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PREVENTIVE COUNSELING AND PRESCRIPTIVE REMEDIATION

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ABSTRACT

This report evaluates the effects of redefining the role of a counselor in the AV(A) School so that intensified counseling is administered to potential failures before the trainee takes the unit examination as opposed to normal post-failure counseling. In addition, two types of remediation were evaluated. An existing system of one week set back review remediation was compared with a self-paced programmed instruction.

Intensified preventive counseling was found to be significantly better than the normal post-examination counseling resulting in increased proportion of students completing the course. The one-hour remediation program was not found to be significantly different from the one-week setback program. Trainees did better on a post-remediation examination than they did on an examination given immediately prior to the remediation program.

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Problem

The study involved an evaluation of a preventive counseling¹ program and a post examination remediation program² established in Phase II, Unit 1 of the Avionics Technician School, Class A. Individuals identified as being potential Phase II, Unit 1 failure were given individualized intensified counseling. The counseling was designed to help the student solve personal problems ranging from family crises to inadequate study habits. Students were selected for the intensified counseling if they had failed any previous unit examination or has a Diagnostic Mathematics Score of at least 23;³ a Diagnostic Physics Score of at least 23; and/or a high combined GCT + ARI Score (120 or above) but had a unit average of below 63 -- failure was 62.

An additional evaluation was to be made comparing a one-week remediation program to a one-hour programmed instruction remediation program. The one-week program consisted of the trainee who failed the Phase II, Unit 1 examination receiving reviews of varying time lengths covering the entire units work. The review required a setback of one week. The second remediation program, referred to as the one-hour program, consisted of a self-paced programmed instruction which covered areas found to be the most often

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- ¹ Preventive counseling as it is used here, refers to a trainee-instructor interaction designed to help the trainee solve a variety of problems which may act as a deterrent to passing a unit examination or the course in general.
 - ² A remediation program consists of a type of review session so constructed as to allow a trainee to make up any shortcomings in his knowledge in a particular area. Such reviews usually occurs after the trainee has failed.
 - ³ A 1970 survey conducted by the AV(A) school has indicated that the average scores on both the Diagnostic Mathematics and Diagnostic Physics test are between 17 and 22 points for those Trainees who graduated the school and participated in the standard twenty week course. Scores of 23 or above on either test is considered high as is a combined GCT + ARI of greater than 120 based on the same survey.

misses on the unit examination. The average remediation time for the second program was one hour.

Study I

Preventive Counseling. The test records of two groups of nine trainee classes were examined to determine the effect of intensified preventive counseling as compared with the effects of normal counseling procedures. The normal counseling procedure consisted of a sometimes hostile encounter between the student and a counselor or counseling board after the student had failed the unit examination. The intensified preventive counseling entailed a non-hostile counseling experience when the student was identified as a potential failure at the beginning of the unit.⁴

The standard procedure for handling failure -- (a) dropped from the school; (b) setback for a one-week review; or (c) continued with the class (CWC) if the overall unit average was not below 63 -- served as a basis for comparing the normal counseling program with the intensified preventive counseling program. The percentage of trainees completing the 20-week course with the class they convened with; the percentage graduating with classes other than their convening class; and percentage dropped completely from the school served as measurements for the comparison.

Of the nine classes which received the normal counseling procedure, a total of 772 men, 73.7% of the men participated in the standard twenty-week course and are the men who were involved in this program. The remaining

⁴ Appendix 1 contains a list of characteristics which define an effective counselor.

26.3% were removed from the regular class and placed in a fast track⁵ accelerated program. The intensified counseling program (844 men) had 77.5% participation in the standard course and 22.5% in the fast track. Table 1 presents the classes and the type of counseling program each has.

Table 1

COUNSELING - REMEDIATION PROGRAMS

Classes	Type of Counseling	Type of Remediation
211-219	normal "after the fact"	one-week setback reviews
220-228	intensified preventive	one-week setback reviews
229-236	intensified preventive	one-hour programmed instruction

The final dispersement for the initial enrollment for the normal counseling and the intensified counseling is presented in Table 2.

⁵ Johnson, K. A. and Salop, P.A. Two Track Training for Avionics Fundamentals. San Diego: U. S. Naval Personnel Research Activity (Technical Bulletin 69-1), 1968.

Table 2

DISPERSEMENT OF INITIAL ENROLLMENT: NORMAL-
INTENSIFIED COUNSELING¹

		convening enrollment	graduated with convening class	graduated with different class	dropped	failed 9th week -- CWC	failed 9th week -- Set- back
NORMAL COUNSELING	class 211	53	20	14	6	1	1
	212	70	34	12	4	3	2
	213	104	50	13	14	2	7
	214	96	40	6	13	5	3
	215	81	31	17	7	5	5
	216	79	37	12	9	7	2
	217	107	47	18	17	10	4
	218	91	40	16	14	5	3
	219	91	43	22	13	13	5
		TOTAL 772*		342	130	97	51
INTENSIFIED COUNSELING	class 220	89	38	22	9	4	1
	221	99	40	22	15	4	2
	222	100	55	15	11	1	1
	223	100	50	14	9	4	1
	224	102	43	21	15	1	3
	225	136	59	29	20	8	6
	226	101	58	13	12	6	1
	227	108	53	20	6	4	4
	228	109	50	22	11	4	0
		TOTAL 944*		446	178	108	36

¹Remediation in all groups was a one weeks setback review.

*Totals reflect Fast Track classes.

NOTE: Discrepancies among column totals are due in part to men who were removed temporarily for such reasons as illness - these men were considered neither setbacks or drops. Some differences can be attributed to men who were removed from the fast track and returned to the standard course. Some men who graduated from the course after the completion of data analysis are represented in this table but are not involved in any analysis.

The intensified counseling program was found to have a significant effect on student performance ($\chi^2 = 9.898$), that is a larger proportion of trainees completed the course under intensified counseling than under the normal type of counseling when percentage to complete the course is the measure of success (Table 3).

Table 3

	Drops	Complete
Normal Counseling- one week of remediation	57	472
Intensified Counseling- one week of remediation	34	566

$\chi^2 = 9.898$ $p < .005$

The percentage of Phase II, Unit 1 failures, who were dropped from the course, declined from 14.6% with the normal counseling program to 7.5% with the addition of the intensified counseling. The percentage of students CWC (6.6%) and the percentage receiving setbacks (4.1%) under normal counseling declined to 3.8% CWC and to 2.0% for setbacks under intensified counseling.

Study II

Prescriptive Remediation. The one-week remediation program was designed to review the material covered in a unit of instruction. A student failing this unit (Phase II, Unit 1) of instruction was standardly given a one-week

setback for purposes of review. A second type of remediation (prescriptive remediation) was introduced consisting of a self-paced programmed instruction. The program instruction remediation was based on the item topics most often missed on the unit examination but was not an actual question by question review. It was rather a programmed review of commonly misunderstood concepts and problems.

The sequence of events for the one-week of events for the one-week remediation condition is as follows: a student failing the unit examination was given a one-week setback during which time he attended review sessions covering the entire course. At the end of the week, he was given an alternate form of the unit examination. If he passed, he then started the next unit with the class following his original class.

The sequence of events for the one-hour (prescriptive) remediation is as follows: a student failing the unit examination was immediately given a programmed text of remedial instruction covering a review of the units most often misunderstood content areas. The average time spent on this programmed text was about one hour. After completion of the remedial program, the student was immediately given an alternate form of the unit examination. If he passed the examination, he started the next unit with his original class with no loss of time.

The test record cards for 944 men under instruction during a period of time when the one-week remediation policy was in effect were examined. These were compared to the record card for 749 men under instruction during the time when the one-hour remediation procedure was initiated. Of the 944 men in the one-week setback program, 77.5% were in the standard course and 22.5% in the acceleration program and 69.2% of the one-hour

group were in the standard and the remaining 30.8% were in the accelerated program. Table IV presents dispersement of enrollment under remediation programs.

Table 4

DISPERSEMENT OF INITIAL ENROLLMENT: ONE-WEEK
SETBACK - ONE HOUR PROGRAMMED INSTRUCTION¹

		convening enrollment	graduated with different class	graduated with different class	dropped	failed 9th week -- CWC	failed 9th week -- Set- back
ONE-WEEK SETBACK	class 220	89	38	22	9	4	1
	221	99	40	22	15	4	2
	222	100	55	15	11	1	1
	223	100	50	14	9	4	1
	224	102	43	21	15	1	3
	225	136	59	29	20	8	6
	226	101	58	13	12	6	1
	227	108	53	20	6	4	4
	228	109	50	22	11	4	0
		TOTAL 944*		446	178	108	36
ONE-HOUR PROGRAMMED INSTRUCTION	class 229	102	54	21	6	9	6
	230	99	46	25	5	8	3
	231	101	48	16	11	4	1
	232	101	51	15	11	2	1
	233	102	43	18	11	9	
	234	89	41	9	4	3	2
	235	76	34	2	3	1	
	236	79	37		8	2	
	TOTAL 749*		354	106	59	38	13

¹All groups received intensified preventive counseling.

*Totals reflect Fast Track classes.

NOTE: Discrepancies among column totals are due in part to men who were removed temporarily for such reasons as illness - these men were considered neither setbacks or drops. Some differences can be attributed to men who were removed from the fast track and returned to the standard course. Some men who graduated from the course after the completion of data analysis are represented in this table but are not involved in any analysis.

There were no significant differences between the number of trainees successfully completing the course under either remediation technique ($\chi^2 = 1.5018$, Table V).

Table 5

	Drops	Complete
Intensified Counseling-one week remediation	34	566
Intensified Counseling-one hour remediation	19	460

$\chi^2 = 1.5018$ not significant

In other words, the type of remediation program made no difference as to the proportion of trainees who went on to successfully complete the course. Proportion wise as many students graduated after receiving the one-week setback as did those who received the one-hour programmed instruction. The only difference was in the amount of time required to successfully complete the programs -- one week verses one hour.

In order to eliminate regression toward the mean⁶ as an explanation of these results, an evaluation was initiated that would test this hypothesis. A sequence of test-retest conditions using equivalent forms of the examination were used to test this condition. The sequences are outlined in Table 6.

⁶ Regression to the mean is a phenomenon in which there is a tendency in a test immediate retest situation for individuals with very high scores to score closer to the mean and a tendency in the same situation for individuals with very low scores to score higher just as a function of retaking the test and no other factors.

Table 6

MEAN TEST SCORES FOR TEST - RETEST SEQUENCE
(n=48)

Sequence				Mean Score			
1	2	Remediation	3	78.25	70.06	Remediation	75.50
	(n=16)						
2	3	Remediation	1	74.81	71.25	Remediation	77.14
	(n=16)						
3	1	Remediation	2	75.50	75.81	Remediation	76.31
	(n=16)						

The scores of the last test given after remediation in all conditions were found to be significantly different from the scores obtained just before remediation (Duncan's test, $p .01$), indicating that the prescriptive remediation is effective and trainees perform better on tests after having received remediation than they would without remediation.

Summary

The primary objective of the study was to determine the effect of prescriptive remediation and preventive counseling in Phase II, Unit 1, of the Avionics Technician School, Class A. An intensified preventive counseling program was found to have a significant effect on student performance, resulting in cutting setbacks and drops in half. The one-hour self-paced program instruction remediation program was found to be as effective as the one-week setback review program. Trainee performance was found to be significantly better on the test given after remediation than on the test prior to remediation.

REFERENCES

1. Gaines, Richard LCDR, Authoritarianism of military designated counselors and their effectiveness. Doctoral Dissertation, University of New Mexico, University Microfilms, 1972.
2. Hayes, William L. Statistics. New York: Holt, Rinehard and Winston. 1963.
3. Johnson, K. A. and Salep, P.A. Two Track Training for Avionics Fundamentals. San Diego: U. S. Naval Personnel Research Activity (Technical Bulletin 69-1), 1968.
4. Wener, B. J. Statistical Principles in Experimental Design. New York: McGraw-Hill. 1962

APPENDIX I

Characteristics of an Effective Counselor

1. **Maturity - this does not imply age or rank.**
 - a. Ability to communicate to the trainee
 - b. Is open minded - will review all of the facts before acting one way or other
 - c. People oriented vs Power oriented
 - d. Can understand trainees problems
2. **Technical Qualifications**
 - a. Tutoring
 - b. Study habits
 - c. Being able to help with students academic problems
3. **Leadership Ability**
 - a. Willing to take responsibility and act on a problem that needs action
 - b. Knows what to do with various problems
 - c. Knows resources - Red Cross, Chaplain, medical, etc.
 - d. Knows limitations
 - e. Basic attitude is that if a man has a problem now, he should get some help now -- not come back tomorrow
4. **Sincerity**
 - a. Eye contact
 - b. Willing to help
 - c. Interested in the individual and interested in his problem as an individual problem
 - d. Good listener and empathic

5. Motivation

- a. Does not have a part-time job - interested in getting away to work
- b. Enjoys this kind of work
- c. Volunteer
- d. Kind of individual that would volunteer to work with young people

