

EFFECTS OF SCHOOLING AND MEDIUM OF INSTRUCTION ON VARIOUS ASSESSMENTS OF CANDIDATES AT SERVICES SELECTION BOARDS FOR ADMISSION TO NDA

(Miss) BRIJINDER KAUR

Directorate of Psychological Research, New Delhi

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The effects of the type of schooling and the medium of instruction on the various aspects of selection assessment have been studied. The results show that there is a difference in assessments for boys from different types of schools. Candidates from Sainik Schools are the best, followed by those from Public Schools, Schools with Compulsory English and lastly Other Schools. The results after training at the National Defence Academy were also considered to find out whether similar differences still persisted. It was found that the differences observed at the selection stage were not in evidence during training. It has been ensured that this cannot be attributed to the levelling effects of selection.

Candidates for admission to the National Defence Academy for pre-commission training are screened on the basis of an academic examination conducted by the Union Public Service Commission, and a leadership testing programme conducted at the Services Selection Boards. The latter comprises a battery of psychological tests, a set of group situational tests and interview. The assessment based on these tests is related to the socio-cultural and educational background of candidates. A number of studies have been conducted to find out the relationship between these factors and the assessment of candidates at Services Selection Boards. The studies conducted by the Directorate of Psychological Research (*DPR* Note No. 232, 1963) show that there are many factors such as the candidate's schooling, his economic status, his interests, hobbies and reading habits, etc., which affect his assessment by the Services Selection Board, and there is reason to believe that these factors may be combined into some sort of index of the intellectual, social and artistic interests of an individual which may predict his rating to some extent. It was also observed that the pass percentage of the boys who have had their education in Public Schools or English medium schools is higher than others¹.

However, in all these studies, only the overall performance at Services Selection Boards was correlated with the various background factors. No attempt was made to study the differential relationships of these factors with various aspects of selection, made by Psychologists, Group Testing Officers and Interviewing Officers. It is pointed out here that the three assessors use different tools and different media of testing. They may not all be influenced by socio-cultural factors to the same extent. Most controversial amongst these factors is the educational background of boys from different schools. The so-called superior schools like Public Schools almost always have English as their medium of instruction which gives to the boys some sort of a veneer which because of their verbal fluency helps them to make a better impression on the Selection Boards. It cannot be denied that a candidate with better verbal and oral expression may make a better impression at the time of selection.

MATERIAL AND METHOD

This study was taken up to investigate the differences in the assessments at Services Selection Boards of boys from different types of schools and the medium of instruction. In order to ascertain the continued operation or gradual obliteration of background factors at the training stage, this study was carried out on the

candidates' assessments at UPSC, Selection Boards and at the National Defence Academy also.

To study the effect of schools, they were classified under four heads, viz., Public Schools, Sainik Schools, Schools with Compulsory English and Other Schools. The classification with regard to the medium of instruction was as follows: (1) English, (2) Non-English. Boys with (a) Hindi, (b) English and Regional language combined, and (c) Regional language other than Hindi, as media are grouped together under Non-English, as the number in each group is small.

Sample

The sample for the study consisted of 426 candidates who appeared before the Army and Navy Selection Boards for the National Defence Academy Course No. 31. They had passed at least Matriculation or equivalent examination and were in the age group of $14\frac{1}{2}$ years to $17\frac{1}{2}$ years. Out of these, 147 candidates were selected and detailed for training and 91 completed the training successfully. The others were either relegated to later courses or withdrawn from training. These 91 candidates comprised the sample for the detailed study at the training stage. The sample was less in case of UPSC marks, because marks were not available for some candidates, as their candidature was withdrawn after appearing at the Services Selection Board. Besides, pass rates for the boys from various schools and from different media of instruction were also compared.

To study the effect of various factors, marks awarded to these boys at the UPSC for academic subjects, their Intelligence scores and assessments at Services Selection Boards by Psychologists, Group Testing Officers and Interviewing Officers were considered.

Analysis of variance was performed on these marks as also the total Board marks, to find out the significance of the differences among the mean scores of the candidates in the various categories of the factors studied.

Analysis of variance was also applied to the selection assessments of the candidates who completed training at the Academy. At the training stage also, analysis of variance was applied to the academic marks, *OLQ* (Officer Like Qualities) marks, and total marks to find out the significance of differences of means.

ANALYSIS OF DATA

Type of schools

(a) *Selection assessments* (Total appeared at *SSB*)—Table 1 gives mean and standard deviations of the UPSC marks, the Intelligence marks and the initial assessments by the Group Testing Officer, Psychologist, Interviewing Officer and the total Board marks for the various groups by the types of schools. Sample sizes in each group are also given in this Table. Analysis of variance was applied to compare the mean scores of the candidates from various types of schools. The between-school variance was compared with the within-school variance by means of '*F*' test. The results of '*F*' test on means is also given in the Table 1. It is observed from this Table that '*F*' values are significant at 1 per cent level. Therefore the mean scores of the boys from various schools differed significantly.

'*t*' test was applied to the various pairs of means to analyse the difference in detail. The results are given in graphic form in Table 2. The analysis shows that as far as UPSC marks and Intelligence marks are concerned, boys coming from Other Schools are significantly different and inferior to the boys from Sainik Schools, Public Schools

TABLE 1
MEAN MARKS ACCORDING TO TYPE OF SCHOOLS
Sample : Total appeared at SSB

Initial assessment		Sainik	Public	Schools with Compulsory English	Other Schools	'F' Value
UPSC Marks	Mean	465.03	450.78	436.29	422.11	6.59**
	SD	67.31	183.01	58.17	48.84	
	Sample	29	51	146	134	
Intelligence Marks	Mean	107.91	107.48	107.65	101.82	4.89**
	SD	16.43	16.16	14.54	15.16	
Group Testing Officer	Mean	108.31	90.15	82.78	71.66	19.43**
	SD	29.09	26.96	28.06	25.44	
Psychologist	Mean	101.80	89.12	84.11	76.59	11.85**
	SD	23.94	25.10	24.30	22.16	
Interviewing Officer	Mean	109.87	92.57	84.45	74.35	19.95**
	SD	21.38	26.29	27.65	24.90	
Total Board Marks	Mean	484.75	385.85	348.55	316.90	30.43**
	SD	75.78	86.38	103.93	90.62	
	Sample	32	58	180	156	

df = 3,356 and df = 3,422

**Significance at 1% level.

TABLE 2
MEAN SELECTION SCORES OF CANDIDATES FROM DIFFERENT TYPES OF SCHOOLS
Sample : Total appeared at SSB

Assessments	Sainik	Public	Schools with Compulsory English	Other Schools
UPSC Marks	465.03	450.78	436.29	422.11
Intelligence Marks	107.91	107.48	107.65	101.82
Group Testing Officer	108.31	90.15	82.78	71.66
Psychologist	101.80	89.12	84.11	76.59
Interviewing Officer	109.87	92.57	84.45	74.35
Total Board Marks	484.75	385.85	348.55	316.90

Note : Means falling under the same bar do not differ significantly at 5% level.

Schools with Compulsory English, though in case of UPSC marks, the so called superior school groups differ among themselves but the difference is not clear cut. As regards the Group Testing Officers' and the Psychologists' assessment, Sainik School boys are on the average significantly higher than the rest of the boys. Next in order come the boys from Public Schools and Schools with Compulsory English. The latter two categories do not differ significantly from each other. The group with lowest mean score is the 'Other Schools'. Regarding the Interviewing Officers' assessment and total Board

marks, the four groups according to type of schools also differ significantly in order of superiority.

(b) *Selection assessments* (Selected and completed the training)—Table 3 gives the mean and standard deviations of the UPSC, the Intelligence marks and the initial assessments by the Group Testing Officer, Psychologist and the Interviewing Officer for the candidates who successfully completed their training at the Academy. Analysis of variance was applied to various scores. 'F' value is observed to be significant at 5 per cent level in case of UPSC marks and for total Board marks, whereas it is significant at 1 per cent level for the Group Testing Officer, and not significant in case of the Psychologist and the Interviewing Officer.

't' test was applied to the various pairs where the 'F' value is significant to analyse the difference in detail. The results are given in graphic form in Table 4. Regarding the UPSC marks, all schools except Other Schools can be grouped together. Schools with Compulsory English are also not significantly different from Other Schools. Group Testing Officers' assessment place the Sainik School boys at the top and the other three groups do not differ significantly amongst themselves. In case of Intelligence marks, Psychologist's assessment and the Interviewing Officer's assessment, boys from different types of schools cannot be differentiated. According to total Board marks, boys from Sainik Schools do not differ significantly from the group coming from the Schools with Compulsory English and again the boys from Schools with Compulsory English can be grouped together with Other Schools and Public School boys.

(c) *Training assessments*—Table 5 gives the mean and standard deviation of the marks obtained on the completion of the Pre-Commission training at the National Defence Academy, respectively on academic subjects, Officer Like Qualities, and Grand Total, for

TABLE 3
MEAN MARKS ACCORDING TO TYPE OF SCHOOLS
Sample : Selected and completed training

Initial assessment		Sainik	Public	Schools with Compulsory English	Other schools	'F' Value
UPSC Marks	Mean	471.21	468.28	457.12	439.63	
	SD	148.89	63.99	93.57	43.78	2.75*
Intelligence Marks	Mean	112.92	110.94	111.12	109.31	
	SD	36.33	31.86	74.72	28.71	.14 NS
Group Testing Officer	Mean	124.57	94.33	104.30	105.36	
	SD	46.95	26.08	29.93	32.93	4.43**
Psychologist	Mean	102.21	93.55	104.62	98.47	1.83 NS
	SD	37.90	15.44	28.67	33.30	
Interviewing Officer	Mean	117.78	100.55	106.02	107.10	1.58 NS
	SD	40.51	32.44	27.30	35.56	
Total Board Marks	Mean	475.57	412.83	442.80	433.42	
	SD	153.30	107.45	85.89	127.35	3.09*
Sample		14	18	40	19	

df = 3,87

*significance at 5% level

**significance at 1% level

TABLE 4
MEAN SELECTION SCORES OF CANDIDATES FROM DIFFERENT TYPES OF SCHOOLS
Sample : Selected and completed NDA training

Assessments	Sainik	Public	Schools with Compulsory English	Other schools
UPSC Marks	471.21	468.28	457.12	439.63
Intelligence Marks	112.92			
Group Testing Officer	124.57	94.33	104.30	105.36
Psychologist	102.21	93.55	104.62	98.47
Interviewing Officer	117.78	100.55	106.02	107.10
	Sainik	Schools with Compulsory English	Public schools	Other schools
Total Board Marks	475.57	442.80	412.83	438.42

Note : Means falling under the same bar do not differ significantly at 5% level.

TABLE 5
MEAN MARKS AT NDA ACCORDING TO TYPE OF SCHOOLS
Sample : Cadets who completed training

Assessments		Sainik	Public	Schools with Compulsory English	Other schools	F Value
Academic Marks	Mean	191.21	188.83	198.75	199.18	<1 NS
	SD	30.30	19.70	28.76	24.76	
OLQ Marks	Mean	128.72	127.72	135.25	130.11	1.29 NS
	SD	10.88	14.28	17.97	17.33	
Grand Total Marks	Mean	534.80	568.28	590.50	586.30	<1 NS
	SD	38.77	32.82	48.57	56.79	
Sample		14	18	40	19	

df = 3,87

the various groups by the types of schools. Analysis of variance was applied to the scores of different groups and the variance was tested by means of 'F' test. It is observed from the table that the differences between the groups are not significant at 5 per cent level, for all assessments at this stage. The result in graphic form is given in Table 6.

Table 7 gives the pass rates at the Academy for boys from different schools. χ^2 test showed that the wastages were uniform for the various schools.

It is possible that the difference in the performance of candidates from different schools is due to their differing academic achievement and intelligence level. The correlation of Selection Board performance with these two variables are as follows :

Board Assessments	UPSC marks	Intelligence
Group Testing Officer	.186**	.185**
Psychologist	.144**	.262**
Interviewing Officer	.126*	.137*
Total Board Marks	.177**	.245**

significance at 5% level

**Significance at 1% level

TABLE 6
MEAN TRAINING SCORES OF CANDIDATES FROM DIFFERENT TYPES OF SCHOOLS

Assessments	Sainik	Public	Schools with Compulsory English	Other Schools
Academic Marks	191.21	188.83	198.75	199.18
OLQ Marks	128.72	127.72	135.25	130.11
Grand Total Marks	534.80	568.28	590.50	586.30

Note : Means falling under the same bar do not differ significantly at 5% level.

TABLE 7
PASS RATE AT NDA ACCORDING TO TYPE OF SCHOOLS

Type of schools	Total detailed	Passed without relegation	Relegated/withdrawn	% passed without relegation
Public	30	18	12	60
Sainik	27	14	13	52
Compulsory English	61	40	21	65
Other Schools	29	19	10	65

$\chi^2 = 1.71$, not significant at 5% level for 3 df.

TABLE 8
ANALYSIS OF COVARIANCE (UPSC AND INTELLIGENCE HELD CONSTANT)
Adjusted means according to Type of Schools

Initial assessments	Sainik	Public	Schools with Compulsory English	Other schools	'F' Value
Group Testing Officer	111.99	89.74	82.62	68.39	15.110**
Psychologist	105.36	89.65	83.59	76.15	3.310*
Interviewing Officer	111.39	90.38	83.68	72.08	13.197**
Total Board Marks	499.13	382.47	345.00	311.00	33.207**
Sample	29	51	145	134	

df = 3,355

*Significance at 5% level

**Significance at 1% level

In view of these correlations, it would be instructive to find out whether the school differences vanish if these variables are kept constant. Analysis of covariance was carried out to ascertain this. UPSC marks were not available for some candidates so the analysis was carried out on a smaller sample (359). The results are presented in Table 8, show that the school differences persist even after the influence of academic attainment and intelligence level is removed.

TABLE 9
MEAN MARKS ACCORDING TO MEDIUM OF INSTRUCTION
Sample : Boys from Other Schools

Assessments		English	Non-English	't' value
Group Testing Officer	Mean	75.50	70.37	1.09 NS
	SD	2.52	2.47	
Psychologist	Mean	78.83	75.84	<1 NS
	SD	2.24	2.21	
Interviewing Officer	Mean	79.09	72.76	1.38 NS
	SD	2.74	2.39	
Total Board Marks	Mean	322.62	301.68	1.25 NS
	SD	3.79	3.56	

English N = 39

Non-English N = 117

Medium of Instruction

Selection assessment (Boys from Other Schools)—Public Schools, Sainik Schools and Schools with Compulsory English all have English as medium of instruction while in the 'Other Schools' group all categories of media of instruction are represented. Therefore, marks obtained by boys from the last type of schools were analysed so that types of the schools remain constant for different media. 't' values came out to be not significant in each case of Board Assessors as shown in Table 9.

The performance of boys from schools with different media of instruction was also compared at the time of training (National Defence Academy). It was found that the pass rates at the Academy do not differ significantly for the various instructional media. The significance of the differences was tested by means of 't' test applied to pass rate between the English medium group on the one hand and the Non-English media groups on the other. The pass rate for English group is 60 percent and for the rest it is 73 per cent. The sample sizes in the two cases were 125 and 22 respectively.

FINDINGS

Type of schooling

From the foregoing analysis, it may be concluded that, on the average, candidates coming from Sainik Schools do better than the others at the Selection Boards. Next come Public Schools and Schools with Compulsory English, and at the lowest extreme are the candidates from Other Schools. This is true of selection assessments, excepting Group Testing Officer's and Psychologist's assessments, for which, boys from Public Schools and Schools with Compulsory English can be grouped together.

Analysis with regard to UPSC marks and Intelligence Marks shows that while the boys from Other Schools are inferior to the Sainik, Public and Compulsory English Schools, the overall superiority of Sainik and Public Schools is not in evidence in these assessments.

Analysis with regard to the selection assessments on the smaller sample (sample who completed training after selection at SSBs) showed that the average superiority of Sainik School boys over others still persisted.

Medium of instruction

Public Schools, Sainik Schools and Schools with Compulsory English all have English as medium of instruction.

As regards Other Schools where different media of instruction are prevalent, it is found that the differences due to medium of instruction are not significant.

Training results

None of the factors studied in this paper seem to be operative in the performance of the selected candidates at the training stage, namely, at the National Defence Academy. Boys from various types of schools on the average perform equally well.

DISCUSSION

It is clear from the above that candidates from certain types of schools tend to have an edge over others in the assessments at Services Selection Boards. As regards the UPSC marks and Intelligence marks, the differences are not significant. A previous study (DPR Note No. 232, 1963) also shows that extracurricular activities such as sports, debates, hobbies, etc., tend to affect the assessment at the Selection Boards favourably. Boys taking interest in reading of material like newspapers and magazines may have developed intellectual curiosity with the result that out of selected candidates, 80 percent claim to be reading such material regularly and 70 percent read novels. Participation in extracurricular activities does provide some sort of an index of the intellectual, social and artistic interests of an individual; it also speaks to some extent about the sociability and enthusiasm of a person. Tyagi & Mehta¹ also confirm that pass percentage of the boys who play games is higher than that of others.

The conclusion seems to be quite justified in the case of Sainik Schools, whose curriculum has a military bias and the aim of their teaching being to prepare candidates academically and develop their personality for a career as officers in the Armed Forces. The result is that the candidates from these schools come up best to the selection Board tests. A previous study by the Directorate (DPR Note No. 248, 1965) confirms that the Sainik School boys have throughout the best attainments to their credit. However, it is significant that these differences are not in evidence when the performance of these boys at the training institution is studied. This may be due to Selection being only the best go for training at the *NDA*. Still we see that among the smaller sample of the finally selected candidates, Sainik School boys still show superiority with regard to Selection Board assessment. The differences on more basic abilities like intelligence and academic achievement (UPSC marks) did, however, disappear. From these results, one is led to conclude that the qualities of a good personality supposed to be inculcated in certain schools which lead to better assessment at the Services Selection Boards are not of a general nature, and that during training where sufficient opportunities for displaying them are available, no such differences are seen. Or alternatively, it may be argued that whatever the nature of assessments, the biases operative at the Selection stage are no longer there at the training stage, since the instructors who assess these qualities at the training stage have no knowledge of the school from which boys come.

CONCLUSION

It can be concluded from the above discussion that the factors like type of schooling influence each assessment at Service Selection Boards. The difference is not seen at the training stage. The difference is either wiped out by short training or is an artifact of the selection procedure.

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REFERENCE

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