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The Effect of Study Skills Training on United States Air Force Allied Health Students

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Abstract

Students given study skills course intervention required significantly fewer academic interventions beyond normal classroom instruction and significantly higher end-of-course averages than students who were not trained in study skills. Additionally, students trained in study skills graduated at a higher rate than students who did not receive study skills training.

Statement of the Problem

There was a perceived problem at the School of Aerospace Medicine with regard to student disenrollments, washbacks (i.e. students repeating blocks of training), and failure rates. The average cost to train one student in the three month Aeromedical Apprentice course is $12,500. (Schommer, 1998). Students who fail the course of study and are eliminated from the program and in most cases, the Air Force, cost thousands of taxpayer dollars without serving as a “productive” part of the Air Force.

Purpose of the Study

The purpose of this study was to determine the difference in academic interventions, grades attained, time spent in one-on-one instruction, and graduation rates, between students who received study skills training prior to the start and during technical training and students who did not receive study skills training prior to the start and during technical training.

Hypothesis

Study skills course intervention was hypothesized to reduce the number of academic interventions beyond normal classroom instruction, improve higher end-of-course test scores, reduce the time required for one-on-one instruction for student tutoring beyond normal classroom instruction, and reduce the attrition rate.

Literature Review

The issue of students “not knowing how to study” is not new. McMurry (1909) made a passionate argument in his book How to Study and Teaching How to Study that most people do not know how to study, causing many to fail. The focus of this research was based on the premise that students who are very much alike can have differences in performance that are directly related to their command of study skills. Study skills can be better understood by viewing a Study Skills Model (see Figure 1).

The model was designed during the course of this study and shows four basic steps with a feedback loop used to evaluate the process of study skills and improve it if necessary. Input implies readiness to learn and take in information on a subject. The process
Figure 1.

Study Skills Model

```
INPUT
  i.e., Information on a given subject

PROCESS
  i.e.,
  - Learning strategy
  - Memorization
  - Selection
  - Technique
  - Transfer Tools
  - Note taking
  - Remembering
  - Organize study time
  - Minimizing stress
  - Test taking strategies

OUTPUT
  i.e., Grades

SELF MONITORING
  i.e., Changes based on student evaluation on how results matched expectations
```

Table 1.

<table>
<thead>
<tr>
<th>Hypothesis (Ho)</th>
<th>F Value (Full vs. Restricted Models)</th>
<th>Critical Value</th>
<th>Sig.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho₁</td>
<td>5.18</td>
<td>3.951</td>
<td>0.025*</td>
</tr>
<tr>
<td>Ho₂</td>
<td>5.454</td>
<td>3.951</td>
<td>0.022*</td>
</tr>
<tr>
<td>Ho₃</td>
<td>5.048</td>
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<td>0.027*</td>
</tr>
<tr>
<td>Ho₄</td>
<td>1.367</td>
<td>3.951</td>
<td>0.246</td>
</tr>
</tbody>
</table>
includes what a student would do with the information and the study skills to apply toward learning the information. Feedback is usually in the form of grades letting the student evaluate performance. Self-monitoring leads to changes in study habits when necessary.

Differences from Previous Studies

The major differences between this study and previous studies are that it involved a military technical school setting, focused specifically on the effects of teaching study skills using random sampling (not targeted groups), and followed student progress for at least three months.

Methods

The study skills course was based on the study skills model discussed earlier and emphasized five major areas: (a) note taking; (b) remembering; (c) organizing study time; (d) minimizing stress; and (e) test taking strategies. The class was taught in a 90-minute session prior to the start of the Aeromedical Apprentice course. Additionally, a one-hour follow-up session was given to students one month after they began technical training in the Aeromedical Apprentice course.

Research Design

This experiment used the post test only control group design (Campbell & Stanley, 1963). This design used a treatment group and a control group. The treatment group received study skills training and was measured on four dependent variables. The control group was measured on the same four dependent variables, but received no study skills training.

The statistical analysis used in this experiment was regression analysis. The aptitude of all students in this experiment had already been measured by the Armed Services Vocational Aptitude Battery (ASVAB) Test General Score which was used as a covariate in the experiment (Campbell & Stanley, 1963). The directional hypotheses were tested at the p ≤ 0.05 level.

This study examined a random sample of 90 U.S. Air Force Aeromedical Apprentice students, representing a population of approximately 250 students. Participants were randomly assigned into the control and treatment groups of 45 students each and observed for a three-month period. Additionally, a detailed analysis using independent sample t-tests was conducted to ensure the groups were not different in a statistically significant way at the p ≤ 0.05 level.

Results

These hypotheses were tested in the null form to determine the effectiveness of the study skills course by comparing full versus restricted regression models (Hinkle, Wiersma & Jurs, 1994). The differences between the $r^2$ values of the full and restricted models were computed to determine statistical significance at the p ≤ 0.05 level. These results are shown in Table 1 on page . All hypotheses were tested at the p ≤ 0.05 level of significance. Hypotheses 1, 2, and 3 were rejected. Hypothesis 4 was retained.

Based on the findings of the study, the following conclusions were reached.

1. Students who were trained in study skills required additional assistance on fewer occasions ($H_{0_1}$), had higher end of course grade averages ($H_{0_2}$) and required less time spent in one-on-one instruction for student individual assistance outside of normal class time ($H_{0_3}$) than students who were not trained in study skills.

2. Though a statistically significant difference did not exist between study skills training and the dependent variable of graduation rates ($H_{0_4}$), in this particular study,
students who were trained in study skills were more likely to graduate than students who were not trained in study skills. 
3. The ASVAB General Test score was a statistically significant predictor of all of the dependent variables used in this study.

Discussion

The Study Skills Model presented earlier is an effective tool to use when developing and delivering a study skills course. Findings were consistent with earlier works of Zimmerman and Ponds (1986), Kirschbaum and Perri (1982), Entwisle (1960), and Prather (1983).

Recommendations for Further Study

1. The study skills intervention course in this experiment could provide a basis for further studies implementing study skills interventions in military and civilian training settings.
2. Further studies regarding age and education level should be conducted prior to implementing a study skills intervention course in adult non-technical training environments.
3. Further research should be conducted in primary and secondary school settings to determine the feasibility of providing sustained cost effective study skills training to students early in their academic careers to enhance their learning capabilities.
4. Further studies should be conducted to identify the minimum number of study skills training sessions required for effective adaptation of study skills as evidenced by little or no remedial training and high graduation rates.

Final note: The U.S. Air Force School of Aerospace Medicine has incorporated the study skills course described in this article into all five enlisted courses taught at the school in September, 1998.

References


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