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A Study of the Relationship Between Entry Time in the Military and Academic Performance in Air Force Resident Training

Ronald Denius
Eastern Illinois University

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A Study of the Relationship Between Entry Time in the Military and Academic Performance in Air Force Resident Training

(TITLE)

BY

Ronald Denius

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Specialist in Education

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
CHARLESTON, ILLINOIS

1989
YEAR

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A STUDY OF THE RELATIONSHIP BETWEEN ENTRY TIME IN THE MILITARY AND ACADEMIC PERFORMANCE IN AIR FORCE RESIDENT TRAINING

BY

RONALD DENIUS

B.A., Eastern Illinois University, 1976

M.S., Eastern Illinois University, 1979

ABSTRACT OF THESIS

Submitted in partial fulfillment of the requirements
for the degree of Specialist in Education at the
Graduate School of Eastern Illinois University

CHARLESTON, ILLINOIS

1989

Purpose of the Study

Do young Air Force recruits who enter the military during the winter months truly perform at a lower level than their counterparts who enlist in the summer, fall, or spring?

Design of the Study

Time frames: This was divided into quarters (three month segments) which used service entry dates close to summer, fall, winter, and spring seasons. Quarter segments were:

1. June, July, and August
2. September, October, and November
3. December, January, and February
4. March, April, and May

It was expected that the summer segment would capture the graduate from high school who immediately entered the service. The fall period would coincide with the majority of those that entered college, and winter and spring might include the college drop-outs or those that went straight into the workforce and had later begun looking at another alternative that would provide training and a source of income. Specific attention was paid to those recruits entering in the winter months since they were the "low motivation" subjects in question.

With the time frames established, the question of the age of subjects emerged. Since the majority of Air Force recruits, especially in the enlisted ranks, are

under the age of 20, it was decided to look at only those age 19 and under at the time of entry. This would be sure to capture the recent high school graduate who may have been searching, inquisitive, and ready for new challenges. It was also decided to limit the study to male personnel only. There is a much larger percentage of men entering the Air Force than women, and the sex difference might, to some degree, distort the validity of the data collected.

This then led to the question of how many subjects should be selected from the career areas to be studied, and how would the data be collected. Earlier in this writing it was mentioned that the writer's current position allowed access to records of graduates from three career field areas. Two of these were classified as mechanical career areas and the remaining area was in the field of electronics.

Conclusions

From the data collected and the results of the findings, it is concluded that no relationship exists between the time of entry into the Air Force and academic performance of young male recruits in resident technical training. The assumption may be confounded by the possibility that some highly motivated recruits plan to delay entry into service. They may desire a period

of time for personal relaxation and recreation before making a commitment to serve.

Recommendations

1. In an attempt to prove the hypothesis presented in this study, a much larger population should be considered.
2. It is suggested that monthly comparisons, with a larger subject group, may indicate that some significance does exist. This breakdown was not attempted, and the suggestion does not imply different findings.
3. Additional studies on the Air Force recruit in resident technical training would be an advantage.
4. Results of this study should be studied by those instructors who are responsible for training the young Air Force recruit in resident schools. Stereotyping an individual or a group can influence the attitude of the trainer towards the trainee.

DEDICATION

To the men and women of
Chanute Air Force Base, Rantoul, Illinois
who strive to provide the best training
possible to assist in maintaining the freedom
America has been blessed with.

ACKNOWLEDGEMENTS

The author gratefully acknowledges the contributions that many individuals have made to the planning and completion of this study. Dr. Paul Overton, my advisor, for his constant support and encouragement when setbacks developed. A very special thank you to Dr. Kenneth Matzner for his invaluable assistance. His patience, knowledge of research, and suggestions for improvement were the essential ingredients in making this study possible.

The author is indebted to those individuals at Chanute Air Force Base who were willing to assist with the data collection, computer statistical programs, and word processing of information as it was acquired. Ms. Alice Gwin of the Registrar Branch was very helpful in locating data. Mr. Carl Dennis of the Computer Branch provided the help needed in selecting the statistical programs for analysis of data. TSgt Roland A. Wilson Jr. and SMSgt Rickford S. Goodrow were the instruments in teaching the author word processing techniques to ease the frustration of corrections and changes as this study developed.

Finally, my wife Veronica, for her prayers, constant love, support, understanding, encouragement, and tolerance of the many hours devoted to this project.

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CHAPTER I

STATEMENT OF THE PROBLEM

Background

The idea for this study was born when a colleague entered the office one day and made the statement "Well, the dummies are coming." Naturally such a statement demanded an explanation, so the inquiry was made. The "dummies" were new Air Force recruits, who had recently completed basic training, and were arriving at Chanute Air Force Base in Rantoul, Illinois to enter technical training. The training was to be conducted at one of the many schools offered to young Air Force personnel in a chosen career area. But what prompted such a derogatory statement? New recruits were arriving at Chanute for training on a continuous basis. Why all of a sudden were these the "dummies"? The time frame when all this occurred was mid-winter, and the colleague's assumption was that people in general entering the military at that time of the year were not high achievers and consequently did not do well in technical training. In order for this group to understand the material to be learned, it appeared they required more help than average recruits. Their motivation was low, a lackadaisical attitude prevailed, and generally individuals entering during this time frame did not perform well.

Purpose of the Study

For various reasons some instructors and supervisors in the technical training environment acquired this belief and expected poor performance from these students. The writer's goal at this point was well defined. In measuring academic performance in Air Force resident training, is it true that motivation of young recruits is influenced by the time of year they enter service? Do young Air Force recruits who enter the military during the winter months truly perform at a lower level than their counterparts who enlist in the summer, fall, or spring?

Hypothesis

A relationship exists between entry date in the military and academic performance in Air Force resident training.

With the objective defined, the task now was to seek ways to accomplish such a challenge. The writer's position allowed access to records of students who had graduated over the past two years in three career field areas. Feeling somewhat apprehensive and not wanting to take advantage of a position or violate the privacy of anyone, legal counsel from the Air Force was sought. The right to publish information on this subject was granted as long as no names or social security numbers appeared in print. With this hurdle overcome, the next

decision was to select the data to avoid any subjectivity in the findings.

Limitations of the Study

Some parameters at this point had to be established. A task of this nature could involve a multitude of trainees and a wide variety of career areas. Age and sex of the trainee also needed consideration, and of course the time periods had to be established. With the help of an adviser, guidelines were set and hopefully the results would provide some insight into the question.

CHAPTER II

REVIEW OF LITERATURE

During the many years this writer has been associated with education, the question of student motivation always arises and the answer seems to always remain a mystery. It is true that volumes have been written on the subject of motivation; however, there still remain so many unanswered questions as to why an individual does not perform at the potential expected of him or her.

Rationale of Literature Search

This topic of motivation, or the lack of it, has been a concern in the military environment, and especially in the resident training area where millions of dollars are spent annually to prepare young men and women for a job during their commitment to military service. Studies have been done on recruits and the positive and negative aspects of training. However, in preparation for this study a search of the literature revealed no information on any relationship between entry time in the service and academic performance. The writer's thoughts then turned to other aspects of recruits, and how well young people perform in other educational environments such as in college. In all of this, naturally, the subject of motivation permeated much

of the research. Risking repeating an age old topic, an attempt has been made to parallel some of these subjects in order to better understand the academic performance of young people who find themselves in the military.

Why do people choose the military? What studies indicate the predominant racial or ethnic groups in the military? Can some of the same reasons for poor academic performance or attrition in college apply to military trainees? Does the transition from school to work relate to the trainee? Is there a difference in what motivates the older adult and the young learner, bearing in mind that most trainee's are in the category of the young learner? Does application of different types of instruction hinder or help some of the students in various curricula in technical training? These are some of the questions that surfaced in the writer's search for evidence that young military recruits may perform differently. Could any of this evidence relate in any way to the time of year that the recruits entered the service?

Review of Literature

One study that shed some light on this topic was compiled by the Center for Educational Statistics (1984). This National Longitudinal Study for the 1980's, which is a capsule description of 1980 seniors, revealed that

entry into the military service is a major alternative for young people graduating from high school. The majority of young adults face the options of college, work, or the military. The study goes on to point out that most of those choosing the military came from a disadvantaged background, and during the period of high unemployment this choice was the most promising. The largest percentage of recruits came from the lowest quartile on the Socioeconomic Status (SES). The majority entering service were in the lowest quartile of Cognitive test performance.

Comparing these facts to another part of this longitudinal study it was found that those in the lowest quartile of the SES background were the students who withdrew at a faster rate from college. The report did not elaborate on the academic performance or attrition rate of this same group in the military. However, the findings do suggest, that a majority of those that find themselves in the military technical training area are individuals who may require more supervision, stricter discipline, and a training program that will move from the simple to the complex.

Another study by Strother (1986) gave support to the fact that members of racial or ethnic minorities, who came from low income families and had more than the usual disciplinary problems in school, were high

on the list of school dropouts. This would suggest that if a majority of individuals in this ranking entered the military, as indicated by the previously-mentioned study, they would be prime candidates for poor performance in the military resident training environment. It does not suggest, however, that entry into the military during a certain period of the year would influence academic performance.

In yet another study by Hart, Derrell, and Keller (1980), it was found that freshman who performed poorly blamed themselves. Improper study habits, lack of motivation, and inattention to school work were the main reasons given. Some freshman reported they could not schedule their time wisely, could not develop adequate study habits, were not able to keep up with the course work, and put too much emphasis on extracurricular activities. Still others commented that they underestimated the rigors of college life compared to their high school days.

Hart, Derrell, and Keller concentrated on college freshman, but military recruits at the same age level were not considered. It would be safe to assume that some of the reasons given for poor performance of college freshman would apply to recruits; however, the writer's personal knowledge of Air Force resident training would indicate some differences:

1. Scheduling of time for recruits is usually part of the "package" in the resident training area.
2. In addition, if recruits are beginning to show poor performance, they can be given mandatory study time and receive special individualized instruction in the weak areas.
3. Extracurricular activities are also limited and regulated, if need be, for the trainee to pursue the goal established while in technical training.

It is possible that the rigors of resident training may be difficult when compared to the high school experience. A similar study in a military technical training environment might reveal reasons other than those given in this report for poor performance.

One of the parameters established (to be explained below) for this writer's study of performance in Air Force resident training was the upper age limit of nineteen. Wolfgang and Dowling (1981) found that there are differences in motivation of adult and younger undergraduates. Their findings supported other work by Houle (1961) who classified twenty-two adult learners into three learner types. These types were goal oriented, activity oriented, and learning oriented. In another study by Morstain and Smart (1974), younger students

were compared to the adult learner and were reported to put more emphasis on social relationships and external expectations. Wolfgang and Dowling (1981) found that older students had a more internal drive for knowledge and desired learning just for the sake of learning. The traditional age students were more prone to have a need for personal associations and friendships. It is well known that the majority of recruits in the military fall in the category of the young learner. Could it be that the same need for personal associations is greater than that of motivation in the cognitive realm for the young military recruits?

Wolfgang and Dowling go on to say that traditional age students prefer a more structured evaluation of learning such as multiple choice or true-false type exams. In the majority of resident courses within the Air Force environment, structured evaluations are the most prevalent. This then would be in agreement with Wolfgang and Dowling's findings and suggest that it is a positive factor for young recruits in the learning situation.

In yet another aspect of learning, Tobias (1982) points out that research has proven the effectiveness of individualized instruction in the military. This type of instruction is becoming more popular in the military training environment and can be considered appropriate

for young recruits. However, it must be noted that the subjects used in this study were not involved in individualized instruction. Classroom lecture and discussion were primary along with performance oriented motor skills.

Another area that had some relationship to this writer's interest in Air Force resident training was that of the transition from school to work. A study by Hamilton (1986) addressed this subject. They found that employers consider young people, especially males, to be inherently irresponsible and in turn poor risks for responsible positions. They further desired high school graduates who can read, write, follow instructions, and are dependable. Dependability encompassed showing up for work on time and working hard during the hours they are being paid.

In relation to the military recruit, a later explanation in this text will reveal how all individuals seeking enlistment in the Air Force are tested and have to obtain minimum scores to enter a chosen career field. The ability to read plays a major role in attaining requirement for entry. As to following instructions and dependability, these expectations are drilled into the recruit from the outset, and responsibility becomes evident. This is not to say that all the factors cited by Hamilton do not exist in the technical training arena.

However, this writer does not see this as having a strong influence in the military environment as opposed to industry.

Summary

In this review of literature, several issues have been addressed pertaining to young military recruits in resident training. If indeed recruits have many similarities to young college students or to those that enter the work force immediately out of high school, then additional study in this area is needed. The environment in which young people find themselves after high school may very much influence their performance. College, the work force, and the military offer distinctly different situations, and therefore must be carefully analyzed when attempting to show relationships in the learning process.

CHAPTER III

METHOD

Design of the Study

As mentioned above, some limits on the subjects available data had to be established. In order to keep this study within reason and yet have sufficient data to establish validity, the following guidelines were set.

Time frames: This was divided into quarters (three month segments) which used service entry dates close to summer, fall, winter, and spring seasons. Quarter segments were:

1. June, July, and August
2. September, October, and November
3. December, January, and February
4. March, April, and May

It was expected that the summer segment would capture the graduate from high school who immediately entered the service. The fall period would coincide with the majority of those that entered college, and winter and spring might include the college drop-outs or those that went straight into the workforce and had later begun looking at another alternative that would provide training and a source of income. Specific attention was

paid to those recruits entering in the winter months since they were the "low motivation" subjects in question.

Since this study involved only Air Force personnel, and in particular those at Chanute Air Force Base, Illinois, the reader should be reminded that the Air Force is an all voluntary force, and the normal enlistment period is four years. Also, although a waiting period between the date of actual entry and the date of initial inquiry to enter may have prevailed in some cases, this study concerned itself with the actual entry dates since these were obtainable and the most significant in looking at individual performance.

With the time frames established, the question of the age of subjects emerged. Since the majority of Air Force recruits, especially in the enlisted ranks, are under the age of 20, it was decided to look at only those age 19 and under at the time of entry. This would be sure to capture the recent high school graduate who may have been searching, inquisitive, and ready for new challenges. It was also decided to limit the study to male personnel only. There is a much larger percentage of men entering the Air Force than women, and the sex difference might, to some degree, distort the validity of the data collected.

This then led to the question of how many subjects should be selected from the career areas to be studied,

and how would the data be collected. Earlier in this writing it was mentioned that the writer's current position allowed access to records of graduates from three career field areas. Two of these were classified as mechanical career areas and the remaining area was in the field of electronics.

Again, for the reader who may be unfamiliar with the selection process of recruits, an explanation is in order. A multitude of career areas exist in the Air Force. These career areas are grouped by the nature of the job, and then given classifications such as: mechanical, electronic, administrative, and general. Each of the jobs within these groups requires a minimum qualifying score on the Armed Services Vocational Aptitude Battery (ASVAB) for the recruit to be accepted for training. Additional factors such as Air Force needs, the number of personnel being retained in various areas, and other considerations also aid in the selection process. However, these factors were ignored in this study since those statistics were unobtainable and would not be relevant to entry times and performance.

Sample and Population

One electronic and two mechanical areas were considered for the study. The scores required on the ASVAB in these three areas ranged from 51 to 62 depending on the field in question. After careful consideration it

was decided to use the two fields that required the lowest and highest minimum selection scores. This narrowed the choice to one mechanical area and the electronic area. One reason for this decision was that the two groups would represent two different ability levels. The mechanical group would represent those of a lesser skill, as far as the Air Force was concerned, in comparison to those who required more intellect or background for a chosen career area such as electronics. With this distinction, motivation could be a factor if any differences prevailed between the two groups.

Another reason for the choice of two subject groups was the length of training. Training time for the mechanical career area consisted of 294 hours, broken up into eight hours a day, five days a week, resulting in a course length of approximately 37 days. The course hours for the electronic career area totaled 1302 hours, also broken up into eight hours a day, five days a week, resulting in a course length of approximately 163 days. Differences in course length are common Air Force resident training. The extremes may not be as drastic in other career areas as those differences between the courses chosen for this study, but it was believed that data from a short course, not so demanding in terms of curriculum, compared to a long course, with a demanding curriculum, would represent the extremes necessary for

testing different aspects of the hypothesis. This would allow sampling of individuals entering the Air Force at distinct times for varying lengths of course time and difficulty of subject matter.

Data Collection

The number of subjects in each sample was then considered. In order to determine what this number should be, several factors were looked at. Course length was one of those factors. With the courses chosen, a longer course would produce fewer sets of graduates over a given period of time than would a shorter course. Also considered was the number of males in these courses who would fall into the nineteen-and-under category. In order to maintain as much objectivity as possible, random selection of subjects from a large pool was used for the study.

Other factors also affected subject selection. No follow-up personal interviews could be done because graduates of these courses were dispersed throughout the Air Force at different locations. In addition, availability of information was confined to records held for a two year period by the registrar's office. That office was contacted and permission granted to look at the files on all the individuals enrolled in these courses over the past two years.

The time period represented by the data was fiscal years 1986 and 1987. Random selection was by the last two digits of each social security number. The digits selected were found by using a simple program on a programmable calculator for random selection of 30 numbers between 0 and 99.

With the restriction of age (19 and under), the number of graduates in each course, and random selection, the next task was to estimate the total number of males within the guidelines. After several days of recording statistics on personnel in these courses, it was discovered that random selection in the electronics area would be impossible if a reasonable sample were to be found. However, in the mechanical area, because of the shorter course length, more graduates allowed for a larger pool, and random selection was logical in that case. The decision was then made to use all available subjects in the electronic field, and a random sample of subjects in the mechanical area to get a minimum number of 30, if possible, in each course for each quarter. This would produce a total of 120 subjects over a two year period in each of the two subject areas or a total sample of 240 in two courses.

Each record was then analyzed with specific attention given to the course grade to see how individuals in the chosen quarters performed. After screening all records

within the guidelines established, the number of subjects entering the service in each quarter were selected (See Tables 1 & 2).

Course grades were recorded for these subjects in each quarter. They were then totalled and averaged. A *t* test was used to make comparisons of all quarters (six comparisons total) in each area. Tables 3 and 4 show number of subjects, month entered service, and course grade by group for each quarter.

TABLE 1

Total Number of Subjects by Group

in Each Quarter for the Mechanical Career Area

GROUP	TIME PERIOD OF ENTRY	NUMBER OF SUBJECTS
1:	June - August	28
2:	September - November	40
3:	December - February	35
4:	March - May	29
	Total Subjects -	132

TABLE 2

Total Number of Subjects by Group

in Each Quarter for the Electronic Career Area

GROUP	TIME PERIOD OF ENTRY	NUMBER OF SUBJECTS
1:	June - August	26
2:	September - November	36
3:	December - February	21
4:	March - May	18
	Total Subjects -	101

TABLE 3

Subject's Month of Entry and Course Grade by Group for Each Quarter in the Mechanical Career Area

Group 1 Quarter Jun-Aug		Group 2 Quarter Sep-Nov		Group 3 Quarter Dec-Feb		Group 4 Quarter Mar-May	
Entry Date	Course Grade	Entry Date	Course Grade	Entry Date	Course Grade	Entry Date	Course Grade
Jun	85	Oct	91	Feb	81	May	86
Aug	79	Oct	83	Jan	93	Apr	79
Aug	94	Oct	91	Jan	85	Apr	96
Jun	85	Oct	86	Dec	95	Apr	91
Jun	98	Sep	99	Jan	93	Mar	89
Aug	99	Oct	83	Dec	88	Apr	94
Jul	95	Oct	79	Feb	95	Mar	79
Aug	86	Sep	96	Dec	95	May	81
Aug	93	Oct	84	Jan	85	May	76
Jul	89	Sep	80	Dec	85	Apr	88
Aug	86	Nov	93	Jan	93	Apr	84
Jun	94	Oct	93	Dec	85	May	85
Jul	88	Sep	83	Feb	91	Apr	93
Jun	89	Oct	79	Jan	85	Mar	98
Aug	86	Oct	96	Jan	88	Mar	98
Jul	95	Sep	93	Feb	85	May	88
Jun	89	Sep	95	Feb	94	Apr	94
Jul	93	Sep	88	Dec	90	Apr	96
Jul	90	Sep	90	Feb	95	Mar	99
Jul	91	Sep	84	Feb	86	Mar	94
Aug	76	Sep	95	Dec	89	Mar	91
Jul	78	Oct	93	Feb	92	Mar	85
Jul	86	Nov	94	Dec	88	Mar	96
Jul	93	Oct	90	Dec	90	Mar	85
Aug	91	Sep	94	Feb	88	Mar	88
Aug	86	Nov	84	Jan	96	Mar	99
Aug	90	Oct	98	Jan	95	May	88
Jul	85	Oct	90	Feb	93	May	91
		Nov	89	Jan	83	May	95
		Nov	100	Dec	85		
		Sep	90	Feb	84		
		Sep	88	Jan	85		
		Sep	93	Jan	95		
		Oct	93	Dec	81		
		Oct	85	Feb	89		
		Sep	86				
		Oct	99				
		Nov	94				
		Nov	88				
		Oct	84				
		Total Scores					
2489		3593		3120		2606	
		Total Subjects					
28		40		35		29	
		Mean Scores					
88.893		89.825		89.143		89.862	

TABLE 4

Subject's Month of Entry and Course Grade by Group for Each Quarter in the Electronic Career Area

Group 1 Quarter Jun-Aug		Group 2 Quarter Sep-Nov		Group 3 Quarter Dec-Feb		Group 4 Quarter Mar-May	
Entry Date	Course Grade	Entry Date	Course Grade	Entry Date	Course Grade	Entry Date	Course Grade
Aug	94	Nov	91	Jan	95	Mar	85
Aug	84	Nov	80	Dec	89	Mar	89
Aug	86	Sep	95	Dec	91	May	86
Jun	89	Oct	87	Jan	89	Apr	91
Jul	81	Oct	85	Jan	89	May	87
Aug	84	Oct	91	Feb	81	Apr	91
Jun	94	Oct	87	Jan	84	Mar	91
Jun	85	Oct	85	Dec	84	Apr	89
Aug	80	Nov	82	Feb	85	Apr	88
Aug	91	Sep	87	Dec	83	Apr	88
Aug	92	Sep	88	Feb	85	Mar	90
Aug	85	Sep	87	Dec	86	Mar	94
Aug	86	Oct	94	Dec	83	May	86
Aug	89	Oct	85	Feb	84	Apr	83
Aug	83	Nov	88	Feb	88	May	90
Aug	93	Nov	85	Feb	83	Mar	87
Aug	84	Sep	80	Jan	81	Mar	81
Jun	83	Sep	81	Jan	85	May	88
Aug	85	Oct	92	Jan	89		
Jul	83	Oct	88	Feb	85		
Jul	96	Sep	83	Feb	85		
Aug	87	Oct	85				
Jul	92	Sep	86				
Jun	88	Sep	86				
Jun	88	Oct	92				
Aug	91	Nov	89				
		Oct	88				
		Sep	86				
		Sep	83				
		Oct	85				
		Sep	83				
		Oct	84				
		Sep	85				
		Oct	87				
		Oct	83				
		Nov	87				
		Total Scores					
2273		3110		1804		1584	
		Total Subjects					
26		36		21		18	
		Mean Scores					
87.423		86.389		85.905		88.000	

CHAPTER IV

RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

Results

Using a Student's *t* to test for any significant differences between the mean scores of each quarter in each career area resulted in only one comparison bordering significance. The standard ($p < .05$) level of significance was selected as the criterion. All other tests showed the difference to be statistically insignificant.

In the mechanical and electronic career areas the *t* scores and probability (*p*) of the scores occurring by chance are shown by comparison in Tables 5 and 6.

As can be seen by these comparisons, no significant differences were found among any of the quarters in the mechanical career area. The hypothesis of recruits performing at noticeably different levels, depending on when they entered the Air Force, is not supported by the data collected.

In the electronic career area, one comparison of the quarters approaches significance and that is between the December thru February and March thru May time frames. The mean scores for December thru February were 85.905 and for March thru May, 88.000. The 0.0564 probability of

Table 5

Comparison of Quarters Indicating *t* Score and Probability (*p*) in the Mechanical Career Area

Quarters	&	Means	df	*t*	*p*
Jun-Aug (88.8)	&	Sep-Nov (89.8)	66	-0.671	0.5046
Jun-Aug (88.8)	&	Dec-Feb (89.1)	61	-0.196	0.8452
Jun-Aug (88.8)	&	Mar-May (89.8)	55	-0.608	0.5456
Sep-Nov (89.8)	&	Dec-Feb (89.1)	73	0.570	0.5705
Sep-Nov (89.8)	&	Mar-May (89.8)	67	-0.025	0.9798
Dec-Feb (89.1)	&	Mar-May (89.8)	62	-0.525	0.6013

Table 6

Comparison of Quarters Indicating *t* Score and Probability (*p*) in the Electronic Career Area

Quarters	&	Means	df	*t*	*p*
Jun-Aug	(87.4) &	Sep-Nov (86.3)	60	1.021	0.3112
Jun-Aug	(87.4) &	Dec-Feb (85.9)	45	1.297	0.2012
Jun-Aug	(87.4) &	Mar-May (88.0)	42	-0.481	0.6329
Sep-Nov	(86.3) &	Dec-Feb (85.9)	55	0.497	0.6212
Sep-Nov	(86.3) &	Mar-May (88.0)	52	-1.618	0.1117
Dec-Feb	(85.9) &	Mar-May (88.0)	37	-1.970	0.0564

this occurring by chance hints that possibly more research in this time period may support the original hypothesis.

It is interesting to note at this point that the case of the more difficult curriculum and longer course length produced the nearly significant difference. It is also noteworthy that the entry date time frames in question were mid-winter and spring. Other comparisons with the December thru February period indicate no major differences. In the March thru May period the comparison with September thru November is the only area that approaches a 0.1 probability.

Maintaining objectivity in the findings indicates that for the data collected, no significant differences exist among the quarters. The hypothesis is rejected. Personal observations and suggestions will be discussed below.

Complete results of the t tests comparing the different subject groups are shown in the appendix (Tables 7 thru 18). This information reveals confidence intervals for differences in population means, the mean score of each group, group sizes, standard deviation, and sum totals. The t test results were computed using a data analysis program (t-tests for independent samples) in PLATO, the educational computer system at the University of Illinois at Urbana/Champaign.

Attrition rate was found to be very high in the electronic area. One of the reasons for fewer subjects available for this study in the electronic field was the "wash out" or failure rate. Course grades could not be obtained for these individuals, and therefore could not be used in the comparisons. However, a Test for Independence using classification tables X^2 in PLATO was performed on attrition data. A comparison was made among percentages of eliminations in each quarter to test the possibility that attrition would influence the outcome of this study. The results indicated no significance.

Conclusions

From the data collected and the results of the findings, it is concluded that no relationship exists between the time of entry into the Air Force and academic performance of young male recruits in resident technical training. The assumption may be confounded by the possibility that some highly motivated recruits plan to delay entry into service. They may desire a period of time for personal relaxation and recreation before making a commitment to serve.

According to the longitudinal study of 1980 seniors (National Center for Educational Statistics, 1984), most recruits came from the lowest quartile economically and cognitively. This would offer additional evidence that for those obtaining the minimum cut-off score in a more

difficult curriculum in resident technical training, the average course grades would be lower and more failures would occur. However, it must be noted that no previous research supported the original hypothesis of entry time compared to academic performance. Also, this study did not elaborate on a particular branch of the Armed Services which could have affected the findings.

Other studies were positive when compared to Air Force resident technical training. Scheduling of time, extracurricular activities, and lack of keeping up with course work were some of the reasons given for poor academic performance of college freshman. Air Force recruits in resident training follow a rigid schedule and are provided extra help whenever they fall behind in course work. The more structured type of testing the Air Force uses is also that which is desired by young adults.

The military system encourages a very cohesive group. Could this be a positive or negative aspect of learning? Values and maturity level would surely be an influence. An in-depth study would be necessary to determine if learning and close associations intertwine.

All of this suggests that resident technical training in the Air Force is putting into practice what some research has proved to be helpful to the young learner.

However, research does not support the belief, held by some Air Force instructors, that academic performance is hindered by motivation depending on certain periods of the year when the young male recruit enters the service.

Recommendations

1. In an attempt to prove the hypothesis presented in this study, a much larger population should be considered. A larger number of recruits would allow for random selection of all participants which may have influenced some of the findings.
2. More than two courses should have been involved in the study. Although it is believed that selection of the areas were sound, additional courses of a comparable or a different curriculum may have yielded other results.
3. The idea of comparisons by quarters was a good attempt to grouping the individuals when most young male high school graduates have to make major decisions. It is suggested that monthly comparisons, with a larger subject group, may indicate that some significance does exist. This breakdown was not attempted, and the suggestion does not imply different findings.
4. Additional studies on the Air Force recruit in resident technical training would be an advantage. The research this writer found

concentrated more on the particulars of resident recruitment and training than on the person in that environment. Realizing this would be a monumental task, the cost and time involved may seem too high, but the results could possibly suggest some changes in the recruiting method and produce a better trained individual in a chosen career area.

5. Results of this study should be studied by those instructors who are responsible for training the young Air Force recruit in resident schools. Stereotyping an individual or a group can influence the attitude of the trainer towards the trainee. Student motivation and academic performance, in some cases, may be a direct result of how well they were treated and the respect shown for their accomplishments (Rosenthal & Jacobson, 1968). It is commonly acknowledged that it is very easy for an instructor to accept capable students, and sometimes very difficult to apply the patience necessary for slow learners. How an individual or a group is perceived at the outset will, in some instances, influence the effort made by the trainer to help the trainee. Any educational institution, including the resident training environment in the Air Force,

should not prejudge the capabilities of the student unless sufficient evidence supports such a judgment.

Summary

This particular study did not support the hypothesis of lowered motivation of the slower learner during certain periods of the year. Until more research is done in this area to prove otherwise, no one individual or group of individuals in these categories should be considered academically less motivated for the rigors of resident technical training in the Air Force.

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APPENDIX

TABLE 7

t Test Data for Mechanical Career Area

Comparing Jun-Aug & Sep-Nov Quarters

Data for Group I $N_I = 28$

Data for Group II $N_{II} = 40$

$t(66) = -0.671$

t this large or larger could occur by chance with *p* = 0.5046

Confidence intervals for difference in population means

.90 C	-3.250	to	1.386	
.95 C	-3.706	to	1.842	$Mean_{dif} = -0.932$
.99 C	-4.617	to	2.753	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0823$

0.7% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	88.893	5.593	28	2489.000	222099.000
Group II	89.825	5.670	40	3593.000	323995.000

TABLE 8

t Test Data for Mechanical Career Area

Comparing Jun-Aug & Dec-Feb Quarters

Data for Group I $N_I = 28$

Data for Group II $N_{II} = 35$

$t(61) = -0.196$

t this large or larger could occur by chance with *p* = 0.8452

Confidence intervals for difference in population means

.90 C	-2.380	to	1.880	
.95 C	-2.800	to	2.300	$Mean_{dif} = -0.250$
.99 C	-3.640	to	3.140	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0251$

0.1% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	88.893	5.593	28	2489.000	222099.000
Group II	89.143	4.532	35	3120.000	278824.000

TABLE 9

t Test Data for Mechanical Career Area

Comparing Jun-Aug & Mar-May Quarters

Data for Group I $N_I = 28$

Data for Group II $N_{II} = 29$

$t(55) = -0.608$

t this large or larger could occur by chance with *p* = 0.5456

Confidence intervals for difference in population means

.90 C	-3.636	to	1.697	
.95 C	-4.163	to	2.225	$Mean_{dif} = -0.969$
.99 C	-5.222	to	3.283	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0817$

0.7% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	88.893	5.593	28	2489.000	222099.000
Group II	89.862	6.396	29	2606.000	235326.000

TABLE 10

t Test Data for Mechanical Career Area

Comparing Sep-Nov & Dec-Feb Quarters

Data for Group I $N_I = 40$

Data for Group II $N_{II} = 35$

$t(73) = -0.570$

t this large or larger could occur by chance with *p* = 0.5705

Confidence intervals for difference in population means

.90 C	-1.312	to	2.676	
.95 C	-1.703	to	3.068	$Mean_{dif} = 0.682$
.99 C	-2.483	to	3.848	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0666$

0.4% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	89.825	5.670	40	3593.000	323995.000
Group II	89.143	4.532	35	3120.000	278824.000

TABLE 11

t Test Data for Mechanical Career Area

Comparing Sep-Nov & Mar-May Quarters

Data for Group I $N_I = 40$

Data for Group II $N_{II} = 29$

$t(67) = -0.025$

t this large or larger could occur by chance with *p* = 0.9798

Confidence intervals for difference in population means

.90 C	-2.471	to	2.397	
.95 C	-2.950	to	2.876	$Mean_{dif} = -0.037$
.99 C	-3.906	to	3.832	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0031$

0.0% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	89.825	5.670	40	3593.000	323995.000
Group II	89.862	6.396	29	2606.000	235326.000

TABLE 12

t Test Data for Mechanical Career Area

Comparing Dec-Feb & Mar-May Quarters

Data for Group I $N_I = 35$

Data for Group II $N_{II} = 29$

$t(62) = -0.525$

t this large or larger could occur by chance with *p* = 0.6013

Confidence intervals for difference in population means

.90 C	-3.006	to	1.567	
.95 C	-3.456	to	2.018	$Mean_{dif} = -0.719$
.99 C	-4.358	to	2.920	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0666$

0.4% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	89.143	4.532	35	3120.000	278824.000
Group II	89.862	6.396	29	2606.000	235326.000

TABLE 13

t Test Data for Electronic Career Area

Comparing Jun-Aug & Sep-Nov Quarters

Data for Group I $N_I = 26$

Data for Group II $N_{II} = 36$

$t(60) = 1.021$

t this large or larger could occur by chance with $p = 0.3112$

Confidence intervals for difference in population means

.90 C	-0.658	to	2.726	
.95 C	-0.991	to	3.060	$Mean_{dif} = 1.034$
.99 C	-1.660	to	3.728	

population means are estimated to differ by 0.05264 s.d. units

$r_{pb} = 0.1307$

1.7% sample variance is accounted for by this effect.

0.1% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	87.423	4.365	26	2273.000	199189.000
Group II	86.389	3.596	36	3110.000	269122.000

TABLE 14

t Test Data for Electronic Career Area

Comparing Jun-Aug & Dec-Feb Quarters

Data for Group I $N_I = 26$

Data for Group II $N_{II} = 21$

$t(45) = 1.297$

t this large or larger could occur by chance with $p = 0.2012$

Confidence intervals for difference in population means

.90 C	-0.447	to	3.484	
.95 C	-0.839	to	3.876	$Mean_{dif} = 1.518$
.99 C	-1.630	to	4.666	

population means are estimated to differ by 0.2411 s.d. units

$r_{pb} = 0.1899$

3.6% sample variance is accounted for by this effect.

1.4% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	87.423	4.365	26	2273.000	199189.000
Group II	85.905	3.463	21	1804.000	155212.000

TABLE 15

t Test Data for Electronic Career Area

Comparing Jun-Aug & Mar-May Quarters

Data for Group I $N_I = 26$

Data for Group II $N_{II} = 18$

$t(42) = -0.481$

t this large or larger could occur by chance with $p = 0.6329$

Confidence intervals for difference in population means

.90 C	-2.594	to	1.440	
.95 C	-2.997	to	1.843	$Mean_{dif} = -0.577$
.99 C	-3.812	to	2.658	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.0740$

0.5% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	87.423	4.365	26	2273.000	199189.000
Group II	88.000	3.125	18	1584.000	139558.000

TABLE 16

t Test Data for Electronic Career Area

Comparing Sep-Nov & Dec-Feb Quarters

Data for Group I $N_I = 36$

Data for Group II $N_{II} = 21$

$t(55) = -0.497$

t this large or larger could occur by chance with *p* = 0.6212

Confidence intervals for difference in population means

.90 C	-1.146	to	2.114	
.95 C	-1.468	to	2.437	$Mean_{dif} = 0.484$
.99 C	-2.115	to	3.084	

population means are estimated to differ by 0 s.d. units

$r_{pb} = 0.0669$

0.4% sample variance is accounted for by this effect.

0.0% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	86.389	3.596	36	3110.000	269122.000
Group II	85.905	3.463	21	1804.000	155212.000

TABLE 17

t Test Data for Electronic Career Area

Comparing Sep-Nov & Mar-May Quarters

Data for Group I $N_I = 36$

Data for Group II $N_{II} = 18$

$t(52) = 1.618$

t this large or larger could occur by chance with $p = 0.1117$

Confidence intervals for difference in population means

.90 C	-3.278	to	0.056	
.95 C	-3.609	to	0.387	$Mean_{dif} = -1.611$
.99 C	-4.273	to	1.051	

population means are estimated to differ by 0 s.d. units

$r_{pb} = -0.2190$

4.8% sample variance is accounted for by this effect.

2.9% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	86.389	3.596	36	3110.000	269122.000
Group II	88.000	3.125	18	1584.000	139558.000

TABLE 18

t Test Data for Electronic Career Area

Comparing Dec-Feb & Mar-May Quarters

Data for Group I $N_I = 21$

Data for Group II $N_{II} = 18$

$t(37) = -1.970$

t this large or larger could occur by chance with $p = 0.0564$

Confidence intervals for difference in population means

.90 C	-3.890	to	-0.301	
.95 C	-4.251	to	0.060	$Mean_{dif} = -2.095$
.99 C	-4.984	to	0.793	

population means are estimated to differ by 0.5434 s.d. units

$r_{pb} = 0.3081$

9.5% sample variance is accounted for by this effect.

6.9% of population variance is estimated to be accounted for by this effect.

	mean	s.d.	n	Σx	Σx^2
Group I	85.905	3.463	21	1804.000	155212.000
Group II	88.000	3.125	18	1584.000	139558.000