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# NAVAL PERSONNEL AND TRAINING RESEARCH LABORATORY

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FEBRUARY 1971

## DEVELOPMENT OF A "WORDSMANSHIP" TRAINING COURSE FOR MARGINAL PERSONNEL

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DEVELOPMENT OF A "WORDSMANSHIP" TRAINING COURSE FOR  
MARGINAL PERSONNEL

by

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Navy Training Research Laboratory  
Naval Personnel and Training Research Laboratory  
San Diego, California 92152

A LABORATORY OF THE BUREAU OF NAVAL PERSONNEL

## SUMMARY AND CONCLUSIONS

### Problem

The present investigation is part of continuing research needed to determine the trainability of Group IV personnel, and to identify and develop optimally effective training content and methods.

### Background and Requirements

The implementation of Project One Hundred Thousand resulted in an increase in the Navy input of Mental Group IV personnel (AFQT scores of 10 through 30). As part of the Navy's effort to optimize the utilization of these marginal personnel, the Naval Personnel and Training Research Laboratory, San Diego, established a Training Methods Development Program (TMDP) which provides a context for development and evaluation of a series of experimental courses designed for Group IV personnel. The Wordsmanship course for training basic written language skills is one of the courses developed and implemented as a part of the TMDP curriculum.

### Approach

Research data were obtained for 176 Group IV personnel in 12 TMDP classes that received Wordsmanship training during the period from September 1968 to June 1970. Evaluations of the effectiveness of the training content and methods were based on pre- and post-training tests and measures of student achievement of course objectives.

### Findings and Conclusions

The Wordsmanship training has generally proved effective in terms of student achievement of primary course goals, despite a trainee input characterized by relatively low verbal abilities and unfavorable attitudes toward language instruction. The results of pre- and posttraining tests indicate that trainees substantially improved their knowledge and proficiency in each of the specific sub-course areas of Wordsmanship. Posttraining attitudes of students toward Wordsmanship were generally quite favorable according to their responses to questionnaire items. Virtually all students indicated they had learned useful skills, most trainees reported a more favorable attitude toward words as a result of training, and indicated a desire to continue self-improvement of verbal skills in the future. There was almost unanimous student approval of such training techniques as the use of word games and team competition to generate interest and participation in the course.

Course development and refinement along present trends, and with new topic areas, will be continued to increase the effectiveness of Wordsmanship training. The training approaches described in this report should be adaptable to other training contexts having similar objectives for marginal personnel.

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## DEVELOPMENT OF A "WORDSMANSHIP" TRAINING COURSE FOR MARGINAL PERSONNEL

### A. Introduction

The implementation of Project One Hundred Thousand by the Department of Defense has resulted in an increase in the Navy input of Mental Group IV personnel, those with Armed Forces Qualification Test (AFQT) scores of 10 through 30. As part of the Navy's effort to determine the trainability of these personnel and to optimize their utilization in the fleet, the Naval Personnel and Training Research Laboratory, San Diego, has established a Training Methods Development Program (TMDP) in order to provide an experimental setting for evaluation of alternative instructional content and methods for training Group IV personnel. A complete description of the orientation, methods, and goals of TMDP is contained in a previous research report (4).

The courses included in the TMDP curriculum represent a variety of Navy skills and knowledges. A number of previous research reports by the Naval Personnel and Training Research Laboratory have been concerned with the performance of Group IV personnel in specific training courses (1, 3, 5), and additional reports are forthcoming as part of the continuing TMDP research. Other relevant research studies concerning Group IVs in training and job contexts have been conducted by the Human Resources Research Organization under projects UTILITY, SPECTRUM (2), and REALISTIC (6).

A training course titled Wordsmanship was developed and implemented as an integral part of the TMDP curriculum. As the name of the course suggests, it basically involves those skills and knowledges necessary for deriving or communicating information through written words. The Wordsmanship Course was not intended to serve either as a typical remedial English course or as a speed reading course; rather, it was designed to improve the Group IV trainees' attitudes toward the use of verbal materials and to provide them with the basic knowledge and learning techniques necessary for subsequent self-improvement of their typically minimal word skills. For these purposes, a variety of practical topic areas were developed and introduced as components of the Wordsmanship Course. Throughout successive classes, the topic areas were continually revised in order to accomplish both the goals of the course itself and the broad research objectives of the entire experimental training program.

Research data were obtained for 176 Group IV personnel in 12 TMDP classes that received Wordsmanship training during the period from September 1968 to June 1970. The students had just completed recruit training and were assigned to TMDP for temporary duty prior to reporting to their permanent duty stations. The AFQT percentile scores of personnel selected for TMDP were evenly distributed throughout the range of 10 through 30, and none had scores exceeding

50 on the General Classification Test (GCT) or 45 on the Arithmetic Test (ARI) of the Basic Test Battery.

The primary focus of the present report is on the four topic areas which have received the most intensive development and evaluation to date, namely, Dictionary Skills, Index Usage, Spelling Rules, and Test-Taking Tips. Other topic areas which have received relatively less intensive analysis are Study Skills, Basic Composition, Reading Skills, and Prefixes and Suffixes.

### B. Orientation and Approach

The orientation and objectives of the Wordsmanship Course are in general accord with those specified for the total Training Methods Development Program. The primary purpose of the program is to determine what skills and knowledges should appropriately be taught to Group IV personnel, and how appropriate areas should best be taught. Experimental approaches to this goal are based on the assumption that the AFQT score range of Group IV personnel reflects real limitations in verbal and computational abilities, attributable to some interactive effect of trainee aptitudes and experience. Accordingly, much of the training content and methods of the TMDP curriculum is designed to minimize reliance upon verbal and mathematical abilities and to capitalize on other important capabilities and experience. Practical skills and active student participation are stressed throughout training, and unnecessary technical terminology and theoretical detail are avoided in favor of performance-relevant factors. TMDP courses such as Soldering, Instrument Reading, and Use of Hand Tools are particularly amenable to this approach since they involve performance skills of evident practicality. The Wordsmanship Course, however, represents an attempt to deal directly with verbal skills, and requires a somewhat different approach from that used for manual skills courses. However, the same general instructional orientation prevails for all courses, as follows. First, the students must be convinced of the real practical value of the course and be motivated to acquire the skills and knowledge involved. Secondly, students must be assured that they are really capable of mastering the necessary course content. Finally, the course must actually provide meaningful content which can be put to practical use by students.

It was recognized that within the limited training time available, no true significant gain could be expected in the overall reading abilities, broad language comprehension, or vocabulary of the students. (Apparent reading gains obtained in short-term training courses are often only artifacts attributable to spurious characteristics of the tests and evaluative procedures used.) The two primary goals of the Wordsmanship training were, therefore, (1) to effect a change in student attitude toward a desire to improve verbal skills, and (2) to provide the basic tools and skills needed to facilitate such future self-improvement. Training emphasis, consequently, was upon specific skills, basic rules, guides, short-cuts, and learning methods which could be quickly acquired in training and effectively applied

thereafter by students to achieve long-term self-improvement in verbal skills. A consistent effort was made throughout the training to avoid admonishments to students such as "learn to think clearly," "memorize precisely," "study efficiently," or "cram effectively." Although conceptually admirable, these familiar bromides are so vague in terms of specific learner action that they have little meaning for students seeking practical means to self-improvement.

The first instructional step, that of motivating students toward the Wordsmanship Course, presented a formidable challenge in view of the typical background, abilities, and attitudes of Group IV Trainees. The TMDP, unlike most other military and civilian training programs, does not provide extrinsic motivation for students in terms of immediate tangible rewards. That is, there are no diplomas, striker designations, or advances in status or pay forthcoming to students upon completion of training. Indeed, many students initially view the training as an unwanted delay in beginning their fleet assignment, or they are influenced by the rumor that TMDP is "guinea pig" training. A more specific motivational problem stems from the nature of the Wordsmanship Course itself. Most of these trainees have a history of poor school achievement, particularly in verbal and mathematics areas, and understandably have strong negative attitudes towards any training which resembles previous school courses in English or Reading. The median reading level for all TMDP trainees was about seventh grade, with some students only slightly above the Navy minimum literacy level (fourth grade). Only about two-thirds of the students had finished high school, and they typically had taken a relatively large proportion of shop courses in preference to academic subjects. English and Mathematics, in fact, were the two courses identified as "least liked" by incoming students on a pre-training questionnaire.

A number of strategies were employed to reduce the unfavorable attitude of students toward verbal training. The course name itself, "Wordsmanship," was deliberately applied as a title which would accurately indicate the general content area yet would avoid the more negative connotation of alternative terms such as Grammar, Reading, or English. The entire course was designed to be different and more enjoyable than typical school English courses, with a greater emphasis on adult content of interest and relevance to the students. The various topic areas taught under Wordsmanship were selected and developed to provide practical samples of skills and basic knowledge which could be readily acquired and put to beneficial use by Group IV personnel. Wherever possible, course content was directly related to the performance requirements of the trainees' imminent fleet assignments, or to their long-range civilian career and education plans. Some motivation for improving verbal skills was provided by the fact that students face the immediate prospect of studying for, and taking, the examination for advancement to Seaman.

Student interest and motivation were generated by a number of instructional innovations. Word games, such as Password, Match Game,

Scribbage, and Guess the Proverb, were utilized in the classroom to promote active student participation. Classes were divided into evenly-matched teams for competition, with points given for achievement in practice drills as well as for scoring in the special word games. In several classes students practiced composition skills by publishing their own newspaper. In Reading sections, tachistoscopic and pacing devices were demonstrated, and small mirrors were used to enable students to observe eye movement. Some self-instructional, programmed materials were developed and tried out in the Spelling Rules section. These instructional devices helped to arouse and maintain immediate student interest and attention, although sustained motivation depended upon eventual recognition and acceptance by the students of the practical goals of the course.

### C. Wordsmanship Course Specifics

Within the scope and objectives of the Wordsmanship Course a number of specific topic areas were developed and tried out during the period covered by this report. Dictionary Skills, How to Use Indexes, Spelling Rules and Test-Taking Tips were the four areas which were most intensively developed and implemented with sizeable student samples. About twelve hours total training time was required for the Dictionary Skills Course. Index Usage and Spelling were allotted about six hours each, while Test-Taking tips required approximately two classroom hours. Table 1 presents a breakdown of class sample sizes for these topic areas and also for Reading, Composition, Study Skills, and Prefixes and Suffixes which were taught in only a few early classes. The decreasing variety of topic sections taught in successive classes represents an effort to identify and intensively refine the most promising topic areas.

The orientation, content, and methodology of each of the topic areas taught under Wordsmanship are described in greater detail in the following sub-sections. Some general idea of student progress in each topic area is provided by the pre- and posttraining test results available for each class. Parallel test forms were developed for each topic area and these were administered at the beginning and completion of training in counterbalanced order to minimize practice and chance effects. Since both the course content and the tests were subject to varying degrees of revision and refinement between classes, the resultant test scores are not directly comparable from class to class. To the extent that the course tests constitute valid measures of proficiency and knowledge, the pre- to posttest score improvement is indicative of student achievement and training effectiveness. Copies of a current form of each of the course tests are provided in Appendix A.

The degree to which students' motivations and attitudes toward language skills have really been changed by the training is not directly assessed by these course tests. However, some indications of students' attitudes and expectations regarding possible self-improvement in verbal skills are provided by their responses to

TABLE 1

Number of Students Completing Each Wordsmanship Sub-Course

| TMDP<br>Class No. | N   | Sub-Course           |                       |                   |                     |         |                 |             |    | Prefixes<br>and<br>Suffixes |
|-------------------|-----|----------------------|-----------------------|-------------------|---------------------|---------|-----------------|-------------|----|-----------------------------|
|                   |     | Dictionary<br>Skills | How to Use<br>Indexes | Spelling<br>Rules | Test-Taking<br>Tips | Reading | Study<br>Skills | Composition |    |                             |
| 4                 | 16  | 16                   | 16                    | 16                | 16                  | 16      | 16              | 16          | 16 | 16                          |
| 5                 | 16  | 16                   | 15                    | 16                | 15                  | 16      | 16              | 16          | 16 | --                          |
| 6                 | 16  | 16                   | 16                    | 16                | 14                  | 16      | 14              | 16          | -- | --                          |
| 7                 | 14  | 14                   | 13                    | 13                | 14                  | 14      | --              | --          | -- | --                          |
| 8                 | 17  | 17                   | 17                    | 17                | 17                  | 17      | 17              | --          | -- | --                          |
| 9                 | 15  | 14                   | 14                    | 15                | 15                  | 15      | 15              | --          | -- | --                          |
| 11                | 15  | 15                   | 15                    | 15                | --                  | 15      | --              | --          | -- | --                          |
| 16                | 11  | 11                   | --                    | --                | --                  | --      | --              | --          | -- | --                          |
| 17                | 15  | --                   | 15                    | --                | --                  | --      | --              | --          | -- | --                          |
| 19                | 12  | 12                   | 12                    | --                | --                  | --      | --              | --          | -- | --                          |
| 20                | 15  | 15                   | 15                    | --                | --                  | --      | --              | --          | -- | --                          |
| 21                | 14  | 14                   | --                    | --                | --                  | --      | --              | --          | -- | --                          |
| Total N =         | 176 | 160                  | 148                   | 108               | 91                  | 48      | 32              | 16          | 16 | 16                          |

the posttraining Wordsmanship Questionnaire described in a later section.

### 1. Dictionary Skills Course

The dictionary, as a basic source book for words and correct language, is an important tool in the development and refinement of verbal skills. Although dictionary skills are often neglected, it is felt that instruction in full and proper usage of the dictionary introduces Group IV personnel to one of the best means for self-improvement of language abilities. The course provides instruction and practice in specific skills such as determining word meaning, correct spelling, synonyms, parts of speech, syllabication, plurals, verb forms, and locating miscellaneous information such as abbreviations, geographical data, and foreign phrases. During the course students retained personal copies of Webster's Seventh Collegiate Dictionary, and were encouraged to utilize them both in and outside the classroom.

Many of the word games (Password, Scribbage, etc.) and specially developed crossword puzzles were used to generate competitive interest and participation among students. Many of the students had never attempted to work a crossword puzzle before, but the puzzles proved to be quite absorbing to many students, even during free time periods. The dictionary served the students as a source book for information and as a criterion for arbitration of scoring questions during games. Classes were divided into matching teams with a cumulative score being maintained for points acquired according to the familiar procedures of the common word games. In a game called "Guess the Proverb," the object is to recast familiar sayings into deliberately elaborate language. The opponents then attempt to recognize and translate the proverb back into its original form within minimal time limits (e.g., "Prompt nocturnal retirement and timely matinal arousal will render a person salubrious, affluent, and sagacious"). The primary purpose of these and other games is, of course, to accustom students to rely on the dictionary and to help them discover the pleasure and practical benefits to be derived from working with words.

An indication of the achievement of the Group IV students in acquiring the skills and knowledge of the Dictionary Course is provided by the pre- and posttraining test scores presented in Table 2.

The results presented in Table 2 indicate a consistent pre- to posttraining improvement for all classes in terms of the Dictionary Skills Test mean scores. On the basis of the face validity of the test, the trainees appear, on the average, to have acquired a variety of specific dictionary skills from the course.

### 2. How to Use Indexes Course

Proper use of indexes represents a basic skill area essential

TABLE 2  
 Dictionary Skills Test  
 Pre- And Posttraining Mean Scores

| <u>Class No.</u> | <u>N</u> | <u>Possible Score</u> | <u>Pretest Mean</u> | <u>Posttest Mean</u> | <u>Mean Score Gain</u> | <u>Percentage Gain</u> |
|------------------|----------|-----------------------|---------------------|----------------------|------------------------|------------------------|
| 4                | 16       | 26                    | 6.8                 | 9.7                  | 2.9                    | 43                     |
| 5                | 16       | 26                    | 5.3                 | 10.9                 | 5.6                    | 107                    |
| 6                | 16       | 26                    | 7.3                 | 13.8                 | 6.5                    | 90                     |
| 7                | 14       | 25                    | 9.0                 | 20.6                 | 11.6                   | 129                    |
| 8                | 17       | 25                    | 6.3                 | 16.6                 | 10.3                   | 163                    |
| 9                | 14       | 25                    | 10.8                | 19.3                 | 8.5                    | 79                     |
| 11               | 15       | 25                    | 8.9                 | 18.7                 | 9.8                    | 101                    |
| 16               | 11       | 25                    | 9.5                 | 18.3                 | 8.8                    | 92                     |
| 19               | 12       | 25                    | 9.3                 | 20.3                 | 11.0                   | 117                    |
| 20               | 15       | 25                    | 7.5                 | 19.1                 | 11.6                   | 153                    |
| 21               | 14       | 25                    | 9.7                 | 20.5                 | 10.8                   | 111                    |
| Total N = 160    |          |                       |                     |                      | Mean Percentage Gain   | 108                    |

for deriving information from written sources. This sub-course was directly related to the imminent fleet jobs of the students who need to use indexes in finding information in Navy technical manuals, stock catalogs, Seaman Manuals, and similar publications. Although use of indexes is another generally neglected skill, proper usage procedures can greatly enhance the speed and accuracy of information retrieval. The basic mechanics of index usage are relatively simple and can be taught to marginal personnel fairly easily. There may also be some conceptualization processes involved in determining topic categories and sub-categories for index listings. (For example, in order to locate the name of the college football coach of the year, one may first categorize the general area as "football," then dichotomize "amateur vs. professional," "college vs. other levels," "players vs. coaches," and so on down to the specific item listing.) This categorization process is not immediately simple for all

trainees, but practice tends to improve initial abilities considerably. The game Twenty Questions was employed in this course to provide exercise in identifying and successively narrowing categories down to a specific item. Among the practice materials used in the course were the World Almanac, a Navy Seaman Manual, a Navy hand tools manual, a Navy stock catalog, and a Navy radar troubleshooting manual. Classroom drills and proficiency evaluations involved having the students look up specific types of information in all of the preceding manuals. The course required a total of about six hours including testing time. The results of the pre- and posttraining Index Usage Tests for each of the TMDP classes are presented in Table 3.

TABLE 3  
Index Usage Test  
Pre- And Posttraining Mean Scores

| <u>Class No.</u> | <u>N</u> | <u>Possible Score</u> | <u>Pretest Mean</u> | <u>Posttest Mean</u> | <u>Mean Score Gain</u> | <u>Percentage Gain</u> |
|------------------|----------|-----------------------|---------------------|----------------------|------------------------|------------------------|
| 4                | 16       | 20                    | 7.0                 | 8.6                  | 1.6                    | 23                     |
| 5                | 15       | 20                    | 7.7                 | 10.8                 | 3.1                    | 40                     |
| 6                | 16       | 20                    | 6.9                 | 9.9                  | 3.0                    | 43                     |
| 7                | 13       | 20                    | 7.8                 | 11.7                 | 3.9                    | 49                     |
| 8                | 17       | 16                    | 5.5                 | 7.9                  | 2.4                    | 44                     |
| 9                | 14       | 15                    | 6.6                 | 11.2                 | 4.6                    | 70                     |
| 11               | 15       | 15                    | 6.5                 | 11.5                 | 5.0                    | 77                     |
| 17               | 15       | 15                    | 9.5                 | 13.7                 | 4.2                    | 44                     |
| 19               | 12       | 15                    | 9.0                 | 12.0                 | 3.0                    | 33                     |
| 20               | 15       | 15                    | 7.8                 | 12.0                 | 4.2                    | 54                     |
| Total N = 148    |          |                       |                     |                      | Mean Percentage Gain   | 48                     |

The pre- to posttraining improvement in Index Usage Test scores indicates that the training course instruction and practice raised the proficiency level of all class groups for the specific skills measured by the tests.

### 3. Spelling Rules Course

Spelling constitutes a major problem for marginal personnel in attempting to communicate in writing, and to a lesser extent, in trying to interpret written information. Correct spelling habits are often acquired only as a result of many years of careful reading

and study of the language. Marginal personnel typically have not had the motivation or training necessary to develop good basic spelling habits. The Spelling Rules Course was designed as short term training to help poor adult spellers. It provides generalizable rules and guides which serve as an immediate practical approach to the correct spelling of a majority of common words. The rules and guides should also provide trainees with a good foundation for future self-development of more extensive and precise spelling skills.

The course content focused on a number of specific spelling areas including troublesome plurals, homonyms, possessives, doubled final consonants, and "ei" and "ie" words. An example of the mnemonic devices employed in the course is the familiar rule, "I before E except after C, or when sounded as A as in neighbor and weigh," with some exceptions summarized by, "Neither foreign financier seized either species of weird leisure." Practical help in a few of these types of spelling problems can hopefully reduce an appreciable proportion of the total number of spelling errors made by Group IV personnel.

The total training time required by the Spelling Course was only six classroom hours including testing time. The pre- and posttraining scores for all classes on the Spelling Rules Test are presented in Table 4.

TABLE 4  
Spelling Rules Test  
Pre- And Posttraining Mean Scores

| <u>Class No.</u> | <u>N</u> | <u>Possible Score</u> | <u>Pretest Mean</u> | <u>Posttest Mean</u> | <u>Mean Score Gain</u> | <u>Percentage Gain</u> |
|------------------|----------|-----------------------|---------------------|----------------------|------------------------|------------------------|
| 4                | 16       | 30                    | 12.1                | 16.6                 | 4.5                    | 37                     |
| 5                | 16       | 30                    | 15.5                | 18.4                 | 2.9                    | 19                     |
| 6                | 16       | 30                    | 16.1                | 21.4                 | 5.3                    | 33                     |
| 7                | 13       | 30                    | 19.9                | 24.3                 | 4.4                    | 22                     |
| 8                | 17       | 30                    | 13.7                | 21.9                 | 8.2                    | 60                     |
| 9                | 15       | 30                    | 17.9                | 21.9                 | 4.0                    | 22                     |
| 11               | 15       | 30                    | 18.0                | 22.5                 | 4.5                    | 26                     |
| Total N = 108    |          |                       |                     |                      | Mean Percentage Gain   | 31                     |

The results presented in Table 4 show a consistent, although not outstanding, test gain for all classes. Considering the relatively short instructional and practice time involved, it is possible that practical proficiency might continue to improve with additional opportunities for application of the spelling rules learned in the course.

#### 4. Test-Taking Tips Course

This topic area was developed in response to evidence suggesting that Group IVs may do poorly on tests partly because of a lack of familiarity with the format and mechanics of verbal test items. To the extent that Group IV personnel may have had less formal schooling and less interest in academic areas, it appears reasonable that they may be disadvantaged on verbal tests by their comparative lack of experience.

Students in this course were motivated by their recognition of the fact that they have usually done poorly on written tests (as indicated by their AFQT category), and realization that achievement on written tests is necessary for advancement in the Navy and in later civilian academic and professional endeavors.

The course attempts to familiarize trainees with the format and mechanics of various types of verbal test items (true-false, multiple-choice, matching, verbal analogy), and to provide them with test-taking techniques and strategies which will improve performance on verbal tests.

Students are taught to recognize the nature and purpose of different kinds of tests (achievement, aptitude, non-cognitive, etc.) and various item formats in order to adopt the most appropriate response behavior for each. The importance of ascertaining the scoring criteria is also stressed, since penalties for guessing, weighted item scores, and response time limits may affect the optimal test-taking strategy. Each of the various item types has unique characteristics which require consideration, (e.g., the probability of guessing correctly is higher for true-false items than for multiple choice items; unqualified words like "never" and "always" are suspect in true-false items). The verbal analogy item format apparently requires the most explanation for the majority of Group IV students. Classroom experience confirms that marginal personnel are relatively unfamiliar with verbal analogy items, and they do not really understand the essential principles required to answer the items. Thus the mechanics of the item, rather than the content of the question, may cause difficulties. In answering analogy items, Group IVs are typically misled to choose an incorrect response which is an associated or commonly-linked word, rather than a word related by analogy. (For example, given the item stem, "Hat:Rack as Door: \_\_\_\_\_?" naive trainees invariably select the response "knob," which sounds familiar to them, but does not properly express the analogous relationship of the more correct response

choice, "hinge.") It was assumed that these, and similar erroneous response tendencies could be corrected with a relatively brief period of instructive training, thus equalizing the opportunities for Group IVs to obtain a truly representative score on verbal tests. This minimization of test response errors due to subject naivete should contribute in the long run toward more valid and equitable test scores for all personnel.

The Test-Taking Course was taught within a total of two hours for each class, including the time required for pre- and posttraining evaluations. The pre- and posttraining tests comprised the test-taking techniques recommended in the course, with the four major types of item format all being represented within the test itself. Table 5 presents the pre- and posttraining test mean scores for all classes in which test-taking was taught.

TABLE 5  
Test-Taking Test  
Pre- And Posttraining Mean Scores

| <u>Class No.</u> | <u>N</u> | <u>Possible Score</u> | <u>Pretest Mean</u> | <u>Posttest Mean</u> | <u>Mean Score Gain (Loss)</u> | <u>Percentage Gain (Loss)</u> |
|------------------|----------|-----------------------|---------------------|----------------------|-------------------------------|-------------------------------|
| 4                | 16       | 22                    | 13.8                | 11.7                 | (-2.1)                        | (-15)                         |
| 5                | 15       | 22                    | 12.3                | 13.4                 | 1.1                           | 9                             |
| 6                | 14       | 22                    | 11.6                | 14.2                 | 2.6                           | 22                            |
| 7                | 14       | 22                    | 13.6                | 15.5                 | 1.9                           | 14                            |
| 8                | 17       | 22                    | 10.7                | 14.4                 | 3.7                           | 34                            |
| 9                | 15       | 22                    | 13.3                | 15.9                 | 2.6                           | 20                            |
| Total N = 91     |          |                       |                     |                      | Mean Percentage Gain          | 14                            |

The pre- to posttraining test score gains for this course were not impressive, although course revisions did improve training effectiveness in later classes. Marginal personnel appear to need training in this area, and classroom participation indicates they are motivated to learn test-taking skills. In order to improve the measurable proficiency, however, the training period may need to be lengthened.

#### 5. Additional Wordsmanship Areas

In addition to the four main course areas discussed, several other topics were introduced on a tryout basis in early classes, including Reading, Prefixes and Suffixes, Composition, and Study Skills.

In reading training, the relationship between reading speed and reading comprehension was emphasized. No substantial improvement in either ability was attempted in the brief training, but students were trained to adjust their reading speeds in accordance with the comprehension needs of the material at hand. It was noted that poor readers typically utilize their same reading pace for all materials. This practice results in over-study of materials like comic strips, and under-study of technical materials. Pacing and tachistoscopic devices were employed to demonstrate that with minimal comprehension requirements (e.g., single topic identification, general subject knowledge) trainees could achieve extremely high reading speeds. Mirrors were used to enable students to observe the eye movements made by other students while reading different materials. Eye movement training was not stressed since improper hesitant, jerking, and retracing movements are probably a symptom rather than a cause of poor reading. The phrase, "reading speeds for reading needs," summarized the practical goals of the training in terms of emphasis upon adjustment of reading speed to meet the pre-determined information requirements of specific situations.

Training in the meanings of prefixes and suffixes was intended as a quick approach toward increasing the working vocabulary of Group IV personnel. Familiar prefixes and suffixes (e.g., post-, mono-, -able, -ize, -ous) are found in a large number of different words and they provide a simple and reliable clue to interpretation of probable meaning. This course has been taught to only a single TMDP class and required a total of two hours training time. Although the mean class improvement was modest, promising gains by some students suggest that slightly longer training time and a narrower content scope could provide students with a practical aid to word comprehension.

The Composition Course was designed to help the poor writing skills of marginal personnel and to reduce their reluctance to express thoughts in writing. In this course trainees were encouraged to write papers in any form and on any subject, with the provision that all products would be incorporated into a class news publication. The publication incentive was fairly successful in generating

writing interest, although with a few notably original exceptions, the quality of the products was expectedly low. The favorable reaction of most students to seeing their work in print suggests that successive experiences might be increasingly effective as an approach to stimulating and improving marginal writing skills.

The Study Skills Course involves, to some extent, most other Wordsmanship areas including dictionary, spelling, index, reading, and test-taking skills. The course provided a few practical study approaches such as techniques for outlining, taking notes, underlining, and review. Since the effectiveness of study effort depends upon the relevance of the material learned and the amount of time required to learn it, emphasis was placed upon the necessity of specifying in advance the exact informational requirements of any given study program. Practical training in determining precise needs and in applying study techniques was provided by having students work directly on their Basic Military Requirements and Seaman correspondence courses. Trainees generally appear to need help in directing their study activities, and acquisition of a few practical skills appears to facilitate achievement of study goals.

#### D. Student Reactions to the Wordsmanship Course

A short questionnaire was administered to each TMDP class at the completion of Wordsmanship training. This questionnaire form was designed to elicit candid student reactions to the content and methodology of the Wordsmanship Course, and to serve as a guide in the evaluation and selection of promising topic areas for tryout with subsequent classes.

Since one of the goals of the course was to modify student attitudes toward increased favorability and interest in word skills, the questionnaire responses provide some measure of goal achievement in terms of subjective self-reports by students.

In response to the question, "How does your present attitude toward words, reading, writing, etc., compare with your attitude before the Wordsmanship Course?", 87 percent of a total of 160 students indicated their attitude was more favorable, with 37 percent checking the response "much more favorable." Only two percent of the trainees indicated their attitude was even slightly less favorable. Similarly, when asked if they planned to continue their self-improvement in verbal skills at their next duty station, 76 percent responded they "probably" or "definitely" would continue. Only three percent checked the "no" response.

With regard to the utility of the Wordsmanship Course for their future Navy and civilian activities all of the 52 respondents believed it would be useful, with over half of the respondents indicating it would be "very useful."

Virtually all of the respondents (98% of N=160) felt that the word games, such as Password and Scribbage, made the course somewhat more interesting, and that dividing the class into teams for friendly competition made the course more interesting.

A summary of these subjective responses suggests that the students believe they have acquired useful skills and knowledge from the course, and that they intend to continue self-improvement in verbal areas. This attitude appears to represent, for most students, a considerable change from the typically negative attitudes toward words which they held at the beginning of training.

The most recent form of the eight posttraining questionnaire items, along with a complete breakdown of all response choices for each item, is presented in Appendix B.

As a matter of interest and flavor, there follows a verbatim sampling, except for corrected spelling, of the favorable comments written by students at the completion of training, in response to an open-end questionnaire item.

I really learned to study in many different ways and it was real interesting class. I sure appreciate what you teachers tried to teach me. I will try not to forget the tips I was taught about the class work.

Everything that I was taught I'll be needing, these classes helped me in all kinds of way, it was worth it being here trying to improve myself.

I would like to thank all the instructors who took the time to teach me what I have learn in this school personally I think it will benefit me very much in the near future.

Both class are the best course I have had since the 12th year of school. And all the year I've been reading or learning.

They have help me a lot and I hope to continue doing the things I have learned in the courses.

Both classes helped me a lot. I think giving my time was worth sitting and picking up what I didn't learn. Coming down to it I wish both class were a few weeks longer.

I think that playing and doing the course the way we did was very educational!! I don't think I would have got anything out of the course! But by playing it as we did everyone including me trying to indulge in it!!

Just teach others what you have told all of us and they will get a great benefit also.

I like both courses because it taught me a lot of stuff I never knew before, and I think it will help me a lot in the future. And I want to thank you for what you done for me.

The class was very interesting and good. It held my attention all the way thru. I never did pay much attention to it when I was in school but now it help me a lot.

It was sort of a drag having to get up, but it was well worth it.

The course seemed what like I had in High School English or literature. Made it more understanding and enjoyable.

I think these course have helped me a lot.

It is a real good course. You have here and I glad I came to it now because I learn a lot from it.

Just to say I thought the course "cool."

A few less favorable comments include:

The wordsmanship class was a drag.

Wordsmanship to me was not too good because it did not help me at all it was bad.

Wordsmanship has too many test in it.

You should have more interesting courses like reading improvement in comprehension etc.

The Wordsmanship I thought, was for the "birds."

#### E. Summary and Discussion

This report describes the content and methods which were successfully employed in the Wordsmanship Course in training Group IV personnel in basic written language skills. The specific topic areas most extensively developed and taught to the largest sampling of students included Dictionary Skills, Index Usage, Spelling Rules, and Test-Taking Tips. The primary goals of the Wordsmanship Course were to develop trainee interest and motivation toward word skills, and to provide students with basic knowledge and skills which would facilitate both immediate and long-term improvement in verbal abilities.

Despite a trainee input characterized by relatively low verbal abilities, and generally negative attitudes toward language instruction, the training has proved effective in terms of student achievement of the primary course goals. The results of pre- and posttraining tests indicate that trainees substantially improved their knowledge and

proficiency in each of the specific sub-course areas of Wordsmanship. Posttraining attitudes of students toward Wordsmanship were generally quite favorable, according to their responses to questionnaire items. Virtually all students indicated they had learned useful skills, most of them reported their attitude toward words had become more favorable as a result of training, and they generally expected to continue self-improvement of verbal skills in the future. There was almost unanimous student approval of such training techniques as the use of word games and team competition to generate interest and participation in the course.

The current form of the Wordsmanship courses was evolved through many months of revision and refinement in response to the needs of successive class samples of Group IV trainees. The general approaches to training are not new, but ingenuity and innovation are represented in the specifics of content and method by which the general principles were successfully implemented to teach Wordsmanship to Group IVs. Individual training factors which appear to contribute to the effectiveness of the course include the use of games and competitions, emphasis upon active student participation, provisions for self-paced learning, minimization of traditional academic content and approach, and individual assistance and attention provided by dedicated instructors. Motivation of students was a critical and continuing process since the practical benefits of verbal training are generally not obvious to marginal trainees. The games approach helped to generate sufficient immediate classroom interest and participation to insure that most students were at least exposed to the potential interest and value of word skills.

In future Wordsmanship classes, it is planned to continue refinement of present course areas, and to develop a variety of new topic areas. Posttraining surveys of preferences for possible new Wordsmanship courses have shown students to be favorably receptive to any of a dozen different suggested topic areas. Future classes will continue present trends away from lecture presentations toward increased self-study and practice in order to provide more accommodation to individual learning rates. More word games will be incorporated with greater integration into course content and objectives. Training devices and methods such as video tape playback, individual 8mm loop-film viewers, computer assisted instruction, multi-media presentations, and various reinforcement and contingency management procedures will be considered and utilized where appropriate.

In summary, basic word skills represent a valuable and feasible area of training for Group IV personnel. Innovative and flexible training approaches are required to overcome the typically low aptitudes and negative attitudes of marginal personnel. The Wordsmanship Course represents a successful training program which provides Group IV students with basic skills, knowledge, and orientation required for immediate and long-term improvement in the critical area of verbal skills. Continued course development and

refinement should further improve the training effectiveness of the Wordsmanship Course. It is recommended that the training approaches described in this report be adapted, where possible, to other training contexts having similar verbal skills objectives for marginal personnel.

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APPENDIX A

Wordsmanship Course Tests

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DICTIONARY SKILLS TEST

1. Which one of the following is one of the meanings of the word TABLE?
  - To place on the agenda
  - To completely outmaneuver
  - A short verse or song
  - A safety zone for small boats
  - Susceptible to the sense of touch
  
2. Which one of the following is the meaning of the word JENNET?
  - Pertaining to the operation of a spinning wheel
  - A female bird
  - To rapidly discard
  - A small, three-wheeled vehicle
  - A small horse
  
3. What is a synonym for the word ANTITHETICAL? \_\_\_\_\_
  
4. The word RAMIFORM is what part of speech? (Check one category below.)
  - Noun
  - Verb
  - Noun or verb
  - Adjective
  - Adverb
  
5. How many syllables are there in the word AUTOINFECTION? \_\_\_\_\_
  
6. What is the plural form of the word TABLEAU? \_\_\_\_\_

7. Which one of the following is the meaning of the foreign phrase AMOUR-PROPRE?

- Self esteem
- Self propelled
- Love of one's country
- Having the properties of love
- Love properly

8. What is the past tense of the verb CREEP? \_\_\_\_\_

9. The word LABYRINTHIAN is broken into syllables below. Circle the one syllable that should have a primary accent mark.

LAB Y RIN THI AN

10. What does the abbreviation OED mean? \_\_\_\_\_

11. In what country is the APURIMAC river located? \_\_\_\_\_

12. In what year was Harry Houdini, the famous magician, born? \_\_\_\_\_

13. In what year was BAYLOR UNIVERSITY founded? \_\_\_\_\_

14. Which one of the following is the meaning of the word MINATORY?

- A small laboratory
- Threatening or menacing
- A washroom at a mine
- Small or very thin
- Very ancient

15. What is a synonym for the word PORTENTOUS? \_\_\_\_\_

16. The word LIGATE is what part of speech? (Check one category below.)

- Noun
- Verb
- Noun or verb
- Adjective
- Adverb

17. How many syllables are there in the word RATIOCINATION? \_\_\_\_\_

18. What is the plural form of the word FATHER-IN-LAW? \_\_\_\_\_

19. Which one of the following is the meaning of the foreign phrase FIN DE SIECLE?

- A fine bicycle
- A spectacular find
- Opportunity's tail
- End of a cycle
- Close of the 19th century

20. What is the past tense of the verb FLEE? \_\_\_\_\_

21. The word DEVALUATION is broken into syllables below. Circle the one syllable that should have a primary accent mark.

DE VAL U A TION

22. What is the abbreviation for DISTRIBUTION? \_\_\_\_\_

23. How high is the KATMAI volcano in Alaska? \_\_\_\_\_ feet.

24. What was the occupation of JOSE OROZCO? \_\_\_\_\_

25. In what state is MUSKINGUM COLLEGE located? \_\_\_\_\_

### INDEX USAGE TEST

This is a test of how fast and accurately you can use indexes and tables of contents to find various types of information in books and manuals. The answers to the questions can be found in the four publications that you have (WORLD ALMANAC, BASIC HAND TOOLS, SEAMAN, and STOCK CATALOG). Listed before each question is the publication that contains the correct answer. Write your answers in the blank spaces in front of each test question. Look at the practice problem below.

- A. \_\_\_\_\_ WORLD ALMANAC: The title or heading given to the section of this book which lists Lincoln's Gettysburg Address is: Lincoln's Address at Gettysburg, \_\_\_\_\_.

The index directs you to page 225, where the title in dark print reads: Lincoln's Address at Gettysburg, 1863. Write the year 1863 in the blank at the beginning of the question.

You will have 30 minutes to complete the 15 problems.

Are there any questions?

INDEX USAGE TEST

1. \_\_\_\_\_ WORLD ALMANAC: The title of the table which lists automobile mileage between cities is: Highway mileage between \_\_\_\_\_ cities.
2. \_\_\_\_\_ WORLD ALMANAC: The title of the section which lists the most valuable players for the National and the American Baseball Leagues is: Most Valuable Player \_\_\_\_\_.
3. \_\_\_\_\_ WORLD ALMANAC: The title of the section which lists gasoline taxes by states is: \_\_\_\_\_, Taxes, Gasoline, Drivers' Ages.
4. \_\_\_\_\_ WORLD ALMANAC: The title of the section which lists beer production from 1940 to 1966 is: \_\_\_\_\_ Spirits and Beer Production.
5. \_\_\_\_\_ HAND TOOLS: "Pinchbar" is the title of the paragraph which discusses the pinchbar. What is the title of the next paragraph?
6. \_\_\_\_\_ HAND TOOLS: What is the title of Appendix I?
7. \_\_\_\_\_ HAND TOOLS: What is the number of the figure whose title is, "Using a glasscutter?"
8. \_\_\_\_\_ SEAMAN: The description of a drogue or sea anchor is found in which chapter of this manual?
9. \_\_\_\_\_ SEAMAN: A GUESSWARP is "a line by which a boat rides at a boat \_\_\_\_\_."
10. \_\_\_\_\_ SEAMAN: What is the number of the figure that shows flagstaff insignias?
11. \_\_\_\_\_ STOCK CATALOG: How much does an adz cost?
12. \_\_\_\_\_ STOCK CATALOG: What is the item name of stock number 5110-233-9110?

13. \_\_\_\_\_ STOCK CATALOG: Stock number 6210-688-4929 is an electrical device. How long is its cord?
14. \_\_\_\_\_ SEAMAN: What is the number of the figure which shows an anchor swivel?
15. \_\_\_\_\_ WORLD ALMANAC: The title of the table which shows the velocity of winds at various weather stations in the United States is: \_\_\_\_\_  
Winds in the United States.

SPELLING ANSWER FORM

1. C \_ \_ L I N G
2. T R A N S F E R \_\_\_\_\_
3. T A B L E \_\_\_\_\_
4. W A T C H \_\_\_\_\_
5. L I B R A R Y \_\_\_\_\_
6. \_\_\_\_\_ G H T
7. P R E F E R \_\_\_\_\_
8. S H E E T \_\_\_\_\_
9. F O X \_\_\_\_\_
10. Q U A N T I T Y \_\_\_\_\_
11. Y \_ \_ L D
12. P L A N \_\_\_\_\_
13. F O O D \_\_\_\_\_
14. H O U S E \_\_\_\_\_
15. S T R A W B E R R Y \_\_\_\_\_
16. T H \_\_\_\_\_
17. E Q U I P \_\_\_\_\_
18. F A U L T \_\_\_\_\_
19. B U Z Z \_\_\_\_\_
20. C I T Y \_\_\_\_\_
21. C O N C E I T \_\_\_\_\_
22. O C C U R \_\_\_\_\_
23. A L L E Y \_\_\_\_\_
24. F R \_ \_ N D
25. C O N F E R \_\_\_\_\_
26. A T T O R N E Y \_\_\_\_\_
27. F R \_ \_ G H T
28. D E F E R \_\_\_\_\_
29. P \_ \_ C E
30. I N F E R \_\_\_\_\_

---

Note.--

This test was administered orally, with students required to supply the letters necessary to spell correctly the given form of the word.

## TEST TAKING TEST

### I. True-False Items

For each of the following statements, check either T or F on your answer sheet to indicate if you think the statement is True or False.

1. Most people take tests only during their grade school and high school years.
2. All tests measure either achievement or aptitude.
3. A test is always an accurate measure of everything you know about the subject area of the test.
4. A True-False item is always False if it has the word "always" in it.
5. Test-taking tips, which will improve your chances of scoring well on a test, can and should be learned.
6. If there is no scoring penalty for guessing, you can usually improve your test score by guessing on items even when you don't know what the correct answer is.

### II. Multiple Choice Items

For each statement, mark on your answer sheet the one best answer choice which completes the item.

7. The number of answer choices which most multiple-choice items have is: (a) at least ten, (b) one, (c) always three, (d) more than one.
8. Tests which measure your in-born talents or your capacity to learn are called: (a) achievement tests, (b) aptitude tests, (c) invalid tests, (d) driving tests.
9. When answering "Matching" type test items, you should: (a) read all the different answer choices in the list before picking your answer, (b) pick an answer choice blindly, (c) pick the first word that seems to match the definition, (d) always match definitions near the top of the list with answer choices near the bottom of the list.
10. If there is no scoring penalty for guessing on a test, you should: (a) fill in two answers for test items you are unsure of, (b) leave the test items you are unsure of blank, (c) mark all "True-False" items you are unsure of in the F column, (d) mark one answer for every item.

11. Your chances of picking a correct answer to a test item purely by guessing depend chiefly upon: (a) the length of the item, (b) the length of the test, (c) the number of answer choices given, (d) the subject matter of the item.

### III. Matching Items

For each of the definitions in the left-hand list, mark the response letter (A, B, C, D, E) of the one answer word which best fits the definition.

| <u>Definitions</u>   | <u>Answer Words</u>  |
|--|--|
| 12. A type of test which measures in-born talent, or ability to learn, such as the Navy GCT ( <u>General Classification Test</u> ).  | A. Matching  |
| 13. A type of item in which the definitions in one list are to be paired with the most correct answer word in an opposite list.  | B. Verbal Analogy  |
| 14. A type of test in which items often do not have a "right" or "wrong" answer.   | C. Aptitude  |
| 15. A system of scoring tests which penalizes the examinee for guessing.   | D. Personality   |
| 16. A type of test item in which the relationship expressed between two words of the item stem is to be matched with the answer words which express the same relationship. | E. Total number "Right" answers minus number "Wrong" answers |
|  | F. Reciprocal Validity                                       |

### IV. Verbal Analogy Items

For each of the following items, mark the answer choice which best expresses the same relationship as that expressed by the two capitalized words in the item stem.

17. TEST is to PROMOTION as  
RACE is to: (a) prize, (b) creed, (c) fast, (d) horse
18. TEST is to ITEM as  
HERD is to: (a) shepherd, (b) cow, (c) crowd, (d) west
19. AIM is to TARGET as  
COMPETITION is to: (a) test, (b) race, (c) unfair, (d) victory
20. BLANKET is to COLD as  
ARMOR is to: (a) bullet, (b) heavy, (c) helmet, (d) steel
21. EYE is to SEE as  
EAR is to (a) hear, (b) big, (c) noise, (d) rabbit
22. FREEZE is to ICE CREAM as  
BAKE is to: (a) oven, (b) cake, (c) cook, (d) heat

APPENDIX B

Posttraining Questionnaire Item Responses

| Questions  | Responses |    |
|--|-----------|----|
|  | N         | %  |
| 1. How useful do you believe the instruction you received in the Wordsmanship course will be for your future Navy and civilian activities?   |           |    |
| Very Useful  | 28        | 55 |
| Somewhat useful  | 19        | 37 |
| Slightly useful  | 4         | 8  |
| Not useful   | 0         | 0  |
| 2. Would more worksheets and handouts with examples have been helpful to you during the Wordsmanship course?   |           |    |
| Yes  | 104       | 65 |
| No   | 55        | 35 |
| 3. Do you feel that the games (Password, Match Game, etc.) made the course more interesting?   |           |    |
| Definitely   | 118       | 75 |
| Somewhat   | 37        | 23 |
| Not at all   | 3         | 2  |
| 4. Do you feel that the idea of dividing the class into two teams for the purpose of friendly competition made the course more interesting?  |           |    |
| Definitely   | 111       | 70 |
| Somewhat   | 46        | 29 |
| Not at all   | 2         | 1  |
| 5. If there had been a library of paperback books of various kinds (both novels and nonfiction) available in the classroom, would you have taken advantage of the opportunity to read several of the books during your off-duty hours? |           |    |
| Definitely   | 44        | 28 |
| Probably   | 73        | 46 |
| Not sure   | 28        | 18 |
| No   | 12        | 8  |

APPENDIX B (Continued)

| Questions   | Responses |    |
|---|-----------|----|
|   | N         | %  |
| 6. Would you have liked to have worked more crossword puzzles during class time in the Wordsmanship course?   |           |    |
| Yes   | 115       | 73 |
| No  | 42        | 27 |
| 7. How does your present attitude toward words, reading, writing, etc., compare with your attitude before the Wordsmanship course?  |           |    |
| Attitude is now much more favorable   | 58        | 37 |
| Attitude is now slightly more favorable   | 79        | 50 |
| Attitude is unchanged   | 17        | 11 |
| Attitude is now slightly less favorable   | 3         | 2  |
| Attitude is now much less favorable   | 0         | 0  |
| 8. Almost all of the students in this class showed improvement in the skills taught in the Wordsmanship course. Do you plan to continue your self-improvement in these skills on your own time at your next duty station? |           |    |
| Definitely  | 49        | 31 |
| Probably  | 71        | 45 |
| Not sure  | 32        | 20 |
| No  | 5         | 3  |

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| 13. ABSTRACT<br>This investigation is part of continuing research to determine the trainability of Group IV personnel and to develop optimal content and methods for marginal training. The Wordsmanship course for training basic written language skills was taught as a part of the Training Methods Development Program experimental curriculum. Data were obtained for 176 Group IV personnel in 12 classes trained during the period from September 1968 to June 1970. Evaluations of training effectiveness were based on pre- and posttraining tests and measures of student achievement. (U)<br><br>The Wordsmanship training has generally proved effective in terms of student achievement of primary course goals, despite a trainee input characterized by low verbal abilities and unfavorable attitudes toward language instruction. Trainees substantially improved their knowledge and proficiency in each of the sub-course areas of wordsmanship, and most students reported a more favorable attitude toward words and a desire for future self-improvement of verbal skills. Training approaches described in this report should be adaptable to other training contexts having similar objectives for marginal personnel. (U) |  |  |

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