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OCTOBER 1968

COMPARATIVE EVALUATION OF THE PERFORMANCE OF GROUP IV  
PERSONNEL IN AN ENLISTED SKILLS TRAINING COURSE  
(LOOKOUT AND RECOGNITION)

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COMPARATIVE EVALUATION OF THE PERFORMANCE OF GROUP IV  
PERSONNEL IN AN ENLISTED SKILLS TRAINING COURSE  
(LOOKOUT AND RECOGNITION)

by

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## SUMMARY AND CONCLUSIONS

### Problem

Armed Forces Qualification standards have been modified to admit a number of men who would not have been eligible under previous enlistment standards. A continuing research effort is required to determine the most appropriate means of training and utilizing these marginal personnel.

### Background and Requirements

The present limited study is part of a broad series of investigations concerning the trainability of Group IV personnel. These investigations are designed to evaluate the effectiveness of different training methods, the suitability of different content areas, and the achievement of Group IV personnel in comparison to that of non-Group IV personnel in similar training contexts.

### Approach

In this investigation, the performance of a sample of 90 Group IV personnel was compared to that of a concurrent sample of 100 non-Group IV's in a short enlisted skills training course (Lookout and Recognition). The Lookout phase criterion test requires more verbal performance than does the Recognition phase test. The samples were accumulated over a period of three months and included all those crew members from the battleship New Jersey, and nine countermeasure support ship Catskill, who attended the Lookout and Recognition course during that period.

### Findings

The achievement mean of the Group IV sample was significantly lower than that of the non-Group IV sample in both the Lookout and in the Recognition phase of training. The Group IV sample did relatively more poorly in Recognition training than it did in Lookout training. The failure rate of the Group IV's was also substantially higher than that of non-Group IV's in both training phases. AFQT score was significantly correlated with training achievement scores for the total combined sample.

Despite the relatively inferior mean performance of the Group IV sample, a substantial proportion of the trainees did successfully complete training, and are reportedly assigned to lookout duties aboard ship.

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COMPARATIVE EVALUATION OF THE PERFORMANCE OF GROUP IV  
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A. Background

Armed Forces qualification standards have been modified to admit a number of men who would not have been eligible under previous enlistment standards. A continuing research effort is required to determine the most appropriate means of training and utilizing these marginal personnel. The present limited study is part of a broad series of investigations concerning the trainability of Group IV personnel (AFQT scores 10 through 30). These investigations are designed to evaluate the effectiveness of different alternative training approaches, and the suitability of different content areas. Comparisons have been made between Group IV and non-Group IV personnel with regard to their absolute and relative achievement in identical or comparable training contexts. Some investigations (1, 2, 3, 4, 5, 6, 7) have indicated that, despite limited verbal and computational abilities, Group IV personnel can be successfully trained in a variety of skill and knowledge areas. Typically the average achievement level of Group IV personnel is lower than that of non-Group IV's, but the inter-group differences are least severe for practical performance criteria which depend least upon verbal and computational factors.

The present supplementary study compares the performance of a sample of Group IV personnel with that of a concurrent sample of non-Group IV personnel in a short enlisted skills training course.

B. Approach

In this investigation, samples of Group IV and non-Group IV personnel were compared on the basis of their relative achievement in the five-day Lookout and Recognition training course (K-000-022PC). This course is conducted at the Fleet Training Center, San Diego. It involves approximately two days of Recognition training and three days of Lookout training, including night vision practice. The Recognition phase provides instruction and practice in using the WEFT (Wing, Engine, Fuselage, Tail) system for visually identifying a variety of ships and planes. The Lookout phase includes scanning procedures, use of aids such as binoculars and special goggles, and practice in surveillance under simulated nighttime conditions. Training achievement criteria are available separately for the Recognition and for the Lookout portions of the course, and are based upon tests given at the end of each phase. The Lookout written test contains 50 knowledge and procedure items, chiefly in multiple-choice format. The Recognition test requires the examinee to identify a variety of ships and planes from pictures which are rapidly flashed

upon a viewing screen. The Recognition test involves perceptual identification and is less verbal in nature than the Lookout test which involves both reading and writing skills.

The two comparison samples consisted of 90 Group IV, and 100 non-Group IV trainees. The sample subjects were crew members from the battleship New Jersey, and from the mine countermeasures support ship Catskill. The samples were accumulated over a period of approximately three months and included all those crew members from both ships who attended the Lookout and Recognition Course during that period. Group IV and non-Group IV subjects were in training concurrently, and were in regular classes along with other trainees who were not part of the samples. All classes in Lookout and Recognition were taught by the same Navy instructor throughout the entire sampling period.

### C. Results and Discussion

As a result of the explicit selection of sample groups on the basis of AFQT score categories, the mean difference between the average AFQT score of the Group IV and non-Group IV sample is highly significant ( $p < .001$ ). The mean AFQT scores were 21.7 and 65.3 for the Group IV and non-Group IV samples respectively.

Comparison of the relative performance of the Group IV and non-Group IV samples is provided by Table 1 which contains the training achievement data for both groups in the Lookout and the Recognition phases of the course.

The comparative data reveal the achievement of the Group IV sample to be significantly poorer than that of the non-Group IV's in both the Lookout and in the Recognition phases of training. The disparate mean achievement scores reflect a substantial difference in the failure rate for the two groups. The Group IV failure rate was 24 per cent and 47 per cent in the Lookout and Recognition phases respectively, while that of the non-Group IV sample was only 3 per cent and 13 per cent for the same phases.

Previous investigations have shown that Group IV personnel experience particular difficulty with the verbal and mathematical aspects of training (1, 2, 3, 4, 5, 6). The relatively inferior performance of this Group IV sample on the Recognition test, which was less verbal than the Lookout test but which probably involves both memory and perceptual abilities, suggests that there may be other higher order performance areas which will present considerable difficulties for marginal personnel.

The intercorrelations between AFQT scores and training achievement scores for the combined trainee sample, and for the Group IV, and the non-Group IV samples alone, are presented in Table 2.

TABLE 1  
 Training Achievement Data for Group IV and non-Group IV Samples

Training Phase	N	Group IV		N	Non-Group IV		Difference Between Means	
		Mean	SD		Mean	SD		
Lookout	90	70.1	13.7	24	100	82.9	9.0	12.8*
Recognition	88	61.9	23.2	47	97	83.4	15.6	21.5*

Note.--

\*Difference between mean scores significant beyond the .001 level.

TABLE 2  
Correlations Between Training Variables

Variable	Combined Sample (N=190)		Group IV Only (N=90)		Non-Group IV Only (N=100)	
	Lookout	Recognition	Lookout	Recognition	Lookout	Recognition
AFQT	.53*	.43*	.19	.08	.38*	.08
Lookout	-	.54*	-	.52*	-	.18

Note.--

\*Correlation significant at the .01 level.

There is a significant relationship between AFQT score and achievement in both the Lookout and Recognition training phases for the combined sample. Within the restricted range of AFQT scores represented by the Group IV sample alone, AFQT is not significantly correlated with training achievement in either phase. Achievement of Group IV's in the Lookout phase was significantly correlated with their performance in the Recognition phase, indicating some prerequisite ability factors common to both.

#### D. Summary

The achievement of a sample of Group IV trainees was compared with that of a concurrent sample of non-Group IV trainees in an enlisted skills training course (Lookout and Recognition). The Lookout phase test requires relatively more verbal performance than does the Recognition test, which is a perceptual identification task.

The Group IV achievement mean was significantly lower than that of the non-Group IV sample in both the Lookout and in the Recognition phase of training. The Group IV sample did relatively more poorly on the Recognition criterion test than it did on the Lookout test. The failure rate of the Group IV sample was substantially higher than that of the non-Group IV sample in both training phases. AFQT score was significantly correlated with training achievement scores for the total combined sample.

Despite the relatively inferior mean performance of the Group IV sample, a substantial proportion of the trainees did successfully complete training and are reportedly assigned to lookout duties aboard ship.

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