AN ANALYSIS OF THE EFFECTS OF INSTRUCTION
ON COLLEGE STUDENTS' TIME MANAGEMENT

BY

ALAN F. KIRBY

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TABLE OF CONTENTS

ACKNOWLEDGMENTS .................................................. ii
LIST OF TABLES ...................................................... v
ABSTRACT ............................................................... vi

CHAPTER

I. INTRODUCTION ...................................................... 1
   Statement of the Problem ........................................ 1
   Rationale for the Study .......................................... 6
   Purpose of the Study ............................................. 7
   Definition of Terms .............................................. 8
   Organization of the Remainder of the Study .................... 9

II. REVIEW OF THE LITERATURE .................................... 11
   Time Management Skills ........................................ 11
   Students' Use of Time ........................................... 13
      General Descriptive Studies ................................. 13
      Sex and Age Difference in Time Use ......................... 16
   Effects of Time Management on Academic Achievement .......... 17
   General Efficiency of Time Management ......................... 20
   Reading and Study Skills Programs ............................. 21
   Summary of the Literature ..................................... 24

III. METHODOLOGY .................................................... 26
   Research Design ................................................ 27
   The Setting ...................................................... 30
      The Study Skills Course .................................... 30
      Reading and Study Skills Center .......................... 32
   The Instruments ................................................ 32
      McGraw-Hill Basic Skills System Study Skills Test ......... 32
      Time-Use Inventory ......................................... 34
      Self-Survey Index ........................................... 35
   Procedures ....................................................... 36
      Experimental Group Procedures ............................. 36
      Control Group Procedures .................................. 41
   Analysis of the Data ............................................ 43
   Follow-Up Procedures .......................................... 43
   Limitations ....................................................... 44
### CHAPTER

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV. RESULTS</td>
<td>45</td>
</tr>
<tr>
<td>Hypotheses</td>
<td>46</td>
</tr>
<tr>
<td>Additional Data</td>
<td>56</td>
</tr>
<tr>
<td>V. CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS</td>
<td>58</td>
</tr>
<tr>
<td>Summary</td>
<td>58</td>
</tr>
<tr>
<td>Conclusions</td>
<td>61</td>
</tr>
<tr>
<td>Discussion</td>
<td>62</td>
</tr>
<tr>
<td>Implications</td>
<td>65</td>
</tr>
<tr>
<td>Recommendations</td>
<td>65</td>
</tr>
</tbody>
</table>

### APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. COURSE DESCRIPTION AND AVAILABLE TIMES</td>
<td>68</td>
</tr>
<tr>
<td>B. COURSE OBJECTIVES AND REQUIREMENTS</td>
<td>69</td>
</tr>
<tr>
<td>C. COURSE OUTLINE</td>
<td>70</td>
</tr>
<tr>
<td>D. STUDY SKILLS TEST--INVENTORY OF STUDY HABITS AND ATTITUDES</td>
<td>71</td>
</tr>
<tr>
<td>E. STUDY SKILLS TEST--RELIABILITY DATA</td>
<td>75</td>
</tr>
<tr>
<td>F. TIME-USE INVENTORY</td>
<td>78</td>
</tr>
<tr>
<td>G. SELF-SURVEY INDEX</td>
<td>80</td>
</tr>
<tr>
<td>H. TIME MANAGEMENT INSTRUCTIONAL UNIT</td>
<td>81</td>
</tr>
<tr>
<td>I. SAMPLE MASTER PLAN</td>
<td>82</td>
</tr>
<tr>
<td>J. WEEKLY SCHEDULE BASED ON ASSIGNMENTS</td>
<td>83</td>
</tr>
<tr>
<td>K. DAILY SCHEDULE</td>
<td>84</td>
</tr>
<tr>
<td>L. INFORMED CONSENT FORM</td>
<td>85</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>86</td>
</tr>
<tr>
<td>BIOGRAPHICAL SKETCH</td>
<td>91</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Results of analysis of variance for groups on amount of study time per week as measured by the Time-Use Inventory</td>
<td>46</td>
</tr>
<tr>
<td>2. Results of analysis of variance for groups on amount of social activity per week as measured by the Time-Use Inventory</td>
<td>47</td>
</tr>
<tr>
<td>3. Results of analysis of variance for groups on amount of leisure activity per week as measured by the Time-Use Inventory</td>
<td>48</td>
</tr>
<tr>
<td>4. Results of analysis of variance for groups on amount of miscellaneous activity per week as measured by the Time-Use Inventory</td>
<td>48</td>
</tr>
<tr>
<td>5. Results of analysis of variance for groups on the &quot;Organization of Effort&quot; subscale of the Survey of Study Habits and Attitudes</td>
<td>49</td>
</tr>
<tr>
<td>6. Results of analysis of variance for groups on separate items of the &quot;Organization of Effort&quot; subscale</td>
<td>50</td>
</tr>
<tr>
<td>7. Results of analysis of variance for groups on Item 2 and 8 of the Self-Survey Index</td>
<td>51</td>
</tr>
<tr>
<td>8. Results of the Student-Newman-Keuls procedure for analysis of group differences on Item 8 of the Self-Survey Index</td>
<td>52</td>
</tr>
<tr>
<td>9. Results of analysis of variance for sex differences on the Time-Use Inventory</td>
<td>52</td>
</tr>
<tr>
<td>10. Results of analysis of variance for sex differences on the Survey of Study Habits and Attitudes</td>
<td>53</td>
</tr>
<tr>
<td>11. Results of analysis of variance for sex differences on the Self-Survey Index</td>
<td>54</td>
</tr>
<tr>
<td>Table</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>12. Results of analysis of variance for grade level differences on the Time-Use Inventory</td>
<td>55</td>
</tr>
<tr>
<td>13. Results of analysis of variance for grade level differences on the Survey of Study Habits and Attitudes</td>
<td>55</td>
</tr>
<tr>
<td>14. Results of analysis of variance for grade level differences on the Self-Survey Index</td>
<td>56</td>
</tr>
<tr>
<td>15. Results of analysis of variance for sex and grade level interaction differences on the Survey of Study Habits and Attitudes</td>
<td>57</td>
</tr>
</tbody>
</table>
Abstract of Dissertation Presented to the Graduate Council of the University of Florida in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

AN ANALYSIS OF THE EFFECTS OF INSTRUCTION ON COLLEGE STUDENTS' TIME MANAGEMENT

By

Alan F. Kirby

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Chairman: Dr. Harold Riker
Major Department: Counselor Education

The purpose of this study was to investigate the effects of a specific type of instruction designed to alter time management behavior of students enrolled in a University of Florida study skills course. Areas of investigation included amounts of time spent on study, social activity, leisure activities, and miscellaneous activities. Other areas included an assessment of study habits and attitudes, as well as reactions to attempts at time management. Sex and grade level differences on the time management criterion were also investigated.

A total of 95 students participated in the study. Of that number, 34 were enrolled in two sections of EDC 301, "Student Development in a University Setting: Applied Techniques in Study Skills," designated as the Experimental Group. Control Group I consisted of 31 students who enrolled in an additional two sections of the course; Control Group II included 30 students who were on the waiting list at the University of Florida Reading and Study Skills Center. Students in the Experimental Group were exposed to instruction in time management techniques.
Instruction for the two control groups was delayed until after the evaluation process ended.

Three instruments were used in the research: 1) the Time-Use Inventory which measured amounts of time for one seven day week devoted to individual categories such as study, social, leisure, and miscellaneous activity; 2) the Survey of Study Habits and Attitudes (part of a larger inventory, The Study Skills Test) which measured study habits and attitudes including those related to time management; 3) the Self-Survey Index which measured satisfaction and perceived improvement with various study skills including those related to time management. Subjects in the study completed all three of the inventories at approximately the same time in the quarter.

An analysis of variance was computed to determine if significant differences existed among groups on the above listed variables under investigation. A Student-Newman-Keuls procedure was then employed to determine specifically where any differences occurred.

Results

Instruction in time management affected the perception which students had of their abilities to effectively manage their time. Students receiving time management instruction in the study skills class felt that their time management skills had improved during the quarter. This perceived improvement differed significantly from the self-perception of those students who had not received time management instruction.

The results also indicated that differences in study habits and attitudes which were apparently unrelated to the class instruction in
time management existed between males and females. Females consistently reported more positive self-perceptions regarding their abilities with academic skills.

A third finding centered on the lack of behavioral change in students who received time management instruction. No change was recorded in the amounts of study, social, leisure, or miscellaneous activity experienced by students as a result of receiving instruction in time management. This finding raises a question regarding the effectiveness of the type of instruction given to students in the Experimental Group as well as questions about the data-collection instruments utilized and the length of time needed for noticeable changes in behavior to occur.
CHAPTER I
INTRODUCTION

Statement of the Problem

Perhaps the most valuable result of all education is the ability to make yourself do the thing you have to do, when it ought to be done, whether you like it or not . . . . However early a man's training begins, it is probably the last lesson that he learns thoroughly. (Thomas Huxley as cited by Resnick & Heller, 1963, p. 63)

Each year in universities and colleges across the country, large numbers of students fail to meet academic requirements and leave school. Many of the students who drop out of college are the intellectual equals of those who succeed (Morgan & Deese, 1969). Consequently, factors other than academic ability must contribute to the failure of those unable to meet minimum academic levels. Many educators believe that inadequate study skills are a major contributing factor. In fact, numerous "how to study" books have been written based on the premise that certain skills can be learned which for some students could mean the difference between academic success or failure (Froe & Lee, 1965; Kalish, 1959; Morgan & Deese, 1969; Norman, 1971; Pauk, 1974; Raygor & Wark, 1970; Robinson, 1961; Tussing, 1962; Weigand & Blake, 1955).

More specifically, there are certain educators specializing in study skills who believe that the management of one's time is an important key to the ultimate academic success of some students. "Efficient planning and the ability to carry out one's plan is, in fact,
the most important single factor in successful work of every sort" (Book, 1927b, p. 532). Book (1927a) further indicates that,

The most important educational problem does not consist in determining more facts about differences in native endowment or devising more practical and reliable methods for their measurement, but in finding a way of helping each student learn to make the best possible use of the talents and the energy and the time which he possesses. (p. 22)

Headley (1927) proposed that "the heaviest responsibility carried by any person is that of investing the twenty-four hours a day which are allotted to him" (p. 377).

Many college counselors discuss the management of time with their clients. Nearly every study skills book includes a segment on time management and most study skills courses deal with the topic in class. The implication is that many specialists in the field of study skills believe that college success is due not only to capacity and aptitude, but also to the way in which students use each period of the twenty-four hours. Consequently, an effort should be made to help students realize that efficient use of their time and energy might produce more satisfying results (Johnson, 1938).

What are some problems encountered in providing this sort of guidance and instruction? Often students rationalize to themselves that the week contains enough time to study everything without adopting some sort of study plan. Such students usually fail to realize the amount of time wasted when studying is done "according to mood" (Olsen, 1958). Many students complain of "not having enough time" to complete all their schoolwork while maintaining a healthy combination of rest, exercise, work, relaxation, and socializing. Yet, a study by Dole (1959) showed that in a typical week, university students spent 49.3
hours in sleep, 19.8 hours in study, 18.7 hours in class and labs, and 10.7 hours in meals. That totals 98.5 hours, leaving 69.5 hours of the week unaccounted for—almost 10 hours a day. Pauk (1974) suggests that students can gain more from their time in two ways: first, by being more efficient in completing tasks, and second, by programming their time and using small blocks of it that are usually wasted.

Many college students feel that any form of scheduling or planning of time is an infringement on their personal liberty (Resnick & Heller, 1963). Some students are afraid that a schedule will make slaves of them. Pauk (1974) maintains that the opposite is probably true; the student who schedules his time in some manner wastes less time and thus has more free time for personal activities. Scheduling can free the student from "uncertainty, mental conflict, guilt, and fear of the future" (Resnick & Heller, 1963, p. 63). But for some, a schedule is made to be restrictive instead of beneficial; it begins to control the student instead of the opposite. With proper scheduling, these problems might be avoided.

One other aspect of the time management problem is more complex and philosophic. College students often feel that "their own time" has not yet begun, and probably will not until they find security in a job (Kastenbaum, 1966). Although most students have a set number of class hours and other regular time commitments, they are rarely free of the feeling that an obligation is hanging over their heads. Their time is primarily devoted to the pursuit of knowledge, credits, and degrees. Thus, when they "steal" time for themselves, it is likely to arouse feelings of guilt and concern. If a student's time is properly planned,
there usually can be ample time left over which can be considered his 'own time' to be used as he wishes without feeling as if it were stolen (Kalish, 1959).

In attempting to solve time management problems, counselors and instructors generally can list several values implicit in the process of programming time. Pauk (1974) informally describes such values:

1. Effective time management techniques help "get you started."
2. Scheduling "prevents avoidance of disliked subjects."
3. Time management "monitors the slackening off process."
4. Scheduling "eliminates the wrong type of cramming."
5. Programming helps "make studying enjoyable."
6. Effective management "promotes cumulative review."
7. Programming and goal setting can "free the mind."
8. Time management "controls the study break."
9. Scheduling "precludes overlooking recreation."
10. Effective management helps "raise your recreational efficiency."

Such statements as these represent both values and problems of time management. For every positive aspect to be relayed to the student, there occurs the problem of how to transmit that information effectively. Over the years, surveys show that successful students use some sort of time schedule (Pauk, 1974). But what approach to scheduling works best and how do counselors and study skills instructors effectively "teach" time management techniques?
Many educators have maintained that students should spend two hours in homework for every hour in class. This 2:1 ratio is probably the most common myth existent in the study skills business (Raygor & Wark, 1970; Yarington, 1967). More recent study skills manuals call for the scheduling of time in a flexible manner, based on the demands of each individual course. Circumstances as well as personality influence the type of schedule a student will select (Pauk, 1974). It is essential that each individual student adopt a schedule to fit his needs rather than to adopt a rigid schedule which fits hardly anyone.

Some study skills experts approach time management with a set of specific "do's and don't's": (a) Specify particular courses to study rather than marking "study" on a schedule; (b) allow 50 to 90 minutes at a time for each course; (c) figure approximately 5 to 10 minutes break for each hour of study; (d) make use of free hours; (e) try to schedule study time for the class that just ended or is about to begin; (f) allow 3 to 5 minutes before and after each class to review lecture and read notes; (g) allow a break of about 20 minutes between final study and retiring for the night; (h) leave one to two hours late Sunday afternoon or early evening to review all work during the week; (i) make use of wasted minutes; and (j) try to leave one entire evening free for social activities (Kalish, 1959).

Other educators describe the use of master schedules (a schedule of fixed activities), detailed weekly schedules, and daily schedules (Pauk, 1974). Still others (Raygor & Wark, 1970) stress the importance of knowing one's work rate and deciding how much time to schedule in order to complete assignments. The difference here is an emphasis on
amount accomplished rather than allotting certain set amounts of time to get work done.

Rationale for the Study

Many instructional methods such as those listed here on previous pages have been offered in the past. All probably have some merit. Yet, which methods of instruction, if any, actually produce any change in study behavior? A review of the literature in this area indicates that very few researchers have attempted to assess specific teaching techniques to determine if behavior changes as a result of the instruction. Yet, there are many descriptive studies as well as prescriptive segments of study skills books.

Students' admitted need for management skills has been documented by Olsen (1958) in a study with 292 junior college freshmen. When asked what their most troublesome study problems were, the second item most frequently mentioned was "the inability to plan and regularly follow a definite study schedule" (p. 330). Also, in a study by Strang (1957) in which 536 students wrote compositions about, "What makes studying easy or difficult for me," results showed that many students registered complaints about a lack of planning which resulted in a pile-up of homework at certain times.

Much has been written on this topic, but the proposed theories of time management are not data-based. Consequently, no authoritative emphasis can be placed on one specific technique of instruction; counselors and study skills instructors should not discuss the topic with confidence until they are supplied with data-based facts about the
effectiveness of time management instruction. It is time now to develop experimentally based information for those professionals attempting to assist students with this vital study skill.

The implications of such information could not only have an effect upon students, but also upon departments of education where the training of counselors and other helping professionals is of prime concern. Specific knowledge about a variety of study skills might become a useful, if not a necessary, component of a training program. Both the experimental nature of this research and its possible implications make the present study unique in the area of time management.

**Purpose of the Study**

The purpose of this study was to assess the effects of a specific teaching technique designed to alter the time management behavior of students attending a University of Florida study skills course. The following research questions were investigated:

1. What effect will time management instruction have upon students' average amounts of time spent per week on study, social activity, leisure activities, and miscellaneous activities?

2. What effect will time management instruction have on study habits or attitudes in relation to time management?

3. What effect will time management instruction have on students' perceived satisfaction and improvement with general time management skills?

4. What effect will time management instruction have on the variables of sex and grade level in relation to the criteria stated above?
Definition of Terms

Time Management

Effective time management is the organization and control of one's time which permits allocation of daily activities such as study, sleep, recreation, exercise, organization commitments, and leisure time in amounts adequate and efficient for the individual involved.

Study Skills Course

A study skills course offers instruction in a variety of areas related to the academic setting. Examples of course topics include reading rate and comprehension, vocabulary development, note-taking, marking a text, time management, concentration techniques, and test anxiety. The course is intended for both successful students desiring to sharpen already adequate skills as well as those with identifiable problems.

Master Schedule

A master schedule is the first step in programming student activities. It contains all activities which are fixed items for the entire semester/quarter. Examples would include classes, laboratories, meals, regular meetings, and church (Pauk, 1974).

Assignment-Oriented Weekly Schedule

An assignment-oriented weekly schedule is based primarily on specific assignments, rather than on time available. It is a supplement to the master schedule and covers only one specific week (Pauk, 1974).
Daily Schedule

A daily schedule is kept on an index card to record a planned list of activities for the day. Individual items might include classes, errands, study topics, appointments, and recreation. These items are then ranked in a priority system.

Study Activity

Study activity is defined as academic work outside of classroom and laboratory requirements.

Social Activity

Social activity is defined as any period of time primarily devoted to being with others for no particular reason or task (as in organizational meetings) other than companionship.

Leisure Activity

Leisure activity is defined as any period of time primarily devoted to activities such as television viewing, stereo listening, or exercise. Although others may be present, the primary emphasis is on the activity rather than the people.

Miscellaneous Activity

Miscellaneous activity is defined as any period of time which is unaccounted for each day.

Organization of the Remainder of the Study

Chapter I introduced the reader to the research topic. Chapter II reviews relevant literature in the area of time management. Chapter III
provides a description of the methodology for this study. Chapter IV analyzes the results of the research. Chapter V provides an overview of the study and suggests implications of the results.
CHAPTER II
REVIEW OF THE LITERATURE

Since the literature in the area of time management is relatively scarce, it has been possible to include articles written as early as the mid-1920's and thus provide a comprehensive coverage of available literature. This review covers five areas. The first is a general section on time management skills which emphasizes the need for specific skills as well as examples of such techniques. The second section covers descriptive studies illustrating students' use of time. The third reviews articles describing the effects of time management on academic achievement. The fourth section deals with reports on the general effectiveness of time management skills. The last section summarizes study skills programs. This section has been included because of the importance of the setting for the current study.

**Time Management Skills**

The need for some sort of time management skills has long been recognized by college students. Olsen (1958) conducted a study with 292 junior college freshmen to determine what were their most troublesome study problems. "The inability to plan and regularly follow a definite study schedule" was mentioned most frequently except for "lack of concentration" (p. 330). Typical statements of students included "I'm always putting things off until the last minute," 'Something else
usually comes up that is more interesting than studying,' 'I do the easiest assignments first and never get around to the hard ones'" (p. 330). Olsen maintains that students should be encouraged to follow a study program after their loss of valuable study time is pointed out. He states that

A further incentive to regular scheduling of study time is provided students when they understand the aspects of a well-organized study program, such as arranging study time each week for a review of past assignments, planning study time as close to the lecture sessions as possible, and providing adequate recreation breaks at suitable times of the day. (p. 330)

Another study designed to record student perceptions of study difficulties was conducted by Strang (1957). Compositions on the topic, "What makes studying easy or difficult for me," were obtained from 536 students. Among the many responses, students frequently registered complaints about a lack of planning which resulted in a pile-up of homework on certain days at certain periods. Many educators specializing in the area of study skills believe that problems of this nature can be avoided when effective techniques of time management are utilized. Book (1927b) stated that "efficient planning and the ability to carry out one's plan is, in fact, the most important single factor in successful work of every sort" (p. 532). Many study skills books, which include segments on time management, have been written because the authors believed that certain academic skills such as note-taking, examination preparation, and efficient use of time, could be learned (Froe & Lee, 1965; Kalish, 1959; Morgan & Deese, 1969; Norman, 1971; Pauk, 1974, Raygor & Wark, 1970; Robinson, 1961; Tussing, 1962; Weigand & Blake, 1955).

Pauk (1974) reported that surveys over the years indicated that successful students use time schedules. Some work best with detailed,
comprehensive plans, while others prefer a brief list of things to do. Whichever is the case, some type of planning is the rule. The student who schedules his time in some manner wastes less time and thus has more free time for personal activities.

Time management skills typically include daily, weekly, and quarterly schedules for planning activities (Pauk, 1974). Some schedules stress knowing one's work rate and establishing a plan to complete assignments according to estimated time needed (Raygor & Wark, 1970). Other suggestions include making use of free daily hours, scheduling breaks for each hour of study, setting specific study goals, and reviewing lecture notes periodically (Kalish, 1959). In fact, Crewe (1969) determined that spaced review periods that are short in comparison to original study time appear to be effective. Thus, according to Johnson (1938), an effort should be made to help students realize that efficient use of their time and energy might produce more satisfying results.

**Students' Use of Time**

**General Descriptive Studies**

The majority of studies which have been conducted in the area of time management have been descriptive. Results have been generally consistent over the past 50 years, although several different methods of data collection have been used. Some studies rely on students' recall of activities which occurred the previous day or even the previous week. Others ask students to respond to a questionnaire about current
activities. Still others employ time-use forms for maintaining an accurate, detailed record of events as they occur.

For a majority of studies, the long-standing ratio of two hours of study for every hour in class is not supported. Goldsmith and Crawford (1928), in studying a group of University of Idaho students, found that approximately one hour was spent in study for every one hour in class. Sturtevant and Strang (1927) found that minutes of study per day only slightly exceeded minutes in class for a group of female students. Marwardt and Sikkink (1970), using over 700 students at the University of Wisconsin, discovered that 90% spent far less than 100 minutes in preparation for each 50 minutes of class. In fact, the median time spent studying for each 50-minute class was 35.8 minutes for one group and 23.5 minutes for another. Yarington (1967), in what is generally recognized as the most comprehensive study of time use to date, obtained similar findings of a 1:1 ratio. He instructed a total sample of 3,397 freshmen over a one-year period at Ohio University to keep detailed charts of time devoted to reading. The mean number of hours spent in reading was about 14 per week.

At least as far back as 1927, educators have been concerned with how students use their time. Book (1927b) found the median number of hours "wasted" or "lost" in a week to be approximately 31. In similar fashion, Dole (1959) discovered that over 37 hours per week were left unaccounted for after students reported all other activities. Total time devoted to academic work was 41 hours, with 20 hours spent in class or laboratory and 21 hours in study. Sleep accounted for 50 hours of the week, with meals taking 11.5 hours, recreation 16.3 hours, and travel 5.9 hours.
The figure of 40 hours devoted to academic pursuits seems to be consistent with several other studies. Comstock (1925), after administering time-use questionnaires to 500 Mt. Holyoke College students, found that an average of 39 hours per week was devoted to a combination of class and study time. Daily averages showed 5\frac{1}{2} hours of academic work, 8 hours of sleep, 1\frac{1}{2} hours at meals, 1 hour 20 minutes in exercise, 40 minutes at chapel, and 6 hours unaccounted for. Hutchinson and Connard (1926) had 500 Vassar College students keep daily records for a semester. Again, the amount of time devoted to academic work was approximately 40 hours per week. The average daily distribution of time for the typical week was as follows: academic work, 5\frac{1}{2} hours; extracurricular activities, 35 minutes; exercise, 40 minutes; and sleep, 7 hours and 55 minutes. One exception to this stable pattern of results was that reported by Moore and Graham (1937), who found that 218 Mt. Holyoke freshmen spent an average of 8-9 hours a day on academic work, which created a total of 56-63 hours per week.

Several studies reported only study time per week without mention of the number of class hours taken. Some slight differences among studies can be noted regarding amount of time spent in study. Robinson (1961), in presenting data from an unpublished study by Bean and Gaw, indicated that the mean number of study hours per day for several hundred women students was 3 hours and 5 minutes, or 21 hours, 35 minutes for the week. Also, Crawford (1929) reported 20.56 as the mean number of hours spent in study each week.

Yet, Bell (1931), in a study at State Teachers College, Chico, California, used a sample of 127 students who collected data for 28
days and found an average weekly study time of only 14 hours. Also, Eurich (1933) reported a weekly average of only 12-13 hours for 300 University of Minnesota students.

It is interesting to note that although the mean number of hours reported for most studies is relatively stable (a few exceptions have been noted), there is a wide range of individual averages and a definite pattern of work cycles within the week. For instance, in the Crawford study (1929), with a sample of 1,306 students, there was a standard deviation of 7.74 hours and a range of study hours for the week which went from 0 to 36. Bell (1931) demonstrated that about 44% of study time is at night. The greatest daily amount of studying occurs on Tuesday and the least amount on Friday. Toward the end of the week, there is a tendency for shorter duration of study periods and fewer students studying. Maddox (1963) reported that college students worked in cycles of enthusiasm lasting for two or three days. At other times they avoided work completely. Also, there are indications that study habits are in part a result of the type of testing schedule to which students are subjected. Mawhinney (1971), in a tightly controlled study of testing schedules and study habits, found that daily testing produced consistent duration of study behavior. Weekly testing and testing every three weeks produced sporadic bursts of study behavior with the amount of study increasing as the test time drew near.

Sex and Age Differences in Time Use

Although there is little reported in the literature about sex and age differences in time use, a few studies are worth noting. Andrews (1930) had 700 students at the North Carolina College for Women keep a record of their use of time for a week. A study of the data
revealed a constant decrease in the number of hours spent in curricular activities by the freshmen, sophomore, junior, and senior classes. The medians for the four classes were: freshmen, 42.7; sophomores, 41; juniors, 39.8; and seniors, 36.1 hours. Also, an increase was found in the number of hours spent in extracurricular activities from the freshman to the senior class. The study of Goldsmith and Crawford (1928) also showed an increase in extracurricular activities for senior men.

Another similar finding (Dole, 1959) showed that sophomores studied significantly more than other groups, while seniors studied less. At the University of Birmingham, Theoday (1956) also discovered that first year students study more than students in other grade levels. The only exception to this pattern was reported by Marwardt and Sikkink (1970), who found that students in the junior or senior year, in graduate school, and those in courses requiring reading other than texts reported greater study times.

One study reporting sex differences in time use indicated that women study more than men. Malleson (1960) reported that by their third year of college, 61% of the women in humanities reported studying in excess of five hours daily. Only 39% of the men could report the same.

**Effects of Time Management on Academic Achievement**

Several studies have been conducted to determine if a correlation exists between amount of study time and academic achievement. The results of such research are mixed, but the majority of the studies show a small positive correlation. Hemmerling and Hurst (1961) administered
a questionnaire to 202 sophomore students at La Habre High School in Fullerton, California, concerning time spent in nine activities: television viewing, studying, working, listening to music, sports, reading, dating, church, and movie viewing. The relationship between grade point averages and time spent on sports, reading, dating, and church was not found to be significant. The relationship between grades and time spent on television, work, movies, and music was found to be negative. The only exception was study time, which was found to be very significant and highly correlated with grade point average. A similar finding was made by Millott (1974) in using Christ's Survey of Reading/Study Efficiency. Millott found that responses of high- and low-grade point average students differed significantly only on one of the study skills categories, that one being time management.

May (1923), surveying 450 Syracuse freshmen, discovered a positive correlation of .32 between hours of study and scholarship. In addition, through multiple correlation, it was determined that the relationship between scholarship and the combined effect of intelligence and hours of study was .82. Bell (1931) also discovered a positive correlation of .32 between study time and scholastic standing. Ryans (1938) supported May's research by reporting a positive correlation of .37 between study and GPA for 40 junior college sophomores. He also found a positive correlation between scholarship and intelligence, but no statistical relationship between intelligence and study time. Although the correlations were low, Menius (1949) also found a positive relationship between academic success and various time expenditures.
Converse (1931) reported results from time studies conducted at the University of Pittsburgh and the University of Illinois. He found that the highest grades were attained by students of superior intelligence, and also by those who put "a little extra time on study." Similar findings were reported by Uhrbrock (1931) in a study of 245 Cornell University freshmen. Data from time records indicated that high scholarship men tended to spend more time in application to classroom and academic work, giving slightly less time to social activities.

Some studies did not find a positive correlation between study time and scholarship. Crawford (1929), in a study conducted with 22 Yale freshmen, found a correlation of 0.00 between the two items. However, in his report, he mentioned that since the study was done in the spring, lowered scholastic motivation could have reduced amounts of study time. Also, Yarington (1967) found only a minimal relationship between the number of pages read during the semester and academic ability and achievement.

Two studies actually found a negative correlation between study time and academic achievement. Jones and Ruch (1928), in a study conducted at the University of Iowa, discovered a negative correlation of .28 between hours of study and grade points. The combined effect of intelligence and study time correlated at +.69 with grade point average. Also, Williamson (1935), in a study of 257 University of Minnesota freshmen, found a negative correlation of .06 between scholarship and hours of study.

Finally, one study attempted to assess the effects of definite study planning on academic achievement. Johnson (1938) conducted an experiment using matched-pair groups of girls at the State Normal School
of Geneseo, New York. Although there seemed to be no effect on academic achievement as a result of planning for the use of the 24 hours of the day, the author stated several possible reasons for the failure to detect differences between the experimental and control groups. These reasons included the method of time management instruction, the interaction effect of experimental and control group members, and the uncontrolled effect of the control group members receiving help elsewhere with study skills.

**General Efficiency of Time Management**

There are more aspects of time management than just increased amounts of time spent in study. Many authors, when addressing the topic of time management, include a discussion about efficiency of time spent in study or the effectiveness of time scheduling. Rather than merely using larger amounts of time, good students are more effective in using whatever amount of time is devoted to study (Raygor & Wark, 1970; Williamson, 1953; Yarington, 1967). When students report hours of study time, their calculations may not be entirely accurate. Troth (1929) reported that even when Illinois men and women students were in the library, only about half their time was directed toward study. An interesting follow-up to the Troth study was conducted by Berrien and Kennedy (1942). They found that the absence of girls increased the efficiency of study time by Colgate men. The authors noted that location and study environment greatly influenced time-use efficiency.

Johnson (1938), in her analysis of the effects of budgeting time on the achievement of freshmen girls, found that 97% of the participants
felt that instruction in time management was helpful in increasing their efficiency. Even though academic achievement was not affected, Johnson noted that the overwhelming positive response to the instruction was a strong indication that time management techniques could be useful. Book (1927b) found that after giving instruction to students on how to schedule their time, the percentage of efficiency in time use for one group rose from 76 to 96%, and for another group it rose from 84 to 98%.

Williamson (1935) addressed the topic of time management by stating that "piling up the number of study hours will not entirely compensate for low academic ability, but a student of low ability will have to study more hours to do passing work" (p. 687). He went on to say that counselors or instructors who attempt to motivate students scholastically need to remember that beyond a total of 20-30 hours of study per week, an increase probably will not improve scholastic standing. A minimum of 18-20 hours and a maximum of 30-35 hours per week should permit students to get the grades that their academic aptitude makes possible. Within those limits, improvement in time-use efficiency is the key to academic improvement.

Reading and Study Skills Programs

Since the setting for the present study involves a reading and study skills course and voluntary program, it seems appropriate that a review of similar programs be included in the review of literature. Typically, study skills taught at the college level include making a study schedule, organizing study materials, notetaking, summarizing, using library skills, using reference skills, solving problems, writing themes and reports, taking examinations, improving reading skills, outlining,
reviewing, improving study conditions, and listening skills (Spache, 1963).

The basis for reading and study skills programs can be seen in statements such as the one by Lin and McKeachie (1970): "Student study habits contribute to academic achievement independently of college aptitude. Students with good study habits achieve significantly higher than comparable students with poor study habits" (p. 308). Most evaluations of reading and study skills programs are positive. Self-report data such as those recorded by Ritter (1971) tend to be very positive. Students at least feel as if they have gained something even if their grades do not reflect the improvement. Improvement on study skills inventories can also generally be witnessed after participation in a reading and study skills program (Van Zoost & Jackson, 1974).

Many evaluations of such programs used improved grade point average (GPA) or a combination of GPA and other factors as the criteria. Entwisle (1960) reviewed the 22 evaluations of study skills courses which could be found in the literature up to 1960. The criterion used to determine effectiveness of courses included a measure of overall scholastic average, scores on reading tests, and scores on study habits inventories. The main conclusion made by Entwisle is that some kind of improvement following a study skills course seems to be the rule. Improvement varies from a slight amount (Eckert & Jones, 1935) to a considerable amount (McDonald, 1957; Smith & Wood, 1955). When only those studies well controlled on intelligence and motivation were evaluated, the range of improvement was just as broad as when all 22 studies were included.
Of the 22 studies, that of Smith and Wood (1955) clearly indicated that motivation plays a key role in demonstrating improvement after taking a reading/study skills course. They included a control group wishing to take the course but unable to schedule it, and a second control group which consisted of a representative sample of the freshman class. The group taking the course obtained a significantly higher GPA than either control group, while the group wanting to enroll in the course did not score significantly higher than the representative sample. Thus, the authors inferred that motivation in itself will not yield significant improvement unless it is accompanied by participation in a course. Entwisle (1960) noted that the amount of improvement seems related to whether the course is voluntary or required. All voluntary college-level courses report impressive gains, and in every case where follow-up results are available, the gains persist.

Fairbanks (1974) reviewed 70 studies which evaluated reading/study skills programs. Of the 79, 60 reported the use of some type of comparison group, made some mention of statistical procedures used, and referred to the level of significance of results. Her review indicated that, of the 60 studies which met minimum standards of adequate research design, 30 reported that the programs had been "successful" in improving overall GPA. Described as having a "successful tendency" were 18 studies, while 12 indicated no measurable GPA improvement for the group participating in the reading/study skills program. Mixed results were again reported by Fairbanks (1975) in a subsequent review of programs. Of 68 studies in which statistical procedures were included and level of significance reported, 33 proved to be "successful," 21 had a
"successful tendency," and 14 showed no GPA advantage as the result of student participation in the academic skills improvement program.

In light of these program evaluations, a general statement can be made about the effectiveness of college reading/study skills programs. The reviews mentioned above, as well as similar ones by Santensanio (1974) and Tillman (1972), indicate that although not all students enrolled in academic skills development programs necessarily record improvement in GPA, the number of students who do experience GPA gains outnumber those who do not.

**Summary of the Literature**

Research was noted which indicated that students are concerned with the ability to manage their time effectively. Other studies reported consistent descriptions of students' time use over the past 50 years. The figure of 40 hours devoted to academic pursuits seems to be an average amount for college students. Sex and age differences in time use were explored in several studies, resulting in a general consensus that females tend to study more than males and that seniors engage in more extracurricular activities than members of other grades.

Research results regarding the effects of time management on academic achievement were mixed. Several studies indicated a slight positive correlation between hours of study and grade point average. Others showed no relationship; a few reported a negative correlation between hours devoted to study and grades. Several studies explored time management efficiency and found that instruction in the use of time generally increased students' efficiency in their academic work. Finally, a discussion of reading and study skills programs indicated that although
not all students enrolled in academic skills development programs necessarily record improvement in grade point average, the number of students who do experience grade point gains outnumber those who do not.
CHAPTER III
METHODOLOGY

The purpose of this study was to assess effects of a specific teaching technique designed to alter time management behavior of students attending a University of Florida study skills course. Areas of investigation included amounts of time spent on study, social activity, leisure activities, and miscellaneous activities. Other areas included an assessment of study habits and attitudes, as well as reactions to attempts at time management. Sex and grade level differences on the time management criterion were also investigated.

Subjects for the study were University of Florida students who either sought the services of the Reading and Study Skills Center or enrolled in a course entitled "Student Development in a University Setting: Applied Techniques in Study Skills." As stated in the following hypotheses, "experimental group" refers to that group of students, enrolled in two sections of the study skills course, who received instruction in time management. The term, "control groups," refers to the two groups not receiving instruction in time management. Control Group I consisted of students from two additional sections of the study skills course; Control Group II was composed of students who wished to enroll in the Reading and Study Skills Center but were unable to do so because of space limitations at the Center. The hypotheses are stated in null form.
Hypothesis 1: There are no significant differences between experimental and control groups on total hours of study time per week after instruction in time management.

Hypothesis 2: There are no significant differences between experimental and control groups on total hours of social activity per week after instruction in time management.

Hypothesis 3: There are no significant differences between experimental and control groups on total hours of leisure activity per week after instruction in time management.

Hypothesis 4: There are no significant differences between experimental and control groups on total hours of miscellaneous activity per week after instruction in time management.

Hypothesis 5: There are no significant differences between experimental and control groups on study habits and attitudes toward study after instruction in time management.

Hypothesis 6: There are no significant differences between experimental and control groups on perceived improvement and satisfaction with general time management skills after instruction in time management.

Hypothesis 7: There are no significant differences between male and females on each of the first six hypotheses after instruction in time management.

Hypothesis 8: There are no significant differences between different grade levels on each of the first six hypothesis after instruction in time management.

Research Design

A control group posttest-only design was used to test the hypotheses. This design was selected because of the nature of the data-collection procedures for this study. Since a detailed time-use record had to be maintained for a week-long period late in the quarter, it seemed likely that a similar experience early in the quarter could
have unduly sensitized the sample and created a strong possibility for interactive effects to occur as a result of the pretest. Campbell and Stanley (1966) stated that a posttest-only design assures a lack of initial bias between groups by randomly assigning members to groups. Further support for this design is shown in the following statement: "While the pretest is a concept deeply embedded in the thinking of research workers in education and psychology, it is not actually essential to true experimental designs" (Campbell and Stanley, 1966, p. 25). The design is represented as follows:

<table>
<thead>
<tr>
<th>Experimental Group</th>
<th>X</th>
<th>0_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Group I</td>
<td></td>
<td>0_2</td>
</tr>
<tr>
<td>Control Group II</td>
<td></td>
<td>0_3</td>
</tr>
</tbody>
</table>

X = Treatment (Time Management Instruction)
0_1, 0_2, 0_3 = Observations conducted at the same time for all groups (Inventory of Study Habits and Attitudes, Time-Use Inventory, Self-Survey Index)

The class registration procedure closely approximated random assignment since students chose which class section to attend based only on available times and location. They had no prior knowledge about instructors assigned to particular sections or any differences in course content. Students responded to posters and information sheets distributed in the residence halls regarding the course description and reported to the Reading & Study Skills Center to register for the course. When four sections of the study skills class had
been filled, a total of 34 students in two sections were designated as the experimental group; a total of 30 students in the other two sections comprised Control Group I. Assignment to each of the two groups was done randomly to increase the possibility of attaining internal validity (Kerlinger, 1973); after numbers were assigned to each section and deposited in a container, two were drawn by hand to designate the sections which were statistically treated as the experimental group.

Control Group I was exposed to all study skills instruction which the experimental group received with the exception of the unit on time management. The additional study skills instruction created the possibility of increased sensitization and interactive effects to occur. For this reason, a second control group was selected which received no instruction in study skills throughout the quarter. This design further controlled threats to internal validity.

Control Group II was selected from students on the waiting list at the Reading and Study Skills Center. At the time of this study, there was a waiting list of 80 students at the Center who, like the students enrolled in the study skills course, wanted to improve their reading and study habits. Any graduate students or students solely wishing to prepare for a graduate school entrance examination were not considered for the control group. Of those remaining, approximately 40 were randomly selected for inclusion in Control Group II. This selection was accomplished by first choosing every second name on the list. An insufficient number was obtained, so a second search was conducted by selecting every remaining name on the list. As a result of the second search, a total of 50 students was chosen to be
contacted for possible participation in the study; 31 ultimately participated.

Demographic characteristics were determined for all subjects by collecting data on sex, grade point average, grade level, and number of course hours taken spring quarter. Results of a chi square analysis employed for each of the characteristics showed that no significant differences existed between the groups on variables of sex, grade level, grade point average, or number of credit hours taken spring quarter. A breakdown of the data showed the sample to be composed of 43 males and 52 females, with 31 freshmen, 34 sophomores, 21 juniors, and 9 seniors. They had a mean grade point average of 2.52 and took an average of 13.98 credit hours in the spring quarter. In addition, a strong motivational factor is an important element of the groups' uniformity. Students enrolled in the study skills course or attempted to enroll at the Reading and Study skills center because they were highly motivated to improve their academic skills.

There was a possibility that a few students registered for the course primarily because it was pass/fail and fit their schedule. However, this writer's experience with previous study skills courses has led him to believe that the primary motivation for enrollment is a strong desire to improve skills rather than a need for course credit.

**The Setting**

**The Study Skills Course**

The study skills course in which students were enrolled for the Experimental Group and Control Group I is actually part of a developmental
course composed of several sections with slightly different emphases. This course in the Counselor Education Department is entitled, EDC 301: "Student Development in a University Setting." A course description follows:

EDC 301 examines factors affecting student growth and development in the university setting, current problems facing students, and the use of group processes and leadership training in solving problems and facilitating growth.

The study skills section of EDC 301 is entitled, "Student Development in a University Setting: Applied Techniques in Study Skills." A course description follows:

Instruction in reading and study skills will be offered on both an individual and group basis. Diagnostic tests, evaluation of skill levels and reading/study techniques will be considered. Class experience will include lectures, discussions, demonstrations, and laboratory work. Topics include: reading rate and comprehension, vocabulary, note-taking, marking a text, time-use, concentration techniques, test anxiety, etc. Direct application of skills to coursework will be stressed. Intended for both successful students desiring to sharpen already adequate skills as well as those with identifiable problems. Enrollment limited to 20 students. Grading on a pass/fail basis. Four sections will be offered Spring Quarter.

Regarding the study skills portion of the course, four sections of 15 to 20 students per section were offered Spring Quarter, 1977. Classes were graded on a pass/fail basis for three hours credit and taught in three locations on campus at a variety of times (see Appendix A). Students attended class for two hours each week and were required to invest at least an additional two hours per week on individual skills improvements outside of class (see Appendix B for course requirements).
A description of weekly topics can be found in Appendix C. Three sections of the course were taught by this writer, with assistance from three other graduate students from the College of Education. The fourth section was taught by the Director of the University of Florida Reading and Study Skills Center.

Reading and Study Skills Center

Since the second control group was selected from a waiting list at the Reading and Study Skills Center, a description of the Center is warranted. The Center offers help in virtually the same areas as the study skills course. Reading rate and comprehension development as well as improvement in a variety of study skills can be accomplished on a voluntary, noncredit basis. Students work at their own pace on materials they choose after recommendations from the staff. In the past, approximately 250 students have attended the Center each quarter at the time of this study, however, because of funding problems, the Center could accommodate far less than that number, thus creating a waiting list of nearly 80 students.

The Instruments

The following instruments were administered to each subject: (a) McGraw-Hill Basic Skills System Study Skills Test: Inventory of Study Habits and Attitudes; (b) Time-Use Inventory; and (c) Self-Survey Index.

McGraw-Hill Basic Skills System Study Skills Test

The Study Skills Test was developed by Alton Raygor, consulting editor for the McGraw-Hill Basic Skills System. Although this test
contains five sections (Problem Solving, Underlining, Library Information, Study Skills Information, and an Inventory of Study Habits and Attitudes), only the Inventory of Study Habits and Attitudes was utilized for this study since it was the only section containing questions on time management (see Appendix D).

The Inventory of Study Habits and Attitudes is a self-report instrument which consists of 49 items designed to obtain information about students' personal study habits and attitudes toward studying. An example of a statement on the inventory is, "I use my study time efficiently." Students read the statement, assess how it applies to themselves, then answer "yes" or "no" accordingly.

Seven subscales are included in the inventory: Listening and Note-taking, General Study Habits, Relationships with Teachers and Courses, Motivation, Organization of Effort, Concentration, and Emotional Problems. For purposes of this study, data were separately analyzed for the questions pertaining to the Organization of Effort subscale, which deals with time management.

Reliability via internal consistency was established for the Inventory by the McGraw-Hill Company in computing the Kuder-Richardson 20 formula (KR-20) for the total Inventory as well as for the individual subscales. Using a sample of 1,787 college freshmen and sophomores as well as college-bound high school juniors and seniors, a KR-20 reliability of .87 was established. For the Organization of Effort subscale, a KR-20 of .74 was computed. Additional reliability data, along with a detailed list of item difficulties, can be found in Appendix E.
In establishing the validity for the Inventory, a panel of experienced test-makers from McGraw-Hill developed items chosen from many statements by students about their own study habits as they sought help at a reading and study skills center. Many more items were initially tested before McGraw-Hill decided on the 49 for standardization and publication. A Tryon Phi-coefficient cluster analysis was computed to separate items into the seven subscales.

**Time-Use Inventory**

The Time-Use Inventory is a form developed by this writer for use by students to record daily activities and the amount of time spent in each. Labels for the various activities were chosen after experimenting with different activity descriptions over the past two quarters of teaching study skills classes. In addition, recommendations of the Director of the University of Florida Reading and Study Skills Center were sought because of his years of experience in using variations of this inventory in study skills classes.

In completing the Time-Use Inventory, students recorded each of their activities, the time it was begun and ended and its duration. Activity units no smaller than 15 minutes were recorded and totaled for a weekly summation of hours and minutes spent in each activity. The list of units included (a) sleep; (b) meals; (c) class and laboratory; (d) study; (e) outside work for pay; (f) campus activities (clubs, committees, church); (g) leisure activities (television, stereo listening, exercise); (h) social activity; (i) travel time (between classes); (j) personal grooming (showering, shaving, fixing hair); (k) errands (laundry, bookstore, shopping); and (l) miscellaneous
(all time left in each 24-hour period which was unaccounted for). An example of the Time-Use Inventory and instructions for its completion can be found in Appendix F.

Self-Survey Index

The Self-Survey Index (see Appendix G) was developed by this writer, based on his experience in study skills instruction and the writings of others in the study skills field. The purpose of constructing this index was to determine if students felt any perceived improvement or general satisfaction with their time management skills after instruction. Although only two items on the index specifically related to time management, other items were included which dealt with study skills such as note-taking, concentration, and reading comprehension. These items served to counteract any possibility that students might focus their attention solely on the time management items and thus place undue emphasis on their responses. An example of an item on the Self-Survey Index is, "I feel that I generally do a satisfactory job of managing my time." Students are instructed to respond to each item by indicating how they feel on a scale of five degrees, ranging from "Strongly Agree" to "Strongly Disagree."

Experienced staff members at the Reading and Study Skills Center established the content validity for this survey by critically examining test items which best appeared to measure concepts essential to study skills improvement. In addition, a test-retest reliability study was conducted by this writer with 25 students in a University of Florida undergraduate English class. Students completed the instrument once, taking approximately five minutes to do so, then completed it
again two weeks later. A reliability score of .89 was computed for the instrument.

**Procedures**

A brief description of the teaching methods used in the study skills course is warranted here since both experimental and control sections of the course received nearly the same instruction with the exception of the time management unit. As indicated by the course outline (Appendix C), distinct topics were addressed each week. The instructional method every week included some lecture and some class discussion which was facilitated by the instructor or one of three graduate students who often assisted in class discussions throughout the quarter. In addition, all students met individually outside of class with the instructor or a graduate student to determine the type of materials to be used in work outside the classroom. Each student was required to work on individually assigned study skills materials for two hours each week. These materials included reading equipment, study skills books, vocabulary books and projectors, and a variety of other books on academic skills.

**Experimental Group Procedures**

As indicated by the course outline (Appendix C), students in the two experimental sections of the course received instruction on time management during the sixth week of the ten-week quarter. This instruction constituted a major element of the special treatment for the experimental group in this study; the other two elements of the time management instruction will be discussed later in this section. During
the two hour instructional segment, seven steps were covered (see Appendix H). Step I centered on reasons that time schedules fail for many students. These reasons generally include a lack of flexibility, a failure to account for other interests, and attempts to study the same subjects every day at the same time. During this portion of the period, students were encouraged to report reasons for their previous unsuccessful attempts at time management.

Step II reviewed a list of advantages of scheduling time, already outlined in Chapter I. Those items included in the class discussion are as follows:

1) Effective time management techniques help "get you started."
2) Scheduling "prevents avoidance of disliked subjects."
3) Time management "monitors the slackening off process."
4) Scheduling "eliminates the wrong type of cramming."
5) Programming helps "make studying enjoyable."
6) Effective management "promotes cumulative review."
7) Programming and goal setting can "free the mind."
8) Time management "controls the study break."
9) Scheduling "precludes overlooking recreation."
10) Effective management helps "raise your recreational efficiency."
11) Programming "regulates our daily living." (Pauk, 1974, pp. 20-22)

Step III involved the description of a master plan for students. This description included the first real effort by the instructor toward building a realistic and beneficial time management plan. Students
were advised that a master plan is designed to schedule all events which are regular parts of the individual's activities each week of a quarter (see Appendix I). Such events might include classes, laboratories, part-time jobs, regular meetings, church activities, and meals. With the master schedule as a base, the student can then create a flexible schedule to meet his individual needs.

Step IV concentrated on a weekly schedule. The assignment-oriented weekly schedule adapted from Pauk (1974) was the type chosen for this instruction (see Appendix J). Students were advised to list subjects, assignments for the week, estimated study times, dates when assignments were due. This type of weekly schedule provides a fairly loose structure, yet gives students a clear idea of weekly goals.

Step V considered establishment of daily goals. Students were instructed to use index cards for writing down their list of goals on a daily basis. This list should include classes and study as well as such items as errands, exercise, social events, and appointments (see Appendix K). Once these goals are established, the students should rank order them for importance so that the more important goals are accomplished in case unexpected events prohibit the completion of all those listed. The daily goals list for the following day can easily be prepared each night by students before going to bed or early each morning before going on campus.

Step VI provided suggestions for establishing schedules and effectively programming one's time. Pauk's list (1974, pp. 22-23) below was used as the basis for a final group discussion.
1. "Eliminate dead hours." Utilize small blocks of time between classes. Much study can be accomplished without having to wait until night for long periods of time for study.

2. "Use daylight hours." Research indicates that study during the day is often more efficient than study at night.

3. "Study before recitation-type classes." Material will be fresh in your mind as you go into class for discussion.

4. "Study after lecture-type classes." Retention and understanding can be increased by an immediate review of notes.

5. "List goals according to priorities." You are more certain to get the important items done on time.

6. "Avoid too much detail." A schedule which is too rigid and detailed takes too much time to plan and probably will not be followed regardless of good intentions.

7. "Know your sleep pattern." Determine when you are most effective during each 24-hour period and plan study hours accordingly.

8. "Discover how long to study." The time needed for each subject varies. Start out allowing too much time and adjust according to your needs. The "two hours outside for every hour inside class" ratio is probably unrealistic for some courses. Some will require much more study time and others much less.

9. "Plan blocks of time." Optimum efficiency is reached by planning work in blocks of one hour; fifty minutes for study and ten minutes for a break.

10. "Allow time for sleep." Sacrificing sleep for study on a regular basis will eventually cause problems.

12. "Double time estimates and start long jobs ahead of time." Start early on long-term projects and allow more time than is probably needed.

13. "Make a plan for living." The schedule adopted must be a plan for living, not merely studying (Pauk, 1974, pp. 22-23).

Before the end of the two-hour session, Step VII, an assignment in goal-setting was explained. Students were asked to make a list of daily goals on separate cards for each day during the next two weeks, the seventh and eighth weeks of the course. At the class session held during the seventh week of the quarter, the daily goals for the previous seven days were collected by the instructor. For approximately the first 15 minutes of this class session, the instructor led a discussion pertaining to the problems encountered and the benefits derived by students in preparing lists of daily goals. During the first 15 minutes of the class held during the eighth week of the quarter, the same procedure was followed, with the lists of students' goals collected and discussed. These discussions were intended to further heighten the students' awareness of their use of time.

In summary, the special treatment on time management given to the experimental sections of the study skills course included a two hour segment detailing types of scheduling to be implemented by students, an assignment in goal-setting, and two short review sessions over a two week period. These last two sessions were designed to monitor students' attempts at utilizing time management techniques. The entire
sequence of instruction took place during the sixth, seventh, and eighth weeks of the quarter.

Near the end of the class session held during the eighth week of the quarter, the instructor asked student members to complete three instruments as part of a study on time management. Every effort was made to avoid any social or academic pressure on students to participate and they were assured that results would remain confidential. It was stressed that participation in the study was not a requirement of the course and in no way affected their grades. All students present in each class agreed to participate and completed the consent forms in class (see Appendix L).

Class members were then instructed to complete the Inventory of Study Habits and Attitudes and the Self-Survey Index. This task required approximately 15 minutes of class time. They were next asked to complete the Time-Use Inventory for the following seven days. Each day all activities were to be recorded in intervals of no less than fifteen minutes per interval. Students were particularly requested to record activities on the Inventory as they took place, and to avoid filling out the form from memory at the end of the day. These completed Inventories were returned to the instructor at the beginning of the class held during the following week, the seventh week of the quarter.

Control Group Procedures

In Control Group I, the presentation of class session topics was the same as that for the Experimental Group, except that time management instruction was presented in the ninth week of the quarter.
rather than the sixth week when the Myers-Briggs Personality Type Inventory was taken by the class and a discussion about learning styles and career choice was conducted.

As in the experimental sections of the course, students were asked to complete the Time-Use Inventory, Self-Survey Index, and the Inventory of Study Habits and Attitudes during the eighth week of classes. Instructions for collection of data were identical to those for the experimental sections. Consent forms were signed by all class members present and questions answered regarding completion of the inventories.

The 31 students in Control Group II selected from the Reading and Study Skills Center waiting list also completed all of the instruments in the eighth week of the quarter. Students in Control Group II were reached by telephone by this writer during the sixth week of classes to request their assistance with this research project. The project was described, then students were asked to complete the Inventory of Study Habits and Attitudes, Time-Use Inventory, and the Self-Survey Index. They were advised that upon completion of the instruments they would have the option to receive instruction in time management skills.

Within a few days of the students' agreement on the telephone to participate in the project, this writer mailed the three instruments along with an Informed Consent Form and a Directions Sheet to each member of Control Group II. Students were advised to begin and end their data collection on the same days as those being used by the Experimental Group and Control Group I. A stamped envelope addressed
to this writer was included with materials mailed to Control Group II students for delivery of the three completed instruments.

**Analysis of the Data**

The data were subjected to an analysis of variance to determine significant differences among the three groups on variables of study activity, social activity, leisure activity, miscellaneous activity, scores on the Inventory of Study Habits and Attitudes, and scores from selected items on the Self-Survey Index. Differences on the bases of sex and grade level were determined for the variables stated above. For significant differences found, a Student-Newman-Keuls comparison test was employed to locate the source of difference. An alpha level of .05 was established as an acceptable level of significance on all measurements. Responses to the instruments used for this study were hand-scored and then converted for use in the Statistical Package for the Social Sciences (SPSS). Computer facilities were utilized at the North Florida Regional Data Center, University of Florida.

**Follow-Up Procedures**

After the data collection was completed, students in both the Experimental and Control I groups were given the opportunity to discuss in the final week of class any of the procedures and results relating to the time management instruction and data collection. Control II members received a notice in the mail indicating a time and place for discussing their experience with the Time-Use Inventory and receiving instruction in time management. The seven step instructional
method outlined in Appendix H and detailed earlier in this chapter was used during the two hour session. Students discussed problems with time management, completed sample schedules for setting quarterly, weekly, and daily goals, and agreed to try setting daily goals for the following week.

**Limitations**

Caution should be exercised in generalizing the results of this study to populations where students' motivation to succeed differs greatly from that of the population under investigation here. Mandatory participation in a program such as the one described in this study could result in different outcomes than those found when participation is voluntary.

Another limitation of this research concerns the data-collection instruments. Any time self-report instruments are used to measure behavioral or attitudinal changes, there is a chance that the reports could be inaccurate. Results could be biased either by students' desire to report positive change or by inaccurate record-keeping which results in no change being reported when, in fact, change may have occurred.
CHAPTER IV

RESULTS

The purpose of this study was to investigate the effects of a specific type of instruction designed to alter time management behavior of students enrolled in a University of Florida study skills course. Areas of investigation included amounts of time spent on study, social activity, leisure activities, and miscellaneous activities. Other areas included an assessment of study habits and attitudes, as well as reactions to attempts at time management. Sex and grade level differences on the time management criterion were also investigated.

A total of 95 students participated in the study. Of that number, 34 were enrolled in two sections of EDC 301, "Student Development in a University Setting: Applied Techniques in Study Skills," designated as the Experimental Group. Control Group I consisted of 31 students who enrolled in an additional two sections of the course; Control Group II included 30 students who were on the waiting list at the University of Florida Reading and Study Skills Center. Students in the Experimental Group were exposed to instruction in time management techniques. Instruction for the two control groups was delayed until after the evaluation process ended.

Three instruments were used in the research: 1) the Time-Use Inventory which measured amounts of time for one seven day week devoted to individual categories such as study, social, leisure, and miscellaneous activity; 2) the Survey of Study Habits and Attitudes (part of a larger inventory, The Study Skills Test) which measured study
habits and attitudes including those related to time management;
3) the Self-Survey Index which measured satisfaction and perceived improvement with various study skills including those related to time management. Subjects in the study completed all three of the inventories at approximately the same time in the quarter.

An analysis of variance was computed to determine if significant differences existed among groups on the above listed variables under investigation. A Student-Newman-Keuls procedure was then employed to determine specifically where any differences occurred. The remainder of this chapter will be devoted to a description of the findings for each of the hypotheses.

**Hypotheses**

*Hypothesis 1*

There are no significant differences between experimental and control groups on total hours of study time per week after instruction in time management.

Inspection of Table 1 indicates that no significant difference between groups was noted at the .05 level for the amount of time spent in study in one week. Therefore, hypothesis 1 was not rejected.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>D</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>133.3723</td>
<td>2</td>
<td>66.6862</td>
<td>0.656*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>9356.0598</td>
<td>92</td>
<td>101.6963</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9489.4297</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at .05 level.*
Hypothesis 2

There are no significant differences between experimental and control groups on total hours of social activity per week after instruction in time management.

An inspection of Table 2 indicates that no significant difference between groups was noted at the .05 level for the amount of time spent in social activity in one week. Therefore, hypothesis 2 was not rejected.

Table 2. Results of analysis of variance for groups on amount of social activity per week as measured by the Time-Use Inventory.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>281.5134</td>
<td>2</td>
<td>140.7567</td>
<td>1.767*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>7330.5747</td>
<td>92</td>
<td>79.6801</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7612.0859</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at .05 level.

Hypothesis 3

There are no significant differences between experimental and control groups on total hours of leisure activity per week after instruction in time management.

An inspection of Table 3 indicates that no significant difference between groups was noted at the .05 level for the amount of time spent in leisure activity in one week. Therefore, hypothesis 3 was not rejected.

Hypothesis 4

There are no significant differences between experimental and control groups on total hours of miscellaneous activity per week after instruction in time management.
Table 3. Results of analysis of variance for groups on amount of leisure activity per week as measured by the Time-Use Inventory.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>154.1263</td>
<td>2</td>
<td>77.0631</td>
<td>1.205*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5881.5659</td>
<td>92</td>
<td>63.9301</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6035.6914</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at .05 level.

An inspection of Table 4 indicates that no significant difference between groups was noted at the .05 level for the amount of time spent in miscellaneous activity in one week. Therefore, hypothesis 4 was not rejected.

Table 4. Results of analysis of variance for groups on amount of miscellaneous activity per week as measured by the Time-Use Inventory.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>515.1708</td>
<td>2</td>
<td>257.5852</td>
<td>2.787*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>8503.5537</td>
<td>92</td>
<td>92.4299</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>9018.7227</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at .05 level.

Hypothesis 5

There are no significant differences between experimental and control groups on study habits and attitudes after instruction in time management.
The Survey of Study Habits and Attitudes contained a subscale of seven items which pertained to the management of one's time. For purposes of addressing hypothesis 5, a total score was computed for the seven items and then a comparison between the groups' mean scores was made. An inspection of Table 5 indicates that no significant difference between groups was noted at the .05 level for the total score on the Survey of Study Habits and Attitudes subscale, "Organization of Effort." Therefore, hypothesis 5 was not rejected.

Table 5. Results of analysis of variance for groups on the "Organization of Effort" subscale of the Survey of Study Habits and Attitudes.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>13.8377</td>
<td>2</td>
<td>6.9189</td>
<td>1.790*</td>
</tr>
<tr>
<td>Within Groups</td>
<td>355.5987</td>
<td>92</td>
<td>3.8663</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>369.5364</td>
<td>94</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at .05 level.

In addition to an analysis of the mean group scores on the "Organization of Effort" subscale, each of the seven items was separately analyzed to determine if differences between groups existed on particular items. Table 6 reports that analysis.

An inspection of Table 6 indicates that no single item on the "Organization of Effort" subscale was answered in a way which separated the three groups in a significant manner.
Table 6. Results of analysis of variance for groups on separate items of the "Organization of Effort" subscale.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 9*</td>
<td>0.087</td>
<td>2</td>
<td>0.044</td>
<td>0.625**</td>
</tr>
<tr>
<td>Item 10*</td>
<td>0.278</td>
<td>2</td>
<td>0.139</td>
<td>0.631**</td>
</tr>
<tr>
<td>Item 23*</td>
<td>0.231</td>
<td>2</td>
<td>0.116</td>
<td>0.537**</td>
</tr>
<tr>
<td>Item 24*</td>
<td>0.345</td>
<td>2</td>
<td>0.172</td>
<td>0.802**</td>
</tr>
<tr>
<td>Item 37*</td>
<td>0.256</td>
<td>2</td>
<td>0.128</td>
<td>0.590**</td>
</tr>
<tr>
<td>Item 38*</td>
<td>0.278</td>
<td>2</td>
<td>0.139</td>
<td>0.688**</td>
</tr>
<tr>
<td>Item 47*</td>
<td>0.094</td>
<td>2</td>
<td>0.047</td>
<td>0.261**</td>
</tr>
</tbody>
</table>

*Item 9 = "I need to plan my time better."
Item 10 = "I am usually up to date in my schoolwork."
Item 23 = "I use my study time efficiently."
Item 24 = "I tend to put things off much more than most students."
Item 37 = "I often study in a haphazard, disorganized way under the threat of the next test."
Item 38 = "It is very difficult for me to stick to a study schedule."
Item 47 = "Sometimes I let the work in a course pile up, then cram madly at the end."

**Not significant at .05 level.

Hypothesis 6

There are no significant differences between experimental and control groups on perceived improvement and satisfaction with general time management skills after instruction in time management.

The Self-Survey Index was used to obtain scores on perceived improvement and satisfaction with time management skills. Two questions out of ten on the survey dealt specifically with time management; thus, those two were analyzed separately. It was decided that a combined score for the two questions would not be particularly informative.
Table 7 shows that no significant difference between the groups existed on Item 2, but a significant difference did occur for Item 8.

### Table 7. Results of analysis of variance for groups on Items 2 and 8 of the Self-Survey Index.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 2*</td>
<td>0.021</td>
<td>2</td>
<td>0.010</td>
<td>0.011</td>
</tr>
<tr>
<td>Item 8*</td>
<td>19.104</td>
<td>2</td>
<td>9.552</td>
<td>12.028**</td>
</tr>
</tbody>
</table>

*Item 2 = "I feel that I generally do a satisfactory job of managing my time."
Item 8 = "I feel that my time management skills have improved since the start of this quarter."

**Significant at .05 level.

A further breakdown of Item 8, using a Student-Newman-Keuls procedure, revealed that the experimental group scored higher than Control Group I, which in turn scored higher than Control Group II. Thus, those students who received time management instruction in class felt that their time management skills improved more during the quarter than did the second group who experienced the other study skills instruction without receiving the time management instruction. Also, the third group, composed of students on the waiting list who received no study skills instruction, felt that their time management skills had increased less than either of the other two groups. Table 8 reports this breakdown. Therefore, hypothesis 6 was rejected.
Table 8. Results of the Student-Newman-Keuls procedure for analysis of group differences on Item 8 of the Self-Survey Index.

<table>
<thead>
<tr>
<th>Subset</th>
<th>Group Mean</th>
<th>Control Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subset 1</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td>Subset 2</td>
<td>3.30</td>
<td>Control Group I</td>
</tr>
<tr>
<td>Subset 3</td>
<td>3.85</td>
<td>Experimental Group</td>
</tr>
</tbody>
</table>

Hypothesis 7

There are no significant differences between males and females on each of the first six hypotheses after instruction in time management.

Tables 9, 10, and 11 report a breakdown of each hypothesis by sex. Table 9 shows that no significant differences were found on any of the four categories of the Time-Use Inventory.

Table 9. Results of analysis of variance for sex differences on the Time-Use Inventory.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Time</td>
<td>336.68</td>
<td>1</td>
<td>336.68</td>
<td>3.643*</td>
</tr>
<tr>
<td>Social Time</td>
<td>19.729</td>
<td>1</td>
<td>19.729</td>
<td>0.225*</td>
</tr>
<tr>
<td>Leisure Time</td>
<td>171.62</td>
<td>1</td>
<td>171.619</td>
<td>2.564*</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>32.056</td>
<td>1</td>
<td>32.056</td>
<td>0.353*</td>
</tr>
</tbody>
</table>

*Not significant at .05 level.
Table 10. Results of analysis of variance for sex differences on the Survey of Study Habits and Attitudes.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 9*</td>
<td>0.118</td>
<td>1</td>
<td>0.118</td>
<td>1.690</td>
</tr>
<tr>
<td>Item 10*</td>
<td>1.158</td>
<td>1</td>
<td>1.158</td>
<td>5.264**</td>
</tr>
<tr>
<td>Item 23*</td>
<td>1.659</td>
<td>1</td>
<td>1.659</td>
<td>7.698**</td>
</tr>
<tr>
<td>Item 24*</td>
<td>0.311</td>
<td>1</td>
<td>0.311</td>
<td>1.447</td>
</tr>
<tr>
<td>Item 37*</td>
<td>0.525</td>
<td>1</td>
<td>0.525</td>
<td>2.420</td>
</tr>
<tr>
<td>Item 38*</td>
<td>0.071</td>
<td>1</td>
<td>0.071</td>
<td>0.352</td>
</tr>
<tr>
<td>Item 47*</td>
<td>0.699</td>
<td>1</td>
<td>0.699</td>
<td>3.856**</td>
</tr>
</tbody>
</table>

*Item 9 = "I need to plan my time better."
Item 10 = "I am usually up to date in my schoolwork."
Item 23 = "I use my study time efficiently."
Item 24 = "I tend to put things off much more than most students."
Item 37 = "I often study in a haphazard, disorganized way under the threat of the next test."
Item 38 = "It is very difficult for me to stick to a study schedule."
Item 47 = "Sometimes I let the work in a course pile up, then cram madly at the end."

**Significant at .05 level.

Inspection of Table 10 indicates that three different items discriminated in some way between males and females. A further breakdown shows that on Item 10, "I am usually up to date in my schoolwork," females indicated a positive response more often than males, reporting a mean score of .4423 for females and .3721 for males. On Item 23, "I use my study time efficiently," females again responded in a positive manner more often than males, reporting mean scores of .4231 and .2093. On Item 47, "Sometimes I let the work in a course pile up, then cram madly at the end," once again the females indicated that they have less difficulty with this sort of common problem than
do males, reporting mean scores of .2692 and .2326. Therefore, Hypothesis 7 was rejected.

Table 11 illustrates that no differences between males and females were detected for Item 2 or Item 8 of the Self-Survey Index.

Table 11. Results of analysis of variance for sex differences on the Self-Survey Index.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2*</td>
<td>0.172</td>
<td>1</td>
<td>0.172</td>
<td>0.183**</td>
</tr>
<tr>
<td>Item 8*</td>
<td>0.433</td>
<td>1</td>
<td>0.433</td>
<td>0.545**</td>
</tr>
</tbody>
</table>

*Item 2 = "I feel that I generally do a satisfactory job of managing my time."

Item 8 = "I feel that my time management skills have improved since the start of this quarter."

**Not significant at .05 level.

Hypothesis 8

There are no significant differences between different grade levels on each of the first six hypotheses after instruction in time management.

Tables 12, 13 and 14 illustrate a breakdown of each hypothesis by grade level. Table 12 indicates that there was a significant difference between grade levels only on the variable of weekly study time. A further breakdown of that finding, using the Student-Newman-Keuls procedure, indicated that seniors studied more than the other grade levels, reporting 29.9 hours per week. Freshmen were next highest, reporting 22.2 hours, juniors were third highest with 21.8 hours, and sophomores studied the least, reporting 21.63 hours per week. Therefore, Hypothesis 8 was rejected.
Table 12. Results of analysis of variance for grade level differences on the Time-Use Inventory.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Time</td>
<td>760.580</td>
<td>3</td>
<td>253.527</td>
<td>2.743*</td>
</tr>
<tr>
<td>Social Time</td>
<td>208.618</td>
<td>3</td>
<td>69.539</td>
<td>0.794</td>
</tr>
<tr>
<td>Leisure Time</td>
<td>51.965</td>
<td>3</td>
<td>17.322</td>
<td>0.259</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>81.067</td>
<td>3</td>
<td>27.022</td>
<td>0.298</td>
</tr>
</tbody>
</table>

*Significant at .05 level.

Inspection of Table 13 indicates that no significant differences were found between grade levels for items on the Survey of Study Habits and Attitudes.

Table 13. Results of analysis of variance for grade level differences on the Survey of Study Habits and Attitudes.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 9*</td>
<td>0.109</td>
<td>3</td>
<td>0.036</td>
<td>0.522**</td>
</tr>
<tr>
<td>Item 10*</td>
<td>0.141</td>
<td>3</td>
<td>0.047</td>
<td>0.213**</td>
</tr>
<tr>
<td>Item 23*</td>
<td>0.414</td>
<td>3</td>
<td>0.138</td>
<td>0.640**</td>
</tr>
<tr>
<td>Item 24*</td>
<td>0.173</td>
<td>3</td>
<td>0.058</td>
<td>0.268**</td>
</tr>
<tr>
<td>Item 37*</td>
<td>0.268</td>
<td>3</td>
<td>0.089</td>
<td>0.412**</td>
</tr>
<tr>
<td>Item 38*</td>
<td>0.331</td>
<td>3</td>
<td>0.110</td>
<td>0.546**</td>
</tr>
<tr>
<td>Item 47*</td>
<td>0.226</td>
<td>3</td>
<td>0.226</td>
<td>1.248**</td>
</tr>
</tbody>
</table>

*Item 9 = "I need to plan my time better."
Item 10 = "I am usually up to date in my schoolwork."
Item 23 = "I use my study time efficiently."
Item 24 = "I tend to put things off much more than most students."
Item 37 = "I often study in a haphazard, disorganized way under the threat of the next test."
Item 38 = "It is very difficult for me to stick to a study schedule."
Item 47 = "Sometimes I let the work in a course pile up, then cram madly at the end."

**Not significant at .05 level.
Table 14 illustrates that no significant differences were found between grade levels for the time management items of the Self-Survey Index.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2*</td>
<td>7.212</td>
<td>3</td>
<td>2.404</td>
<td>2.560**</td>
</tr>
<tr>
<td>Item 8*</td>
<td>3.357</td>
<td>3</td>
<td>1.119</td>
<td>1.409**</td>
</tr>
</tbody>
</table>

*Item 2 = "I feel that I generally do a satisfactory job of managing my time."
Item 8 = "I feel that my time management skills have improved since the start of this quarter."

**Not significant at .05 level.

Additional Data

Several 2-way interactions were discovered which did not specifically relate to the hypotheses for this study, but which are closely related and worth noting here. Table 15 illustrates a 2-way interaction which occurred on several items of the Survey of Study Habits and Attitudes. For all four items in Table 15 which proved to have significant differences on sex and grade interactions, a further breakdown of the data suggested that male seniors consistently reported lower mean scores than did the female seniors. Senior females were "up to date in their schoolwork," did not tend to "put things off" as much as senior males, did not tend to study in a "haphazard, disorganized way" as much as senior males, and did not tend to "let course work pile up" as much as senior males.
Table 15. Results of analysis of variance for sex and grade level interaction differences on the Survey of Study Habits and Attitudes.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>DF</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
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<td>7.445**</td>
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<td>0.838</td>
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<td>Item 47*</td>
<td>1.555</td>
<td>3</td>
<td>0.518</td>
<td>2.861**</td>
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*Item 9 = "I need to plan my time better."
Item 10 = "I am usually up to date in my schoolwork."
Item 23 = "I use my study time efficiently."
Item 24 = "I tend to put things off much more than most students."
Item 37 = "I often study in a haphazard, disorganized way under the threat of the next test."
Item 38 = "It is very difficult for me to stick to a study schedule."
Item 47 = "Sometimes I let the work in a course pile up, then cram madly at the end."

**Significant difference at .05 level.
CHAPTER V
CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

This study investigated the effects of a specific type of instruction designed to alter time management behavior of students enrolled in a University of Florida study skills course. Areas of investigation included amounts of time spent on study, social activity, leisure activities, and miscellaneous activities. Other areas included an assessment of study habits and attitudes, as well as reactions to attempts at time management. Sex and grade level differences on the time management criterion were also investigated.

A total of 95 students participated in the study. Of that number, 34 were enrolled in two sections of EDC 301, "Student Development in a University Setting: Applied Techniques in Study Skills," designated as the Experimental Group. Control Group I consisted of 31 students who enrolled in an additional two sections of the course; Control Group II included 30 students who were on the waiting list at the University of Florida Reading and Study Skills Center. Students in the Experimental Group were exposed to instruction in time management techniques. Instruction for the two control groups was delayed until after the evaluation process ended.

Three instruments were used in the research: 1) the Time-Use Inventory which measured amounts of time for one seven day week devoted
to individual categories such as study, social, leisure, and miscellaneous activity; 2) the Survey of Study Habits and Attitudes (part of a larger inventory, The Study Skills Test) which measured study habits and attitudes including those related to time management; 3) the Self-Survey Index which measured satisfaction and perceived improvement with various study skills including those related to time management. Subjects in the study completed all three of the inventories at approximately the same time in the quarter.

An analysis of variance was computed to determine if significant differences existed among groups on the above listed variables under investigation. A Student-Newman-Keuls procedure was then employed to determine specifically where any differences occurred. In summary, the following results were obtained from the study:

1. No significant difference was found between experimental and control groups on total hours of study time per week after instruction in time management.

2. No significant difference was found between experimental and control groups on total hours of social activity per week after instruction in time management.

3. No significant difference was found between experimental and control groups on total hours of leisure activity per week after instruction in time management.

4. No significant difference was found between experimental and control groups on total hours of miscellaneous activity per week after instruction in time management.

5. No significant differences were found between experimental and control groups on the Survey of Study Habits and Attitudes.
Total scores for the seven-item management subscale were analyzed as well as each of the seven individual items of the subscale.

6. A significant difference between experimental and control groups was found on Item 8 of the Self-Survey Index. An investigation of the direction of differences indicated that in response to the statement, "I feel that my time management skills have improved since the start of the quarter," the experimental group responded in a positive manner significantly more often than Control Group I, which in turn responded in a positive manner significantly more often than Control Group II.

7. No significant difference between experimental and control groups was found for Item 2 of the Self-Survey Index, "I feel that I generally do a satisfactory job of managing my time."

8. No significant differences were found between males and females on the four categories measured by the Time-Use Inventory (study, social, leisure, and miscellaneous activity).

9. No significant differences were found between males and females for the two items (#2 and #8) related to time management on the Self-Survey Index.

10. A significant difference between males and females in the three groups was found for three items on the Survey of Study Habits and Attitudes. Females felt that they were more "up to date in their schoolwork," "used their study time more efficiently," and experienced fewer times when "the work in a course piled up, requiring mad cramming at the end," as compared with males.

11. A significant difference between grade levels was found in study activity on the Time-Use Inventory. Seniors reported a weekly amount of study which was significantly more than that reported by
any of the other grade levels.

12. No significant difference between grade levels was found for either of the two time management items on the Self-Survey Index or any of the seven time management items on the Survey of Study Habits and Attitudes.

13. A significant 2-way interaction was found for several items on the Survey of Study Habits and Attitudes. Senior males consistently reported lower mean scores than senior females on four items: 1) "I am usually up to date in my homework;" 2) "I tend to put things off much more than most students;" 3) "I often study in a haphazard, disorganized way under the threat of the next test;" 4) "Sometimes I let the work in a course pile up, then cram madly at the end." A lower score here indicates a negative response in the sense that it is negative to fall behind, put things off, study haphazardly, or let course work pile up.

Conclusions

Several conclusions can be drawn from the findings of this study. First, instruction in time management favorably affected the perception which students had of their abilities to effectively manage their time. Students receiving time management instruction in the study skills classes felt that their time management skills had improved during the quarter. This perceived improvement differed significantly from the self-perception of those students who had not received time management instruction.

Second, the results indicated that differences in study habits and attitudes, which were apparently unrelated to the class instruction in time management, existed between males and females. Females consistently
reported more positive self-perceptions regarding their academic skills.

A third conclusion from this research is drawn from the lack of behavioral change in students who received time management instruction. Since no change was recorded in student allocation of time to study, social, leisure, or miscellaneous activities after instruction in time management, there are questions regarding: 1) the effectiveness of the type of instruction given to the Experimental Group; 2) the data-collection instruments utilized; and 3) the length of time needed for noticeable changes in behavior to occur. These questions will be addressed in more detail throughout the remainder of this chapter.

Discussion

After receiving instruction in time management, students perceived their skills in managing their own time to have improved. Those students who attended a study skills course without specifically receiving time management instruction during the period of data-collection did not perceive their time management skills to have improved as much as did the first group. Those students who received neither time management instruction or any other study skills instruction perceived their time management skills to have improved less than either of the other two groups.

Time management instruction had a definite effect on students' perceptions of their skills in this area, yet simply being exposed to a variety of other study skills apparently helped somewhat in building confidence in time management skills. Although students receiving time
management instruction perceived an improvement in their skills, very few behavioral changes resulted from the instruction. No significant differences among groups were found on time allocated to measures of study, social, leisure, and miscellaneous activity. Also, no significant changes occurred in study habits and attitudes after the experimental group had received time management instruction.

These findings could be interpreted in at least two ways. First, the fact that students felt better about their abilities to manage their time effectively could be the most important factor. Although related behavioral changes did not accompany the change in attitudes, perhaps it was too soon after the instruction to gain an accurate appraisal of what changes might occur. The attitude change could be the first step toward actual changes in behavior which might occur at later times.

A second interpretation suggests that teachers of time management instruction as well as their students have been unjustifiably confident that the instruction actually made a difference in behavior. The literature in this area suggests that most study skills instructors continue to provide time management instruction in the belief that it will somehow benefit the student. This particular study has shown that students also perceive the instruction making a difference, yet the data suggest that no performance change occurred as the result of instruction.

It was also interesting to note that a significant difference between males and females was revealed by the Survey of Study Habits and Attitudes. Apparently females in all three groups saw themselves
in a more positive light than males regarding their abilities to "keep up to date in their schoolwork," "use their study time more efficiently," and "avoid letting course work pile up."

A significant 2-way interaction was also evident. Senior females consistently differed from senior males on four items of the Survey of Study Habits and Attitudes. Senior females tended to be "more up to date in their schoolwork" than senior males, had less of a tendency to "put things off," tended to "study in a haphazard, disorganized way" less often, and generally did not "let the work in a course pile up" as often as senior males. Again, these differences could result from a variety of reasons including a difference in motivation or study patterns between males and females. One possible explanation for this difference could be the interest level of females who now find themselves actively competing with males for grades, job opportunities, and positions in professional schools which formerly had been unavailable to them. Perhaps these opportunities have generated a more positive attitude toward studying for females.

Also, the results of this research indicated that a significant difference between grade levels existed on the amount of time spent in study activity. Apparently, seniors studied significantly more hours than any of the other three grade levels. Since academic achievement was not one of the variables explored in this research, it is unknown if this additional study time had any effect on grade point average. Again, a motivation factor could be present which accounted for seniors' increased study time.
Implications

There appears to be an implication for counselors worth noting at this point. This research has demonstrated that even though students' time management behavior did not change as a result of instruction, students apparently felt better about their ability to organize and efficiently manage their time. That positive feeling in itself warrants attention from those who deal with student problems daily. For some students, merely feeling better about themselves and their abilities to control their lives could be far more important in leading to or stimulating behavioral changes.

This realization in turn has implications for departments of counselor education. Since college counselors often work with students who feel as though they have little control over their lives in school, it seems appropriate that a part of the counselor's training could be in certain skill development areas such as the ones described in this study. A knowledge of concrete skills which could enhance students' self-perception and possibly their academic performance certainly would seem to be a viable component of a counselor education program. In fact, the results of this study suggest that there probably is no one "right" way to counsel students in study skills such as time management. Therefore, emphasis should be placed on counselors' need for adequate information in this area as well as a great deal of flexibility in adapting learning techniques to the personality of the student.

Recommendations

Improvements could be made on this type of time management research
if subjects under investigation could be observed for longer periods of time. In connection with instruction in study skills, it is questionable whether students will implement the newly learned skills immediately. Perhaps over a longer period of time, the need for time management skills will become evident; therefore, it would be helpful if a longitudinal study could be conducted to measure change over several quarters of school. It might also be helpful to measure change in grade point average over several quarters. For this particular study, one quarter did not seem to be an adequate length of time to warrant an inspection of grade point averages. However, if a longitudinal study was conducted, it would be appropriate to investigate the possibility that a relationship exists between time management instruction and grade point average.

A second recommendation concerns study skills instructors who teach techniques of time management. The type of instruction used in the present study was fairly typical of that generally described in study skills books. Therefore, it seems apparent that an evaluation of current instructional practices might be warranted. If study skills instructors are not achieving desired results in student behavioral change, perhaps other methods of instruction should be investigated. Apparently, a closer look should be taken at current instructional practices in this area.

In summary, this research attempted to measure behaviors and attitudes related to study skills which are greatly influenced by the unique personal problems, motivation, and abilities of each individual involved in the study. The data have indicated that certain self-perceptions
can be affected by instruction in time management, but that specific behavioral changes related to time use are more difficult to detect. Further research in this area should explore other methods of time management instruction as well as possible factors affecting behaviors related to the general area of study skills.
APPENDIX A

COURSE DESCRIPTION AND AVAILABLE TIMES

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<thead>
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<th>Dept.</th>
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<th>Time</th>
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<td>10:00-12:00</td>
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<tr>
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<td>301</td>
<td>DEP*</td>
<td>3</td>
<td>W</td>
<td>1:30-3:30</td>
<td>Hume Hall</td>
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<td>DEP*</td>
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<td>EDC</td>
<td>301</td>
<td>DEP*</td>
<td>3</td>
<td>Tues.</td>
<td>10:00-12:00</td>
<td>Building E</td>
</tr>
</tbody>
</table>

Instruction in reading and study skills will be offered on both an individual and group basis. Diagnostic test, evaluation of skill levels and reading-study techniques will be considered. Class experiences will include lectures, discussions, demonstrations, and laboratory work. Topics include: reading rate and comprehension, vocabulary, note-taking, marking a text, time-use, concentration techniques, test anxiety, etc. Direct application of skills to coursework will be stressed. Intended for both successful students desiring to sharpen already adequate skills as well as those with identifiable problems. Enrollment limited to 20 students. Grading on a pass/fail basis. Four sections will be offered Spring Quarter.

*Section numbers may be obtained at the Reading and Study Skills Center, 141 Building E, 392-0791.
APPENDIX B

COURSE OBJECTIVES AND REQUIREMENTS

Student Development in a University Setting: Applied Techniques in Study Skills

I. Objectives

1. To familiarize students with a variety of reading and study skills techniques.

2. To assist students apply skills to coursework and develop effective personal study approaches.

3. In broad context, to encourage exploration of academic skills and personal goals related to college success.

II. Requirements

1. Attend regularly (no more than two unexcused absences).

2. Complete an individual project (to be determined in conference with instructor).

3. Read How to Study in College.

4. Participate in class discussions.

5. Work individually at least two hours per week at the Reading and Study Skills Center.

6. Participate in a minimum of two individual conferences with the instructor.
APPENDIX C

COURSE OUTLINE

EDC 301: Student Development in a University Setting--
Applied Techniques in Study Skills

Week 1: Objectives and Requirements; Introductions
Week 2: Diagnostic Reading Test
Week 3: Test Interpretation and Equipment Introduction
Week 4: Individual Practice with Materials
Week 5: Marking a Text
Week 6: Time Management Techniques
Week 7: Examination Preparation; Time Management
Week 8: Taking Lecture Notes; Time Management
Week 9: Myers-Briggs; Learning Styles; Career Choice
Week 10: Myers-Briggs Interpretation; Evaluations

Other Topics Considered

Concentration and Self-Discipline
Memory and Forgetting
Keeping Your Emotional Balance
Campus Resources
Vocabulary Development
Reading Rate and Comprehension
APPENDIX D

STUDY SKILLS TEST--INVENTORY OF STUDY HABITS AND ATTITUDES

Directions: Please answer the following statements with "yes" or "no."

1. My class notes are sometimes difficult to understand later.
2. I often sit in class and forget to take notes.
3. I need to put in more time on my schoolwork.
4. In general, I think my study habits are good.
5. I tend to get along well with teachers.
6. When I don't like a course, I can't seem to study much.
7. Much of what I have to study will be of little use to me.
8. It is usually hard for me to get started on my schoolwork.
9. I need to plan my time better.
10. I am usually up to date in my schoolwork.
11. I tend to daydream when I study.
12. I tend to study where it is very quiet.
13. I often get moody and can't study at all.
14. Sometimes I can't do my best on examinations because I am so nervous and tense.
15. When making notes on a lecture, I have trouble picking out the main points.
16. My class notes are usually disorganized, even if the lecture was well-organized by the teacher.
17. I spend an average of twenty hours a week or more studying.
18. I always make an outline of a theme or report before I begin writing it.
19. I sometimes have trouble in courses because I don't agree with the teacher.
20. I skip classes that I could just as easily attend.
21. I think I have trouble studying because I don't know what my goals are.
22. I always put studying first.
23. I use my study time efficiently.
24. I tend to put things off much more than most students.
25. I can concentrate well when I study even if the material is quite dull.
26. I often try to study with the radio or TV turned on.
27. My studies cause me a lot of worry.
28. Often some thought or idea keeps coming to me, and I can't stop thinking about it.
29. I often miss important lecture information because I am busy making notes on earlier material.
30. I seem to get the wrong material into my class notes.
31. I usually try to make a systematic review before a test.
32. I am eager to do my very best in my schoolwork.
33. I participate more than most students in class discussions.
34. I usually like the subject I am studying.
35. If I have trouble in a course, I tend to give up in discouragement.
36. I often consider dropping out of school.
37. I often study in a haphazard, disorganized way under the threat of the next test.
38. It is very difficult for me to stick to a study schedule.
39. I can usually sit and study for long periods without becoming tired or distracted.
40. I have a tendency to become sleepy in classes.
41. I am under a lot of tension when I study.
42. I sometimes get so worried about a personal problem that I can't study.
43. I can take good notes if the teacher presents material in an organized way.

44. Before I go to class, I try to test myself to be sure that I know the material I have studied.

45. My approach to studies is usually active rather than passive.

46. I try to take courses so that I will not have to study hard.

47. Sometimes I let the work in a course pile up, then cram madly at the end.

48. I am easily distracted from my schoolwork.

49. I get so upset about little things that I can't study.

APPENDIX E

STUDY SKILLS TEST--RELIABILITY DATA
Table E-1

Item Difficulties for MHBSS Inventory of Study Habits and Attitudes (N=1787)

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Mean 5.05 3.02 4.38 4.32 3.15 2.78 3.53
Med. 5 3 5 5 3 3 4
SD 1.77 1.65 1.51 1.51 2.03 1.82 1.94
KR-20 0.68 0.58 0.50 0.55 0.74 0.62 0.68
Std. error of meas. 1.01 1.08 1.06 1.01 1.04 1.13 1.09

*N--Listening and Note-taking  
G--General Study Habits  
R--Relationships with Teachers and Courses  
M--Motivation  
O--Organization of Effort  
C--Concentration  
E--Emotional Problems

Table E-2
Reliability Coefficients of Study Skills Test

<table>
<thead>
<tr>
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<th>MHBSS Inventory of Study Habits and Attitudes</th>
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<td>Form B</td>
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<td>Mean</td>
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<td>Std. error of meas.</td>
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APPENDIX F
TIME-USE INVENTORY
**TIME USE-INVENTORY**

**DIRECTIONS:** On the second sheet--record your activities; the time that each activity began and finished and its duration. A day is considered as running from midnight to midnight.

**EXAMPLE**

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<th>Activity</th>
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<tbody>
<tr>
<td>Dinner</td>
<td>Finish</td>
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</table>

| 6:00-6:30 | 30 min. |

On this sheet--summarize amount of time spent in each activity each day. When this has been done for each day, add the columns across to get the total for the entire week.

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<td>Meals</td>
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<td>Class and laboratory</td>
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<td>(clubs, organizations, church)</td>
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<td>Leisure (TV, stereo, exercise)</td>
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<td>Travel time (between classes)</td>
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<td>Personal grooming (shower, shaving, hair)</td>
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<td>Miscellaneous</td>
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APPENDIX G

SELF-SURVEY INDEX

This scale has been prepared so that you can indicate how you feel about a variety of study skills. Please circle the letter(s) on the left indicating how you feel about each statement. (SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, SD=Strongly Disagree.)

SA A U D SD 1. I feel that I generally do a satisfactory job of taking lecture notes.

SA A U D SD 2. I feel that I generally do a satisfactory job of managing my time.

SA A U D SD 3. I feel that I generally do a satisfactory job of marking my textbook.

SA A U D SD 4. I feel that I generally maintain good concentration while I study.

SA A U D SD 5. I feel that my reading rate and comprehension skills have improved since the start of this quarter.

SA A U D SD 6. I feel that my vocabulary has improved since the start of this quarter.

SA A U D SD 7. I feel that I generally do a satisfactory job of memorizing details for an exam.

SA A U D SD 8. I feel that my time management skills have improved since the start of this quarter.

SA A U D SD 9. I feel that I generally choose a study area which is free from distractions.

SA A U D SD 10. I feel that I generally do a satisfactory job of preparing for exams.
APPENDIX H

TIME MANAGEMENT INSTRUCTIONAL UNIT

Step I: Discussion of previous attempts at using a time schedule.
Step II: Discussion of advantages of using a time schedule.
Step III: Description of a Master Plan for time management.
Step IV: Description of a Weekly Schedule.
Step V: Description of a Daily Goals List.
Step VI: Discussion of suggestions for effectively programming one's time (Pauk, 1974).
Step VII: Assignment of daily goal-setting for following week.
## APPENDIX I

### SAMPLE MASTER PLAN

Plan of Study, Classes, and Recreation

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>8:00</td>
<td>Math</td>
<td></td>
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<td>English</td>
<td>English</td>
<td>English</td>
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<td>10:10</td>
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<td></td>
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<tr>
<td>11:15</td>
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<td>Lunch</td>
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<td></td>
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<tr>
<td>4:40</td>
<td>Tennis</td>
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<td>Dinner</td>
<td>Dinner</td>
<td>Dinner</td>
<td>Dinner</td>
<td>Dinner</td>
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</tr>
<tr>
<td>7:10</td>
<td>Biology Lab</td>
<td></td>
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<td>Hall Meeting</td>
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<td>Biology Lab</td>
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<td>Hall Meeting</td>
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</tr>
<tr>
<td>11:00</td>
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APPENDIX J

WEEKLY SCHEDULE BASED ON ASSIGNMENTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Assignment</th>
<th>Estimated Time</th>
<th>Date Due</th>
<th>Time Due</th>
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<tbody>
<tr>
<td>Math</td>
<td>Problems on pp. 50-56</td>
<td>5 hrs.</td>
<td>Mon. 12th</td>
<td>8:00</td>
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<tr>
<td>English</td>
<td>Paper to Write</td>
<td>10 hrs.</td>
<td>Wed. 14th</td>
<td>9:00</td>
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<tr>
<td>Biology</td>
<td>Read Chapt. II, 25 pp.</td>
<td>3 hrs.</td>
<td>Wed. 14th</td>
<td>11:00</td>
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<tr>
<td>Spanish</td>
<td>Study Chapt. IV, Quiz</td>
<td>5 hrs.</td>
<td>Thurs. 15th</td>
<td>1:00</td>
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<tr>
<td>Astronomy</td>
<td>Read Chaps. III, IV, 60 pp.</td>
<td>4 hrs.</td>
<td>Fri. 16th</td>
<td>2:00</td>
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<th>Day</th>
<th>Assignment</th>
<th>Morning</th>
<th>Afternoon</th>
<th>Evening</th>
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<td>Sunday</td>
<td>Math Problems</td>
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<td>3-5</td>
<td>7-10</td>
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<tr>
<td>Monday</td>
<td>English--gather notes</td>
<td>11-12</td>
<td></td>
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<td></td>
<td>Biology--start Chapt. II</td>
<td>2-4</td>
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<tr>
<td>Tuesday</td>
<td>English--first draft</td>
<td>9-11</td>
<td></td>
<td>7-10</td>
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<tr>
<td></td>
<td>English--final copy</td>
<td></td>
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<td></td>
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<tr>
<td>Wednesday</td>
<td>Biology--finish Chapt. II</td>
<td>9-10</td>
<td></td>
<td>7-10</td>
</tr>
<tr>
<td></td>
<td>Spanish--start Chapt. IV</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Thursday</td>
<td>Spanish--finish Chapt. IV</td>
<td>9-11</td>
<td></td>
<td>7-10</td>
</tr>
<tr>
<td></td>
<td>Astronomy--read Chapt. IV</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Friday</td>
<td>Astronomy--read Chapt. IV</td>
<td>9-11</td>
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### APPENDIX K

**DAILY SCHEDULE**

**Monday**

<table>
<thead>
<tr>
<th>Time</th>
<th>Item</th>
<th>Priority</th>
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<tbody>
<tr>
<td>8-9</td>
<td>Review notes for Soc. class discussion</td>
<td>*2</td>
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<tr>
<td>9-10</td>
<td>Sociology Class</td>
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<tr>
<td>10-11</td>
<td>Biology Lecture</td>
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</tr>
<tr>
<td>11-12</td>
<td>Fix up Biology lecture notes</td>
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</tr>
<tr>
<td>12-1</td>
<td>Lunch</td>
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<tr>
<td>1-2</td>
<td>Return book to library and buy notebook at bookstore</td>
<td>*3</td>
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<tr>
<td>2-5</td>
<td>Literature homework--read Chaps. 3-6</td>
<td>*1</td>
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<tr>
<td>5-6</td>
<td>Basketball</td>
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<tr>
<td>6-7</td>
<td>Dinner</td>
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<tr>
<td>7-10</td>
<td>Math homework--problems on pp. 10-14</td>
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</table>
APPENDIX L
INFORMED CONSENT FORM

University of Florida
Gainesville, 32611

To the student,

I am collecting information for a study concerned with how students manage their time. I would appreciate it if you would take the time now to complete the attached Inventory of Study Habits and Attitudes along with the Self-Survey Index. In addition, I would like you to complete the Time-Use Inventory over the next week. The person giving you these instruments will fully explain how to fill out the forms.

Participation is voluntary, so if for any reason you would rather not take part in this project, please feel free to say so. Furthermore, you may withdraw at any time. Your answers and time sheets will be used for statistical purposes only.

Thank you,

Alan F. Kirby
Principal Investigator
375-2120
1311 NW 7th Avenue
Gainesville, Florida 32603

I have read and understand the procedure described above. I agree to participate in the procedure and I have received a copy of this description.

_________________________  _______________________
Date                           Signature of Student
REFERENCES


Bell, H. M. Study habits of teachers college students. Journal of Educational Psychology, 1931, 22, 538-543.


Book, W. F. Results obtained in a special how to study course given to college students. School and Society, 1927b, 14, 529-534.


Comstock, A. Time and the college girl. School and Society, 1925, 21, 326-327.


Eurich, A. C. The amount of reading and study among college students. School and Society, 1933, 37, 102-104.


Williamson, E. G. The relationship of numbers of hours of study to scholarship. *Journal of Educational Psychology, 1935, 26, 682-688.*

BIOGRAPHICAL SKETCH

Alan Ferguson Kirby was born on January 6, 1951, in St. Charles, Missouri. He is the son of Mr. and Mrs. Michael J. Kirby of Greenfield, Indiana. In June, 1969, he graduated from Greenfield High School, Greenfield, Indiana. In June, 1973, he received the degree, Bachelor of Science, with a major in psychology from Ball State University, Muncie, Indiana. During 1973 and 1974, he worked for the Housing Office at Ball State University and completed the degree, Master of Arts, with a major in educational psychology in August, 1974. From 1975 to 1976, he worked part-time for the University of Florida Reading and Study Skills Center while pursuing a degree in the Department of Counselor Education. In August, 1976, he received the degrees, Master of Education and Specialist in Education. Since September, 1976, until the present time, he has been the Project Coordinator for Residence Hall Learning Centers (half-time) and a full-time candidate for the degree, Doctor of Philosophy, in the Department of Counselor Education.

Mr. Kirby will be employed as the Coordinator of Educational Programming at the University of California, Santa Barbara.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Harold Riker, Chairman
Professor of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

A. Garr Cranney
Associate Professor of Counselor Education and English

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

E. L. Tolbert
Associate Professor of Counselor Education

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Roderick McDavis
Assistant Professor of Counselor Education
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Chester Tillman
Associate Professor of English

This dissertation was submitted to the Graduate Faculty of the College of Education and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1977

Joe Wittmer
Dean, College of Education

Dean, Graduate School