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SEPTEMBER 1967

**AN INVESTIGATION OF THE FEASIBILITY OF NAVY COMMISSARYMAN
TRAINING FOR GROUP IV PERSONNEL**

Eugene A. Hooprich
John H. Steinemann

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Eugene A. Hooprich, et al

Naval Personnel Research Activity
San Diego, California

September 1967

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AN INVESTIGATION OF THE FEASIBILITY OF NAVY
COMMISSARYMAN TRAINING FOR GROUP IV PERSONNEL

by

Eugene A. Hooprich
John H. Steinemann

September 1967

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Research Report SRR 68-7

Submitted by

A. V. Anderson, Director, Training Methods Research Department

Approved by

E. I. Jones, Ph.D., Technical Director, Acting
G. W. Watson, Commander, USN
Officer in Charge

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U. S. Navy Training Research Laboratory
U. S. Naval Personnel Research Activity
San Diego, California 92152

SUMMARY AND CONCLUSIONS

Problem

The specific purposes of this research investigation were to determine the appropriateness of current Class A Commissaryman School training for Mental Group IV personnel and to identify problem areas that might require training modifications and have implications for Group IV training in general.

Background and Requirements

Before entering military service, all personnel are required to take the Armed Forces Qualification Test. Those individuals obtaining a percentile score from 10 through 30 are classified as being in Mental Group IV. The Navy, as well as the other military services, has begun to accept greater numbers of Group IV personnel who would have failed to meet previous enlistment or induction standards. In order to plan for an influx of Group IVs beginning July 1967, the Navy selected three ratings--Aviation Structural Mechanic, Equipment Operator, and Commissaryman-- for preliminary investigations of the feasibility of training lower aptitude personnel in Class A level schools. The results of this pilot study of the training received by Group IV students at the Class A Commissaryman School in San Diego should be of interest to Navy school administrative and instructional personnel concerned with the training of Group IVs.

Approach

The achievement of 17 Group IV personnel was compared with that of 29 regular input personnel in two successive Class A Commissaryman School classes convening on 27 March 1967 and 24 April 1967. Research data were obtained from service records, pretraining and course achievement tests, pre- and posttraining questionnaires, and interviews with instructors. Statistical analyses were made of the relationships between pretraining variables and course achievement criteria. Minor instructional modifications were made during training, and a job aid was developed to simplify arithmetic calculations required in the course.

Findings, Conclusions, and Recommendations

The research did provide an evaluation of the feasibility of Navy training for Group IV personnel and did identify certain training problems. Based on the research findings of this limited investigation of Group IV training, the following tentative conclusions are presented.

1. Group IV personnel are capable of successfully completing training of a nature and level comparable to that of the Class A Commissaryman School.
2. Although Group IVs can complete such training, their course achievement, as measured by typical school tests, tends to be significantly less than that of regular input personnel in the same classes. Furthermore, the Group IV students need to devote more time to study outside the classroom and require more attention and assistance from instructors.
3. Differences in course achievement between Group IV and regular students are least discernible in training areas involving actual job performance. The achievement of Group IV personnel appears to be inferior in those areas in which there is a strong reliance on paper-and-pencil tests to assess performance.
4. For Group IV personnel, course achievement is significantly related to years of education and level of reading ability.
5. Although Group IVs frequently have relatively low reading levels, efforts such as simplifying the vocabulary used in examinations and other written materials tend to reduce the effects of reading handicaps.
6. Mental Group IV personnel have particular difficulty in subject matter areas requiring arithmetic computations. Job aids apparently are of some value in reducing such problems.

The following recommendations pertain to the Navy training of Group IV personnel and to further related research.

1. The content of training courses should be examined with the goal of emphasizing the practice and measurement of those job performances that are most critical for fleet duties. The possibility of reducing theoretical knowledge requirements should be explored.
2. The allocation of training time should be adjusted to provide more attention to problem areas that may remain after possible revisions of course content.
3. The instructional situation should be structured to insure adequate opportunities for the counseling and guidance of slower students.

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AN INVESTIGATION OF THE FEASIBILITY OF NAVY COMMISSARYMAN TRAINING FOR GROUP IV PERSONNEL

A. Background

Before entering the military services, all individuals are required to take the Armed Forces Qualification Test (AFQT), a general measure of aptitude for military training. Those persons obtaining a percentile score from 10 through 30 on the AFQT are classified as being in Mental Group IV. In the past, only those individuals who were in the upper portion of Mental Group IV and who met certain other educational and test score requirements were eligible for military service. However, the Armed Forces have modified their qualification requirements to admit larger numbers of men who would have failed to meet previous enlistment or induction standards.

In order to plan for an influx of Mental Group IV personnel beginning July 1967, the Navy selected three ratings--Aviation Structural Mechanic, Equipment Operator, and Commissaryman--for preliminary investigations of the feasibility of training lower aptitude personnel in Class A level schools. This report describes a pilot study of the training received by Mental Group IV personnel at the Class A Commissaryman School in San Diego. Navy Commissarymen serve as cooks and bakers, and their duties essentially involve the ordering, preparation, and storage of food items. The purposes of this research were to determine the appropriateness of the current Commissaryman School course for Mental Group IV personnel and to identify problem areas that might require training modifications and have implications for Mental Group IV training in general.

B. Research Procedures

1. General Approach

The basic research approach was a comparison of the performance of Group IV personnel with that of regular input students in the Class A Commissaryman School at the Naval Training Center, San Diego. Accordingly, 10 Mental Group IV trainees who had just completed recruit training were assigned to each of two successive eight-week classes. The trainees in the remainder of each class were selected in accordance with the normal criteria for the School. Commissaryman School instructors were informed that the classes contained Group IV students, but the identities of the specific individuals were withheld. Data were obtained primarily from training course records and from data-gathering instruments developed specifically for this research. Statistical analyses were made of the relationships between pretraining variables and course achievement criteria. Before the first Commissaryman class containing Group IV trainees convened, a preliminary analysis was made of aptitude and course achievement data from several previous classes to identify training areas of potential difficulty for Group IV students.

2. Sources of Data

Research data were gathered from service records, pretraining and course achievement tests, pre- and posttraining questionnaires, and interviews with Class A Commissaryman School instructors. Scores on the General Classification Test and Arithmetic Test of the Basic Test Battery were obtained from service records. During the first week of training, the Navy Literacy Test (Form 6) was administered to all students. This is a standardized reading test consisting of 35 four-choice items, of which 20 involve sentence reading and 15 require paragraph comprehension. A conversion table was used to interpret the obtained Literacy Test scores in terms of Stanford Reading Test grade-level equivalents.

A brief pretraining questionnaire was used to gather data such as years of education, extent of mathematics training, and civilian employment. A posttraining questionnaire was administered at the conclusion of the course to obtain information about study outside the classroom, reactions to the Commissaryman training, attitudes toward possible training modifications, and career intentions.

The Commissaryman School furnished course achievement data, which included grades for the five topic areas in the curriculum, final test grade, and final course average. At the conclusion of the research study, a semi-structured interview was held with the Commissaryman School instructors who had had Mental Group IV personnel in their classes.

3. Sample Characteristics

Twenty Mental Group IV personnel were assigned directly from recruit training to the Commissaryman School; however, three were dropped for disciplinary reasons before or during the initial phases of training. Thus, a total of 17 Mental Group IV personnel, along with 29 regular input students, in two successive classes completed the eight-week Commissaryman training. The regular input personnel included both trainees assigned directly from recruit training and more experienced personnel assigned from the fleet. The first class consisted of 9 Group IVs and 14 regular input students; the second class contained 8 and 15, respectively. The first eight-week class convened on 27 March 1967 while the second class began training on 24 April 1967.

Presented in Table 1 are the means, standard deviations, ranges, and differences between means for selected pretraining variables. It can be seen that, as a result of selection restrictions, the AFQT percentile scores of the Group IV trainees ranged only from 16 through 28 and none had a Navy Standard Score higher than 44 on the General Classification Test. The means of data for the Group IV students were significantly lower than those of the regular input students on all the variables listed in Table 1 except age. Compared with the regular students, the Group IVs averaged nearly a year and a half less education, were half a year younger, and had a mean reading level two and a half years lower.

TABLE 1

Comparison of the Means of Group IV and Regular Trainees
on Selected Pretraining Variables

Pretraining Variable	Group IV Trainees (N=17)		Regular Trainees (N=29) ¹		Difference Between Means	t-value	Significance Level ²	
	Mean	SD	Mean	SD				
Armed Forces Qualification Test	22.5	3.9	16-28	14.8	40.4	10.86	.01	
General Classification Test (NSS)	35.5	4.2	25-44	8.1	32-68	20.1	9.62	.01
Arithmetic Test of Basic Test Battery (NSS)	42.2	4.5	32-49	7.0	34-66	11.2	5.56	.01
Navy Literacy Test (Grade 6.5)	26.2	4.8	16-33 (Grade 9.1)	2.4	24-35	7.2	6.78	.01
Age (years)	19.0	0.8	18-21	1.6	18-25	0.5	1.16	NS
Education (years)	10.4	1.9	6-12	1.3	8-14	1.4	2.98	.01

Notes--1. Except for AFQT for which N=17

2. t-values of 2.02 (.05 level) and 2.69 (.01 level) are required for significance for all variables except AFQT, for which the values are 2.04 (.05 level) and 2.74 (.01 level).

Data from a pretraining questionnaire revealed that 4 of the 17 Group IV personnel and 10 of the 29 regular students had had civilian experience related to the duties of the Commissaryman. Five of the Group IV students and 14 of the regular input trainees had received mathematics instruction beyond basic arithmetic.

4. Training Procedures

The Class A Commissaryman School is an eight-week course involving nearly equal amounts of classroom and laboratory time. Classroom sessions consist mainly of lectures supplemented by training films, exhibits, and study guides. The laboratory periods are devoted to actual cooking and baking. The last week of training requires working in an operating galley at another Navy facility.

The curriculum of the Class A Commissaryman School had been revised a short time prior to the beginning of this research study, and the administrative and instructional staff of the School believed that little modification would be required to provide adequate training for Mental Group IV students. Accordingly, it was agreed that the existing curriculum would be used without change until such time as training difficulties indicated a need for modification.

Since the existing curriculum appeared to be basically adequate for the aptitude range of the trainees in the pilot study, only the following instructional adjustments by the School staff were required: more personal attention to and counseling of slower students, simplification of vocabulary in written materials such as tests and study guides, compilation and distribution of special glossaries, more night study assignments, and allocation of a greater proportion of time to those topics requiring mathematical computations.

In order to reduce the difficulty experienced by some Group IV personnel when required to make recipe conversion calculations, a training and job aid was developed by the researchers. It was distributed to the first class at graduation and was introduced into the training of the second class. The format of the Recipe Conversion Card is shown in Appendix A. The Recipe Conversion Card simplifies several of the mathematical operations required to determine the amount of each recipe ingredient appropriate for a number of servings greater or less than the standard 100 servings indicated on Navy-Marine Corps Recipe Cards. The conversion chart was reproduced both in wallet size and in the size of the Navy-Marine Corps Recipe Cards (5" x 8").

C. Results

1. Course Achievement Scores

The curriculum of the Class A Commissaryman School at San Diego is divided into the following five topic areas: Topic 1--Orientation and Operation, Topic 2--Mathematics and Sanitation, Topic 3--Cooking, Topic 4--Baking, and Topic 5--Galley Laboratory. The grades for Topics 1 and 2 are determined solely by paper-and-pencil tests. For Topics 3 and 4, 60 percent of the grade is based on written tests and 40 percent is a practical performance measure. Topic 5, Galley Laboratory, involves working in a galley at another Navy facility, and the grade is determined solely by an evaluation of job performance. The Final Course Grade is a weighted composite of the topic area scores and a final written test grade.

Except for students dropped for disciplinary reasons before or during the initial phase of training, all Group IV and regular input personnel attained a passing grade in the Commissaryman course. Mean achievement scores and related statistics are presented in Table 2. The differences between the mean scores of the Group IV and the regular input students on all of the course achievement criteria were statistically significant. It is noted that the absolute differences between group means were greatest in those training areas in which achievement was measured solely by paper-and-pencil tests, namely, Topics 1 and 2 and the final written test grade. The differences between the groups were less for Topics 3 and 4, for which the grades are composites of both written tests and performance measures. The smallest difference between group means was in the Galley Laboratory phase, Topic 5, for which the grade is solely an on-the-job performance measure. Also, both Group IV and regular input trainees attained the highest grades in Topic 5. The achievement of Group IVs was poorest for Topic 2, Mathematics and Sanitation.

2. Relationships between Pretraining Variables and Course Achievement

In order to examine the relationships between selected pretraining variables and course achievement criteria, correlation coefficients were computed. The product-moment correlations for the combined sample of Group IV and regular input trainees are presented in Table 3.

All of the correlations between pretraining variables and achievement criteria are statistically significant except for the correlation between years of education and Topic 5 (Galley Laboratory) grades. The Armed Forces Qualification Test percentile score, which is the variable used to define Mental Group IV personnel, was significantly related to achievement in the Class A Commissaryman School. However, the relationships of the other pretraining variables to course achievement criteria were generally greater than those involving AFQT score.

TABLE 2

Comparison of Mean Course Achievement Scores
for Group IV and Regular Trainees

Score	Group IV Trainees (N=17)			Regular Trainees (N=29)			Difference Between Means	t-value	Significance Level
	Mean	SD	Range	Mean	SD	Range			
Topic 1: Orientation and Operator	74.0	9.9	56.2-87.0	84.0	6.4	71.6-94.7	10.6	4.41	.01
Topic 2: Mathematics and Sanitation	71.5	11.3	43.8-85.4	84.0	7.6	64.0-95.4	12.5	4.47	.01
Topic 3: Cooking	76.0	6.4	4.9-86.0	82.8	4.9	72.9-92.3	6.8	4.06	.01
Topic 4: Baking	77.5	7.3	63.6-89.4	83.8	5.6	69.8-94.8	6.3	3.28	.01
Topic 5: Galley Laboratory	85.6	2.5	80.0-90.0	88.9	3.2	80.0-96.0	3.3	3.60	.01
Final Test Grade	70.7	8.0	62.0-84.0	81.3	7.1	63.0-90.0	10.6	4.69	.01
Final Course Grade	75.5	6.1	66.0-85.2	83.5	4.9	73.2-93.2	8.0	4.83	.01

Note--1. t-values required for significance are 2.02 (.05 level) and 2.69 (.01 level).

TABLE 3

Correlations Between Pretraining Variables and Course Achievement Scores
for the Combined Sample of Group IV and Regular Trainees

Pretraining Variable	Course Achievement Score					Final Grade
	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5	
Armed Forces Qualification Test	.50	.57	.50	.45	.43	.58
General Classification Test	.61	.70	.62	.54	.47	.69
Arithmetic Test	.64	.70	.70	.60	.41	.75
Navy Literacy Test	.65	.74	.66	.55	.35	.70
Years of Education	.71	.65	.70	.70	.27	.72

Notes--1. All of the correlations are significant at the .01 level except for Topic 5 correlations with AFQT (.05 level), Literacy Test (.05 level), and Education (not significant).

2. The N's for those correlations involving AFQT scores are 34; for all other correlations the N's are 46.

Of the various course achievement scores, the grade in Topic 5, which is based on actual job performance, correlated least with each of the pretraining measures.

Intercorrelations among the course achievement criteria (not reported in Table 3) ranged from .43 to .92, and all were significant at the .01 level. However, the correlations between Topic 5 scores and other course scores were noticeably lower than the other course criteria intercorrelations.

The correlations between pretraining variables and course achievement scores for the Mental Group IV trainees only are shown in Table 4. Of the pretraining variables, years of education correlated highest with most of the achievement criteria, and there also were significant relationships between Literacy Test scores and three of the course scores.

3. Questionnaire Responses

Appendix B is a breakdown of responses to a questionnaire administered at the conclusion of training to all students in the two pilot classes. These subjective opinions provide an opportunity to compare the first-hand reactions of Group IV and regular students to specific training methods and materials utilized in the Commissaryman course.

Responses to Item 1 indicate that most of the Group IV students considered the Mathematics and Sanitation phase of training to be the most difficult, whereas the responses of the regular input personnel were divided between that phase and the Orientation and Operation topic area. The responses to Item 4, which pertains more specifically to the arithmetic portion of the Mathematics and Sanitation topic area, suggest that mathematical calculations were perceived to be a greater learning problem by Group IV students than by regular input trainees. This finding is substantiated by responses to Item 2, in which eight regular students but no Group IVs reported Mathematics and Sanitation to be the easiest topic area of the course. All but two of the Group IV trainees indicated a topic area involving laboratory sessions as the easiest phase; a majority of the regular input students also selected the topic areas of Cooking, Baking, or Galley Laboratory.

Most of the Group IV and regular students believed that the pace of the instruction at the Class A Commissaryman School was about right (Item 3). A majority of both Group IV and regular trainees felt that the classroom lectures and laboratory sessions were equally effective means of instruction (Item 5); however, there was unanimous agreement among the regular input students who did not check that response that laboratory instruction was more effective than classroom teaching. The responses to Item 6 reflect a strong preference for an increase in the proportion of laboratory practice in the

TABLE 4

Correlations Between Pretraining Variables and Course Achievement Scores
of Group IV Trainees (N=17)

Pretraining Variable	Course Achievement Score					Final Grade	
	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5		Final Test
Armed Forces Qualification Test	.23	.21	.56	.07	.15	.54	.29
General Classification Test	.11	.17	.24	.24	.48*	.11	.29
Arithmetic Test	.31	.53	.26	.11	-.55	.10	.21
Navy Literacy Test	.46	.55*	.48*	.56	.17	.55	.49*
Years of Education	.76**	.17	.64**	.60*	-.04	.57*	.67**

Notes-- * Significant at .05 level (correlation of .48 required)

** Significant at .01 level (correlation of .51 required)

curriculum. There also was a virtually unanimous opinion that laboratory sessions should usually or always be preceded by the corresponding classroom lectures (Item 7).

Whereas regular input students were nearly equally divided in regard to whether or not more training films should be utilized in the course, a definite majority of the Group IVs recommended showing more films (Item 8). Responses to Item 9 indicated that few of the students perceived any difficulties in reading the course training materials such as study guides and manuals. Eleven of the 17 Group IV students reported that, other than the instructor, the study guides had been most helpful for understanding difficult parts of the course (Item 10); most of the regular trainees indicated that either the study guides or fellow students had been most helpful.

In Item 11, the students were asked to indicate the average number of hours per day spent studying outside of classroom time. Using four hours for the "More than three" category, the mean hours spent daily in non-classroom study were computed and found to be 1.9 for the Group IV personnel and 1.1 for the regular trainees. Examination of responses to a similar item on a pretraining questionnaire reveals that most of the regular students and some of the Group IV trainees actually spent less time on outside study than they had estimated that they would at the beginning of the course.

The students were asked to designate whether or not they planned to make the Navy a career (Item 12). It can be seen in Appendix B that the proportions of trainees checking each category are very similar for the two respondent groups.

Questionnaire Items 13 through 18 pertain to a Recipe Conversion Card that was developed to simplify several of the mathematical operations required in recipe conversion calculations. These items were administered only to the second class because the charts were not available to the first class in sufficient time for utilization during training. Responses to Item 13 reveal that all but two of the Group IVs but only six of the regular students found the conversion chart to be useful during some portion of the course. However, even the regular students' responses to Items 14, 15, and 16 reflect a generally favorable opinion of the utility of the card. All of the Group IVs, along with six of the regular students, indicated that they expected to use the conversion card either all of the time or most of the time at their next duty station (Item 17). In regard to the most useful size for the conversion card, a majority of the regular students revealed a preference for the recipe card size, but Group IVs were evenly divided between that size and wallet size (Item 18).

4. Instructor Comments

During the research study, frequent contact was maintained with the administrative and instructional staff of the Commissaryman School, and selected portions of the course were monitored. The

comments briefly summarized here reflect mainly the opinions of the two instructors having primary responsibility for teaching the two classes to which Group IVs were assigned.

Based on their experience with the two classes, the instructors expressed the opinion that most Group IV personnel are capable of completing the standard training given at the Class A Commissaryman School. However, they noted that it had been necessary to devote more time than normal to individual guidance and counseling, with considerable additional emphasis required for topic areas involving mathematical and verbal skills. The instructors did not perceive any significant differences between the Group IV students and other trainees in regard to motivation, attitude, or discipline in the classroom.

D. Conclusions and Recommendations

Based on an investigation of the achievement of 17 Mental Group IV and 29 regular input personnel in the Class A Commissaryman School, the following conclusions and recommendations are presented. While they are specific to Commissaryman training, some generalization to the training of Group IV personnel in other situations may be appropriate.

1. Course achievement scores and the opinions of the training personnel included in the study indicate that Group IV trainees are capable of successfully completing training of a nature and level comparable to that of the Class A Commissaryman School. It should be noted that there was no lowering of the course standards to accommodate the Group IV students; they had to meet the same course criteria as the regular input students in the same classes and in previous classes.
2. Although Group IVs can successfully complete such training, their course achievement, as measured by typical school tests, tends to be significantly less than that of regular input personnel in the same classes. Furthermore, the Group IV students need to devote more time to study outside the classroom and require more attention and assistance from instructors.
3. Differences in course achievement between Group IV and regular students are least discernible in training areas involving actual job performance, such as cooking, baking, and preparing food. The achievement of Group IV personnel appears to be inferior in those areas in which there is a strong reliance on paper-and-pencil tests to assess performance.
4. For Group IV personnel, course achievement is significantly related to number of years of formal schooling completed and to level of reading ability. Although AFQT score level is related to course success for the total trainee sample, within the restricted range of upper-half Group IV scores, AFQT level is not related to achievement.

5. Although Group IV personnel frequently have relatively low reading levels, efforts such as simplifying the vocabulary used in examinations and other written materials tend to reduce the effects of reading handicaps.

6. Mental Group IV personnel have particular difficulty in subject matter areas requiring arithmetic computations. In this study, the lowest mean topic area score of the Group IVs was in Mathematics and Sanitation. Questionnaire responses and instructor comments support the finding that Group IV students often experience difficulty when numerical operations are required. Job aids apparently are of some value in reducing such problems.

In regard to the following recommendations, it should be noted that some of the concepts and procedures have already been implemented, to some extent, into the Navy training of Group IV personnel.

1. The content of training courses should be examined with the goal of emphasizing the practice and measurement of those job performances that are most critical for fleet duties. The possibility of reducing the theoretical knowledge requirements of courses should be explored.

2. The allocation of training time should be adjusted to provide more attention to problem areas that may remain after possible revisions of course content. An example would be devoting more time to those segments of training that involve arithmetic calculations thought to be essential for adequate job performance.

3. In the present study, training personnel reportedly devoted more time than normal to the counseling and guidance of slower students. If this situation proves to be typical of classes containing Group IV personnel, then efforts should be made to insure that such additional attention can similarly be provided in future classes. Requirements would include maintaining appropriate student-instructor ratios, providing for ample study spaces and equipment availability, and orienting instructors toward the need for assisting slow learners.

4. Some of the more effective approaches and procedures employed by the Commissaryman School for the pilot investigation should be considered for utilization in other Group IV training situations. These would include use of lecture worksheets and study guides, student participation during lectures, early introduction of meaningful examples, frequent repetition of important points, reduction of differences in reading ability by simplification of vocabulary used in course materials and examinations, utilization of appropriate training films and other audio-visual aids, and curriculum organization providing for extensive practice of actual job duties and skills. Efforts should be made to insure that the Group IV training situation provides both student and instructor with prompt and continuing knowledge of trainee achievement and progress.

5. Job aids, such as the Recipe Conversion Card for the Commissaryman course, should be developed and implemented to meet difficulties caused by specific course content which cannot feasibly be deleted or simplified.

6. The Mental Group IV category is defined by scores on the Armed Forces Qualification Test. However, it is obvious that these personnel are not a homogeneous group in regard to other aptitude and experience variables that are related to success in training. Therefore, the selection of Group IVs for Navy training courses should, whenever practicable, capitalize on the presence of other relevant experience or aptitude factors which may enhance the probability of achievement in the specific training assignment.

7. Further research on the training of Group IV personnel should be conducted under conditions where greater control of experimental variables can be exercised than is possible within the operational limitations of ongoing Navy school training. The Navy Training Research Laboratory is planning a series of controlled research investigations involving the training of samples of Group IV subjects in specified basic skill areas. Although the achievement of Group IV personnel in Navy schools is of considerable importance, the crucial consideration is how well they are able to perform their assigned duties in the fleet. Therefore, it is strongly recommended that future research provide for fleet follow-up evaluations.

APPENDIX A

Format of Recipe Conversion Card

RECIPE CONVERSION CARD

CONVERSION TABLE

Number of Servings	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
17																					
18																					
19																					
20																					

TO CONVERT FROM POUNDS OF INGREDIENTS TO OUNCES:

A. Find the decimal fraction of higher fraction in the body of the table.

B. Read the number of whole ounces from the left margin of the table.

C. Read the number of additional ounces from the top heading.

Front

EXAMPLE OF RECIPE CONVERSION

RECIPE: BEEF LOAF (1-10) NUMBER OF SERVINGS NEEDED: 348

- Determine working factor by dividing number of servings needed by 100 (i.e. move decimal point 2 places to the left) $348 \div 100 = \underline{3.48}$
- Multiply amount of ingredient by working factor. For example, if the recipe calls for 4 pounds of dry bread $4 \text{ lbs} \times 3.48 = \underline{13.92 \text{ lbs}}$
- Refer to Conversion Table on opposite side to convert decimal fraction of a pound (.92) to ounces. Answer is 14.7 oz
- Thus, amount of dry bread required for 348 servings of beef loaf is 13 lbs. 14.7 oz
- Repeat procedure for each ingredient in recipe.

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APPENDIX B

Breakdown of Posttraining Questionnaire Responses

ITEM	RESPONSE FREQUENCIES		
	GROUP IV	REGULAR	TOTAL
1. Which one of the topic areas of the course was hardest for you?			
Orientation and Operation	2	12	14
Mathematics and Sanitation	13	14	27
Cooking	2	2	4
Baking	0	1	1
Galley Laboratory	0	0	0
2. Which one of the topic areas of the course was easiest for you?			
Orientation and Operation	2	1	3
Mathematics and Sanitation	0	8	8
Cooking	5	3	8
Baking	7	7	14
Galley Laboratory	3	10	13
3. Which one of the following best describes the rate at which the course material was presented?			
Too fast	1	6	7
About right	16	21	37
Too slow	0	2	2
4. Compared with other parts of the course, how difficult was the part involving arithmetic problems?			
It was harder than any other part of the course	10	9	19
It was about the same difficulty as other parts of the course	6	15	21
It was easier than any other part of the course	1	5	6
5. Which one of the following ways of teaching do you feel was most effective?			
Classroom lectures	3	0	3
Laboratory sessions	2	11	13
They were equally effective	12	18	30
6. In regard to the organization of the course, which one of the following would you recommend?			
Increase the proportion of classroom time	2	0	2
Increase the proportion of laboratory practice	12	27	39
Leave the ratio of classroom and laboratory time about as it is now	3	2	5

APPENDIX B (continued)

ITEM	RESPONSE FREQUENCIES		
	GROUP IV	REGULAR	TOTAL
7. When a topic requires both classroom and laboratory, how should they be scheduled?			
Always schedule classroom lectures before laboratory sessions	12	18	30
Usually schedule classroom lectures before laboratory sessions	5	10	15
Usually schedule laboratory sessions before classroom lectures	0	0	0
Always schedule laboratory sessions before classroom lectures	0	1	1
8. In regard to the training films shown in the course, which one of the following would you recommend?			
Show more films	11	15	26
Show the same number of films as are being used now	5	14	19
Show fewer films	1	0	1
9. How easy to read are the study guides, course manuals, and other written materials in the course?			
All of them are easy to read	6	10	16
Most of them are easy to read	8	18	26
Most of them are hard to read	2	0	2
All of them are hard to read	1	1	2
10. Besides the instructor, which one of the following helped you the most in understanding difficult parts of the course?			
Training films	2	2	4
Study guides	11	13	24
Course manuals	1	2	3
Fellow students	3	12	15
11. On the average, how many hours a day did you spend studying outside of classroom time?			
None	1	6	7
One	5	13	18
Two	7	10	17
Three	3	0	3
More than three	1	0	1
12. Do you plan to make the Navy your career?			
Yes	2	4	6
No	8	13	21
Undecided	7	12	19

APPENDIX B (continued)

ITEM	RESPONSE FREQUENCIES		
	GROUP IV	REGULAR	TOTAL
13. During training, where did you find the wallet-sized recipe conversion card to be useful?			
During classroom exercises	0	0	0
During laboratory sessions	2	2	4
During both classroom exercises and laboratory sessions	4	4	8
Did not find it to be useful	2	9	11
14. When making recipe conversions, which of the following is easiest for you?			
Using the recipe conversion card	5	6	11
Doing arithmetic calculations by hand	2	6	8
No difference	1	3	4
15. When making recipe conversions, which of the following procedures is fastest for you?			
Using the recipe conversion card	5	8	13
Doing the arithmetic calculations by hand	1	3	4
No difference	2	4	6
16. When making recipe conversions, which of the following procedures do you believe results in the fewest mistakes?			
Using the recipe conversion card	5	5	10
Doing the arithmetic calculations by hand	2	6	8
No difference	1	4	5
17. If your Commissaryman duties at your next duty station require recipe conversions, how often do you believe you will use the recipe conversion card rather than doing the calculations by hand?			
All of the time	3	3	6
Most of the time	5	3	8
Once in a while	0	8	8
None	0	1	1
18. Which size of the recipe conversion card do you believe is most useful for Commissarymen?			
Wallet size	3	1	4
Recipe card size	3	9	12
Combination of both sizes	2	5	7

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AN INVESTIGATION OF THE FEASIBILITY OF NAVY COMMISSARYMAN TRAINING FOR GROUP IV PERSONNEL		
Eugene A. Hooprich John H. Steinemann		
September 1967	28	0
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This document has been approved for public release and sale; its distribution is unlimited		
		Chief of Naval Personnel (Pers-A3) Navy Department Washington, D. C. 20370
An investigation was conducted to determine the feasibility of providing Navy Class A Commissaryman School training for Mental Group IV personnel. The achievement of 17 Group IVs was compared with that of 29 regular students in two successive eight-week classes of the Commissaryman School. Research data were obtained from service records, pretraining and course achievement tests, pre- and posttraining questionnaires, and interviews with instructors. The Group IV personnel successfully completed the Commissaryman training. However, their course achievement, as measured by typical school tests, tended to be significantly less than that of regular students in the same classes. Specific problem areas were identified, and the appropriateness of certain training modifications and job aids are discussed. Recommendations are made for the training of Group IV personnel and for further related research. (U)		

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