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Academic-Point Incentives and College-Student Use of Study Skills

Afnan Ma'rouf Almasri

Western Michigan University

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ACADEMIC-POINT INCENTIVES AND COLLEGE-STUDENT USE OF STUDY SKILLS

by

Afnan Ma'rouf Almasri

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
December 1987
This was a study of the effects of academic-point incentives on the use of study skills by thirty high-risk undergraduate students. The students completed a four-session study-skills training program consisting of time management, concentration and memory, note taking, and test taking. They contracted to accomplish tasks specified weekly according to their class syllabus using special forms that specified the targeted study skills. The mean use of the study skills was 95.8% when points were given and decreased to 38% when points were withdrawn; but the use of study skills increased to 98.9% when points were again given.
ACKNOWLEDGEMENTS

I would like to express my deep respect and gratitude to Dr. Richard Malott whose continuous support and feedback, throughout working on this thesis helped me overcome all problems. I would also like to express my deep appreciation to the thesis committee, Dr. Jack Michael and Dr. Dale Brethower, for their constructive feedback.

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Afnan Ma'rouf Almasri
DEDICATION

I would like to dedicate this thesis to my mother, whose love, support, and encouragement from overseas helped in having this work done.

Afnan Ma'rouf Almasri
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Academic-point incentives and college-student use of study skills

Almasri, Afnan Ma'rouf, M.A.
Western Michigan University, 1987
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CHAPTER I

INTRODUCTION

THE PROBLEM

There is considerable concern about poor academic performance in universities. At Western Michigan University (WMU), Kalamazoo, for the winter semester (1987) out of 18,051 students, 631 were on academic probation, 360 were on continued probation, 83 were on academic review, and 541 students were dismissed. There are three general reasons that may explain this problem:

1. The students do not spend enough time to master the material. Procrastination or lack of time-management causes the students to run short of time, thus decreasing the time available for studying and mastering the material (Abuhmaidan, 1986; Brethower, 1982; Dean, Malott, & Fulton, 1983; Jackson, 1984; Jager, 1984; Ziesat & Rosenthal, 1987). Most of the previous literature suggested the use of a performance-management procedure to help the students manage their time more effectively and have more time to study and master the material.

2. The students do not have the specific academic knowledge or repertoires needed such as reading, writing and mathematics. Many universities throughout the country have set up academic skills programs and remedial education programs. For example, at WMU remedial courses are offered in reading, writing, and mathematics. Workshops
and programs are also available at the Academic Skills Center to assist students in these areas as well as in studying, spelling, writing, etc.

3. The students do not have effective study skills such as taking lecture notes, reading and studying a textbook chapter, and preparing for and taking a test. Various techniques have been proposed to help students acquire necessary study skills (Brethower, 1982; Cohen, King, Knudsvig, Ponte, Patten, Shtogren, & Rowena, 1973; Heiman, 1984; Pauk, 1974). The previous authors offered different techniques to be used to help students acquire the necessary study skills. Furthermore, many universities have study skills programs such as the one at WMU.

Brethower (1982) dealt simultaneously with the problems of time-management, and poor academic skills. He described what the students usually do when they set out to study as being counter-productive, because they spend too much time getting ready to study. He gave students advice to help them decrease procrastination, day dreaming, and being distracted, which centered on making schedules and locating a non-distracting study area. He suggested following a specific procedure to comprehend the materials; this procedure consists of surveying the chapter, reading it quickly, and then reading it carefully after that. He also recommended that the students review the material for the test, a little each day.
Solutions

Many different techniques have been used to improve high school and college students' grades and academic achievement (Balcazar, Hopkins, & Suarez, 1985/86; Bristol & Sloane, 1974; Candia, 1986; Dean, Malott, & Fulton, 1983; Glynn, Thomas, & Shee, 1973; Heiman, 1984; Larrow, 1980; Miller & Gimpl, 1972; Richards & Caple, 1977).

Those techniques involved different systems, programs, and procedures to improve study rate, study skills, time-management, grades, and task accomplishments, which may result in improving the academic performance and grade point average (GPA). The techniques are discussed below.

Performance management

Considerable work has been done on performance-management to increase the amount of time the students study. A performance management course has been offered at WMU in the Center for The Self-Management of Academic Performance of the Department of Psychology. In this center, students who have poor academic achievement studied eight hours weekly (Yancey, 1983). They earned points for attending the center. The points went toward their grades in Psychology 397, a course in self-management. This program has been implemented for four years. The recent data (Fall, 1986) for this course showed that some of the students' performances improved while others' performances were still below average. Some of the students dropped one or two classes; others failed in one or two classes. One of the major
causes of the problems was procrastination. This problem was addres-
sed by having the students complete a weekly contract in which they
specified the required tasks according to the syllabus of the classes
they were enrolled in. Weekly meetings with the contractors were the
deadlines for accomplishing the weekly tasks. This program helped
the students spend enough time to master the material. The students
obtained bonus points for mastering the material when the contractors
quizzed them before they signed out of the center.

A major component of performance management is performance con-
tracting, which involves an agreement between two parties to perform
certain behaviors (Malott, Tillema, & Glenn, 1978). The contract
consists of four steps: (1) the specification of the behaviors to be
performed, (2) the negotiation of the contract with the involvement
of both parties, (3) the writing of the contract in an understandable
language, and (4) the specification of a behavioral contingency—a
statement of the conditions under which certain consequences will
follow a response. Performance contracting has been used to improve
the rate of study and academic performance (Champlin & Karoly, 1975;
DeResi & Butz, 1977; Jager, 1984; Larrow, 1980; Jackson, 1984;
Yancey, 1983).

Bristol and Sloane (1974) found that performance contracting was
effective in modifying study behaviors of 36 undergraduate volunteers
randomly assigned to three groups using a combined-group design and
an individual subject design. The first control group recorded study
time alone, the second control group recorded and graphed study time
and the third group was the experimental group and participated in
the contracting procedure. The results indicated that all subjects in the third group had higher mean study rates in the two contracting periods than in either of the two baseline periods while no increase was obtained for the other groups. In the first period, subjects recorded and graphed daily study time in an Introductory Psychology course; in the second period subjects also recorded and graphed study time for the second selected course. Contracting also improved the test scores of low-achieving students, but they found no significant effect on average-achieving students and, therefore, suggested a modified procedure be used with average-achieving students. Bristol and Sloane also found that study time increases did not generalize to noncontracted courses. However, the improvement indicated in this study was seen in the experimental group, from baseline to treatment. But, compared with the other two control groups, there was no statistically significant difference obtained in study time.

Larrow (1980) used performance contracting to improve the academic grades of six volunteer high school students using a multiple-baseline design across blocks of classes and groups of subjects. The subjects attended a lecture on performance management and effective study methods; then they selected their preferred target class to work on to improve their GPA. They contracted to take lecture notes and to meet weekly to earn a refund of the weekly deposited $2.50. For one group, the mean number of notes (the product of in class note-taking behavior, handwritten and containing at least 50 words) taken per week was 1 note in the baseline and 12.5 notes per week during treatment; for the other group, the mean number of notes taken
per week was 4.8 in baseline, and 7.8 during treatment. The results also indicated that the subjects met 81% of all treatment criteria. However, the effect of the implementation on the mean grade point average (GPA) was not statistically significant and the improvement indicated might have occurred as a sequence effect of time, since there was no reversal to support their findings.

**Study-Skills Training**

Most universities have programs to teach study skills to improve the general academic performance of students. (Brown & Forristal, 1984; Rauch, 1983). One of the study skills programs was the computer-assisted study-skills improvement program (CASSIP). This program was designed to help students develop effective study skills and academic attitudes—the students' feelings with regard to studying, with the hope of increasing their scholastic success. The program consisted of five features: (1) study skills surveys to identify students who needed to improve their study behaviors; (2) study skills modules such as managing time, reading textbooks, writing themes and reports, taking examinations, taking lecture notes; (3) a study-skills notebook the students used in taking notes about the concepts presented by the computer program; (4) the study skills test to identify students requiring additional help; (5) effective study exercises, available to help some students by providing activities to support the concepts discussed in the study skills modules.

The students worked on the entire computer program on their own time, thus saving class time to discuss other information. The
program was field-tested and showed statistically significant improvement in students' study skills and academic attitudes. The retest scores on the Survey of Study Habits and Attitudes were significantly higher (p < .01) for a group of 88 students receiving CASSIP than for a control group of 67 receiving no study skills help and a group of 97 students receiving 15 hours of in-class instruction (there were no mean values indicated in this survey). This program is currently used in at least three universities. However, the improvement indicated in this survey may be an effect of time passage as there was no actual evidence of the students' acquisition of study skills or their use of study skills and there was no follow up research to support these improvements.

Even if programs are effective in helping students acquire study skills, the question remains "Will effective academic skills generate enough immediate consequences that the skills could be maintained without any academic incentives (e.g., points)?" The significance of this question is that, throughout the country, universities persist in giving brief training in academic skills with the assumption that this will improve the students' academic performance. The problem of lack of the use of study skills, after training workshops, was addressed in Candia's 1986 study. He investigated the students' use of study skills by implementing a treatment package consisting of incentives and feedback with three undergraduate students attending WMU. The use of study skills increased slightly when feedback was used but increased more when incentives were added. In lecture note-taking, the use of study skills increased from 10% in the
baseline to 40% when feedback was provided, to 68% when incentives and feedback were added in week 10 of the study. In comprehensive reading, the use increased from 0% in the baseline to 33% when feedback was provided, to 70% when incentives were added in week 11 of study. For critical reading, the use increased from 0% in the baseline to 44% when feedback was added, to 92% when incentives were added in week 12 of study. The students' academic performance improved slightly in this study. The improvements indicated were obtained only when incentives were added for one week only for each component, which was too short to definitely prove the effectiveness of feedback or incentive conditions. However, since there were some methodological problems in Candia's study, e.g., the improvements indicated may be a sequence effect of time, it needed to be repeated.

Learning to Learn System

Another system to improve academic performance was Learning to Learn (LTL), a behavioral approach to improve thinking (Heiman, 1984; Heiman & Slomianko, 1983). This system helps in improving the students' thinking and ability to generate questions by providing them with a set of skills that results in long term improvements in GPA and retention rate in college. LTL contains general learning skills (applicable to all subject-matter area such as the skills used in taking lecture notes) and subject specific skills (those skills that relate to the structure of complex academic discipline such as chemistry or economics) (Heiman, 1985). The author differentiated between the study skills system and Learning to Learn system (LTL),
explaining that study skills are "a series of exercises designed to help students make better use of time" (p. 10).

She added that when the students stop actively using study skills, they stop benefitting from them. In contrast, in the case of Learning to Learn, once the students mastered the system, they still performed well academically, even if they stopped doing the exercises. Moreover, the results of Heiman's research indicated that in the Fall 1982 sample, the Boston College experimental students obtained higher mean GPAs (2.44) than the control group's mean GPAs (1.97). More recent data on the effectiveness of LTL was obtained in the Spring of 1984 at Boston College. The data indicated that for a group of 80 freshmen on probation, the earned mean GPA was 2.36, compared with the mean 1.14 GPA obtained in the previous semester before LTL was introduced.

Incentives

Other studies have shown the effectiveness of incentives in maintaining desirable behaviors (Dean, Malott, & Fulton 1983; Frase & Patrick, 1969). In the study conducted by Frase and Patrick (1969), the researchers studied the effects of incentives on the mastery of material read from a textbook as reflected on a post reading quiz. They also varied the location of study objectives and the group inter-study objectives throughout the material. They did not demonstrate a statistically significant effect of the incentive conditions in this study.
However, Dean, Malott, and Fulton (1983) did show a positive effect of incentives on self-management. They found that eight of the nine students improved after self-management training. The follow up checks after the termination of the experiment showed that three students continued to use all self-management procedures, four students continued to use one or more self-management procedures, and two subjects stopped all self-management activities.

**Feedback**

Feedback has been shown to have a positive effect on improving performance and maintaining target behaviors (Balcazar et al. 1985/86; Candia, 1986; Richards, McReynolds, Holt, & Sexton 1976).

Feedback was found to be effective in improving study behaviors (Richards et al. 1976). In this study, two feedback conditions, high information and low information, were used. The exam grade mean was .61, for the randomly chosen no-feedback control group. The mean was .79, for a study skills advice group that received study behavior questionnaires, advice on study skills development, and stimulus control suggestions. And, the mean was .90, for the six selfmonitoring plus study skills advice groups; three groups received high information feedback, and three groups received low information feedback.

Balcazar et al. (1985/86) searched four journals to identify articles that reported any application of performance feedback in organizational setting. Every application of feedback was categorized according to its effectiveness and characteristic. The results supported the hypothesis that the use of feedback together with
incentives such as points, money, or paid time off work was more effective than using feedback by itself.

The Purpose of the Present Study

The present study is an extension of Candia's 1986 study on the effect of special incentives to increase the use of academic skills. There are three major differences between the two studies:

1. The specification of study skills: Candia differentiated between two kinds of skills, trivial and nontrivial. The present study looked at the skills as a whole giving the least incentive point for the trivial skills and distributing the points between other skills according to importance and effort. Also Candia measured the use of study skills in accomplishing the three tasks of lecture note-taking, comprehensive reading, and critical reading; however, the present study measured the students' use of study skills in accomplishing the three tasks of lecture note-taking, comprehensive reading, and test taking instead of critical reading.

2. The experimental design: Candia used a multiple baseline design across behaviors; the conditions consisted of baseline, study skills workshops, feedback, and incentives along with feedback. The present study used a reversal design: contingent incentive points, no points, and a reinstatement of incentive conditions.

3. Type of incentives: Candia provided the students with contingent points and time off from The Center, while the present study provided the students with incentive points only.
Like Candia's study, the present study was designed to assess the effects of the academic incentives (points) on the frequency of the students' use of study skills.

Also, this study was different from others involving incentives, feedback, and behavioral contracts in that it measured detailed output of the use of study skills using incentive points through a behavioral contract in which the points were provided for accomplishing the specified tasks within a limited period of time.

Candia's study and the present one are also unique in their concern not only for the measurement of the use of study skills, but also for developing a system of added incentives for the maintenance of the use of those skills.
CHAPTER II

METHOD

Subjects

Thirty high-risk undergraduate students enrolled at Western Michigan University participated in this study. There were 16 males and 14 females, with ages ranging from 17 to 24, selected from a group of students who had grade point averages (GPAs) below 2.0. They were enrolled in Psychology 397, a course in self-management.

According to the requirements of this study, the participating subjects had to have classes that included three weekly tasks: (1) lecture notes, (2) reading assignments, and (3) taking a test. Therefore, 30 subjects were selected from the 50 students enrolled in Psychology 397.

The subjects signed informed consent sheets (Appendix A) that assured the confidentiality of their data.

Setting

This study was conducted in the Department of Psychology at Western Michigan University, Kalamazoo, in the Center for Self Management. This Center consists of two rooms in which students study. The Center provided the students with the opportunity to earn 200 points weekly, during the periods of implementation, and a 160 points, during the 3 weeks of baseline, which would count toward their grades in Psychology.
397. In order to earn the first 100 points, students were required to study 8 hours weekly in the Center during two optional, specified times from 3:00 to 5:00 p.m. or from 7:00 to 9:00 p.m. Students signed in when they arrived at the Center and signed out when they left, showing the proofs of accomplishment for the time spent in the Center. And, to obtain the second 100 points, students were required to meet with their contractors weekly. There were two kinds of contractors involved: (1) the undergraduate and (2) the graduate contractors. The undergraduate contractors were taking a special section of Psychology 397 for 3 credits as a performance-management course in which they obtained points for contracting with students, and for other tasks specified by the instructor. They were required to meet with at least 6 students, weekly, helping them complete a performance contract (Appendix B) which specified a task and proofs of accomplishment for each class they were enrolled in. The graduate contractors were required to meet with 3 students, weekly, as the practicum requirement for a system analysis course.

In the first week of the semester of study, all students of Psychology 397 and contractors attended a four session study-skills training workshop consisting of time-management, concentration and memory, note-taking, and test taking. The workshops were carried out in the Department of Psychology at WMU by a presenter from the Academic Skills Center of WMU. In these workshops, students were trained on procedures to manage their time, to concentrate and memorize while studying, to take effective lecture notes using the Cornell method, to read efficiently and effectively using SQ3R—a reading-study
strategy, and how to adequately prepare for and take a test (Pauk, 1974). In the second week of the semester, the students met with the researcher and contractors. In this meeting, the researcher provided the students with the instructions (Appendix C) and three forms: (1) Lecture Note-taking Form (Appendix D), (2) Comprehensive Reading Form (Appendix E), and (3) Test Taking Form (Appendix F) to be used in accomplishing the tasks using the targeted study skills as specified in these form.

Procedures

Dependent Variable

This research measured the students' use of study skills in accomplishing three tasks: (1) taking lecture notes, (2) comprehensive reading, and (3) test taking. The students were asked to use three different forms that specified the target academic techniques. The lecture note-taking form was designed according to the Cornell method format that required students to write their notes in the larger column, read the notes after the lecture, and write the main phrases and key words in the recall column. The comprehensive reading form, designed to help students acquire the skills of locating key words while surveying a chapter, turning the key words into questions, answering the questions before reading, and then finding the right answer after reading the material. The test taking form required the student to make a study plan for the tests. In completing this form, the students specified the type and material of the test, generated five
general questions and five detailed questions, and provided complete
answers for them.

Independent Variable

The contractors provided the students with incentives (points) contingent on their use of the study skills as specified in the three forms, in accomplishing the tasks as specified in the weekly contract. Each student could obtain 40 points for the completion of the three study-skills tasks as distributed in the points system sheet (Appendix G).

The contractors were told to provide the students, throughout the semester, with performance feedback on the process of contracting, the contracting meetings, and the use of study skills in accomplishing the weekly specified tasks.

The study started in the third week of the semester and lasted for 11 weeks. In the first week of the study, each student met weekly with his or her contractor and completed a performance contract. The contract specified a weekly plan for task accomplishment for all classes. The students, in writing the contract, listed each of their classes, specified a task for each class, the proofs of accomplishment, and dates of completing the tasks. The weekly meeting was the deadline for accomplishing the tasks as specified in the previous week's contract. The contractor provided the students with a maximum of 40 points for the first part of the contract if the proofs were completed, 40 points for the second part, and 20 points for attending the weekly meeting with the contractor. All subjects got 10 bonus
points for participating in the study. The second part of the contract specified the three study skill tasks to be accomplished using the forms provided. The students obtained points contingent on the skills that were used in completing each task. The students obtained a maximum of 13 points for the lecture note-taking task, 14 points for the comprehensive-reading task, and 13 points for the test-taking task.

**Experimental Design**

The researcher used a reversal design consisting of an intervention phase in which the contractors provided the students with points contingent on the use of study skills, a baseline phase in which the contractors observed and recorded the students' use of study skills without giving points, and a second intervention phase in which the contractors gave points.

The points system contingency phase lasted six weeks. In this phase the standard procedure of incentives (points) for the use of study skills was implemented. The study skills to be used were specified in the forms given to the students. The subjects were required to complete a form for the three tasks of lecture note-taking, comprehensive reading, and test taking as specified in the weekly contract. A point system sheet was also provided weekly to the subjects. In this sheet, students were given points contingent upon their use of study skills, and these points were added to the contract to make a total of 100 points. The subjects also received corrective feedback on their performance.
In the second phase of the study, the subjects and contractors were provided with instructions (Appendix H) to explain the new procedure. In this phase the contingencies for using the study skills were removed. The students continued to contract for accomplishing the tasks, but no points were provided for the use of study skills. The total of the contract became 60 points, after the study skills points were withdrawn. The students continued to use the forms for accomplishing the tasks, if they wanted to. The contractors continued to use the points system sheet to record the target skills available in the students' proofs of accomplishments providing the students with corrective performance feedback. This phase lasted for four weeks; data were still collected on the frequency of the use of study skills for accomplishing the tasks.

In the third phase of study, which lasted for two weeks, the incentive conditions of the points contingency were reinstated. In this phase, the contractors continued to provide the students with points contingent upon the use of study skills. The students continued to contract weekly with the contractors and receive the corrective feedback. They continued to use the worksheet forms in accomplishing the specified tasks. Data were collected on the frequency of the use of study skills.

In all the three phases, the researcher used three-record forms to record the students' use of study skills: (1) lecture note-taking record form (Appendix I), (2) comprehensive-reading record form (Appendix J), and (3) test-taking record form (Appendix K).
The percentages of the students' use of study skills and the averages for all subjects were compared in the three phases of the study.

The researcher and coordinator randomly attended the contracting meetings to observe the process of data collection and provided the contractors with corrective feedback.
CHAPTER III

RESULTS

The main interest of this study is the effect of incentives (points) on the students' use of study skills. Table 1 presents the students' use of study skills in the three phases of intervention, baseline, and reversal.

When points were provided for the first six weeks, all students obtained high percentages of the weekly use of study skills in accomplishing the three tasks: 97% for lecture-note taking, 93% for comprehensive reading, and 97.3% for test taking, these percentages were based on using the forms that specified the target skills. But, when points were withdrawn for three weeks, the percentage of the use of study skills decreased to: 46.4% for lecture note-taking, 38.4% for comprehensive reading, and 29.4 for test-taking. However, when conditions were reversed for 2 weeks and points were again provided, the percentage of the students' use of study skills increased for all students: 99.5% for lecture note-taking, 99.8% for comprehensive reading, and 97.4% for test-taking. (see Table 2).

The students' performance in the use of study skills is shown in Figure 1 which presents the high performance, when incentive points were provided, and the low performance when points were withdrawn.
Table 1
The Average Weekly Percentage of the Students' Use of Study Skills

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Note-Taking</th>
<th>Comprehensive Reading</th>
<th>Test Taking</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>92</td>
<td>87.5</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Week 2</td>
<td>98</td>
<td>81.7</td>
<td>95</td>
<td>20</td>
</tr>
<tr>
<td>Week 3</td>
<td>96.3</td>
<td>94.7</td>
<td>92</td>
<td>30</td>
</tr>
<tr>
<td>Week 4</td>
<td>98.8</td>
<td>99.3</td>
<td>100</td>
<td>30</td>
</tr>
<tr>
<td>Week 5</td>
<td>98</td>
<td>100</td>
<td>98</td>
<td>30</td>
</tr>
<tr>
<td>Week 6</td>
<td>99.4</td>
<td>95.4</td>
<td>98.8</td>
<td>24</td>
</tr>
<tr>
<td>Week 7</td>
<td>48.4</td>
<td>35.8</td>
<td>20.8</td>
<td>25</td>
</tr>
<tr>
<td>Week 8</td>
<td>44</td>
<td>36</td>
<td>29.7</td>
<td>25</td>
</tr>
<tr>
<td>Week 9</td>
<td>47</td>
<td>43.6</td>
<td>37.9</td>
<td>28</td>
</tr>
<tr>
<td>Week 11</td>
<td>99.1</td>
<td>100</td>
<td>95.2</td>
<td>26</td>
</tr>
<tr>
<td>Week 12</td>
<td>100</td>
<td>99.6</td>
<td>99.8</td>
<td>27</td>
</tr>
</tbody>
</table>

Table 2
The Means of the Students' Use of Study Skills

<table>
<thead>
<tr>
<th></th>
<th>Lecture Note-Taking</th>
<th>Comprehensive Reading</th>
<th>Test Taking</th>
</tr>
</thead>
<tbody>
<tr>
<td>B phase</td>
<td>97</td>
<td>93.1</td>
<td>97.3</td>
</tr>
<tr>
<td>A phase</td>
<td>46.4</td>
<td>38.4</td>
<td>29.4</td>
</tr>
<tr>
<td>B phase</td>
<td>99.5</td>
<td>99.8</td>
<td>97.4</td>
</tr>
</tbody>
</table>
Figure 1. The Mean Percentages of the Students' Use of Study Skills
Due to some administrative problems (lack of contractors, missing contracting meetings), the data were collected on five subjects only, in the first week of implementation. However, conditions were stable for the rest of the weeks of study.

Two students dropped Psychology 397 in week 9, so there were no data available on their performance as they stopped attending the center and meeting with contractors.

As a result of the recess in March, six students missed week 6 meetings with their contractors and there were no data collected on their performance, for this week.

The reliability checks on the implementation of the independent variable yielded a percentage of 97. The point sheets were used to record the use of the study skills in accomplishing each of the tasks as assigned in the weekly contract. The proofs of accomplishments (study skills forms) were checked by contractors. Points were computed and provided depending on the available skills. An independent observer was used to check the students' forms and record the available skills used in these forms. Inter observer agreement was calculated using point-by-point agreement.

A monitor actively participated in this study by randomly attending the student-contractor weekly meeting to ensure the accurate implementations of the procedure, observing the performance of contractors in making a new contract for the following week, providing the appropriate grade for the weekly contract, and giving the students the necessary forms.
Social Validation

A social validation form was administered to the students within the last two weeks of study. They completed this instrument form based upon their reactions to the study skills workshops, weekly contracts, weekly meetings with their contractors, the forms, and the incentives provided for using the forms. The analysis of the students' responses (see Table 3) shows that the students liked the weekly meetings with their contractors most, and the contribution of the contractors to the students' task specifications and accomplishment. It seemed that the forms were the least popular, and as some of the students commented, it was too effortful to complete three forms weekly using the study skills specified in each form as the completion of forms needed more understanding as to the nature of the tasks (e.g., lecture, note-taking required the student to write three questions and identify six key words, with a required minimum of two pages for every lecture).

Table 3
Social Validation

<table>
<thead>
<tr>
<th></th>
<th>1*</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>-The study skills training sessions.</td>
<td>5%</td>
<td>60%</td>
<td>35%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*1 = Excellent, 2 = Very Good, 3 = Good, and 4 = Bad
Table 3—continued

<table>
<thead>
<tr>
<th></th>
<th>1*</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>-The contribution of your contractor-</td>
<td>65%</td>
<td>30%</td>
<td>5%</td>
<td>0%</td>
</tr>
<tr>
<td>or to your task specification and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>accomplishment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-The forms provided by the researcher-</td>
<td>3%</td>
<td>50%</td>
<td>30%</td>
<td>15%</td>
</tr>
<tr>
<td>to be used for accomplishing tasks using</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the specified study skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-The lecture note-taking form.</td>
<td>5%</td>
<td>60%</td>
<td>25%</td>
<td>10%</td>
</tr>
<tr>
<td>-The comprehensive reading form.</td>
<td>20%</td>
<td>25%</td>
<td>40%</td>
<td>15%</td>
</tr>
<tr>
<td>-The test taking form.</td>
<td>5%</td>
<td>40%</td>
<td>45%</td>
<td>10%</td>
</tr>
<tr>
<td>-The points provided as incentives</td>
<td>35%</td>
<td>45%</td>
<td>5%</td>
<td>15%</td>
</tr>
<tr>
<td>for using the study skills.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-The feedback given every week which</td>
<td>35%</td>
<td>50%</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>evaluates your work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-The weekly contract</td>
<td>35%</td>
<td>65%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>-The weekly meetings with your</td>
<td>70%</td>
<td>30%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>contractor.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Has your academic performance improved?</td>
<td></td>
<td>85%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>-Will you continue using the forms next</td>
<td>35%</td>
<td>65%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>semester?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Do you think the study skills are</td>
<td></td>
<td>75%</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>effective?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-Are you going to use the study skills</td>
<td></td>
<td>45%</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>even if no points will be provided?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*1 = Excellent, 2 = Very good, 3 = Good, and 4 = Bad
CHAPTER IV

DISCUSSION AND CONCLUSIONS

The present study supported the contention that students make little use of the study skills obtained in workshops even after they had a great deal of experience using them, and even in a context where they were asked about their use of them on a weekly basis. Although there was time set aside for the students to use the skills, they did not. Therefore, one would expect the use of study skills to be even lower under the more normal condition. However, the incentives provided a maintenance system for the use of targeted study skills.

The powerful effect of the incentive system can be illustrated in the differences of the average usage with the incentive conditions, i.e., 95.8% in the first phase and 98.9% when conditions were reinstated as contrasted with the average usage of 38% when incentives were withdrawn. It is also illustrated in comparing the average performance of 38% with the lowest performance for the individuals for a single week—73% for lecture note taking, 80% for comprehensive reading, and 76% for test taking—in the two phases of implementing the incentive contingency. In other words the lowest score obtained in these weeks was considerably superior to the average score when there was no incentives. Students used the study skills when the performance contract specified that the study skills needed to be used to obtain the incentive points. The students were avoiding the loss of points by accomplishing these tasks and following the forms'
format, even when using their own notebooks, as the forms provided
the students with lists of the targeted study skills involved in the
contingency. Yet, most of the students did not use the study skills
when there were no points provided, even though they attended the
study skills workshops in the beginning of the semester.

One interesting result is that the withdrawal of the incentive
contingency did not affect the performance of four students. They
continued to use 100% of the study skills and the three forms for ac­
complishing the three tasks. Those students attended all the con­
tracting meetings and had the same contractor. The performance of
this contractor in implementing the study skills procedures seemed
especially effective as noticed during the researcher's reliability
observations. The lowest score of the use of study skills for the
other students who did the task, or part of it, was 13% for lecture
note-taking, 9% for comprehensive reading, and 13% for test taking.
However, six students obtained 0% as they did not use any study skills,
regardless of whether there were no points lost or obtained for using
the study skills.

The individual data during the no-points phase also showed that
the students who used the forms used more study skills than those who
used their own notebooks. It may be that the forms clearly
specified the targeted skills the students had to use when accom­
plishing the tasks.

For further research, it is suggested that if the researchers
conduct the same procedures, they should consider the following:
1. Use well trained contractors on the performance contracting as this will avoid any administration problems that might occur.

2. Introduce the forms during study skills workshops to ensure that students understand how to use the forms.

3. Have more control over the contractors' work as this is beneficial when introducing a new phase.

4. Reassign missed meetings to ensure the availability of data for all subjects during all weeks of study.

5. Have the students use the three forms for all weekly tasks (e.g., use lecture note-taking form for all lectures every week) and not for one lecture weekly.

6. Make some changes in the forms depending on the nature of the class material.

This study demonstrated that for the particular study skills workshops involving this student population, the performance contracting with special incentive is needed to maintain the use of study skills on a reliable basis across students. However, it does not address the effects of the study skills on academic performance. It has yet to be demonstrated that this particular set of study skills will have a statistically significant impact on the students' GPAs although the studies by Heiman (1984) Ladouceur and Armstrong (1983); and Richards and Caple (1977) indicated that similar procedures can have statistically significant effects.

The results indicate that study skills programs and workshops are effective, and suggest the need of combining the study skills with other systems (e.g., performance-management and incentives) to
maintain the use of study skills. As Heiman (1984) stated, once the
students stopped using the skills, the skills no longer benefitted
them. The students not only need to be taught the effective study
skills but also need to continue to use them.
REFERENCES


Appendix A

Informed Consent Sheet
FROM: AFNAN ALMASRI

TO: Psych 397 STUDENTS

SUBJECT: INFORMED CONSENT SHEET

I am doing my thesis on the effects of points and written feedback on the use of academic skills. I chose this topic because a high percentage of students fail to complete their education because of the lack of study skills. My research will be an evaluation of the use of the academic skills that you have already learned. At some point in the semester, we may temporarily remove the point requirements for using these academic skills.

I would like your permission to use your scores in Psych 397 and your other course grades (along with similar data from the other students in Psych 397) for my master's thesis.

I assure absolute confidentiality and privacy of your data. Your name will be used only for my purposes of identification and will not be mentioned in the final write-up. You may withdraw your permission at any time, and your class grade in Psych 397 will not be affected.

Please, sign the space indicated below if you agree to participate in this study and understand the above terms.

_________________________________  ___________________  ______
Print Name                      Signature                      Date
Appendix B

Performance Contract
**CENTER FOR THE SELF-MANAGEMENT OF ACADEMIC PERFORMANCE**

**Student Contract**

Total for Contract (must = 100) __________

Student Name ___________________ Contractor ________________

Date _______________________

Specify a task for Each Class in which you are enrolled:

<table>
<thead>
<tr>
<th>Dept &amp; #</th>
<th>Task</th>
<th>Proof of Accomplishment</th>
<th>Date</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total (must = 40) __________

Attendance: Yes ___ No ___ pots___ Bonus: Yes ___ No ___ Pots___

All Classes | Lecture Note |
-------------|--------------|
All Texts    | Complete Comprehensive Reading Form |
All Tests    | Complete Test Taking Form |

Total (must = 40) __________
Appendix C

Instructions for the First Phase
FROM: The researcher
TO: All subjects
RE: Instructions for the students who are participating in the study skills research

By now, you have completed a four session study skills training workshop consisted of time-management, concentration, note-taking, and test taking.

Every student will receive points for using the study skills in accomplishing the tasks specified in the weekly contract. The student will also receive weekly feedback regarding his use of study skills, and the quality of his work.

To obtain this, every student should do the following:
1. Meet with the contractor every week.
2. Specify a task for each class he/she is enrolled in.
3. Specify the proofs of accomplishments for every task.
4. The next week's meeting with the contractor will be the deadline for bringing the proofs.
5. The student should use the attached forms for accomplishing the following tasks:
   -Taking lecture-notes.
   -Making a plan for studying for a test.
   -Reading a chapter from a textbook or any other reading material.
6. The contractor will provide every students with the forms needed for every contract.
Appendix C—continued

7. The points, which every student will be receiving, will go to his/her grade in Psychology 397.

8. Every student will receive 10 bonus points for participating in the study.

9. Every student will receive a chart which specify the points system and the skills to be used.

10. Earning the points is contingent on the skills each student is using.

GOOD LUCK
Appendix D

Lecture Note-Taking Form
6 Key Words

Page #: __________________
Date: __________________
Course name: __________________
Subject: __________________

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Appendix D—continued

3 Questions

1.

2.

3.
Appendix E

Comprehensive Reading Form
STUDENT WORKSHEET FORM: COMPREHENSIVE READING

1. Textbook ..............................................Chapter ........................

11. General question ............................................................... ........................

111. Survey to find key words or subtitles of chapter and then turn them into questions.

<table>
<thead>
<tr>
<th>Key Words</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...........</td>
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</tr>
<tr>
<td>.............</td>
<td>.............</td>
</tr>
<tr>
<td>2...........</td>
<td>2...........</td>
</tr>
<tr>
<td>.............</td>
<td>.............</td>
</tr>
<tr>
<td>3...........</td>
<td>3...........</td>
</tr>
<tr>
<td>.............</td>
<td>.............</td>
</tr>
<tr>
<td>4...........</td>
<td>4...........</td>
</tr>
<tr>
<td>.............</td>
<td>.............</td>
</tr>
</tbody>
</table>

IV. Answer the questions without reading the chapter

1........................................................................................................

2........................................................................................................

3........................................................................................................

4........................................................................................................
Appendix E—continued

V. Read the chapter and check your answers. If they are not correct, write the correct answers.

1. ...................................................................................................................

...................................................................................................................

2. ...................................................................................................................

...................................................................................................................

3. ...................................................................................................................

...................................................................................................................

4. ...................................................................................................................

...................................................................................................................

VI. Search for abbreviations and/or examples

1. ...................................................................................................................

...................................................................................................................

...................................................................................................................

2. ...................................................................................................................

...................................................................................................................

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Appendix F

Test Taking Form
STUDENT WORKSHEET FORM: TEST TAKING

I. Course name .................. Date of the test .................

II. A study plan

1. Specify the type of the test.................................

2. Specify the material. FROM .................. TO..............

3. Specify main concepts. < minimum 6 flash cards attached >

III. General questions

1. ..............................................................................................

2. ..............................................................................................

3. ..............................................................................................

4. ..............................................................................................

5. ..............................................................................................

IV. Answers for the general questions

1. ..............................................................................................

2. ..............................................................................................

3. ..............................................................................................
Appendix F—continued

VI. Detailed questions

1. ........................................................................

2. ........................................................................

3. ........................................................................

4. ........................................................................

5. ........................................................................

VII. Answers for detailed questions

1. ........................................................................

2. ........................................................................

3. ........................................................................

4. ........................................................................
Appendix F—continued

5...........................................................................

............................................................................
Appendix G

Points System
### Table 4

#### Points' System

<table>
<thead>
<tr>
<th>TASK</th>
<th>SKILLS</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture note-taking</td>
<td>- Page number</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>- Course name</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>- Date</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>- Subject matter</td>
<td>.5</td>
</tr>
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<td></td>
<td>- 6 key words and/or phrases</td>
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<td></td>
<td>- 3 questions</td>
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</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
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</tr>
<tr>
<td>Comprehensive reading</td>
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<td>.25</td>
</tr>
<tr>
<td></td>
<td>- Chapter number</td>
<td>.25</td>
</tr>
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<td>- General questions</td>
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</tr>
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<td></td>
<td>- 4 key words/headings</td>
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</tr>
<tr>
<td></td>
<td>- Turning key words into questions</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>- Answers without reading</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>- Answers after reading</td>
<td>4.0</td>
</tr>
<tr>
<td></td>
<td>- Abbreviations and/or examples</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td>14.0</td>
</tr>
<tr>
<td>Test taking</td>
<td>- Course name</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>- The date of the test</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>- Type of test</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>- The material covered</td>
<td>.5</td>
</tr>
<tr>
<td></td>
<td>- General questions</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>- Detailed questions</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>- Objectives and/or Concepts</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>- Answers for general questions</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td>- Answers for detailed questions</td>
<td>2.5</td>
</tr>
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<td></td>
<td><strong>Total</strong></td>
<td>13.0</td>
</tr>
</tbody>
</table>

**TOTAL: 40 POINTS**
Appendix H

Instructions for the Second Phase
Instructions for the Second Phase of the Study

1. The contractors will continue meeting with the students, assigning a task for each class.

2. No points will be given for the students' use of study skills in accomplishing the specified tasks. This means that the total for the contract will be 60 instead of 100. This means that you can still obtain a 100% if you obtained 60 out of 60 points.

3. The forms will not be withdrawn. Students can continue using them, but no penalty for not using them.

4. The contractors will continue assigning a lecture note-taking task, a reading task, and a test taking task.

5. The contractors will continue using the points system sheet (for the purposes of data collection only and not to be added to or subtracted from the total of the contract). Just circle the missing skills.

6. If the student didn't use the forms, the contractors should look at the students' proofs for accomplishments, recording the study skills, if found.

7. If the student did not do a task, (e.g., test taking), the contractor should write (didn't do) in the points sheet.

8. The feedback will not be withdrawn. The contractors will continue providing the students.

9. This is part of the contractor's work.

10. The points will be in effect after 3 weeks.

11. Thank you all for your cooperation.
Appendix I

Lecture Note-Taking Recording Form
Lecture Note-Taking Recording Form

Student Name _______________________

Skills Weeks

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
</table>

Page number

Course name

Date

Subject Matter

Relevant key words and phrases in the recall column

# of pp for each lecture

# of questions

TOTAL  15

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Appendix J

Comprehensive Reading Recording Form

56
### Comprehensive Reading Recording Form

<table>
<thead>
<tr>
<th>SKILLS</th>
<th>WEEKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11</td>
</tr>
</tbody>
</table>

**Textbook title**

**Chapter title**

**General question about the chapter**

**Key words or subheadings**

**Questions about the key words/subheadings**

**Answers without reading the chapter**

**Answers after reading the chapter**

**Abbreviations/examples**

**TOTAL** 21
Appendix K

Test Taking Recording Form
Test Taking Recording Form

Student name ____________________________

<table>
<thead>
<tr>
<th>Skills</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10 11</td>
</tr>
</tbody>
</table>

Course name

The date of the test

Type of test

The material covered

General Questions

Detailed Questions

Objectives and/or Questions

Answers for general Questions

Answers for detailed Questions

TOTAL 30

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