

Psychological Factors Responsible for Wastage among Trainees during Ab Initio Flying Training

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A total of 247 ab-initio flying trainees were interviewed with a view to study the sociocultural, socioeconomic and inter personal factors which may affect the outcome of their training. The results were analysed to identify the psychological factors responsible for suspension from this stage of flying training.

An ab initio flying trainee at the elementary stage of flying learns the basic requirements of a pilot and is judged within certain stipulated hours of flying. The entrants would have already been cleared by PABT (Pilot Aptitude Battery Test) and the flying training will then be imparted in accordance with a standard syllabus.

Experience gained by observing the last 12 courses of flying training has shown that the rate of suspension ranges from 9 to 32%. The cause of most of the suspensions at ab initio stage is stated to be on account of failure to learn flying. As per the training syllabus, a trainee should be able to fly 'solo' between 9.20 and 12.00 hrs of flying training. The cost per hour of flying training is Rs. 3100/-. Previous studies have shown that suspension at the elementary stage takes the maximum share of total suspensions in a course.

The reduction of wastage should not be at the cost of flight safety. Early detection of psychological factors in trainees who are exposed to military flying training environment would help in weeding out the substandard material at a very low cost.

Simultaneously, it will also help in giving the maximum benefit to trainees so that possible losses or rejections at a later date can be minimised or prevented.

The present study was taken up in an elementary flying school with a view to analyse the psychological factors responsible for wastage among the trainees during the ab initio training stage.

Material and Methods

The study was confined to 3 successive courses of Fighter Pilot training at the elementary stage of flying training. The trainees included ex-National Defence Academy (ex-NDA) cadets, pupil officers and direct-entry cadets (Table-I). Trainees from foreign countries were excluded from the study. Each course lasted about 6 months. The first of the 3 courses was taken up for study at pre-solo stage. All trainees were interviewed according to a proforma which was filled up by the interviewer. Each interview lasted about 1 hr 45 min during the first sitting. A subsequent follow up was made in an environment of easy informality. Interviews were repeated whenever there was a change of instructor. At the end of the Training Review Board, selected subjects were again interviewed to confirm the truthfulness of their previous statements. The instructors too were interviewed and their suggestions were invited. The reactions, as obtained, were noted on the proforma. The proforma was designed to obtain information on :—

1. Socio-economic background
2. Socio-cultural background
3. PABT grade
4. Sociometric study to examine their group acceptability and its effect on attitude towards training and performance.
5. Adaptation to the place and flying environment.
6. Instructor-pupil relationship.
7. Attitudinal variables (flying)
 - i) Instructions in the air
 - ii) Clarification on doubts in flying
 - iii) Weakest points in a flying exercise.
 - iv) Attitude towards rebukes/harsh criticism in air.

The analysis was conducted separately on 2 samples under training in the 3 courses, viz., ex-NDA cadets and pupil officers. Direct entry trainees were too few to provide any substantial data for worth-while statistical analysis. The relationships were studied by means of the 'Chi-square' tests.

During the course of interviews it was reported by various instructors that towards the end of their tenure they found the instructional job rather monotonous and stressful. A study on this aspect was also conducted by analysing the relationship between the performance of trainees and the period on instructional job of respective instructors.

An attempt was also made to pinpoint relationship between performance during training and certain background variables of the trainees like :—

- a) Acquaintance with defence service personnel.
- b) Mechanical hobbies.
- c) Income group of parents.
- d) PABT gradings.

The results were statistically analysed.

Results and Discussion

Failure Rate

Most of the trainees rejected from flying training at the ab initio stage had 'failed to learn flying'. In the present study, the failure rates for ex-NDA cadets and pupil officers were 19% and 28% respectively.

Sociometric Study

Tables II to IV give the results of the analysis in respect of group status of instructors and trainees in relation to training performance.

It may be seen that none of the 'Chi-square' values are significant. This implies that the perceived group status of either the instructors or the trainees did not have anything to do with the suspension or passing out of trainees.

It was postulated that in the training environment the same may be effective since the qualities like 'hero-worship' are more noticeable among the trainees. Probably on account of too early collection of data or a very good adaptation to the environment at the flying school, the sociometric study is not found to be significant.

Training Performance and Attitudinal Variables

Tables V to VIII give the details of analysis done to study the relationship between performance during training and variables indicative of attitude towards training and instructors, viz.,

- a) Difficulties experienced during instructions in the air (Table V).
- b) How the doubts regarding flying exercise (sortie) were clarified (Table VI).
- c) Weak points in a flying exercise (sortie) as perceived by the trainees (Table VII).
- d) Trainees' attitude towards 'rebukes in the air' (Table VIII).

Table — I

Number and categories of subjects

Course No.	Ex-NDA Cadets	Pupil Officers (Army & Navy)	Direct entry cadets
1	56	32	8
2	42	30	7
3	46	21	5

Table — II

Group ranking of instructors by trainees

Group ranking of instructors by the trainees	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
High	70	27	17	4	87	31	19.6	12.9
Middle	13	15	1	6	14	21	7.1	28.6
Low	32	18	9	11	41	29	21.9	37.9
Total	115	60	27	21	142	81	19	25.9

Notes : 1. Data regarding 2 cadets and 1 officer are not available.
2. One reflighted officer has not been included.

Ex-NDA : $X^2 = 0.0404$ at $df = 1$ (middle and low have been pooled),
Pupil officers : $X^2 = 4.9929$ at $df = 2$

Table — III

Group ranking of trainees by own squadron-mates

Trainees status own squadron	Non-Suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupils officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
High	47	20	14	6	61	26	22.9	23.8
Middle	37	22	9	5	46	27	19.5	18.5
Low	31	18	6	11	37	29	16.2	37.1
Total	115	60	29	22	144	82	20.1	26.6

Ex-NDA : $X^2 = 0.6641$ at $df = 2$. Pupil officers : $X^2 = 2.9654$ at $df = 2$

Note : One reflighted officer has not been included.

Table — IV

Group ranking of trainees by trainees of other squadrons

Trainees status other squadrons	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
High	49	22	12	6	61	28	19.6	21.4
Middle	29	19	6	8	35	27	17.1	29.6
Low	37	19	11	8	48	27	22.9	29.6
Total	115	60	29	22	144	82	20.1	26.6

Ex-NDA : $X^2 = 0.4329$ at $df = 2$

Pupil officers : $X^2 = 0.6329$ at $df = 2$

Note : One reflighted officer has not been included.

Table — V

Training performance & attitudinal variables : Difficulties during instructions in the air

Difficulty	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil Officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
Yes	19	11	5	8	24	19	20.8	42.1
No	72	31	16	11	88	42	18.0	26.2
Sometimes	20	14	4	1	24	15	16.7	6.7
Head set defective	7	8	2	3	9	11	22.2	27.2
Language problem	1	—	1	—	2	—	50	—
Total	119	64	28	23	147	87	19.0	26.4

 $\chi^2 = 0.1127$ at $df = 2$

Table — VI

Training performance & attitudinal variables : Clarification of doubts

	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
Instructor only	93	48	21	15	144	63	18.4	23.8
Mixed	23	11	6	6	29	17	20.7	35.3
Total	116	59	27	21	143	80	18.9	26.2

 $\chi^2 = 0.0777$ at $df = 1$

Table - VII
 Training performance & Attitudinal variables :
 Weak points in sortie

Flying Experience	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
Take off	26	8	12	7	38	15	31.6	46.7
Landing	63	33	16	14	69	47	23.2	29.2
Turns	28	16	2	6	30	22	6.7	27.3
Other	26	7	1	1	27	8	3.7	12.5
Total	133	64	31	28	164	92	18.9	30.4

$X^2 = 11.7296$ at $df = 2$

Table - VIII
 Training performance & attitudinal variables :
 Rebukes in air

	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil	Ex-NDA	Pupil	Ex-NDA	Pupil	Ex-NDA	Pupil
Yes, I deserved	83	45	19	6	102	52	18.6	11.8
I did not deserve	31	12	7	6	38	18	18.4	33.3
Intolerable	1	2	1	9	2	11	50.0	81.8
Physical manhandling	2	—	1	1	3	1	33.3	100
Total	117	59	28	22	145	2	19.3	27.2

$X^2 = 0.1029$ at $df = 1$

Table - IX

Relationship between performance on aptitude tests (PABT) and training performance

PABT Grade	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
I	51	5	4	2	55	7	7.27	28.57
II	32	16	14	2	46	18	30.43	11.11
III	27	18	7	6	34	24	20.59	25.00
Total	110	39	25	10	135	49	18.52	20.41

Note : PABT grades in respect of 9 cadets and 33 officers are not available.

Table - X

Relationship between training performance and background variables :
Acquaintance with Defence Services.

Acquaintance	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
Nil	71	33	23	13	94	46	24.5	28.3
Air Force	24	8	5	2	29	10	17.2	20.0
Army/Navy	20	19	—	6	20	25	0.0	24.0
Total	115	60	28	21	143	81	19.6	25.9

Ex-NDA : $X^2 = 4.1619$ at $df = 1$

Pupil officers : $X^2 = 0.3022$ at $df = 1$

Table XI

Training performance & background variables :

Parental income group (Ex-NDA, Pupil officers & DE Cadets)

Parents' Income Group (Rs. pm.)	Non-suspendees		Suspendees		Total	% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers		Ex-NDA	Pupil officers
<500		28	15		43		34.9
501-1000		56	15		71		21.1
1001-1500		37	8		45		17.8
1501-2000		20	3		23		13.0
> 2001		24	1		25		4.0
Total		165	42		207		20.9

$$X^2 = 10.1150 \text{ at } df = 3$$

Table - XII

Training performance & background variables :

Mechanical hobbies

Mechanical Hobbies	Non-suspendees		Suspendees		Total		% of suspendees	
	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers	Ex-NDA	Pupil officers
Absent	81	55	24	16	105	71	22.9	22.5
Present	34	6	4	4	38	10	10.5	40.0
Total	115	61	28	20	143	81	19.6	20.4

It is seen that among the ex-NDA cadets, the 'Chi-square' relating to weak points in a sortie (Table VII) was significant indicating thereby a significant relationship between training performance and the weak points noticed in the sortie. It is also seen from Table VII that the percentage of suspension was significantly greater amongst those who reported weak points pertaining to 'take-off' (31.58%) and 'landing' (23.19%).

Among the pupil officers, the only significant result was in respect of attitude towards rebukes/harsh criticism in the air as received from the instructors. Table VIII shows that the suspension rate was significantly higher among those pupil officers who reported that they did not deserve the rebukes as also those who reported that the rebuke was 'intolerable'. There appears to be a difference in the attitude towards training between the pupil officers and the flight cadets. 13.4% of pupil officers thought the rebukes to be intolerable whereas only 1.38% of the ex-NDA cadets considered them so.

From this, one can point out whether the trainee's adaptation to the environment is adequate or inadequate. The type of instructor required at this stage should be selective. The instructor should have knowledge of management of human relationship. The rebukes at this stage of flying should be towards making the pupil understand 'certain vital mistakes' rather than to humiliate him.

PABT Grade and Training Performance

Table IX gives the details of the above for ex-NDA cadets and pupil officers. In the ex-NDA group, the suspension rate was significantly lower (7.27%) in the case of those who got grade I in PABT whereas the suspension rates rose to 30.43% and 20.59% for those who got grades II and III respectively. The 'not significant' result in the case of the pupil officers could be attributed to the incomplete data.

Background Variables and Training Performance

Tables X to XII indicate respectively the result of the analysis done to study the relationship between training performance and some background variables, viz., acquaintance with defence services, mechanical hobbies and parents' income level.

Among the flight cadets, there is a significant relationship between training performance and background variables like acquaintance with defence services and parental income. There is no significant relationship between training performance and liking for a mechanical hobby. The suspension rate among the cadets was significantly higher amongst those who did not have previous acquaintance with defence services (Table X). The suspension rate was also high in the lowest parental income group. These factors were not significant in the case of the pupil officers.

In flight cadets having mechanical hobbies, the suspension was relatively lower than in those not having mechanical hobbies. However, this was not found to be significant statistically, may be for want of sufficient data.

Effect of Instructor's Tenure

Table XIII gives the performance of trainees under instructors who had been on the present instructional job for different duration in terms of courses handled.

The 'Chi-square' was significant at 0.01 level. Suspension rate was higher among the cadets trained by instructors who had handled 4 or more courses as compared to those who were trained by the instructors who had handled less than 4 courses. One may be tempted to conclude that as the duration of the tenure of an instructor increases beyond a certain period, he tends to find the job monotonous and becomes indifferent. Subsequently, he becomes less patient with the trainees.

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