OPINIONS OF TRAINED VETERANS RELATED TO CREDIT RECEIVED WHEN ENTERING THE SCHOOL OF TECHNOLOGY AT OKLAHOMA STATE UNIVERSITY

By

RICHARD DALE ROSE

Bachelor of Science

Oklahoma State University

Stillwater, Oklahoma

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Thesis Approved:

Erwin A. Dugger
Thesis Adviser

O S Rhyne

K. U. Gammill

Norman N Durham
Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Background Information

Veterans represent an important human resource in today's society; a resource which, if guided into educational fields, usually has much to contribute in maturity and general experience. Throughout the education institutions, many servicemen and veterans are continuing their education. Perhaps incentive of the G.I. Bill coupled with their background of formal training or job-related experience have caused the veterans to seek more education. In a recent journal Sanchez (14) states that

> Due to the large number of veterans entering the nation's colleges, new programs, policies, services, and staff positions are being established in order to respond to their unique needs. Colleges are involved in recruiting, counseling, and assisting veterans in adjusting to college re-entry (p. 49).

The technical field has a very large increase in the number of veteran students returning to the education environment. Since many of these people have skills in certain specific technical areas, it is natural for them to seek institutions where they can receive the most credit and thus obtain a degree in the shortest amount of time. The United States Armed Forces Institute (USAFI) serves veterans by offering college credit for their formal courses which are not acceptable by many colleges and universities.

Several years ago the Commission on Accreditation of Service Experiences (CASE) was established in part to review Military Service courses and make credit recommendations to colleges and universities. This council is not a military agency but is associated with the American Council on Education, an independent, non-profit organization. One output from this council is the publication called Guide to the Evaluation of Education Experience in the Armed Forces. This guide is prepared with the aid of civilian educators, experts in various academic fields, who initially analyzed and evaluated over 8,000 formal service school courses. All formal training programs of the Air Force, Army, Coast Guard, Navy, Department of Defense, and Marines were included. Each course evaluation includes five items of information--title, location of training, length of training, objectives of instructions, and credit hour recommendations at the college level. Since a large number of the courses offered by the Armed Services are of a technical nature, direct credit in colleges and universities is often limited.

However, in vocational and technical programs there are many fundamental courses which are similar or identical to courses taught in the military training environment. Today the veteran, with formal service training, can expect to receive technical course credit for basic specialty courses in most vocational and technical institutions.

As more veterans with various amounts of formal and on-the-job military training enter a program in the School of Technology, Oklahoma State University, the problem of correct placement will become more difficult to solve. Correct placement into a program implies the trained veteran starts the technical program of interest without repeating familiar basic course work or without omitting basic areas in his

education which are needed.

Definition of Terms

1. Commission on Accreditation of Service Experience (CASE) of the American Council on Education: This is the accrediting body which formally evaluates the courses and programs offered by the armed services for collegiate institutions and is called the Commission on Accreditation of Service Experiences. This commission is not a military agency but is associated with the American Council on Education. As one of its major functions, CASE reviews military service courses and makes credit recommendations to colleges and universities on the basis of the review.

2. CONST: Construction Management Technology.

3. EET: Electronic Engineering Technology.

4. EPT: Electrical Power Technology.

5. FIRET: Fire Protection Technology.

6. G.I. Bill: Public Law Numbers 16, 346, 555, and 894 allowing payment to veterans who enroll in qualified programs for education purposes.

7. Grade-Point Average (GPA): The numerical mean of grades attained by a student in all course work taken while a student in the technical curriculum of interest.

8. Guide to the Evaluation of Educational Experiences in the Armed Services: The credit recommendations prepared by CASE are published in this guide.

9. MPT: Mechanical Power Technology.

10. Proficiency Examinations: An oral or written examination

designed for the students who are proficient in certain academic areas from experiences obtained from on-the-job training, correspondence non-credited courses, or other non-traditional means of education.

11. RNT: Radiation Nuclear Technology.

12. The United States Armed Forces Institute (USAFI): Although USAFI is headquartered in Madison, Wisconsin, it services and supplies servicemen all over the world. The instructional materials which the institute supplies include courses for individual correspondence study, group class work, and tests. Some of the tests administered by USAFI include the General Examinations of the College-Level Examination Program (CLEP), the Subject Standardized Test (both of which are achievement tests measuring knowledge in specific subjects), and End-of-Course tests, which are used to evaluate student learning in a USAFI course.

13. Trained Veteran: As used in the contents of this report, applies to the veteran who has been trained in the military service from either formal military course work or on-the-job experience and has entered into a technical area that relates to his previous training.

14. Veteran: A person who has served in the Armed Forces and has been discharged or released from active duty.

Statement of the Problem

The number of veterans who had previous military training entering the School of Technology at Oklahoma State University has greatly increased in the past few years. As more and more of these veterans enter the School of Technology, the job of applying correct course credit for their military training will be expanding each semester. This study is designed to give the Administrator, Department Head, or Student Adviser

more information that will aid in placement of these students into their technical curriculum.

Need for the Study

Veteran opinions in the application of military credit to their technical area were established from the questionnaire used in this study. Using this information, along with the explicit basic courses identified by the veterans that should or should not be required in their technical area, better course credit advisement can be made for future enrolling veterans. Also the amount of use and basic knowledge of the proficiency examination will allow a general understanding of how useful these examinations are to the veterans entering the School of Technology. From the grade-point average listing, a measurement of veterans' ability to succeed compared to other students in his technical program was established.

Purpose of the Study

The purpose of this study is to increase the amount of information available to student advisers for better technical credit assignment for trained veterans. To accomplish this purpose a measurement of the trained veterans' opinions toward the amount of military credit they received and how that credit was applied to his own education was made. Investigation into the basic knowledge and use of the Proficiency Examination by the veteran when he entered the School of Technology was made and reported. Grade-point averages by classes (freshman, sophomore, junior, and senior) were given as a measure of success compared to the other students who had no military training. Also grade-point averages,

as a measure of success, were compared to the number of credit hours the trained veteran received when entering his technical specialty. By comparing the trained veterans' grade-point averages to first the remainder of his class and then to the amount of credit hours he received, a better understanding of the success capabilities for these students can be seen.

Research Questions and Hypotheses

The following research questions investigated in this study were determined from the veterans in the School of Technology at Oklahoma State University during the spring semester of 1977:

1. What are the trained veterans' opinions regarding the amount of credit hours given for their formal military training?
2. In what course areas, if any, would the trained veterans like to see more or less credit given for their formal military training?
3. Do the trained veterans feel that their military work-experience level exceed their course-work level when they entered their technical program?
4. Were the trained veterans aware that a proficiency examination could be taken for credit in areas they felt qualified even though no formal service credit was given?

Also included as part of this study was the testing of the following null hypotheses (H_o):

1. There is no significant difference between the grade-point average of trained veterans who received course credit and that of other students in the same technical program.

2. There is no significant difference between grade-point average of trained veterans who received technical course credit and the amount of credit they received.

CHAPTER II

REVIEW OF LITERATURE

Identification of the Need

Technical and vocational training over the past few years has seen a large influx of students from several sources, not the least of which is the military service schools. The sources of military training for these veterans varies widely from formal classroom training with well-structured laboratories to correspondence training supplemented by on-the-job experience. Sharon (16) states that almost two million servicemen were enrolled in correspondence schools in one year. Yet the majority of trained veterans are not just correspondence school graduates but graduates of formal classroom courses. Many of these formal courses are similar or identical to courses taught at civilian institutions. This is especially true at the technical institute level. The fundamental principles of a technology, common to both military and industrial needs, must be laid before more detailed area studies can proceed. A study completed by Ritter (13) found that private vocational schools and technical institutes receive 42.6 percent and 34.7 percent, respectively, of all servicemen and veterans in Oklahoma's vocational and technical education institutions.

Many veterans who return to the classroom are encouraged to achieve this higher level of education by several factors as indicated in

Chapter I of this study. Foncannon (6) and Drucker (5) both suggest that education and career building is a step function where the student works to a certain job level then returns to the institution to increase his skills in his field of specialization, so that he may return to industry to achieve the next higher work level. This process would be repeated as the individuals advanced vertically in the company. This process assumes that industrial training is not the best place to train individuals and therefore the need for returning to the institution would exist.

At the School of Technology at Oklahoma State University the present enrollment of veterans is over 300 students. At least 20 percent of these veterans have received previous military training in the field directly related to their present area of study. Morse (9) points out that the average veteran who seeks more education possessed a high technical level that could be generalized to meet many fundamental requirements of curriculums at our technical and vocational institutes. Either through proficiency testing or direct credit application, the veterans that possessed the necessary educational background should be allowed to proceed past the fundamentals, making maximum utilization of his past military training and experience.

The basic general knowledge of the trained veteran is further sighted by Richardson (12) by showing how their skills could be used in civilian occupations with a minimal amount of training. This training, according to Richardson, should be on a higher level of vocational, technical, and industrial training than the high school graduate.

This leads one to conclude that the trained veteran should receive at least maximum basic fundamental course credit for formal military

training when entering programs where high school graduates are the basic entry level of students.

Result of Previous Research

In a study recently completed by Burson (4), using a sample size of only eighteen, he found no significant difference between Electrical Power Technology veteran students and non-veteran students in the School of Technology, Oklahoma State University. Burson sights a reason for the lack of difference in the GPA's was caused by "pairing" of students where the veteran students tend to form study groups with the non-veteran students. This pairing stabilized the grades toward a mean which was about the same for both veterans and non-veterans.

Questionnaire Usage

When measuring attitudes or opinions, there are certain advantages of using questionnaires that make this data-gathering technique the most popular and widely used among researchers. The economy, relative ease of administering, uniformity of questions, and the ability to standardize questions are all advantages in using questionnaires. Sax (15) said

> The decision to use the questionnaire [or any other instrument or method] should develop out of the investigator's hypotheses, which in turn should be justified by the criteria for the selection of a research problem. . . . The value of the proposed research is dependent upon the potential contribution of the study, which in turn is dependent upon the extent to which the study adds to or tests some aspect of educational theory or practice (pp. 216-217).

The importance of early-stage planning to best approach the research problem is amplified by Good (7) who states

> One of the first questions the investigator should ask concerning the questionnaire is whether it is as appropriate as some other data-gathering instrument, or whether the answers may even be available in documentary sources or in literature (p. 197).

Sax (15) in tabular form shows an example listing of what variables should be sampled using information from official records, opinion or attitude questionnaires, and behavior characteristics through interviews. In the attitude questionnaire variables list he shows control techniques in classrooms, as an example, measuring student attitudes as the objective and shows the questionnaire as the suggested data-gathering technique to be used. Sax cautions against making the attitude questionnaire too rigid and suggests that the researcher should "allow freedom to respond" (15, p. 218).

There are certain drawbacks to questionnaires, many of which are addressed by Van Dalen (17).

> Isolating specific questions for considerations tends to objectify, intensify, and standardize the observations that respondents make. Some subjects may not supply accurate answers, however, for they may suffer from faulty perception or memory or may not be able to express their impressions and ideas adequately in words. Respondents who are not free, willing, or qualified to divulge information may ignore certain questions or falsify their answers. Many people do not give thoughtful consideration to questionnaires; they fill out the forms carelessly or report what they assumed took place (p. 301).

Other possible problems or disadvantages to questionnaires is the inability to assess the respondents' motivation and the biasing effects of the questions themselves. Most of the above-mentioned problems will affect if not destroy the validity of a poorly designed questionnaire. So to guard against the questionnaire problems, the beginning researcher must, as Best (2) states, get help in planning and constructing the questionnaire, try out the questionnaire on a few friends to reduce

question ambiguity, and try to answer questions of the respondents if the nature of the research questions will allow.

CHAPTER III

METHODOLOGY

Scope of the Study

Since the purpose of this study is to increase the amount of information available to the student advisers for better technical credit assignment for the trained veterans, the scope of this study was limited to the following:

1. The population was limited to military-trained veterans in the School of Technology at Oklahoma State University. The technology areas listed below were represented by respondents in this study:
   a. Construction Technology
   b. Electronics Technology
   c. Electrical Power Technology
   d. Fire Protection Technology
   e. Mechanical Power Technology
   f. Radiation and Nuclear Technology

   Veterans polled in this study were, where indicated, freshmen, sophomores, juniors, or seniors in the spring semester of 1977.
2. No attempt was made to separate veterans with different amounts or types of service training: Air Force, Army, or Navy.

Assumptions

The following assumptions were used in this study:

1. The trained veterans sampled in this study are representative of all trained veterans who enter a technical program in which they have had previous formal military training.
2. A measure of success of proper credit hour application for the trained veteran is GPA.

Subject Selection

To be a subject in this study the individual must have met the following prerequisites:

1. Be a veteran who has completed military training of either formal course work or through on-the-job experience thus allowing a high competence level in his field.
2. Must have entered a technical curriculum which in some way relates to his previous military training.
3. May or may not have received course credit hours from his military training when entering the School of Technology.

Development of the Questionnaire

The questionnaire used in this study, contained in the Appendix, included both closed- and open-type questions. In some cases the respondent who did not respond on the open questions did complete the closed questions and was therefore included in the sample size. The major areas of interest in the questionnaire included:

1. Identification of the type of military training the veteran had

received, formal or by experience.

2. His opinion as it relates to the amount of technical credit he received, based on his formal service training.
3. Courses in his technical area, where in his opinion, more or less credit could be given.
4. Was his service experience level, in his area specialty, higher or lower than the technical program he entered here at Oklahoma State University.
5. Upon entering the School of Technology had the veteran heard of or did he receive any technical credit from proficiency examinations.

Data Collection Procedure

The data for this study was obtained from the questionnaire and from departmental records showing student classification and grade-point average. Since the veterans were members of common classes at set times in the semester, questionnaires were made available to the instructor of these classes with each veteran's name on the questionnaire. Veterans' names were obtained from the Veterans Service Office on campus.

By using the School of Technology departmental information, the amount of technical credit and GPA for the sample veterans used was determined. Also the mean GPA for the freshmen, sophomores, juniors, and seniors, with the veterans' GPA's removed, was compiled for each technical area of interest. This information included the grades through the spring, 1977, semester and was completed in the summer of 1977.

Data Analysis Technique

All subjects from each technical area represented were totaled, and a percent figure for or against each question of interest was computed. This descriptive information was then recorded along with the totals for each question.

Using departmental information, GPA and amount of technical credit granted were grouped for the trained veterans by freshmen, sophomore, junior and senior classes. This was done for each technology area of interest.

To test the first hypothesis, comparing veterans' GPA's to the remaining class mean GPA, a t-test utilizing the Pooled Variance Formula was used. This statistical technique allows unmatched pairs with different sample sizes and with homogeneous variances to be analyzed (9). The calculations were performed with the following equations:

Homogeneity of Variances Ratio (9)

$$F = \frac{(Sg)^2}{(S\ell)^2}$$

where

F = variance of homogeneity

Sg = the greater variance of the grade-point averages

Sℓ = the lesser variance of the grade-point averages

Pooled Variance (15)

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\Sigma(X_1 + \bar{X}_1)^2 + \Sigma(X_2 + \bar{X}_2)^2}{N_1 + N_2 - 2} \cdot \left[\frac{1}{N_1} + \frac{1}{N_2}\right]}}$$

where

$\overline{X}_1$ = the mean of the first group of scores

$\overline{X}_2$ = the mean of the second group of scores

X_1 = score values of the first group

X_2 = score values of the second group

N_1 = number of scores in the first group

N_2 = number of scores in the second group

A value of t critical using degrees of freedom (d.f.) of $N_1 + N_2 - 2$ was obtained from a table of coefficients of correlation and t-ratios (3). By comparing the table value with the computed t-test value, the null hypothesis was rejected or accepted for each technology area listed.

To test the second hypothesis, comparing the veterans' GPA's to amount of technical credit they received, a Pearson Product-Moment Correlation was used. Here two different measurements (X and Y) on each veteran were analyzed with the following formula:

Pearson Product-Moment Formula

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2]\,[N\Sigma Y^2 - (\Sigma Y)^2]}}$$

where

N = number of subjects

X = GPA scores

Y = number of technical credit hours

Using this value of r for N larger than thirty, t was computed from:

$$t = r\sqrt{N - 1}$$

The test of significance at the 0.05 level was if t was greater than ±1.96 using a two-tailed test.

For values of N less than thirty a t value was computed from:

$$t = r \sqrt{(N - 2)\ (1 - r^2)}$$

where the degrees of freedom (d.f.) were N - 2. Again a significance of the 0.05 level was used on a two-tailed test.

Limitation

The individual responses from the opinion questions are subject to uncontrollable factors such as moods, individual efforts, length of time out of service, etc., which do effect the totals. However, these factors tend to be removed if one looks at the percentages of the group vice each individual's response.

For the second hypothesis it should be noted that no attempt has been made to identify what affect other factors, besides veteran credit hours received, have had on GPA correlation in this study.

The responses to question nine were only answered by those subjects who did not receive credit for the course or courses, therefore the total number of responses is low.

CHAPTER IV

RESULTS

Return Rates

The results for this study were obtained using two methods of data collection: from the opinion questionnaires given to veterans in the School of Technology at Oklahoma State University and by examining departmental information for all students and obtaining information on GPA's and technical credit hours received. Veterans who had received no formal military training or military job experience in their technical area specialities were omitted.

The first questionnaire realized a seventy-five percent return rate of the total veterans in the School of Technology. Another five percent return was gained by using a follow-up request for completion. The net return of trained veterans from the questionnaire was forty-three students, with the majority, twenty-four, coming from the Electronics Technology area.

Departmental information was examined to determine trained veterans' GPA's, mean GPA of remaining class members, and amount of technical credit hours each trained veteran received. The subject size included in this area was fifty-six trained veterans. Again Electronics Technology had the largest number of subjects with thirty-two students coming from this area.

Data Summary

The opinion data with totals and percentages for the questions of interest listed below are shown in Table I:

Question 1. Does any of the formal training you had in the service relate to the technical field you are now studying? YES NO

Question 2. Does any of the jobs you held while in the service (with or without formal training) relate to the technical field you are now studying? YES NO

Question 7. Do you now feel you received <u>too much</u> technical credit based on your formal service training? YES NO

Question 8. Do you now feel you received <u>too little</u> technical credit for your formal service training? YES NO

Question 11. Since no credit can be given for technical courses based only on military work experience, do you feel that your experience level exceeded the course work level that you entered here at OSU? YES NO

Question 13. Did you receive any technical credit by taking a proficiency examination for any course? YES NO

Table II is a listing of the responses to Question 9 of the opinion questionnaire which asked the trained veterans to list courses in his technical area where more or less credit could be given.

From the departmental information, Table III gives the mean GPA's by classes for both the trained veterans and the remainder of the class.

TABLE I

OPINION QUESTIONNAIRE RESPONSES SUMMARY

Technical Area	Q_1* Had Formal Training		Q_2* Had Job Training		Q_7* Received Too Many Credit Hours		Q_8* Received Too Few Credit Hours		Q_{11}* Experience Level Higher Than Courses		Q_{13}* Received Credit Through Proficiency Exam		Q_{14}* Knowledge of Proficiency Exam When Entering School	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
CONST Training:														
Formal and Job	1	0	1	0	0	1	1	0	1	0	0	1	0	1
EET Training:														
Formal and Job	23	0	23	0	2	21	8	15	12	11	0	23	14	9
Job Only	0	1	1	0	0	1	0	1	0	1	0	1	0	1
EPT Training:														
Formal and Job	6	0	6	0	4	2	1	5	2	4	0	6	2	4
FIRET Training:														
Formal and Job	6	0	6	0	0	6	4	2	3	3	0	6	3	3
Formal Only	1	0	0	1	0	1	0	1	0	1	0	1	0	1
MECH POWER TECH Training:														
Formal and Job	3	0	3	0	0	3	3	0	1	2	0	3	1	2
Formal Only	1	0	0	1	0	1	1	0	1	0	0	1	0	1
RNT Training:														
Formal and Job	1	0	1	0	0	1	0	1	1	0	0	1	0	1
TOTALS	42	1	41	2	6	37	18	25	21	22	0	43	20	23
PERCENT					14	86	42	58	49	51	0	100	46.5	53.5

* Q = Question on Questionnaire (see Appendix).

TABLE II

LISTING OF COURSES THE TRAINED VETERANS STATED WHERE MORE OR LESS CREDIT COULD BE GIVEN

Technical Area	Question 9 from Questionnaire	
	More Credit In	Less Credit In
CONST*		
Essentials of Electricity	2 of 4	No Response
Electrical Safety Codes	1 of 4	
Fundamentals of Electricity	2 or 4	
EET*		
Fundamentals of Electricity	6 of 12	1 of 12
Electronic Devices and Amps	3 of 12	
Amplifiers I	4 of 12	1 of 12
Circuit Analysis I	4 of 12	1 of 12
Electronic Design	2 of 12	
General Basic Lab Credit	2 of 12	
Humanities	2 of 12	
EPT*		
Introduction to Electronics	1 of 4	No Response
Introduction to Electrical Power	1 of 4	
Humanities	2 of 4	
FIRET*		
Essentials of Electricity	2 of 5	No Response
Fundamentals of Electricity	1 of 5	
Fire Suppression and Detection Systems	1 of 5	
Speech	2 of 5	
Basic FIRET Courses	2 of 5	
MPT		
Basic I.C. Engines	1 of 3	No Response
Diesel Injection Systems	1 of 3	
Basic MECH Courses	3 of 3	
RMT		
Basic Radiation Courses	1 of 1	

*Course names apply to courses listed in the 1977 Spring Semester curriculum for the indicated technology area.

TABLE III

MEAN GPA BY CLASS FOR EACH TECHNOLOGY AREA SAMPLED

Technology Area	Trained Veterans Class/Sample Size/Mean GPA			Other Students Class/Sample Size/Mean GPA		
CONST	SR	01	2.09	SR	09	2.60
EET	SR	16	3.00	SR	46	2.85
	JR	9	3.01	JR	39	2.70
	SOPH	8	2.74	SOPH	53	2.58
	FR	5	3.18	FR	60	2.29
	Grouped	38	2.98	Grouped	198	2.58
EPT	SR	1	3.19	SR	14	2.75
	JR	3	2.18	JR	17	2.97
	Grouped	4	2.43	Grouped	31	2.87
FIRET	SR	5	2.54	SR	22	2.76
	JR	5	2.59	JR	36	2.78
	Grouped	10	2.56	Grouped	58	2.77
MPT	SR	3	2.48	SR	27	2.59
	JR	2	2.58	JR	27	2.64
	Grouped	5	2.52	Grouped	54	2.62
RNT	SR	1		SR		
	JR	1		JR		
	Grouped	2	3.48	Grouped	27	2.68

Results of Analysis

From the opinion questionnaire, the following percentages to the questions were recorded:

1. Fourteen percent of the trained veterans stated that they received too much credit when entering their technical curriculum.
2. Forty-two percent of the trained veterans stated that they received too little credit when entering their technical curriculum.
3. Forty-nine percent of the trained veterans stated that their experience level was higher than their course work when they entered their technical curriculum.
4. No trained veterans received credit through the proficiency examination.
5. Forty-six and one-half percent of the trained veterans stated that they knew of the proficiency examination when they entered their technical curriculum.

Table II shows the results of Question Nine from the veterans' opinion questionnaire. This table indicates which courses in each technical area the trained veterans felt should or should not be included for credit. The reason for the low number of responses in this area is stated in the limitation of this study.

The two null hypotheses tested in this study are listed below with the data used to test their correlation significance. In both cases a significant level of 0.05 ($\alpha = 0.05$) was used. The results of the test are shown below each hypothesis statement.

Hypothesis Number One states that there is no significant difference between the grade-point average of trained veterans who received course credit and other students in the same technical program.

Electronic Engineering Technology

		FR	Soph	JR	SR	Group
Homogeneity Variance	F	1.48	4.16	2.09	1.22	7.95
Distribution at $\alpha = 0.05$	Fc	2.37	2.12	2.13	1.87	3.95
Pooled Variance	t					3.95
t critical	tc					1.96

Conclusion: tc = 1.96 is < t = 3.95 so that null hypothesis No. 1 is rejected, therefore there is a significant difference at the 0.05 level in GPA of the trained veteran as compared to other Electronic Technology students.

Electrical Power Technology

		FR	Soph	JR	SR	Group
Homogeneity Variance	F	*	*	3.99**	3.99	3.99
Distribution at $\alpha = 0.05$	Fc			2.68**	2.68	2.68
Pooled Variance	t					1.214
t critical	tc					2.04

Conclusion: tc = 2.04 is > t = 1.214 so that null hypothesis No. 1 is not rejected, indicating no significant difference at the 0.05 level in GPA of the trained veterans and other Electrical Power Technology students.

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*Only junior and senior students in this technology.

**Both junior and senior students are grouped together.

Fire Technology

		FR	Soph	JR	SR	Group
Homogeneity Variance	F			1.70	1.16	1.29
Distribution at $\alpha = 0.05$	Fc			3.63	2.66	1.97
Pooled Variance	t					1.32
t critical	tc					2.00

Conclusion: tc = 2.00 is > t = 1.32 so that null hypothesis No. 1 is not rejected, indicating no significant difference at the 0.05 level in GPA of the trained veteran and other Fire Technology students.

Mechanical Power Technology

		FR	Soph	JR	SR	Group
Homogeneity Variance	F	*	*	3.39**	3.39	3.39
Distribution at $\alpha = 0.05$	Fc			2.34	2.34	2.34
Pooled Variance	t					0.152
t critical	tc					2.00

Conclusion: tc = 2.00 is > t = 0.152 so that null hypothesis No. 1 is not rejected, indicating no significant difference at the 0.05 level in GPA of the trained veteran and other Mechanical Power Technology students.

Hypothesis Number Two states that there is no significant difference between grade-point average of trained veterans who received technical course credit and the amount of credit they received.

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*Only junior and senior students in this technology.

**Both junior and senior students are grouped together.

Construction Technology*

Electronic Technology

Pearson Product-Moment	r	0.852
Number of subjects	n	30
Degrees of Freedom	DF	28
t value for N $\geq$ 30	t	13.68
t critical	tc	2.05

Conclusion: t = 13.68 > tc = 2.05 so that null hypothesis No. 2 is rejected at the 0.05 level when comparing amount of formal military credits received to GPA performance. A Pearson r close to 1 indicates a strong degree of correlation between higher GPA's and larger amount of credit hours received.**

Electrical Power Technology*

Fire Technology

Pearson Product-Moment	r	0.725
Number of subjects	n	9
Degrees of Freedom	DF	7
t value for N < 30	t	2.65
t critical	tc	2.36

Conclusion: t = 2.65 > tc = 2.36 so that null hypothesis No. 2 is rejected at the 0.05 level when comparing amount of hours the Fire

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*A minimum of five subjects was required for the Pearson r test to be meaningful. Therefore no test was made on these technology areas.

**The GPA for the credit hours transferred by the subjects was not included in the GPA calculations.

Technology trained veterans received to GPA performance.

Mechanical Power Technology*

Radiation Technology*

*A minimum of five subjects was required for the Pearson r test to be meaningful. Therefore no test was made on these technology areas.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to increase the amount of information available to student advisers for better technical credit assignment for trained veterans. To accomplish this purpose a measurement of the trained veterans' opinions toward the amount of military credit they received and how that credit was applied to his own educational situation was made. Questions were asked to determine the trained veterans' knowledge and use of the proficiency examination when entering his technical curriculum at Oklahoma State University. Two hypotheses using GPA as a measure for correlation were investigated. The first hypothesis established the correlation or lack of correlation between the trained veterans' mean GPA and all other members of his class mean GPA, while the second hypothesis used trained veterans' GPA's and number of technical credit hours they received.

Data was obtained by use of a questionnaire issued to veterans in the School of Technology at Oklahoma State University. GPA and technical credit hour data were obtained from departmental records.

Four questions and two hypotheses listed below were investigated in this study. Also a listing of courses the veterans indicated should or should not be included for military credit is given in Table II.

Opinion Questions:

1. What are the veterans' opinions regarding the amount of credit hours given for their formal military training?
2. In what course areas, if any, would the veterans like to see more or less credit given for their formal military training?
3. Do the veterans feel that their military work experience level exceeded their course work level when they entered their technical program?
4. Were the veterans aware that a proficiency examination could be taken for credit in areas they felt qualified even though no formal service credit was given?

Hypotheses Tested:

1. There is no significant difference between the grade-point average of trained veterans who received course credit and other students in the same technical program.
2. There is no significant difference between grade-point average of trained veterans who received technical course credit and the amount of credit they received.

The analysis of the data shows that forty-two percent of trained veterans feel they received less credit hours than they should have when they entered into their technical specialty. Forty-nine percent stated that their experience level in the service was higher than the level of classroom work they found when entering their technical specialty.

Only about forty-six percent of the trained veterans knew about the proficiency examination and no course credit, by taking the proficiency examination, was received by any subject in this study.

Analysis of the GPA data found hypothesis number one not rejected except in Electronics Technology area. This indicates that a significant difference in GPA does exist between the trained veterans and his non-trained classmate. Hypothesis number two was rejected for Electronics Technology and Fire Technology. For the trained veterans this indicates that higher GPA's are earned by veterans who have more formal military credit when enrolling in their technical specialty. The lack of course credit for formal training in the other technical areas limited the results in this part of the study.

Conclusions

The conclusions reported in this section include two areas of interest: (1) that of the trained veterans' opinions toward the amount of credit he received and (2) the analyzed GPA data allowing testing of the two stated hypotheses.

Based on the opinions of the trained veterans in the School of Technology at Oklahoma State University, the following conclusions are made:

1. They received too little credit for their formal military training (forty-two percent stated too little credit, fourteen percent stated too much credit). Table II lists those courses where more or less credit could be given.
2. About one-half (forty-nine percent) feel their experience level was higher than their beginning level course work.
3. Over one-half (fifty-three percent) stated that they had no knowledge that proficiency examinations were available when entering their technical area.

Based on the GPA data, the conclusions from the two hypotheses tests are given as follows:

1. The trained veteran in EET has a higher GPA, performance factor, than the remaining EET students. None of the other technology areas investigated passed the significant difference level to indicate a difference in the compared groups.
2. The EET and FIRET veterans with more formal military credits received better GPA's than the trained veterans with less formal military credits. The other technology areas had to be excluded because of small sample sizes of the trained veterans.

The conclusion reported here, relating no significant difference in the EPT trained veteran and his classmates, is supported by Burson in his 1977 study. However, in Burson's study all veterans were grouped together with no distinction made between trained and non-trained veterans. In EET and FIRET, the advantages in formal military training to GPA's are easily recognized from the results of this study.

Recommendations

The results and analysis of this study give several recommendations which are listed below and should be used in counseling purposes:

1. For veterans entering EET with a large number of formal training credits, prudent application of the maximum credits into his major area of study should be given. The results from both the EET opinion questionnaire and GPA performance indicated these veterans are capable of more advanced starting levels. It should also be pointed out that a conservative approach to giving major area course credit would have less an adverse

effect on a student than allowing him to start at a level too high and thereby decreasing his chances for successful completion.

2. More effort should be given to increasing the awareness of the proficiency examination program for veterans entering the School of Technology. This study points out that no credit was received by any of the trained veterans, while over one-half of the group stated they were unaware of obtaining credits in this manner.

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APPENDIX

QUESTIONNAIRE

FROM: Richard D. Rose, M.S. Candidate

TO: School of Technology students who have served in the military

SUBJECT: Questionnaire relating level of placement and credits granted to military trained veterans at Oklahoma State University School of Technology

As a military-trained person, only you can aid me in determining how well veterans are placed in their technical area specialty. By investigation into this area, we may be able to surface common problems in level of course placement and/or amount of credits transferred. No use of individual identification with specific results will be made by the author. Please take a few moments of your time NOW and complete the following questions. Since the number of persons like yourself with specialized military training is small, 100 percent participation is a must to complete this study. Thank you for your time.

YOUR NAME _____

TECHNICAL FIELD OF STUDY _____

BRANCH OF SERVICE _____ ENTERED _____ SEPARATED _____
mo. yr. mo. yr.

1. Does any of the formal training you had in the service relate to the technical field you are now studying? Circle one: YES NO

2. Does any of the jobs you held while in the service (with or without formal training) relate to the technical field you are now studying? Circle one: YES NO

3. Formal prior military technical training you have had in general terms; i.e., electronic technician, aviation technician, etc.

   a. _____ b. _____ c. _____

4. Approximate date you completed formal school(s) listed above:

   a. Mo. _____ Yr. _____ b. Mo. _____ Yr. _____

   c. Mo. _____ Yr. _____

5. Approximate number of credit hours you received when admitted into the School of Technology:

6. Who determined which course(s) you would receive credit for? Some possible choices are: ___Myself ___My adviser and myself ___Department Head ___Don't Know ___Other--Specify _____ _____

7. Do you now feel you received too much technical credit based on your formal service training? ___Yes ___No

8. Do you now feel you received too little technical credit for your formal service training? ___Yes ___No

9. In what area(s) would you like to see more/less credit given for your formal training?

   More Credit Given--Specify course(s) and give reason(s) _____

   _____

   _____

   Less Credit Given--Specify Course(s) and give reason(s) _____

   _____

   _____

10. I am presently a _____ in my_____Semester.
    fresh., soph., jr., sr. 1st, 2nd

11. Since no credit can be given for technical courses based only on military work experience, do you feel that your experience level exceeded the course work level that you entered here at OSU.
    Yes ___ No ___

12. Is there a course(s) that you were given credit for that you now wish you had taken? List course(s) and reason(s) you wish you had taken this course(s). _____

    _____

    _____

13. Did you receive any technical credit by taking a proficiency examination for any course? Yes ___ No ___ Course _____

14. When you entered your technical program, did you know a proficiency examination could be taken for credit in areas you felt qualified even though no formal service course credit was given?
    Yes ___ No ___

VITA

Richard Dale Rose

Candidate for the Degree of

Master of Science

Thesis: OPINIONS OF TRAINED VETERANS RELATED TO CREDIT RECEIVED WHEN ENTERING THE SCHOOL OF TECHNOLOGY AT OKLAHOMA STATE UNIVERSITY

Major Field: Technical Education

Biographical:

Personal Data: Born in Long Beach, California, October 29, 1944, the son of Mr. and Mrs. Rollie Dodson Rose.

Education: Graduated from Moore High School, Moore, Oklahoma, in 1963; received the Associate Degree in Electronics Technology from Oklahoma State University in 1965; received the Bachelor of Science degree in Technical Education from Oklahoma State University in 1968; completed requirements for the Master of Science degree at Oklahoma State University in 1977.

Professional Experience: Several Electronics Service related work areas; Electronic Project Officer for the Navy, 1971-1972; Pilot and Safety Officer for Navy, 1972-1975; Part-Time Instructor, School of Technology, Oklahoma State University, 1976-1977; Instructor, School of Technology, Oklahoma State University, 1977.

Professional Organizations: Oklahoma Technical Society and American Society of Engineering Education.