Table 1.---Distribution of APL Test scores for grade 9.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	3	7	4	9	4	31	3	5	13	4
1	3	32	8	32	22	86	2	3	38	11
2	9	56	8	53	61	151	9	16	98	18
3	17	132	44	96	153	234	21	26	157	50
4	73	220	116	173	231	253	54	64	184	101
5	131	239	219	224	239	194	152	147	166	178
6	267	191	304	195	203	100	270	310	153	306
7	354	127	257	197	96	0	307	330	136	277
8	192	45	89	70	40	0	168	148	69	104
9	0	0	0	0	0	0	63	0	35	0

Table 2.---Distribution of APL Test scores for grade 11.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	0	3	0	0	0	4	1	1	3	2
1	1	11	2	6	6	17	1	0	10	1
2	2	10	3	13	13	32	5	2	16	6
3	7	21	13	22	29	58	5	8	37	11
4	15	44	33	52	66	97	15	23	49	25
5	34	70	49	97	93	123	42	46	66	62
6	100	128	114	123	127	178	91	125	75	129
7	177	117	197	125	109	0	137	176	94	156
8	173	105	98	71	66	0	134	128	94	117
9	0	0	0	0	0	0	78	0	65	0

Table 3.--Distribution of APL Test scores for grade 12.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	5	5	5	6	5	10	5	5	5	5
1	0	4	1	4	0	7	0	0	7	1
2	1	5	2	9	11	14	1	1	13	0
3	4	8	5	17	17	44	4	3	18	9
4	7	30	17	31	41	71	9	22	28	19
5	26	55	41	63	80	157	22	26	43	45
6	70	91	105	104	100	198	56	92	63	110
7	166	167	198	153	148	0	110	184	96	192
8	222	136	127	114	99	0	157	168	126	120
9	0	0	0	0	0	0	137	0	102	0

Table 4.--Percent frequency distribution of APL Test scores for grade 9.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	0.29	0.67	0.38	0.86	0.38	2.96	0.29	0.48	1.24	0.38
1	0.29	3.05	0.76	3.05	2.10	8.20	0.19	0.29	3.62	1.05
2	0.86	5.34	0.76	5.05	5.82	14.39	0.86	1.53	9.34	1.72
3	1.62	12.58	4.19	9.15	14.59	22.31	2.00	2.48	14.97	4.77
4	6.96	20.97	11.06	16.49	22.02	24.12	5.15	6.10	17.54	9.63
5	12.49	22.78	20.88	21.35	22.78	18.49	14.49	14.01	15.82	11.97
6	25.45	18.21	28.98	18.59	19.35	9.53*	25.74	29.55	14.59	29.17
7	33.75	12.11	24.50	18.78	9.15	..	29.27	31.46	12.96	26.41
8	18.30*	4.29*	8.48*	6.67*	3.81*	..	16.02	14.11*	6.58	9.91*
9	..	..	..	..	..	..	6.01*	..	3.34*	..

*Maximum possible score for sub-scale.

Table 5.--Percent frequency distribution of APL Test scores for grade 11.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	..	0.6	..	..	..	0.8	0.2	0.2	0.6	0.4
1	0.2	2.2	0.4	1.2	1.2	3.3	0.2	..	2.0	0.2
2	0.4	2.0	0.6	2.6	2.6	6.3	1.0	0.4	3.1	1.2
3	1.4	4.1	2.6	4.3	5.7	11.4	1.0	1.6	7.3	2.2
4	2.9	8.6	6.5	10.2	13.0	19.1	2.9	4.5	9.6	4.9
5	6.7	13.8	9.6	19.1	18.3	24.2	8.3	9.0	13.0	12.2
6	19.6	25.1	22.4	24.2	25.0	35.0*	17.9	24.6	14.7	25.3
7	34.8	23.0	38.7	24.6	21.4	..	26.9	34.6	18.5	30.6
8	34.0*	20.6*	19.3*	13.9*	13.0*	..	26.3	25.1*	18.5	23.0*
9	..	..	..	..	..	..	15.3*	..	12.8*	..

*Maximum possible score for sub-scale.

Table 6.--Percent frequency distribution of APL Test scores for grade 12.

Score	Content Scores					Skill Scores				
	Comm Res	Occ Know	Health	Govt & Law	Cons Econ	Ident	Read	Write	Compt	Prob Solv
0	1.0	1.0	1.0	1.2	1.0	2.0	1.0	1.0	1.0	1.0
1	..	0.8	0.2	0.8	..	1.4	..	..	1.4	0.2
2	0.2	1.0	0.4	1.8	2.2	2.8	0.2	0.2	2.6	..
3	0.8	2.0	1.0	3.4	3.4	8.8	0.8	0.6	3.6	1.8
4	1.4	6.0	3.4	6.2	8.2	14.2	1.8	4.4	5.6	3.8
5	5.2	11.0	8.2	12.6	16.0	31.3	4.4	5.2	8.6	9.0
6	14.0	18.2	21.0	20.8	20.0	39.5*	11.2	18.4	12.6	22.0
7	33.1	33.3	39.5	30.5	29.5	..	22.0	36.7	19.2	38.3
8	44.3*	27.1*	25.3*	22.8*	19.8*	..	31.3	33.5*	25.1	24.0*
9	..	..	..	..	..	..	27.3*	..	20.4*	..

*Maximum possible score for sub-scale.

Table 7.--Frequency distribution of total survey scores for grade 9.

Total Score	% of TPS	Freq. Dist.	% Freq. Dist.	PR
0	0	1	0.10	0.10
1	2.5	1	0.10	0.20
2	5.0	0	..	0.20
3	7.5	0	..	0.20
4	10.0	0	..	0.20
5	12.5	1	0.10	0.30
6	15.0	3	0.29	0.59
7	17.5	1	0.10	0.69
8	20.0	0	..	0.69
9	22.5	2	0.19	0.88
10	25.0	4	0.39	1.27
11	27.5	3	0.29	1.56
12	30.0	5	0.48	2.04
13	32.5	8	0.76	2.80
14	35.0	9	0.86	3.66
15	37.5	11	1.05	4.71
16	40.0	10	0.95	5.66
17	42.5	14	1.33	6.99
18	45.0	16	1.53	8.52
19	47.5	23	2.19	10.71
20	50.0	30	2.86	13.57
21	52.5	47	4.48	18.05
22	55.0	44	4.19	22.24
23	57.5	59	5.62	27.81
24	60.0	56	5.34	33.20
25	62.5	57	5.43	38.63
26	65.0	60	5.72	44.35
27	67.5	81	7.72	52.07
28	70.0	70	6.67	58.79
29	72.5	76	7.24	65.98
30	75.0	80	7.62	73.00
31	77.5	55	5.24	78.84
32	80.0	57	5.43	84.27
33	82.5	52	4.96	89.23
34	85.0	32	3.05	92.28
35	87.5	21	2.00	94.28
36	90.0	33	3.15	97.43
37	92.5	12	1.14	98.57
38	95.0	5	0.48	99.05
39	97.5	8	0.76	99.81
40	100.0	2	0.19	100.00

Legend: TPS = total possible score
PR = percentile rank

Table 8.--Frequency distribution of total survey scores for grade 11.

Total Score	% of TPS	Freq. Dist.	% Freq. Dist	PR
0	0	0	..	0
1	2.5	0	..	0
2	5.0	0	..	0
3	7.5	0	..	0
4	10.0	0	..	0
5	12.5	0	..	0
6	15.0	0	..	0
7	17.5	0	..	0
8	20.0	0	..	0
9	22.5	2	0.4	0.4
10	25.0	0	..	0.4
11	27.5	1	0.2	0.6
12	30.0	1	0.2	0.8
13	32.5	0	..	0.8
14	35.0	1	0.2	1.0
15	37.5	3	0.6	1.6
16	40.0	6	1.2	2.8
17	42.5	7	1.4	4.2
18	45.0	5	1.0	5.2
19	47.5	5	1.0	6.2
20	50.0	3	0.6	6.8
21	52.5	11	2.2	9.0
22	55.0	4	0.8	9.8
23	57.5	8	1.6	11.4
24	60.0	9	1.8	13.2
25	62.5	15	2.9	16.1
26	65.0	20	3.9	20.0
27	67.5	22	4.3	24.3
28	70.0	28	5.5	29.8
29	72.5	23	4.5	34.3
30	75.0	34	6.7	41.0
31	77.5	33	6.5	47.5
32	80.0	35	6.9	54.4
33	82.5	47	9.2	63.6
34	85.0	30	5.9	69.5
35	87.5	44	8.6	78.1
36	90.0	41	8.0	86.1
37	92.5	25	4.9	91.0
38	95.0	26	5.1	96.1
39	97.5	12	2.4	98.5
40	100.0	8	1.5	100.0

Legend: TPS = total possible score
PR = percentile rank

Table 9.--Frequency distribution of total survey scores for grade 12.

Total Score	% of TPS	Freq. Dist.	% Freq. Dist.	PR
0	0	5	1.0	1.0
1	2.5	0	..	1.0
2	5.0	0	..	1.0
3	7.5	0	..	1.0
4	10.0	0	..	1.0
5	12.5	0	..	1.0
6	15.0	0	..	1.0
7	17.5	0	..	1.0
8	20.0	0	..	1.0
9	22.5	1	0.2	1.2
10	25.0	0	..	1.2
11	27.5	0	..	1.2
12	30.0	1	0.2	1.4
13	32.5	2	0.4	1.8
14	35.0	2	0.4	2.2
15	37.5	0	..	2.2
16	40.0	0	..	2.2
17	42.5	1	0.2	2.4
18	45.0	5	1.0	3.4
19	47.5	1	0.2	3.6
20	50.0	2	0.4	4.0
21	52.5	9	1.8	5.8
22	55.0	4	0.8	6.6
23	57.5	3	0.6	7.2
24	60.0	5	1.0	8.2
25	62.5	8	1.6	9.8
26	65.0	8	1.6	11.4
27	67.5	10	1.9	13.3
28	70.0	15	3.0	16.3
29	72.5	17	3.4	19.7
30	75.0	20	4.0	23.7
31	77.5	32	6.4	30.1
32	80.0	43	8.6	38.7
33	82.5	41	8.2	46.9
34	85.0	35	7.0	53.9
35	87.5	59	11.8	65.7
36	90.0	59	11.8	77.5
37	92.5	50	10.0	87.5
38	95.0	40	8.0	95.5
39	97.5	13	2.6	98.1
40	100.0	10	1.9	100.0

Legend: TPS = total possible score
PR = percentile rank

Table 10.--Frequency distribution of APL total survey scores for grades 9, 11, and 12.

Range of Scores	Grade 9 (N=1,049)		Grade 11 (N=509)		Grade 12 (N=501)	
	Freq.	Dist. % Freq. Dist.	Freq.	Dist. % Freq. Dist.	Freq.	Dist. % Freq. Dist.
36-40	60	5.72	112	22.00	172	34.33
31-35	217	20.69	189	37.13	210	41.92
26-30	367	34.99	127	24.95	70	13.97
21-25	263	25.07	47	9.23	29	5.79
16-20	93	8.87	26	5.11	9	1.80
11-15	36	3.43	6	1.18	5	1.00
6-10	10	0.95	2	0.39	1	0.20
0- 5	3	0.29	0	0.00	5	1.00

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