

Gilbert, Arthur C.F. & Tulloh, Nancy E., US Army Research Institute  
for the Behavioral and Social Sciences, Alexandria, Virginia.  
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Army Officer Success in the Different Types of Career Branches

The purpose of this research was to evaluate the utility of different measures of potential in identifying groups of Army officers who were defined as being successful in different types of career branches. Several measures of aptitude and motivation were used in the analyses. Implications of the findings will be presented.

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## ARMY OFFICER SUCCESS IN THE DIFFERENT TYPES OF CAREER BRANCHES

Arthur C. F. Gilbert, Ph.D.  
Nancy E. Tulloh\*

US Army Research Institute for the  
Behavioral and Social Sciences<sup>1</sup>  
Alexandria, Virginia 22333

In previous research, the characteristics of those officers who received higher final course grades in Officer Basic Courses (OBC) than would have been predicted on the basis of aptitude measures were explored (Gilbert, 1980). The results of that research indicated that those officers displayed a greater interest in becoming an Army officer and a greater interest in those activities related to success as a combat leader as these attributes were reflected by the relevant scales of the Officer Evaluation Battery (OEB). Other research has explored the utility of certain measures in the prediction of different aspects of duty performance (Gilbert, 1977). While the research indicated the utility of certain of these measures, there were certain differences in the utility of these predictors in the different types of career branches (i.e., Combat Arms, Combat Support, and Combat Service Support). These research efforts then lead to the question of whether success in the different types of assignments is related to different patterns of aptitude, motivation, and ratings on early performance on active duty. If so, this information could be used for assignment purposes to insure that officers are assigned to those duty positions in which their aptitude and motivation are most fully utilized. This investigation was designed to explore these considerations.

Specifically, the purpose of this research was to explore differences that might exist among groups of officers who received higher than average ratings in the different types of career branches. These differences were evaluated on certain measures of aptitude and motivation as well as performance along certain leadership dimensions early in their tour of active duty. The utility of the variables in differentiating among these groups of officers was evaluated individually and in certain combinations.

### METHOD

A sample of officers who attended Officer Basic Courses (OBC) in thirteen Army Career Branches and who continued on active duty after completion of Officer Basic Course were used as subjects in the research. A weighted average of the Officer Efficiency Reports received by these officers for the first three years of active duty was computed and an

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\*Now at Essex Corporation, Alexandria, Virginia.

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average of these weighted averages was obtained. Officers who received a greater than average weighted average were selected as subjects. This group was then divided on the basis of membership in the three types of Career Branches: Combat Arms, Combat Support, and Combat Service Support. The three groups of officers were then compared on two different types of measures.

The first set of measures consisted of measures obtained in Officer Basic Course, and included the Officer Evaluation Battery, final course grades in Officer Basic Course, and peer ratings received at the end of the Officer Basic Course. The Officer Evaluation Battery (OEB) reflects measures of aptitude and motivation in seven scale scores. The predictive utility of this instrument is discussed in an earlier paper (Gilbert, 1978) and a brief description of the scales is presented in Figure 1.

The second set of measures consisted of duty performance measures obtained from a specially constructed Performance Evaluation Form (Gilbert and Grafton, 1976) which yields a global measure of duty performance and measures along nine dimensions of duty performance. Ratings on the Performance Evaluation Form were obtained after twelve to eighteen months of duty performance.

The first series of analysis consisted of comparing the means of the three groups of officers (i.e., Combat Arms, Combat Support, and Combat Service Support) on each of the available measures. The discriminant analysis technique was used to evaluate the efficacy of all of these variables in defining group membership. Two other discriminant analyses were performed; one of these analyses used only the Officer Basic Course measures while the other used only the duty performance measures.

The second series of analyses was performed as an exploratory strategy to evaluate what the effect on group membership prediction would be if only two groups of officers were involved (i.e., differentiation between Combat Arms officers and officers not in the Combat Arms). For this series of analyses, the subjects in the Combat support and in the Combat Service Support were combined. Thus, for each of the individual measures, differences between the mean of officers in the Combat Arms branches and the mean of officers in the other branches were evaluated and a series of discriminant analyses paralleling the three-group design were performed.

## RESULTS AND DISCUSSION

The means of the three groups of officers in the three types of Career Branches are shown in Table 1 for the measures of aptitude and motivation of the Officer Evaluation Form Battery (OEB). Significant differences were found among the three groups on three scales of the OEB at the .01 level; these differences were obtained for the Combat Leadership (Cognitive), Technical Managerial (Non-cognitive), and the Career Potential (Non-cognitive) scales. A statistical difference was also obtained among

| SUBTEST   | DESCRIPTION OF ITEMS   |
|---|--|
| Combat Leadership (Cognitive)                   | Military tactics; practical skills in a variety of areas ranging from out-door activities to mechanical and electronic applications.                                       |
| Technical-Managerial Leadership (Cognitive)     | History, politics; culture; mathematics; physical sciences   |
| Career Potential (Cognitive)                    | Technological knowledge relevant to military requirements.   |
| Combat Leadership (Non-Cognitive)               | Combat leader qualities, occupational interests, sports interest, outdoor interests related to combat leadership   |
| Technical-Managerial Leadership (Non-Cognitive) | Mathematics and physical sciences skills and interest; urban or rural background; scientific interest and ability; decisive leader qualities; and verbal-social leadership |
| Career Potential                                | Clerical-administrative interest, versus white collar interest, combat interest  |
| Career Intent                                   | Intention of making the Army a career choice   |

Figure 1. Officer Evaluation Battery (OEB) Subtests and Description of Items.

Table 1

Means for the Three Groups of Officers on  
Officer Basic Course (OBC) Measures

| Variable  | Combat<br>Arms<br>(N=439) | Combat<br>Support<br>(N=139) | Combat<br>Service<br>Support<br>(N=68) | Total<br>(N=637) | F-Ratio |
|---|---------------------------|------------------------------|--|------------------|---------|
| Combat Leadership (Cognitive)                       | 110.84                    | 104.97                       | 97.37                                  | 108.12           | 16.13** |
| Technical Managerial Leadership<br>(Cognitive)      | 111.21                    | 110.27                       | 102.94                                 | 110.12           | 4.57*   |
| Career Potential (Cognitive)                        | 104.09                    | 105.46                       | 101.94                                 | 104.16           | .71     |
| Combat Leadership<br>(Non-Cognitive)                | 111.90                    | 109.94                       | 106.09                                 | 110.85           | 3.13*   |
| Technical Managerial<br>(Leadership (Non-Cognitive) | 103.44                    | 110.43                       | 107.07                                 | 105.35           | 6.46**  |
| Career Potential<br>(Non-cognitive)                 | 110.96                    | 105.65                       | 94.07                                  | 108.00           | 28.13** |
| Career Intent                                       | 115.99                    | 117.48                       | 112.85                                 | 115.98           | 1.85    |
| Officer Basic Course Final<br>Grades                | 104.34                    | 103.16                       | 100.75                                 | 103.70           | 1.15    |
| Final Course Peer Ratings                           | 99.14                     | 105.87                       | 109.14                                 | 101.67           | 13.93** |

\* Significant at the .05 level

\*\* Significant at the .01 level

the three groups on the Combat Leadership (Non-cognitive) and on the Technical-Managerial (Non-cognitive) scales at the .05 level. The mean scores for officers in the Combat Arms branches were highest on the Combat Leadership (Cognitive) scale, Technical-Managerial (Cognitive) scale, Combat Leadership (Non-Cognitive) scale and on the Career Potential (Non-Cognitive) scale. The mean performance of that group was lowest on the Technical-Managerial (Non-Cognitive) scales.

Statistically significant differences were not obtained among the three groups of officers on the final course grades obtained in Officer Basic Course. The differences among the three groups means were statistically significant at the .01 level on peer ratings obtained in Officer Basic Course; officers in the Combat Service Support branches had the highest mean on this variable.

The ratings of the three groups of officers on the dimensions of the Performance Evaluation Form are shown in Table 2. Statistically significant differences were obtained among the group means on the Combat-Leadership scale and the Tactical Knowledge scales at the .01 level and on the Technical-Managerial Leadership ratings at the .05 level. The mean ratings of officers in the Combat Arms group was highest for Combat Leadership and for the Tactical Knowledge ratings. Officers in the Combat Service Support branches were favored in the mean ratings on the Technical-Managerial scale. The discriminant analysis technique used to test the efficacy of the variables in predicting group membership yielded the classification data shown in Table 3. The first analysis involving all variables (i.e. Officer Basic Course measures and measures of on-the-job performance yielded 73.2 percent correct classification. Use of the Officer Basic Course variables alone yielded correct classification of 71.6 percent. The duty performance measures obtained from the Performance Evaluation Form also yielded an index of correct classification of 69.7 percent.

In the second series of analyses officers in the Combat Support branches and the Combat Service Support branches were combined into one group and compared with the officers in the Combat Arms groups. In Table 4, the means for the Combat Arms officers and other officers are presented for the Officer Basic Course (OBC) measures. The mean for the Combat Arms group was significantly higher at the .01 level on the Combat Leadership (Cognitive) and the Career Potential (Non-cognitive) scales of the Officer Evaluation Battery and at the .05 level on the Combat Leadership (Non-cognitive) scale of that instrument. Officers not assigned to the Combat Arms branches had a significantly higher (.01 level) mean on the Technical-Managerial (Non-cognitive) scale. The mean of those officers not in the Combat Arms branches was significantly higher (.01 level) for peer ratings than was the mean of those officers in the Combat Arms branches.

In Table 5, the means for the two groups of officers on duty performance measures are shown. The mean performance of officers in the Combat Arms branches is higher at the .01 level on combat leadership and tactical knowledge ratings and at the .05 on the decision making ability ratings. On the other hand officers who were not in the Combat Arms branches were favored in terms of mean rating on the technical managerial dimension.

Table 2

Means for the Three Groups of Officers on  
Measure of Duty Performance

| Variable                        | Combat<br>Arms<br>(N=439) | Combat<br>Support<br>(N=139) | Combat<br>Service<br>Support<br>(N=68) | Total<br>(N=637) | F-Ratio |
|---------------------------------|---------------------------|------------------------------|--|------------------|---------|
| Duty Performance                | 108.58                    | 108.06                       | 107.07                                 | 108.31           | .27     |
| Combat Leadership               | 111.58                    | 106.40                       | 97.67                                  | 108.96           | 24.66** |
| Technical Managerial Leadership | 104.93                    | 106.26                       | 111.00                                 | 105.87           | 3.78*   |
| Tactical Knowledge              | 110.78                    | 104.69                       | 94.82                                  | 107.74           | 28.79** |
| Understanding Mission           | 107.93                    | 106.05                       | 105.65                                 | 107.28           | 1.02    |
| Making Decisions                | 108.71                    | 106.33                       | 105.15                                 | 107.81           | 2.11    |
| Defining Personal Roles         | 107.00                    | 105.56                       | 107.72                                 | 106.76           | .47     |
| Planning and Organizing         | 105.76                    | 107.14                       | 108.24                                 | 106.33           | .79     |
| Motivating Troops               | 106.73                    | 105.16                       | 103.95                                 | 106.09           | .99     |
| Logistical Knowledge            | 105.29                    | 105.98                       | 105.46                                 | 105.46           | .08     |

\*Significant at the .05 level

\*\*Significant at the .01 level

Table 3  
Three Group Classification

All Variables:

| <u>Actual</u>          | <u>Predicted</u>   |                       |                               |
|------------------------|--------------------|-----------------------|-------------------------------|
|                        | <u>Combat Arms</u> | <u>Combat Support</u> | <u>Combat Service Support</u> |
| Combat Arms            | 94.4               | 3.7                   | 1.9                           |
| Combat Support         | 69.8               | 19.4                  | 10.8                          |
| Combat Service Support | 30.9               | 20.6                  | 48.5                          |

Percent of Cases Correctly Classified = 73.2

Officer Basic Course Variables:

| <u>Actual</u>          | <u>Predicted</u>   |                       |                               |
|------------------------|--------------------|-----------------------|-------------------------------|
|                        | <u>Combat Arms</u> | <u>Combat Support</u> | <u>Combat Service Support</u> |
| Combat Arms            | 97.9               | 0.7                   | 1.4                           |
| Combat Support         | 79.1               | 12.2                  | 8.6                           |
| Combat Service Support | 61.8               | 11.8                  | 26.5                          |

Percent of Cases Correctly Classified = 71.6

Duty Performance Measures:

| <u>Actual</u>          | <u>Predicted</u>   |                       |                               |
|------------------------|--------------------|-----------------------|-------------------------------|
|                        | <u>Combat Arms</u> | <u>Combat Support</u> | <u>Combat Service Support</u> |
| Combat Arms            | 96.3               | .9                    | 2.8                           |
| Combat Support         | 89.2               | 2.9                   | 7.9                           |
| Combat Service Support | 58.8               | 2.9                   | 38.2                          |

Percent of Cases Correctly Classified = 69.7

Table 4

Means for the Two Groups of Officers on  
Officer Basic Course (OBC) Measures

| Variable   | Combat<br>Arms<br>(N=430) | Others<br>(N=207) | Total<br>(N=637) | F-Ratio |
|--|---------------------------|-------------------|------------------|---------|
| Combat Leadership (Cognitive)                        | 110.84                    | 102.47            | 108.12           | 25.17** |
| Technical Managerial Leadership<br>(Cognitive)       | 111.21                    | 107.85            | 110.12           | 3.54    |
| Career Potential (Cognitive)                         | 104.09                    | 104.30            | 104.16           | 1.64    |
| Combat Leadership<br>(Non-Cognitive)                 | 111.90                    | 108.68            | 110.85           | 4.26*   |
| Technical Managerial<br>(Leadership (Non-Cognitive)) | 103.44                    | 109.33            | 105.35           | 11.67** |
| Career Potential<br>(Non-cognitive)                  | 110.96                    | 101.85            | 108.00           | 35.78** |
| Career Intent  | 115.99                    | 115.96            | 115.98           | .01     |
| Officer Basic Course Final<br>Grades                 | 104.34                    | 102.37            | 103.70           | 1.54    |
| Final Course Peer Ratings                            | 99.14                     | 106.94            | 101.67           | 26.33** |

\* Significant at the .05 level

\*\* Significant at the .01 level

Table 5

Means for the Two Groups of Officers on  
Measures of Duty Performance

| Variable                        | Combat<br>Arms<br>(N=430) | Others<br>(N=207) | Total<br>(N=637) | F-Ratio |
|---------------------------------|---------------------------|-------------------|------------------|---------|
| Duty Performance                | 108.58                    | 107.73            | 108.31           | .37     |
| Combat Leadership               | 111.58                    | 103.53            | 108.96           | 34.93** |
| Technical Managerial Leadership | 104.93                    | 107.81            | 105.87           | 3.99*   |
| Tactical Knowledge              | 110.78                    | 101.45            | 107.74           | 41.23** |
| Understanding Mission           | 107.93                    | 105.92            | 107.28           | 2.01    |
| Making Decisions                | 108.71                    | 105.94            | 107.81           | 3.99*   |
| Defining Personal Roles         | 107.00                    | 106.27            | 106.76           | .24     |
| Planning and Organizing         | 105.76                    | 107.50            | 106.33           | 1..39   |
| Motivating Troops               | 106.73                    | 104.71            | 106.09           | 1.77    |
| Logistical Knowledge            | 105.29                    | 105.81            | 105.46           | .11     |

\*Significant at the .05 level

\*\*Significant at the .01 level

In Table 6 the classification of the two groups of officers using the discriminant analysis technique is shown. When all of the variables were employed (i.e., Officer Basic Course measures and measures of duty performance), 80 percent correct classification resulted. The use of the Officer Basic Course measures alone resulted in 76.1 percent correct classification while use of the duty performance dimensions resulted in 73.9 percent correct classification.

The results of this research indicate that officers in the Combat Arms branches who receive higher than average Officer Efficiency Report ratings displayed a greater aptitude for success in combat type situations than did the other officers. This is reflected in their scores on the Combat Leadership (Cognitive) scale of the Officer Evaluation. However, officers in the Combat Arms branches also score higher on those aptitudes necessary for a staff or technical position as measured by the Technical-Managerial scale of the same instrument but the differences are not as pronounced. When these officers were compared to all other officers on this measure, a statistically significant difference was not obtained. The group of higher rated officers also displayed a greater interest in a career as an Army officer as measured by the Career Potential scale of the Officer Evaluation Battery and interest in those activities related to success as a combat leader as measured by the Combat Leadership (Non-Cognitive) scale of this instrument. Interest in activities related to staff and technical types of activities characterized those officers who were not in the Combat Arms branches. Officers who received higher than average Officer Efficiency Report ratings were rated higher than other officers early in their active duty tour on combat leadership and tactical knowledge while other officers were rated higher on technical-managerial leadership.

The measures used in this research were of utility in identifying officers who received higher than average Officer Efficiency Report ratings in the Combat Arms from other officers who received higher ratings in other branches. Future research will be directed toward exploring the relative merits of the indices used in this exploratory research in differentiating among officers who are highly rated in more specific officer specialties.

Table 6

Two Group Classification

All Variables:

| <u>Actual</u> | <u>Predicted</u>   |               |
|---------------|--------------------|---------------|
|               | <u>Combat Arms</u> | <u>Others</u> |
| Combat Arms   | 92.3               | 7.7           |
| Others        | 48.8               | 51.2          |

Percent of Cases Correctly Classified = 79.0

Officer Basic Course Variables:

| <u>Actual</u> | <u>Predicted</u>   |               |
|---------------|--------------------|---------------|
|               | <u>Combat Arms</u> | <u>Others</u> |
| Combat Arms   | 93.0               | 7.0           |
| Others        | 58.9               | 41.1          |

Percent of Cases Correctly Classified = 76.0

Duty Performance Measures:

| <u>Actual</u> | <u>Predicted</u>   |               |
|---------------|--------------------|---------------|
|               | <u>Combat Arms</u> | <u>Others</u> |
| Combat Arms   | 91.4               | 8.6           |
| Others        | 62.3               | 37.7          |

Percent of Cases Correctly Classified = 73.9

## REFERENCES

- Gilbert, A. C. F. Efficacy of certain measures in predicting Army officer performance. Paper presented at the 19th Annual Conference of the Military Testing Association, San Antonio, TX, October 17-21, 1977. In Proceedings, 19th Annual Conference of the Military Testing Association. San Antonio, TX: Air Force Human Resources Laboratory and USAF Occupational Measurement Center, October 1977.
- Gilbert, A. C. F. Predictive utility of the Officer Evaluation Battery (OEB). Paper presented at the 20th Annual Conference of the Military Testing Association, Oklahoma City, OK, October 30-November 3, 1978. In Proceedings, 20th Annual Conference of the Military Testing Association. Oklahoma City, OK: U.S. Coast Guard Institute, November 1978.
- Gilbert, A. C. F. College major and Army officer performance. Paper presented at the 22nd Annual Conference of the Military Testing Association Toronto, Canada. In Proceedings of the 22nd Annual Conference of the Military Testing Association. Toronto, Canada: Canadian Forces Personnel Applied Research Unit, October 1980.
- Gilbert, A. C. F. & Grafton, F. C. Characteristics of an officer performance evaluation measure. Paper presented at the Annual Conference of the Military Testing Association, Gulf Shores, Ala., October 18-22, 1976. In Proceedings of the 18th Annual Conference of the Military Testing Association. Pensacola, Fla: Naval Education and Training Program Development Center, 1976.