Effects of Time-Management Practices on College Grades

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A prospective study tested the hypothesis that college grade point average would be predicted by time-management practices. Ninety college students completed a time-management questionnaire in 1983; their high school Scholastic Aptitude Test (SAT) scores were obtained from college records. Principal-components analysis of the 35-item time-management instrument revealed 3 components. In 1987, 4 years later, each student's cumulative grade point average was obtained from college records. Regression analyses showed that 2 time-management components were significant predictors of cumulative grade point average ($R^2 = .21$) and accounted for more variance than did SAT scores (increment in $R^2 = .05$). It is concluded that time-management practices may influence college achievement.

Students' time is a limited resource. Like other limited resources, time can be more or less effectively managed. We propose that differences among individuals in time-management practices account for some of the differences in how much people achieve during their college years. Time-management practices have been the subject of an extensive popular literature (e.g., Bliss, 1976; Greene, 1969; Lakein, 1973), but this literature presents only anecdotal evidence for the efficacy of time-management practices.

In the scholarly literature, researchers generally agree that intellectual achievement takes time (Barron, 1988; Csikszentmihalyi, 1988; Gruber & Davis, 1988; Johnson-Laird, 1988; Tardif & Sternberg, 1988; Torrance, 1988) and perseverance (Gardner, 1988; Gruber & Davis, 1988; Simonton, 1988; Sternberg, 1988; Tardif & Sternberg, 1988; Torrance, 1988). If educational achievement, like intellectual achievement in general, takes time, then time-management practices should play a role in educational achievement. In empirical studies of self-regulated learning, researchers have often measured time-management variables in the context of other variables such as self-monitoring, self-judgment, and alertness (Corno & Mandinach, 1983; McCombs, 1986; Zimmerman, 1990; Zimmerman & Schunk, 1989). In some cases the group of variables has been found to influence empirical measures of school achievement (McCombs, 1986; Zimmerman, 1990).

As we sought clear empirical evidence that time-management practices influence educational achievement, we found that there have been relatively few empirical studies in which time-management practices were measured separately or in which time-management abilities were related to quantitative measures of achievement. Hall and Hursch (1982) measured time-management practices in the course of successfully using behavior-management techniques to increase the time that four faculty and staff allocated to self-selected, high-priority tasks over several weeks. Tulga (1979) and Tulga and Sheridan (1980) measured short-term time-management practices by testing graduate students and faculty on a time-management computer game. In the game, several blocks on a computer screen—each block representing one job—moved toward a deadline. The subject could “work on” only one block at a time. The subject's goal was to earn points by completing blocks. Each block was marked with several graphical features indicating, for example, the number of points to be accrued if work on the block was completed before it reached its deadline and the amount of work each increment of time devoted to the block would accomplish. Subjects chose which block to work on by moving a cursor to it. As each block was worked on, it decreased in size until it disappeared on completion. The results showed that individuals differed substantially in the optimality with which they allocated their time in this gamelike task within single experimental sessions. Tulga's and Tulga and Sheridan's studies confirm that there are individual differences in time-management practices within an experimental session, and Hall and Hursch's study showed that time-management practices can be experimentally manipulated over several weeks. The goal of the present study was to look for effects of time-management practices over a much longer period—the length of a college education—and to look for effects on more usual empirical measures of achievement.

Britton and Glynn (1989) described a simple theoretical model of time-management practices intended to maximize intellectual productivity. The present investigation was based loosely on that model. The model specifies several time-management components: choosing goals and subgoals, prioritizing the goals, generating tasks and subtasks from the goals, prioritizing the tasks, listing the tasks on a “to-do” list, scheduling the tasks, and then carrying out the tasks. We constructed a time-management questionnaire with which to measure these components. Our prediction was that students with well-developed time-management practices would accomplish more intellectually and therefore would have higher college grades.

Why would time-management practices influence intellectual accomplishment? Our theory is derived from research in

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computer-operating systems (Calingaert, 1982). A computer's operating system manages the computer's information-processing resources, which are limited. We think that the information-processing resources of college students, which are also limited, can also be managed and that this management can profitably be considered as being carried out by some mental system analogous to the time-management component of a computer's operating system.

The computer programs that computer-operating systems use to manage their central processing unit’s (cpu’s) time have several characteristics; our time-management questionnaire asks about the human counterparts of some of these. For example, a computer-operating system’s time-management programs specify goals, make lists of jobs, and use priorities. Our questionnaire asks about goals (“Do you have a clear idea of what you want to accomplish during the next week?”, “Do you write a set of goals for yourself each day?”, “Do you have a set of goals for the entire quarter?”); making lists (“Do you make a list of the things you have to do each day?”, “Do you make a schedule of activities you have to do on work days?”); and priorities (“Do you set and honor priorities?”, “Do you stop unprofitable routines or activities?”, “On an average day do you spend less time with personal grooming than doing school work?”).

From time to time, cpu time-management programs take over their cpu to run themselves in order to carry out list making, goal specification, and setting of priorities; likewise, we asked our subjects about the amount of time they spend planning their allocation of time (“Do you spend time each day planning?”, “Do you plan your day before you start it?”). The very existence of cpu time-management programs is evidence that those who designed them believed them to be important and useful; likewise, we asked our subjects about their attitudes toward time management (“Do you make constructive use of your time?”, “Do you feel you are in charge of your own time, by and large?”, “Do you believe there is room for improvement in the way you manage your time?”).

We have observed that college students and other intellectual workers, like large institutional mainframe computers, often have a large number of information-processing tasks to do and that the tasks are of differing lengths, complexity, priority, deadlines, and proneness to interruptions: In short, college students’ cpus are overloaded. In such circumstances it would be natural for students to consider how they might manage their mind’s time more effectively. Indeed, a survey showed that 67% of the undergraduates at our university reported that their greatest personal need (of 40 needs on a checklist) was “to manage my time more effectively” (Weissberg, Berentsen, Cote, Cravey, & Heath, 1982).

Informally we have observed that people with modest abilities can accrue substantial lifetime achievements if they focus their abilities effectively on achievable goals in a limited domain over a lengthy period of time. It is as if such persons’ abilities, when focused over and over again within a limited domain, tend to compound so that they can eventually conquer that domain. That is, even if each single application of such persons’ ability is very small (because their ability is modest), the cumulative buildup in a specific domain can be very large if their abilities are applied in a focused way to well-selected and limited goals and to well-chosen subgoals over a large number of iterations. In contrast, we have observed some persons of high ability who do not select, prioritize, and monitor their goals, subgoals, and tasks, and who therefore seem disorganized and accomplish relatively little. This informal description applies to the selection of goals, prioritizing goals to focus effort, and monitoring task and goal accomplishment. These are all elements of time-management practices that are measured in this study.

Grades in college courses, particularly undergraduate courses, often depend on managing the completion of a complex mix of jobs, including jobs with various priorities, deadlines, lengths, and other characteristics (e.g., getting papers and lengthy assignments with various grade weightings in on time and studying for tests at the appropriate time) rather than on a single challenging assignment such as deriving a brilliant and original proof 3 weeks after the course grades have been assigned. Similar to computers, which have multiple tasks and multiple users to satisfy, students have multiple tasks and multiple instructors to satisfy, and grades are determined by the quality of service provided to the various tasks and instructors. Thus, grade point average would be expected to be influenced by time-management skills. To rule out the possibility that such skills are merely another side of the traditional view of aptitude, we also assess aptitude using the Scholastic Aptitude Test (SAT) and compare the independent contributions of time-management skills and aptitude to grade point average using a prospective design.

Method

Subjects

Ninety male and female freshmen and sophomore undergraduates enrolled in an introductory psychology class at the University of Georgia volunteered for course credit to complete a set of questionnaires, labeled collectively as “Group Testing.” One of the questionnaires was the time-management questionnaire. This testing session was conducted in October 1983. Students enrolled in introductory psychology at the University of Georgia are from a variety of academic majors and socioeconomic status categories; about 90% are White and about 10% are ethnic minorities.

Materials

The time-management questionnaire included 35 items, each answered on a 5-point scale consisting of the responses always, frequently, sometimes, infrequently, and never. In scoring, 5 points were assigned to the response at the end of the scale that we defined a priori as the “good” practice and 1 point was assigned to the response at the other end of the scale, with intermediate values given for the other responses. Higher values on the scale correspond to better time-management practices.

Results

Grade Point Average

The cumulative grade point average from October 1983 to September 1987 ranged from 1.63 to 3.77, on a conventional scale ranging from F (0) to A (4). The mean was 2.73, and the standard deviation was 0.52.
Scholastic Aptitude Test Scores

The total SAT scores ranged from 700 to 1,430, with a mean of 993 and a standard deviation of 125. These tests were administered before the students entered college.

Time-Management Questionnaire Scores

The total score on the time-management questionnaire ranged from 52 to 123, with a mean of 91 and a standard deviation of 14. To analyze the factors associated with this instrument, we subjected the items to a principal-components analysis. Although there were 12 components with an eigenvalue greater than 1, an application of the Scree test indicated a clear “elbow” at three components. Therefore, three components were retained and rotated with a varimax solution. These three components accounted for 36% of the variance. Inspection of the factor loadings indicated that each of the factors is interpretable. The items loading .40 or more on a factor are listed in Table 1.

We named the first factor Short-Range Planning because it appears to encompass a variety of items that require planning in the short run, either within the day or within the week. Students who score high on this factor report organizing their day. The second component, which we call Time Attitudes, is more attitudinal in nature. Students who score high on this factor indicate that their time is used constructively and that they feel in charge of the way their time is spent. The third component was more difficult to name, but we tentatively call it Long-Range Planning. Students who score high on this component seem to think of things in terms of a relatively wide time window. They set goals for the entire quarter, keep track of important dates on a single calendar, review material even when tests are not imminent, and do not wait until the last minute to finish working on major assignments.

Each of these components of time management appears to have obvious and straightforward meaning for effective performance. For example, students who implement Short-Range Planning activities will have a clear idea in advance of what they intend to accomplish during the next week and will spend time at the beginning of each day writing a list of goals, a to-do list, and a schedule; these planning lists will be informed by setting priorities, with the priorities honored in the implementation of the plan.

Students who score high on the Time Attitudes factor report that they find more time to spend on their schoolwork by stopping unprofitable activities, saying “No” when people ask them to do things that would interfere with work, and giving schoolwork a higher priority than grooming. Also, they have a strong sense of control over the valued commodity of time;

<table>
<thead>
<tr>
<th>Factor/item</th>
<th>Short-Range Planning (Factor 1)</th>
<th>Time Attitudes (Factor 2)</th>
<th>Long-Range Planning (Factor 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you make a list of the things you have to do each day?</td>
<td>.79</td>
<td>-.10</td>
<td>.00</td>
</tr>
<tr>
<td>2. Do you plan your day before you start it?</td>
<td>.72</td>
<td>.15</td>
<td>.10</td>
</tr>
<tr>
<td>3. Do you make a schedule of the activities you have to do on work days?</td>
<td>.71</td>
<td>.00</td>
<td>.32</td>
</tr>
<tr>
<td>4. Do you write a set of goals for yourself for each day?</td>
<td>.67</td>
<td>-.13</td>
<td>-.05</td>
</tr>
<tr>
<td>5. Do you spend time each day planning?</td>
<td>.66</td>
<td>.13</td>
<td>.31</td>
</tr>
<tr>
<td>6. Do you have a clear idea of what you want to accomplish during the next week?</td>
<td>.54</td>
<td>.21</td>
<td>.37</td>
</tr>
<tr>
<td>7. Do you set and honor priorities?</td>
<td>.50</td>
<td>.43</td>
<td>.18</td>
</tr>
</tbody>
</table>

Time Attitudes

1. Do you often find yourself doing things which interfere with your schoolwork simply because you hate to say “No” to people? * - .04 .63 .20
2. Do you feel you are in charge of your own time, by and large? .12 .60 .10
3. On an average class day do you spend more time with personal grooming than doing schoolwork? * .22 .58 -.20
4. Do you believe that there is room for improvement in the way you manage your time? * .19 .55 .28
5. Do you make constructive use of your time? .21 .55 .35
6. Do you continue unprofitable routines or activities? * .05 .52 .17

Long-Range Planning

1. Do you usually keep your desk clear of everything other than what you are currently working on? .05 -.03 .61
2. Do you have a set of goals for the entire quarter? .33 .01 .49
3. The night before a major assignment is due, are you usually still working on it? * -.07 .42 .47
4. When you have several things to do, do you think it is best to do a little bit of work on each one? .00 .13 .47
5. Do you regularly review your class notes, even when a test is not imminent? .39 .31 .42

Note: Factor 1 accounts for 16% of total variance, Factor 2 for 11%, and Factor 3 for 9%.

*These items were reverse scored, for example, responses of “never” were given a score of 5.
this feeling may be a counterpart in the time realm of the sense of self-efficacy, which Bandura (e.g., Bandura, 1989) has argued is generally associated with better performance. That is, if one is able to say no and to refrain from unprofitable activities, then one is likely to develop a sense of efficacy with respect to time control and should more confidently be able to plan and carry out one’s plan for time distribution. Students who score high on the Long-Range Planning factor report having a set of goals for the entire quarter and being well organized in their work habits.

Regression Analyses

Our first attempt at analyzing the effects of time management was to regress grade point average on each of the time-management components and on SAT score in a data-determined stepwise procedure. Time-management components were based on least-squares factor scores (M = 0, SD = 1). As can be seen in Table 2, the intercorrelations among these variables in this sample are relatively low; therefore, concern about multicollinearity was less important. This stepwise procedure resulted in the Time Attitudes component of time management entering first ($R^2 = .15, p < .001$), followed by the Short-Range Planning component (increment in $R^2 = .06, p < .02$), SAT score entered third (increment in $R^2 = .05, p < .03$). Long-Range Planning did not seem to make much difference and did not enter, $p > .05$.

Because the relationship between scholastic aptitude (as measured by the SAT) and grade point average is already well established, we decided to take a more conservative approach to evaluating the independence of the contribution of time management. In this analysis we forced SAT score into the equation first. Under these conditions SAT score still accounted for only 4% of the variance and was nonsignificant. In addition, both Time Attitudes and Short-Term Planning again entered and made significant ($p < .05$) contributions together, adding 21% of predictable variance to the equation.

Discussion

These data suggest that self-reports of time management are related to academic achievement. Furthermore, the effects of time management are independent of SAT score and, in this particular study, even stronger than the effects of SAT score. We attempt to put these results into perspective: First, we must note that there is normally a range restriction with respect to SAT score. Those students in the lower portion of the distribution, of course, do not get into college. However, as noted above, in our sample the standard deviation was 125 rather than the national norm of 100. Thus, whereas the relationship between SAT score and grade point average would usually be underestimated in college populations, in our sample this may be less of a problem. It is interesting to note that although there is a substantial body of data from the Educational Testing Service indicating that the correlation between SAT score and freshman grade point average is about .42 (Donlon, 1984), we have been unable to find any reports of correlations between SAT score and grade point average beyond the freshman year. Also, our data are based on psychology-course enrollees. We therefore do not have a figure to compare directly with our correlation between SAT score and grade point average of psychology course enrollees of .20. On the other hand, even if the relationship between SAT score and grade point average has been underestimated, our analysis procedures ensure that SAT score cannot serve as a plausible explanation for the relationship between time management and grade point average.

One can take several stances about responses to the time-management instrument. Our point of view is that students are describing with some accuracy their actual behaviors and feelings about time. Another possibility, however, is that responses to the time-management questionnaire represent various response biases and that the results can be explained on the basis of such biases. For example, a plausible case can be made that people who score high on the time-management questionnaire are simply presenting themselves in a favorable light. Being able to present oneself in a favorable light is a very useful skill. It may not only result in a high score on the time-management questionnaire but also help one to get good grades in college, particularly in small classes or in classes with less-objective scoring criteria. With regard to this explanation, the relation between time-management questionnaire responses and college grades is spurious rather than causal.

Although such an explanation is possible, there are some problems with it. First, if social desirability were the only determinant of responses to the time-management questionnaire, then that questionnaire ought to have been found to have a single factor, that is, social desirability. It did not. Second, even if social desirability does not pervade the entire questionnaire but explains only part of the relationship between the time-management questionnaire score and grade point average, then only a single factor, that is, a factor correlated with social desirability, ought to have predicted grade point average. In fact, two of the independent factors within the time-management questionnaire made a significant contribution to grade point average: Short-Range Planning and Time Attitudes. Finally, if one analyzes the three factors that emerged from the principal-components analysis, it is unclear which of these factors is most highly saturated with social-desirability response bias. Indeed, the Long-Range Planning factor appears as desirable or perhaps more so than any of the other factors, and yet it was not associated with grade point average. We believe that a similar response would

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Table 2
Correlations Among the Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>GPA</th>
<th>SAT</th>
<th>TM1</th>
<th>TM2</th>
<th>TM3</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPA</td>
<td>.20</td>
<td>.25*</td>
<td>.39*</td>
<td>-.10</td>
<td></td>
</tr>
<tr>
<td>SAT</td>
<td>.06</td>
<td>.01</td>
<td>-.28*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TM1</td>
<td>.01</td>
<td>.01</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TM2</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>TM3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*Note. GPA = grade point average; SAT = Scholastic Aptitude Test; TM1 = time-management component 1, Short-Range Planning; TM2 = time-management component 2, Time Attitudes; TM3 = time-management component 3, Long-Range Planning.

*p < .05.
follow for any explanation focusing on a single bias as an explanation for the relationship between time-management factors and grade point average. Therefore, we are inclined to discount this class of explanations.

Another interpretation of the relationship between time management and grade point average is that students who happen to do well in school somehow come to develop short-range planning skills and positive attitudes toward time. Although it is not clear what the mechanism(s) are by which such transformations would take place, this interpretation is not plausible on design grounds. Although high school success could have fostered time management, in this prospective study measures of time-management attitudes and skills were taken prior to the unfolding of grade point average. This sequence of events makes less plausible an interpretation in which grade point average produces time-management responses.

From our perspective the more interesting aspects of these results emerged through considering the factors as descriptions of behavior. The Time Attitudes factor seems very much like self-efficacy. Subjects report feelings of being in charge of their own time. They are able to say "No" to people. They are able to stop unprofitable routines or activities. According to Bandura (1989), such feelings of efficacy allow, and indeed support, more efficient cognitive processing, more positive affective responses, and more persevering behavior. The present data seem to be consistent with that position.

Short-Range Planning also seems to predict grade point average, whereas Long-Range Planning does not. Why is this the case? There are several possibilities. In some environments, for some goals, long-term trends may be more important than short-term fluctuations. On the other hand, a short-term window may be optimal in other environments for other goals. The college environment is one in which changes in expectations, demands, and so forth, are relatively rapid and frequent. Different parts of the same course may unpredictably differ in difficulty; the overlapping of demand from different courses is often unpredictable; nonacademic life events may cause unpredictable changes in demands, available time, or priorities; instructors may even change their mind about the due date on papers or the date an exam will be scheduled; on occasion, there is no syllabus and even in courses in which there is a syllabus, there are often consequential deviations from it. Perhaps in this type of environment if the goal is to maximize grades, a short-term planning window is more optimal than a long-term planning window. If this interpretation is correct, then the Long-Range Planning factor might become more important in a less volatile, more stable environment.

The interpretation of Long-Range Planning described above does not account for its negative correlation with SAT score. Perhaps this factor should be interpreted differently. Several of the items loading on Long-Range Planning may indicate an inability to tolerate complexity, for example, keeping a clean desk. To the extent that these items indicate a low tolerance for ambiguity, those persons who score high on this factor might be unable to cope with other kinds of complexity, such as the complexity involved in taking the SAT. These are questions for future research.

In sum, the present results show an encouraging relationship between time-management attitudes and skills and grade point average. This relationship may have applied implications because time-management skills can be taught (Hall & Hursch, 1982). College students are useful subjects for this research, partly because a suitable measure of achievement is readily available for them. The relationship between time management and achievement may also hold in other fields. More research is needed to document this relationship and to determine with greater precision the circumstances under which it does and does not hold.

References


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