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REPORT NO. 6

THE ASSESSMENT OF OFFICER-LIKE QUALITIES IN NAVAL AIR CADETS

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U. S. NAVAL SCHOOL OF AVIATION MEDICINE
U. S. NAVAL AIR STATION
PENSACOLA, FLORIDA

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THE ASSESSMENT OF OFFICER-LIKE QUALITIES IN NAVAL AIR CADETS

Bureau of Medicine and Surgery
Research Project No. NM 001 109 101
Report No. 6

Report by

W. E. Vinacke

Approved by

Captain Ashton Graybiel, MC, USN
Director of Research

Released by

Captain Julius C. Early, MC, USN
Commanding Officer

29 October 1956

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SUMMARY PAGE

THE PROBLEM

This investigation concerns the validity of the officer-like qualities (OLQ) rating. It deals with measures predictive of adequacy as an officer subsequent to training (i. e., in the fleet). The report considers in addition to the formal OLQ such measures as delinquency reports and demerits, and peer nominations of leadership and social living. The properties of the rating system are also analysed.

FINDINGS

The OLQ rating significantly differentiates between officers judged in the fleet as satisfactory and as unsatisfactory. This result holds for the over-all score obtained in basic and advanced training, but was noted in pre-flight only for certain items. Other measures of nontechnical qualities also contribute to the pattern of difference throughout training of the fleet criterion groups.

RECOMMENDATIONS

It is suggested that a serious effort be made to improve the assessment of officer-like qualities both in the direction of increasing the validity of measures and of extending the information to be derived from these measures. Detailed suggestions are given in the final section of this report.

IT HAS BEEN WELL SAID THAT 'HE WHO HAS NEVER LEARNED TO OBEY CANNOT BE A GOOD COMMANDER'. THE TWO ARE NOT THE SAME, BUT THE GOOD CITIZEN OUGHT TO BE CAPABLE OF BOTH; HE SHOULD KNOW HOW TO GOVERN LIKE A FREEMAN, AND HOW TO OBEY LIKE A FREEMAN....

Aristotle, in The Politics.

INTRODUCTION

The process of training a young man to become a naval aviator involves the twofold task of teaching him to fly and preparing him to serve as a competent naval officer. By this time, a great deal is known about how to achieve the first of these objectives. In the second respect, however, a great deal is left to the unguided experience of the individual as he lives within the military world of naval aviation. The chief purpose of the present study is to determine the validity of measures of officerlikeness. We do not here propose to examine the qualities which are desirable in a good officer, although this matter is one which could and perhaps should be subjected to intensive investigation. There are, of course, a large number of commonly mentioned characteristics which it is said that a naval officer should have, but these have not been clearly substantiated in objective research. It is at least reasonable, however, to suppose that whatever the specific qualities may prove to be, they fall into three or four fairly clearly defined categories, namely, 1) military behavior, 2) leadership and command, and 3) social acceptability within the military system. The third of these includes both approval by peers both in the sense of acceptability as a person and in the sense of recognized competence and devotion to duty; further study might lead to a sufficiently sharp distinction between these to warrant their separate formulation. It is not possible to treat these types of variables separately in this report, but the general tenor of the findings suggests that future consideration of the problem might well accept them as different aspects of being a naval officer. All that we can do here is to see whether "officer-like qualities" can be measured and to present evidence concerning the success with which such measurement is now carried out. Although we are not directly concerned with questions pertaining to the training of a person as an officer, it may be regarded as a fundamental assumption that this aspect of training has great importance in addition to the parallel task of training him as an aviator. The former may be called

the "non-technical" or "professional" requirements of the training program, compared to the "technical" requirements evident in ground school and flight.

Approximately a decade ago in recognition of the significance of nontechnical requirements, an effort was made to introduce an assessment of them in the form of an "officer-like qualities" rating. Over the years this form has regularly been included in the training record and has been a part of the grading system. The rating is obtained on naval aviation cadets at each of the three stages, pre-flight, basic, and advanced. It is not possible to determine just how large these rating loom in attrition, but it is probable that relatively few men are actually "washed out" because of unsatisfactory OLQ ratings. So far as can be determined, however, no detailed study of the OLQ rating has been carried out, either to evaluate it as an assessment technique or to ascertain its use in practice.

There are, of course, a number of research studies which have at least peripheral relevance to the general problem of assessing persons as officers. For example, it has been found that pre-flight training tends to make cadets less "agreeable," more inclined towards "introverted thinking," and less active overtly (10). While such changes may merely reflect the character of the stage of training (for instance, they may be associated with the fact that pre-flight demands intensive academic study), they indicate the possibility that important personality changes occur during training, in addition to an increase in technical proficiency. Investigation has also shown differences between men high and low in desire to remain in flight training (2,5). Men with stronger desire to stay in the program display a stronger interest in flying. Further, those with stronger desire place greater value on inter-personal relationships. Such findings are suggestive in showing that success in aviation training places a premium on certain personal characteristics rather than on others.

Of more direct pertinence are the numerous studies of peer nominations which specifically concern the qualities which are presumed to be important in an officer, notably leadership (see, for example, 1,6). It would serve no useful purpose to enter upon a review of this large volume of research which has been carried out in other branches of the military service in addition to the Navy. Suffice it to say, that peer nominations, in which the men in a class are asked to make judgments about their fellow cadets in some specific respect, are becoming widely accepted as an easy and useful means to assess non-technical qualities. The logic of the procedure rests primarily upon the fact that a group of cadets have a better opportunity to observe and

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*Later, we shall present evidence on the validity of peer nominations as predictions of ultimate satisfactoriness as an officer.

evaluate each other than does a commanding officer, or a classroom instructor.* An outgrowth of the peer nomination approach has been to examine the characteristics of those who are highly chosen or rejected by their associates. One important finding has been that the individual regarded as an effective leader tends to be "antonomous" rather than "authoritarian" in character (3,5,7). In effect, this means that the cadet chosen by his fellow as a good leader is likely to be independent and self-assured, rather than conforming and uncritically submissive to authority.

Finally, brief mention should be made of a study of the OLQ itself (9). An attempt was made to compare the consistency in ratings from one stage of training to the next. Only a slight agreement was found; in fact, a man rating near the top at one stage, say pre-flight, might actually be near the bottom at the next stage, i.e., basic. It is not clear from this study, however, why the inconsistencies occur. It is possible, for instance, that different factors are measured at different stages, or that the judgment made at one stage is undependable. As a result of such conditions, a sequential comparison might not be meaningful. It should be noted that even if the inconsistency did exist, it would not necessarily mean that the OLQ at each stage does not predict ultimate success as a naval officer; that is, an independent criterion of such success might show a significant relation to the OLQ at each stage, even if the three separate ratings are not related to each other. Fortunately, an independent criterion was available for use in the present study (8) which permits a reasonably conclusive test of this possibliiity.

THE CONTEXT OF THE OLQ

Before we proceed with a detailing of results, it might prove useful to give brief attention to the properties and administration of the OLQ rating.

An example is given in Appendix A. In general, the form is typical of devices for rating other people in specified characteristics. It has eight items which as can be seen, can be divided into the three categories previously mentioned, namely, 1) military behavior, items 1 (military courtesy), 2 (military behavior), and 3 (military drill); 2) leadership and command, item 8, (leadership); and 3) social acceptability, items 4 (initiative), 5 (social adeptness), 6 (stability,)and 7 (character). In this third area the items are not as clear in their intentionas in the other two since quality as a person and devotion to duty (or identification with the officer role) should probably be differentiated. Each item can be checked as "not observed," "unsatisfactory," "below average," "average," or "above average." The grade is obtained by summing the

columns, weighting them, and computing a ratio of the weighted sum to the total number of checks (omitting the "not observed" checks.) The grade is then converted into a standard score according to a frequently revised schedule. In turn, the standard score is combined with standard scores in the other phases of training to obtain the final grade for the stage in question using a weighting technique. But since these grades are compiled following completion of the study, rather than at a time when they could influence evaluation of the man, it is not likely that the OLQ rating actually has much formal effect on decisions about retaining or dropping a student.

Practices vary widely in administering the OLQ, in the number of persons who prepare it, who fills in the form, and in what factors determine the rating. Without going into detail, we may indicate the variety of procedures followed.

a) Number of raters. This varies from 1 e.g.,(at one stage of basic training in 1952-53) to as many as 55-60 (e.g., in certain units of advanced training in 1952-53). In pre-flight, a single form is compiled on the basis of reports from academic, physical fitness, and survival instructors, and from military authorities. At each stage, of course, the several ratings are totalled into a single measure.

b) Who does the rating. The situation for pre-flight has already been mentioned; the three sources of judgment are assigned different weights, with the military looming largest. At the other stages the OLQ rating is based primarily on observations during flight training, as well as on judgment by military personnel, and ground school. In some stages, however, only the flight instructor prepares the OLQ form, usually the instructor who has had the most hops with the student. In all stages past pre-flight the military contribution is relatively slight, primarily because there is little opportunity for those in official command of the cadet battalions to observe the student.

c) What determines the ratings. There is good reason to suppose that most of those who make the ratings are aware of the fact that nontechnical qualities are to be assessed (i.e., in contrast to the academic or flight proficiency of the individual), and that they conscientiously strive to base the rating on these qualities. It is clear, however, that the success with which this is achieved varies from place to place. The criteria by which nontechnical qualities are judged sometimes have the character of military standards (e.g., demerits incurred at the barracks), at other times of academic grades (especially at pre-flight), and at still other times of personal acquaintance (e.g., contact at the flight line). It is not known with how much consistency various possible criteria are applied.

One facet of the general problem deserves special mention, namely, the relation of leadership to the role of officer. From the OLQ form itself it can be seen that the traditional concept of the officer as a leader of men is accepted by including an item specifically concerned with leadership. We cannot here enter into discussion of the vexing problem of "leadership," its meaning, functions, and measurement. With particular regard to the OLQ rating, however, a number of doubts arise concerning the appropriateness of this item. For one thing, it is found that a very high proportion of "not observed" judgments occur on it, confirming the common sense notion that most cadets rarely have an opportunity to function in situations where an adequate observation of leadership can be made. There is the further point that leadership qualities may not coincide closely enough to other officer-like qualities to regard them as equivalent; rather, one might expect that leadership should be treated as an entirely separate factor. Thus, for instance, while all officers can reasonably be compared on such traits as military courtesy and initiative, it may be pertinent to rate on leadership only certain officers or, more likely, all officers only in certain situations in which not everyone is called upon to act. In general, there are so many poorly formulated or conflicting notions about the relation between leadership and the role of the naval officer that careful study would be required before adequate proposals could be presented. It does not seem sufficient to assume without qualification that the words "officer" and "leader" are essentially synonymous. The newly developing leadership training programs in naval air training may go far towards clarifying these issues. Future studies from this laboratory will undoubtedly prove important in this respect.

We shall later comment on some possible ways in which the assessment of officer-like qualities can be improved. As will appear subsequently, the rating now possesses considerable validity as a predictor of who becomes a satisfactory officer. At the same time, it is evident from the foregoing summary that no clearly defined standards are used in making the ratings. Although it cannot be said that the ratings are obtained haphazardly, nevertheless, there is a large element of chance and intuition involved in making them. There is some reason to suppose that the kind of judgment required can never be objectified, at least in the situation here considered. but there is also good reason to think that the dependability of the rating can be much improved.

Finally, it may be worthwhile to mention a few of the attitudes which seem to prevail regarding the OLQ rating and its efficacy. For instance, it is said that it is useful in identifying the outstanding and the substandard men, and our own results certainly bear out this impression. Of the greatest significance are remarks that it is highly desirable, or essential, to assess officer-like qualities in some way, despite considerable dissatisfaction with the present OLQ rating itself. In short, there can be little

doubt that the continuance of the rating somehow expresses a widespread conviction that learning how to fill the role of officer is a very important component of the training program. How satisfactory measurement is to be achieved, however, encounters a variety of proposals. These need not be detailed here, but it might prove valuable to conduct a separate study of this point. In general, ideas range from a central emphasis upon strict military discipline to the introduction of special courses in how to be an officer. (Incidentally, these same proposals, but in stronger terms, are advanced as a means to improve the nontechnical training of officer students, a matter which will be discussed later.)

PROCEDURE

When ways were sought in which to evaluate the OLQ, there were ultimately found to be several sets of data which could properly be considered pertinent. The first of these, of course, is the OLQ itself together with derivative measures, especially the incidence of unsatisfactory and below average checks on OLQ items. The second consists in information culled from the training record which appeared to express the nontechnical traits in question, namely, the number of delinquency reports, the number of demerits, and holding rank as cadet officer. Third, there are peer nominations obtained in pre-flight. Finally, as a result of excellent research conducted by Lyon and Berkshire (8), judgments are available on men in fleet operations in terms of their satisfactoriness as officers. These last data were used as criteria against which to validate the other measures.

The central problem of this investigation is to ascertain the validity of the OLQ rating. To this end it was deemed necessary to make the most critical analysis possible, hence, to use the best available criterion of officerlikeness. This criterion was the judgment of this general characteristic in the fleet, as further described below. In accepting this criterion, however, it was necessary to make use of a sample which is not large by ordinary statistical standards. The criterion groups included 112 men (56 in each) which constitute all those for whom the fleet criterion was available. They are a reasonable cross-section of the men who were performing their operational training in both the Pacific and Atlantic Fleets, at the time the data were collected. The sample includes men from cadet classes entering throughout two years, 1952 and 1953. No class is represented by more than two or three men.

To summarize the procedure, it might be described as the most unambiguously defined test case of the OLQ rating which could be devised under the circumstances.

It should not be assumed that no further research is necessary or possible because, as will appear, a number of the analyses made could be repeated on much larger samples, for example, relations between OLQ scores and peer nominations.

Standard statistical procedures were used to solve the specific problems of this study; hence, no special elaboration of them is required. The specific problems themselves will be evident from the treatment of the next section.

RESULTS

Since we sought answers to a number of questions, it will be convenient to take them up one at a time.

1. VALIDITY OF THE OLQ AND OTHER MEASURES

The major problem has to do with the general usefulness of the OLQ. That is, one wishes to know whether the rating has an identifiable meaning in relation to its intention. To answer the question some outside criterion of officerlikeness is required. For this purpose, as previously noted, we had a sampling of men in the fleet, for each of whom there was a judgment of either satisfactory or unsatisfactory as an officer.[2] The judgment was solicited from the squadron commanding officer, usually in consultation with one or more other superior officers. It is this measure which is employed throughout as a criterion of what the OLQ rating is designed to predict (hereinafter referred to as "fleet criterion"). The relation to this criterion of the three OLQ standard scores, at pre-flight, basic, and advanced training, together with other measures similarly evaluated, is shown in Table 1.

It is apparent that a rather favorable answer to the question is provided, taking the picture as a whole. Throughout training there is a strong tendency for the satisfactory men to differ from the unsatisfactory men. It is evident that all of the measures are in this direction, but that four of them (OLQ, Pre-Flight; Leadership Peer Nominations; Demerits; Basic; and Demerits, Advanced) fail to reveal significant differences. We have, then, preliminary evidence that the OLQ and related measures have validity as predictors of the fleet criterion.

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* Actually, there was some variation in procedure between the Atlantic and Pacific Fleets; in both cases, our Ss fell into the two classes mentioned. Another judgment was also obtained regarding calibre as a flyer, but we have not used this second criterion in the present study.

TABLE I

The Ability of the OLQ and Other Measures of Nontechnical Qualities to Discriminate Between "Satisfactory" and "Unsatisfactory" Officers in the Fleet.

Measure	Satisfactory N	Satisfactory M	Satisfactory O	Unsatisfactory N	Unsatisfactory M	Unsatisfactory O	CR	P
OLQ: Pre-Flight	56	52.50	5.40	56	52.29	6.56	.18	--
Basic	56	49.38	6.25	56	46.52	8.29	2.06	.05
Advanced	56	50.18	7.93	56	46.75	6.33	2.52	.01
Peer Nominations: (Pre-Flight)								
Leadership*	45	27.18	8.17	44	24.57	12.88	1.14	.20*
Social Living	25	32.08	8.78	27	23.15	9.02	3.62	.001
No. U and BA checks** on OLQ, All Stages	56	1.45	2.77	56	4.29	7.02	2.81	.01
No. of Demerits:								
Pre-Flight	56	11.89	11.55	56	20.82	20.25	2.86	.01
Basic	56	8.77	10.22	56	12.55	11.66	1.82	.10
Advanced	56	1.55	5.42	56	2.41	5.68	.82	--
No. of Deficiency Reports:								
Pre-Flight	56	2.09	1.93	56	3.38	2.83	2.80	.01
Basic	56	1.32	1.34	56	1.91	1.61	2.34	.05
Advanced	56	.27	.69	56	.63	1.18	2.00	.05
Cadet Officer (pre-Flight)	56	26		56	9			

*Smaller samples were available for the peer nominations. The difference is significant on the leadership score for the men shown under Social Living (P=.03)

**A refinement of the U and BA measure is shown in Table 3.

Before continuing with questions raised by the results in Table 1, we should say a word about the peer nominations. If the difference between the leadership and social living choices holds up in further investigations, it may have two sorts of implications. In the first place, it may well be that social living is a better indicator of what is measured by the fleet criterion than is leadership. In this case, it would be desirable to employ the former rather than the latter for this purpose. The second implication bears upon the distinction drawn earlier among the several classss of nontechnical requirements. It suggests that although both sorts of nominations may reflect important aspects of satisfactory officer qualities, they are far from identical and might feasibly be treated as separate variables.

One other general point requires analysis, namely, the possibility that ratings of officer-like qualities are influenced by a man's performance in the technical aspects of training. The influence, so far as the present study is concerned, may have been either upon the OLQ ratings during training, or upon the judgments made by commanding officers in the fleet.

There is no conclusive way to check upon the second type of effect. It is likely, however, that there was a certain amount of confusion between the judgment of "unsatisfactory as a pilot" and "unsatisfactory as an officer." That is, a substantial proportion of the men in our sample were given similar judgments on both factors. It cannot be said, however, which way the bias operates, whether a good pilot tends to be judged satisfactory as an officer, or whether the good officer tends to be judged satisfactory as a pilot.

The first type of effect would show itself in the relation between ground school and flight grades during training and the fleet criterion. That is, if OLQ ratings reflect technical proficiency, then both should differentiate between men judged satisfactory and unsatisfactory as officers. Table II presents relevant findings. It is clear that a tendency toward the expected influence appears, although significant only in the ground school grade at advanced training. As pointed out above, here, too, we cannot be sure whether technical proficiency influences grades in nontechnical areas, or vice versa. In any case, the one is not entirely independent of the other. Our data suggest, on the whole, that OLQ ratings express something, at least, over and beyond academic and flight proficiency.

In general, we are justified in concluding that there are significant relations among measures of nontechnical qualities obtained early in training and subsequent behavior, some two years or more later, under operational conditions.

TABLE II

Ground School and Flight Grades in Relation to the Fleet Criterion

Grade	M	O	CR	P
Pre-Flight: Ground School				
Satisfactory	44.05	8.80		
Unsatisfactory	40.80	10.42	1.79	.07
Basic: Ground School				
Satisfactory	49.30	8.48		
Unsatisfactory	47.66	8.28	1.04	.20
Flight:				
Satisfactory	46.55	9.18		
Unsatisfactory	43.21	9.70	1.87	.06
Advanced: Ground School				
Satisfactory	44.82	7.67		
Unsatisfactory	40.45	8.66	2.82	.01
Flight:				
Satisfactory	46.36	9.03		
Unsatisfactory	47.05	5.66	.48	--

TABLE III

Tetrachoric Intercorrelations of OLQ Scores with Several Measures of Nontechnical Qualities*

	Officerlike Qualities Rating		
	Pre-Flight	Basic	Advanced
Demerits, PF	.95	.10	.10
Demerits, Basic	.02	.13	.10
Demerits, Adv.	.22	-.06	-.25
Delinquency Rep:			
Pre-Flight	.41	.13	-.05
Basic	-.10	.15	-.06
Advanced	.18	-.08	-.28
Total No. U & BA	.38	.48	.33

*These are men on whom peer nominations were available, representing a shrinkage from the total fleet criterion groups.

PROPERTIES OF THE OLQ

In order to interpret more clearly the usefulness of the OLQ rating, it becomes necessary to examine it more closely, for several reasons. For one thing, we wish to know why at pre-flight it fails to distinguish men on the basis of the fleet criterion. A second question pertains to its relation to the other measureswhich show a significant difference in terms of the fleet criterion (e.g., its relation to demerits). Finally, as a rating scale, it is necessary to inquire into the functions of the various items. We shall return to the first point after considering the other two.

Table III gives intercorrelations among some of the variables. The interpretation of this table need not occupy us long. It is apparent that the number of demerits received in pre-flight training is practically snnonymous with the OLQ rating. Otherwise, there is little relation among the variables save, as would be expected, that the number of below average and unsatisfactory checks (the latter are extremely rare at any stage) is related to the OLQ rating. This raises a question concerning the possible usefulness of such factors as demerits. Unfortunately, this is complicated by two sorts of conditions. On the one hand, it is clear that wide variation exists in the influence of these records upon the actual preparation of the OLQ. Demerits appear to be exceedingly important in pre-flight (or, at least, both demerits and the OLQ are determined by the same condition) whereas, if anything, the opposite influence occurs at the advanced stage where the more demerits a man has (within limits) the more likely he is to be rated high on the OLQ. In short, despite the low intercorrelations it does not seem wise to treat the measures as if they were independent. The second condition is that a change in the modes of assessing officer-like qualities might well have unexpected consequences. For instance, it the rating of a cadet as a potential officer were to be based on, let us say, demerits, perhaps on the grounds that these have more concrete character than the OLQ, then the relation of demerits to the fleet criterion might change markedly. By the same token, placing heavier reliance upon the "U" and "BA checks (see Table IV) would have to be assessed following a period when the change has had a chance to operate in the ongoing training context. As will be shown, the high prediction value of these checks is partly an unwitting result of making the ratings; that is, it emerges only after the "mask" of the over-all OLQ rating has been removed. Most men later judged as unsatisfactory in the fleet obtain above average marks on enough items to bring the general grade close to or above the average. It is only by examining the pattern of checks that the difference between those later adjudged satisfactory and those considered unsatisfactory appears. It is not clear just what would happen if the context were changed, by elminating the average and above average columns.

TABLE IV

The Difference Between "Satisfactory" and "Unsatisfactory" Men In Terms of OLQ "Unsatisfactory" and "Below Average" Checks on Any Items (N = 56, in each group.)

Pre-Flight			Basic			Advanced		
No. U & BA	Sat.	Unsat.	No. U & BA	Sat.	Unsat.	% U & BA*	Sat.	Unsat.
1 or more	9	18	1 or more	9	23	5 or more	1	12
0	47	38	0	47	33	3-4	4	9
					0	1-2	9	11
						0	42	24
	56	56		56	56		56	56
$X^2 = 3.96$			$X^2 = 8.58$			$X^2 = 16.32$		
n = 1			n = 1			n = 3		
P.05			P.01			P.01		

TABLE V

Distribution of Checks on Items of the OLQ Rating for Each of the Three Stages of Training, Showing Contrasting Patterns for the Fleet Criterion Groups (in percentages)*

	Stage	Fleet Crit.	NO	U-BA	A	AA
Item 1 Military Courtesy	Pre-Fl.	Sat.	0.0	3.6	50.0	46.4
		Unsat.	0.0	8.9	55.4	35.7
	Basic	Sat.	0.0	.4	59.6	39.9
		Unsat.	0.0	1.1	61.9	37.0
	Adv.	Sat.	2.3	.2	63.5	33.9
		Unsat.	3.5	1.9	66.7	27.9
Item 2 Military Benavior	Pre-Fl.	Sat.	0.0	10.7	39.3	50.0
		Unsat.	0.0	23.2	35.7	41.1
	Basic	Sat.	.2	1.1	66.7	32.0
		Unsat.	0.0	3.4	65.5	31.2
	Adv.	Sat.	8.4	.5	78.8	12.3
		Unsat.	5.8	5.8	74.7	13.6
Item 3 Military Drill	Pre-Fl.	Sat.	0.0	3.6	78.6	17.9
		Unsat.	0.0	7.1	75.0	17.9
	Basic	Sat.	61.2	0.0	36.3	2.5
		Unsat.	60.8	.2	37.0	2.0
	Adv.	Sat.	90.4	.1	8.7	.7
		Unsat.	93.0	.1	6.0	1.0
Item 4 Initiative	Pre-Fl.	Sat.	0.0	0.0	75.0	25.0
		Unsat.	0.0	0.0	76.8	23.2
	Basic	Sat.	.2	.4	77.6	21.8
		Unsat.	.4	2.2	80.9	16.4
	Adv.	Sat.	4.8	2.5	75.3	17.4
		Unsat.	6.4	3.3	73.4	17.0

TABLE V Continued

	Stage	Fleet Crit.	NO	U-BA	A	AA
Item 5 Social Adeptness	Pre-Fl.	Sat.	0.0	0.0	87.5	12.5
		Unsat.	1.8	0.0	66.1	32.1
	Basic	Sat.	12.9	0.0	73.7	13.4
		Unsat.	12.8	.9	77.3	9.0
	Adv.	Sat.	58.9	0.0	33.3	7.7
		Unsat.	55.7	2.0	34.5	7.7
Item 6 Stability	Pre-Fl.	Sat.	0.0	0.0	94.6	5.4
		Unsat.	1.8	0.0	67.9	30.4
	Basic	Sat.	.9	.9	86.0	12.2
		Unsat.	2.2	2.2	81.2	14.3
	Adv.	Sat.	15.9	1.0	69.7	13.3
		Unsat.	16.3	2.0	73.0	8.7
Item 7 Character	Pre-Fl.	Sat.	0.0	0.0	62.5	37.5
		Unsat.	1.8	0.0	53.6	44.6
	Basic	Sat.	0.0	0.0	61.9	38.1
		Unsat.	2.2	.2	61.9	35.4
	Adv.	Sat.	48.2	.5	37.2	14.0
		Unsat.	76.2	1.2	12.2	10.3
Item 8 Leadership	Pre-Fl.	Sat.	0.0	0.0	80.4	19.6
		Unsat.	3.6	1.8	87.5	7.1
	Basic	Sat.	39.2	0.0	56.9	3.9
		Unsat.	36.5	.4	59.6	3.4
	Adv.	Sat.	80.0	.4	18.2	1.4
		Unsat.	79.0	2.4	17.4	1.2

*Abbreviations are to be read as follows: "NO" - Not Observed; "U-BA" - Unsatisfactory and Below Average; "A" - Average; "AA" - Above Average.

TABLE VI

Distribution of Checks on Items of the OLQ Rating for Each of the Three Stages of Training, Showing Contrasting Patterns for the High and Low Thirds of the OLQ (in percentages)*

	Stage	OLQ	NO	U-BA	A	AA
Item 1 Military Courtesy	Pre-Fl	High	0.0	0.0	19.4	80.6
		Low	0.0	14.9	74.5	10.6
	Basic	High	0.0	0.0	63.5	36.5
		Low	0.0	1.3	67.9	30.8
	Adv.	High	6.2	0.0	38.0	55.8
		Low	1.9	2.0	74.1	21.9
Item 2 Military Behavior	Pre-Fl.	High	0.0	3.2	35.5	61.3
		Low	0.0	31.9	34.0	34.0
	Basic	Hight	0.0	0.0	67.9	32.0
		Low	.3	5.4	72.4	21.8
	Adv.	High	6.8	1.3	64.9	27.0
		Low	6.8	4.3	82.2	6.8
Item 3 Military Drill	Pre-Fl.	High	0.0	0.0	51.6	48.4
		Low	0.0	12.8	85.1	2.1
	Basic	High	47.2	0.0	50.0	2.8
		Low	59.3	.3	39.4	1.0
	Adv.	High	96.1	.3	3.2	.3
		Low	93.1	0.0	6.9	0.0
Item 4 Initiative	Pre-Fl.	High	0.0	0.0	41.9	58.1
		Low	0.0	0.0	93.6	6.4
	Basic	High	.6	.3	77.9	21.3
		Low	.3	2.9	85.9	10.9
	Adv.	High	11.4	.6	52.9	35.1
		Low	3.8	4.5	81.9	9.8

TABLE VI Continued

	Stage	OLQ	NO	U-BA	A	AA
Item 5 Social Adeptness	Pre-Fl.	High	0.0	0.0	71.0	29.0
		Low	0.0	0.0	74.5	25.5
	Basic	High	10.2	.3	75.1	14.4
		Low	11.2	.6	83.0	5.1
	Adv.	Hign	38.0	0.0	35.7	26.3
		Low	61.0	1.9	33.9	3.2
Item 6 Stability	Pre-Fl.	High	0.0	0.0	83.9	16.1
		Low	0.0	0.0	85.1	14.9
	Basic	High	.3	.3	79.0	20.2
		Low	2.2	2.2	85.3	10.3
	Adv.	High	16.2	.3	55.2	28.2
		Low	15.2	1.8	77.3	5.7
Item 7 Character	Pre-Fl.	Hign	0.0	0.0	45.2	54.8
		Low	0.0	0.0	72.3	27.7
	Basic	High	.6	0.0	61.9	37.6
		Low	1.3	.3	65.7	32.7
	Adv.	Hign	29.2	0.0	31.2	24.7
		Low	51.7	1.0	42.9	4.3
Item 8	Pre-Fl.	High	0.0	0.0	58.0	41.9
		Low	2.1	2.1	93.6	2.1
	Basic	High	27.6	0.0	67.1	5.2
		Low	40.1	.6	57.7	1.6
	Adv.	High	76.6	0.0	20.8	2.6
		Low	75.8	2.4	20.6	1.1

*See Table V for abbreviations

The manner in which the individual items are checked is shown in Tables V and VI. In the former the two fleet criterion groups are compared, and in the latter the top and bottom thirds of OLQ standard scores at each stage of training. No detailed analysis is required to make clear the several points which emerge. In the first place, it is noteworthy that, with few exceptions, there is general agreement between the two Tables. The chief difference, as might be expected, is that the high and low thirds are throughout much more sharply differentiated than are the two fleet criterion groups. Thas is partly accounted for, of course, by the fact that the middle group is omitted in the first case but divided among the two groups in the second case. It is also, however, and this is a crucial point, accounted for by the fact that above average and/or average checks are assigned more feequently on certain items to the fleet unsatisfactory men than to the fleet satisfactory men. The result, of course, is to make the average difference smaller. Here lies the reason why the pre-flight OLQ rating fails to distinguish the criterion groups. Were only the first three and the last items to be included in the socre, the criterion groups would be clearly different. Note that all of the U-BA checks occur on these items lending credence to the supposition that an effort is somehow made to compensate bad checks on one item with above average checks on another.

In the second place it is quite clear that certain items contribute little or nothing to the total OLQ rating. Thus, the proportion of "not observed" judgments on items 3, 5, and 8 at either basic or advanced stage, or both, is very high. Furthermore, some items show such small differences in either Table as to render doubtful their function in measuring the trait in question; items 4 and 5 are especially to be remarked in this respect. The concurrence of these two phenomena suggests that some better combination of items, or some other rating device, would prove such more efficacious than the currently used OLQ form.

3. THE PATTERN OF OFFICER-LIKE QUALITIES

In view of the foregoing analyses, it is evident that throughout the training program those more likely to become satisfactory officers differ, on the average, from those who ultimately appear in the fleet as unsatisfactory in this respect. It is also clear that considerable improvement could be achieved in the measurement of the nontechnical qualities involved. As a means to bring out the contrasting character of criterion groups at earlier points in their careers, an effort was made to compose patterns of the variables which have been analysed. This approach is merely suggestive, because the measures have been selected after the analysis has been made.

We sought, on the one hand, to combine measures which were both significant and nonoverlapping and, on the other hand, to retain the predictive function of the measure (that is, to look from the earliest, or pre-flight, stage to later ones since it would not be of great practical assistance to base a prediction on measures secured during advanced training.) It is plain that pre-flight measures offer the greatest problem

because of the nonsignificance of the difference in OLQ ratings at that stage.

To form the patterns each variable was dichotomized at a point of division which differentiated the criterion groups without too great a disproportion in the subsamples. The divisions were made as follows:

Cadet Officer: Yes versus No

OLQ, Basic: Above or below the mean of the Fleet unsatisfactory sample.

No. of U-BA checks, Advanced: 0 to 2 per cent versus 3 per cent or more. (A percentage figure was used for this measure because of the extremely wide variation in the number of judgments among the men. Thus, although all men received the same number at pre-flight and basic; at advanced the range was from about 32 (4 OLQ ratings with 8 items each) to as many as 448 (56 OLQ ratings.)

No. of U-BA checks, Pre-Flight: 0 versus 1 or more.

No. of U-BA checks, Basic: 0 versus 1 or more.

Peer Nominations (Leaderhhip), Pre-Flight: Above or below the mean of the Fleet unsatisfactory sample.

A score above the cutting point on each variable was assigned a "plus," a score below that point a "minus." The number of plusses received by each man was counted. The incidence of the number of plusses was then determined. In Table VII is shown for each criterion group the number of men who received various numbers of plusses for three combinations of variables. It can be seen that all three patterns differentiate between criterion groups.

That is is a consistent rather than merely an average difference is shown graphically in Figures 1 and 2. These graphs are designed to show how permormance at early stages of training was related in this sample to the fleet criterion. Men who are substandard in both pre-flight and basic are more infrequently rated unsatisfactory a year or so later in the fleet. If two independent measures are employed at the pre-flight stage (see Figure 2), then this earliest stage alone permits one to distinguish sharply between the two criterion groups.

TABLE VII

Patterns of Difference Between Fleet Criterion Groups

1. Using as measures (a) cadet officer, Pre-Flight, (b) OLQ rating in Basic, and (c) "U-BA" checks in Advanced.

No. of Plusses	Fleet Criterion Sat.	Unsat.	% Sat.	No. Expected in Unsat.
3	12	3	26	1114
2	22	15	49	21.6
1	10	15	24	10.6
0	1	11		
	45	44	$S^2 = 29.64$	
			n = 2	
			P .01	

2. Using as measures (a) U-BA, Pre-Flight, (b) U-BA, Basic, (c) U-BA, Advanced.

No. of Plusses	Fleet Criterion Sat.	Unsat.	% Sat.	No. Expected in Unsat.
3	33	14	73	32.1
2	7	14	16	7.0
1	5	13	11	4.8
0	0	3		
	45	44	$X^2 = 43.34$	
			n = 2	
			P .01	

3. Using as measures (a) peer nominations (leadership), Pre-Flight, (b) "U-BA", Pre-Flight, (c) OLQ, Basic, (d) "U-BA", Advanced.

No. of Plusses	Fleet Criterion Sat.	Unsat.	% Sat.	No. Expected in Unsat.
4	11	3	24	10.6
3	18	15	40	17.6
2	11	7	24	10.6
1	5	12	11	4.8
0	0	7		
	45	44	$X^2 = 47.85$	
			n = 3	
			P .01	

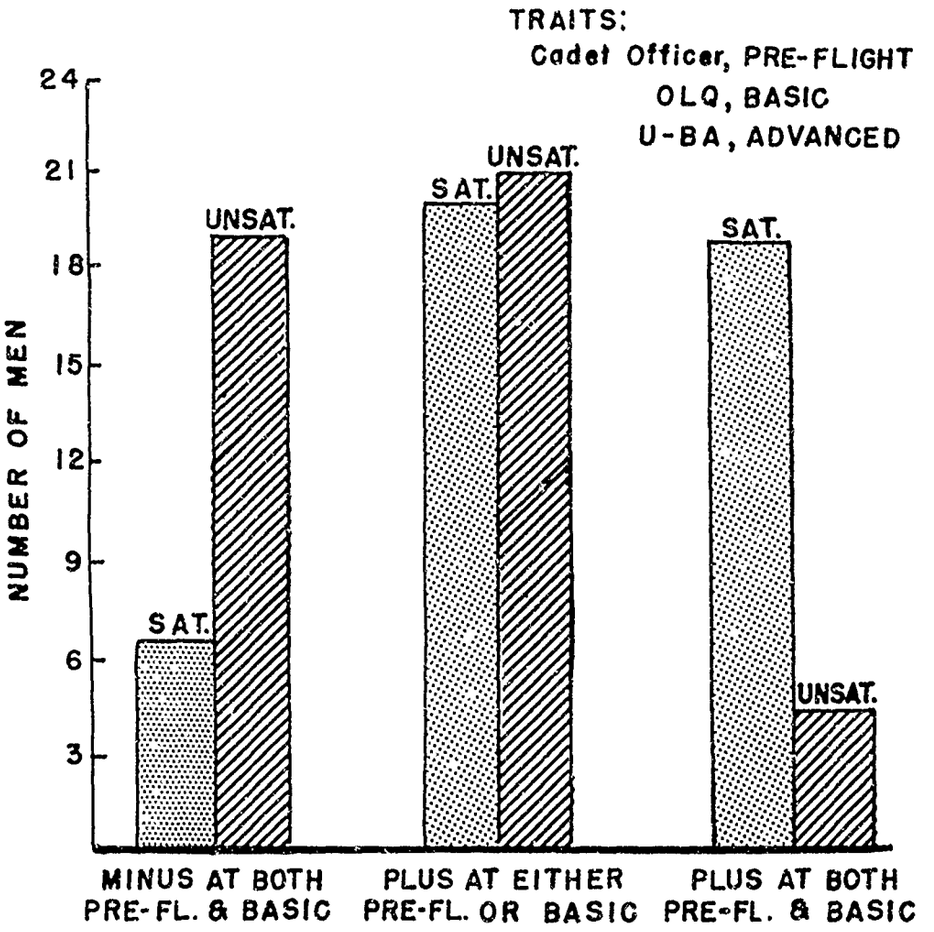
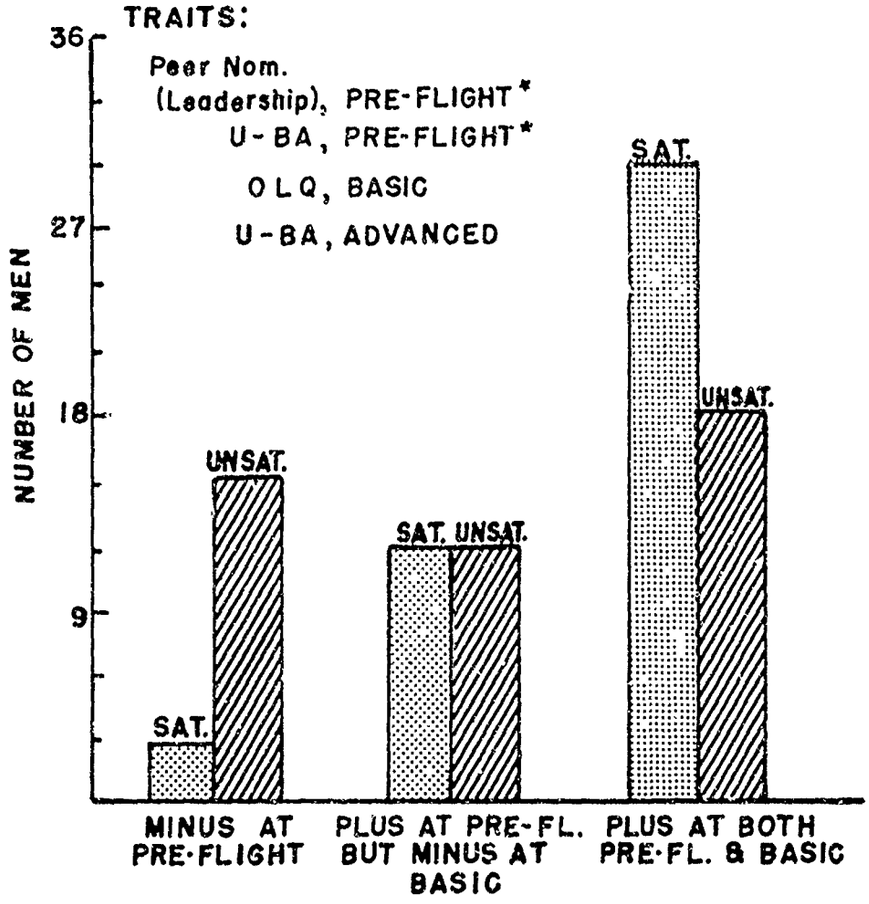


FIGURE 1

DIFFERENCE BETWEEN FLEET CRITERION GROUPS ON THREE MEASURES OF NON-TECHNICAL TRAITS



*A "plus" on either of these was accepted.

FIGURE 2

DIFFERENCE BETWEEN FLEET CRITERION GROUPS ON FOUR MEASURES OF NON-TECHNICAL TRAITS

DISCUSSION

We have said that the study reported here represents a test case. It has shown that the OLQ rating as it was made during the years 1952 and 1952 possessed sufficient validity to indicate that it was capable of predicting, on the average, which men in training were likely to prove satisfactory or unsatisfactory as officers in the fleet. The fact that nontechnical qualities can be assessed satisfactorily was further confirmed by significant differences among criterion groups in several other measures deemed to reflect these qualities. These latter measures included peer nominations in pre-flight, having held a cadet officership in pre-flight, and the record of delinquency reports and demerits. The analysis of all of these measures leads to substantially the same conclusion: Men later judged satisfactory as officers appear to differ in general ways from the beginning of their training from those later considered unsatisfactory as officers. Whether or not the difference could be stated as a pattern of adequacy as a person, or as adaptation to the naval aviation milieu, or in some other fashion, remains to be decided by future investigation. For the present, we must confine ourselves to the specific findings in this study.

It should be remembered that our conclusions are based upon the situation as it existed when the men in our sample were undergoing training.* From this point of view the really striking feature of our results is that the OLQ rating should have differentiated as well as it did among the criterion groups. Even in the essentially chaotic conditions under which it was administered and with many serious limitations under which the assessment of the rates took place, nevertheless the OLQ could have served as a fair predictor of the nontechnical qualities which it was designed to measure. Rather than reiterate these points then, it may be more fruitful to suggest some concrete ways in which the method of assessing nontechnical aspects of training can be improved.

Let us turn first to the actual rating itself. From analysis of the separate items it appears that the eight included in the present form are of decidedly unequal efficiency. Several are seldom observed, others do not differentiate between good and poor men, and some display a heavy preponderance of average and above average checks. At the very least, therefore, it might be desirable to simplify the rating by reducing the number of items, if no further attempt is to be made to locate suitable ones.

One might abandon entirely the notion of rating separately each of a congeries of somewhat vaguely defined traits and, instead, seek to obtain merely an over-all or "halo" rating. This proposal, however, must be rejected for several reasons. In the first place, it would be difficult to formulate a general quality which would be

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*The lack of standard policy with respect to the OLQ rating makes it impossible to say whether validity has remained stable.

meaningful, ever if a single judgment could be shown to be reliable. In the second place there are purely practical objections. Raters prefer to have a series of separate items in order to justify their impressions. Furthermore, the ratee himself needs to have specific explanations for the rating when it is presented to him. Finally, there are quite legitimate variations among raters in the factors which they believe themselves qualified to assess.

A more feasible approach would be to recognize the probability that officer-like qualities include the three or four different factors mentioned earlier, namely, military behavior, leadership, social acceptability, and devotion to duty* within the military setting, and to develop items bearing upon each of them. Were there to be three or four items in each area, the task of rating could be made sufficiently concrete and varied to meet the points mentioned above. What is more, a device of this kind could be used in three different ways, thus increasing the flexibility of administering the OLQ.

1) The total OLQ score could simply be a sum of the judgments, just as is now the case. The additional advantage of the proposed system would be a greater clarification of what is to be assessed, together with an increase in reliability (for example, there would be several leadership items, instead of only one.)

2) Sub-scores could be determined in each area, separately. This would make it easier for the rater to make judgments only in those areas which he felt competent to deal with; in fact, raters could be instructed to fill out only the part of the form which pertained to a particular stage (e.g., military behavior at pre-flight.) The separate parts could be reported as separate scores, or combined, as in the first technique, into an over-all score.

3) A parallel form could be used for officers or aviation officer candidates, perhaps employing a slightly different phraseology and title, to avoid imputing the same status to them as to aviation cadets, and also omitting items not applicable to them. The problem of assessing officer candidates is generally recognized to be of sufficient gravity to warrant the trying out of a procedure of this kind. These men are supposed to be evaluated not alone in terms of their potentiality as aviators but also explicitly in terms of their promise as officers. It is hard to see how a definite rating, conscientiously** made, can be avoided. It is likely, however, that administrative

*Another way to phrase this quality might be "identification with the Navy."

**The word "conscientiously" is employed because there is evidence that men who are expected to be commissioned at the end of pre-flight are rarely given unfavorable ratings on the OLQ form. However, if it were known that even a small proportion of men would be eliminated as a result of poor ratings on the OLQ rating, this condition might change.

requirements might make advisable a somewhat different form for officers. In this connection, it is worth mentioning that obtaining OLQ ratings on officers in training would have value in addition to the customary fitness report. The latter represents a serious commitment since it is a permanent record, but the OLQ rating could be a temporary, less serious, judgment. It could also be useful information to facilitate the preparation of the fitness report.

An important issue which must be considered in seeking to improve the measurement of officer-like qualities arises because of the relation between grades in technical and nontechnical areas. That is, a man with a high grade in one is likely to some extent to obtain a high grade in the other (or vice versa). It is not known in which direction the effect operates. For example, a cadet who possesses outstanding qualities as a potential officer may for this reason (but perhaps without insight on the part of the rater) be highly rated as a pilot or, it may work the other way ar that a cadet who is an excellent pilot may be more highly regarded as an officer than one who is a poor pilot. It is entirely possible that both kinds of effects occur.

The further possibility cannot be discounted that the relation is not a bias, or contamination, in the grading system, but a function of an actual correlation. Men who are outstanding or substandard in one respect may really be similar in the other. It could be a function, for instance, of ability or movtivation. So far as assessment goes persons with respect to whom all measures are in agreement pose no problem. It is rather the remainder we need to worry about. Among them, our data show, are cadets who are unsatisfactory in nontechnical qualities.

Ideally, we need independent measures of technical and nontechnical qualities. From a practical point of view this can probably not be achieved in any economical fashion. For example, it would appear that it will always be necessary for the same superior officer (a flight instructor, let us say) to rate a man in both technical and nontechnical qualifications. For this reason the best approch would be to strive for the greatest possible clarity regarding the qualities to be judged and instructions which make maximally objective the task of performing the judgments. The suggestions which this research has brought to light may contribute to these ends.

If we turn now to the process of rating itself, a number of points should be made. For one thing, it is probable that the instructions associated with the rating could be formulated in a manner which would increase the validity and consistency of the judgment. For example, the tendency to "counterbalance" unfavorable checks with favorable ones might be reduced. Raters could be urged to assign checks only when they are confident of having pertinent information on the ratee. Otherwise, checks should be assigned to the not observed category. The policy now especially evident in advanced training, and to a lesser degree in basic training, of obtaining ratings from a large number of raters could be reinforced.

The question of who is best qualified to make the ratings deserves further study. It appears that the military authorities in pre-flight and the flight instructors at other stages are probably best qualified, and, of course, steps have recently been taken in agreement with this conclusion. There is little advantage in "cluttering up" the rating with judgments from sources other than those which are most appropriate.

Another point is that the strong validity of U-B/ checks suggests that these should be assigned a higher weight in computing the OLQ grade. Incidentally, the extreme rarity of U checks at all three stages of training indicates that they might be eliminated unless evidence can be adduced that they serve to anchor the judgments.

Finally, our pattern analysis leads to another possible way to improve the measurement of officer-like qualities. One might develop a more complex score than that represented by the OLQ rating itself. Thus, additional values might be given for having served as a cadet officer,* for extremely high or low scores on the peer nomination test, and for especially frequent delinquency reports or demerits.

Along these lines valuable additional light on a cadet's nontechnical traits could be obtained by an extension of the peer nomination technique in two directions. In the first place, little or nothing has been done yet with peer nominations at stages beyond pre-flight. Work is needed especially at basic where the measures employed in the present study have been least useful. The argument that cadets do not know each other as well at Whiting Field, for instance, as at pre-flight is weak. Although it is true that there is much more diffuse organization and mutual acquaintance after pre-flight, nevertheless, most cadets undoubtedly size up their associates wherever they are.

The second extension applies to superior officers sho could rank the cadets with whom they are acquainted.** For example, a flight insturctor, although able to judge only his own students, is in a good position to compare them with each other and in this manner to aid in identifying those who possess more and less degree of officerlikeness. Indeed, the personal contact of the flight line is perhaps the most favorable condition of all those in military training to obtain the requisite knowledge. The necessity to rank students would have several advantages over the mere rating of each one separately. It would force attention upon the judgment and call upon specific

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* There is a "chicken-or-the-egg" problem, here, which scould be investigated. It is not know whether men are chosen as cadet officers because they have a higher degree of "officerlikeness" to begin with, or whether they ultimately prove to be satisfactory as officers in the fleet because of experience acquired as a cadet officer early in training.

**Steps in this direction appear to have been taken already, at least in requesting that academic instructors at pre-flight nominate the men who are best and worst in officerlike qualities.

experiences with the cadet, thus tending to reduce reliance upon the average or vague rating. It would also provide a point of reference for the judgment since each man would, of necessity, be compared with at least one other man. Such rankings would not necessarily supplant the OLQ rating, but might at least assist in making it and might even be employed as a weight, e.g., by increasing or decreasing the over-all rating by adding and subtracting points for high and low ranks.

In sum, then, various means to improve the OLQ rating can be discerned. It would appear thet nontechnical qualities are of sufficient importance in the scheme of naval life that they deserve serious attention and implementation. The tenor of this report is that men who ultimately are regarded as unsatisfactory officers in the fleet can be identified with considerable accuracy as early as the pre-flight stage of training. While the nontechnical qualities involved should not be allowed to overshadow the other primary requirements of training, nevertheless, they appear to be of sufficient importance to merit special attention. At least a small proportion of trainees whc are very likely to prove undesirable from this point of view might well be eliminated without much, if any, loss in the technical qualities of the Naval Air Force.

Summing up briefly, this investigation indicates that officerlikeness can be assessed in valid ways quite early in training. Possible ways to improve this assessment have been discussed, both through modidications of the OLQ rating itself and through the utilization of other measures such as peer nominations, delinquency reports, and performance as a cadet officer.

RECOMMENDATIONS

1. A serious effort should be made to improve the assessment of officer-like qualities, both in the direction of increasing the validity of measures and of extending the information to be derived from these measures.

2. Attention should be given to the items upon which assessment is to be based.

3. a. There should be a clarification of the qualities understood by the term officerlike. Tentatively, we propose that a sisdinction be drawn among military behavior, leadership, acceptability as a person (i.e., a military associate), and devotion to duty (or identification with the Navy).

   b. In developing more adequate measures of officerlikeness, these categories should be treated separately, at least until their interrelations and contribution to the over-all officer role are better understood.

c. Several specific items should be devised in each of the four general areas.

d. Items to be included, whether those now in use or those to be employed in the future, should meet the practical requirements of rating scales. Those which are seldom observed, which do not differentiate amoung good and poor men, or in which there is a great preponderance of average or above average checks, should be modified, or eliminated.

e. Consideration should be given to the assignment of higher weight to below average checks.

3. Steps should be taken to improve the administration of the OLQ rating.

a. Instructions should be strengthened to reduce the incidence of counter-balancing substandard checks by above average checks.

b. Wherever possible, more than one rater should make judgments on the same student.

c. Decisions should be reached regarding the persons best qualified to prepare the rating, taking into account the fact that such persons may differ at various stages of training.

d. Raters should be urged to utilize the not observed category when they lack confidence in their ability to make the rating.

e. Every effort should be exerted to establish uniform procedures, taking into account the possibility that these procedures may differ at aarious stages of training.

4. The whole approach to the assissment of officerlikeness should be broadened to include measures in addition to the OLQ rating itself. Special consideration in this regard should be given to peer nominations, rankings by instructors, and performance as cadet officer.

5. Flexibility should be introduced in a manner which permits the seaprate determintation of scores (or sub-scores) for different aspects of officerlikeness.

6. Forms should be developed for the assessment of officers in training and aviation officer candidates, both to facilitate their evaluation as future officer candidates, both to provide useful information preliminary to preparation of fitness reports.

7. Specific administrative action should be taken to implement the assessment of officerlikeness. This might take the form of hearings before boards or an actual elimination from training for unsatisfactory ratings.

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Appendix A

Sample of The Officer-Like Qualities Rating Form

Omitted is tne lower section which contains computation of the numberical grade, date, name, unit, and other information of an administrative character. It shall be tne responsibility of the O-in-C of each Training Unit to insure that an Officer-Like Qualities report is placed in the Aviation Training Jacket of each student at the completion of each unit of training. These reports shall be completed in accordance witn currect CNATra Air Training Instructions. When rating student, carefully consider and keep in mind the following definitions:

Unsatisfactory--Inefficient, below minimum standards; Below Average--Satisfactory, passably efficient; Average--Efficient, well qualified; Above Average--Superior, exceptionally efficient; Not observed--Use in all cases where tnere has been insufficient opportunity to observe.

The appropriate column will be checked ( ) by the rating officer.

	Not Observed	Unsatis-factory	Below Average	Average	Above Average
MILITARY COURTESY Expresses respect and politeness in accordance with established Military custom.					
MILIARY BEHAVIOR Conforms to military rules and reguaations.					
MILITARY DRILL Progress and facility in formation, drills, and inspections.					
INITIATIVE On the job, interest, does his best, desires to learn.					
SOCIAL ADEPTNESS Cooperative, considerate, gets along well with others, respects, thinks of others.					
STABILITY Self controlled, even tempered, consistent in his actions, confident, at ease.					
CHARACTER Dependable, honest, reliable, loyal.					
LEADERSHIP Demands and maintains confidence of others so that they will act uniformly upon an idea or mode of action.					
TOTAL MARKS THIS SHEET					
CUMULATIVE TOTALS					