

Time Diary and Questionnaire Assessment of Factors Associated With Academic and Personal Success Among University Undergraduates

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Abstract. Objective and Participants: A sample of 231 students attending a private liberal arts university in central Alberta, Canada, completed a 5-day time diary and a 71-item questionnaire assessing the influence of personal, cognitive, and attitudinal factors on success. **Methods:** The authors used 3 success measures: cumulative grade point average (GPA), Personal Success—each participant's rating of congruence between stated goals and progress toward those goals—and Total Success—a measure that weighted GPA and Personal Success equally. **Results:** The greatest predictors of GPA were time-management skills, intelligence, time spent studying, computer ownership, less time spent in passive leisure, and a healthy diet. Predictors of Personal Success scores were clearly defined goals, overall health, personal spirituality, and time-management skills. Predictors of Total Success scores were clearly defined goals, time-management skills, less time spent in passive leisure, healthy diet, waking up early, computer ownership, and less time spent sleeping. **Conclusions:** Results suggest alternatives to traditional predictors of academic success.

Keywords: academic success, college health, GPA, success predictors, time-management skills, time diary

The search for factors associated with university students' academic success has stimulated keen interest and spawned a large number of empirical studies in recent decades.¹⁻³ Although cumulative grade point average (GPA) is a frequently used measure of academic success,⁴⁻⁶ the purpose of education also extends to personal and professional achievement. For this reason, researchers conducting studies of this nature

must include, in addition to GPA, subjective measures of personal success.

In the present study, we duplicated certain aspects of research by Trockel et al,¹ who used GPA as their standard of success and a variety of physical and mental health criteria as predictors. Whereas theirs involved a mail-in survey that included self-reports of exercise, eating patterns, sleep habits, mood states, perceived stress, time-management skills, social support, and others, we asked participants to maintain a time diary of daily activities and answer a questionnaire with additional exploratory variables. Furthermore, we used an expanded measure of success that includes both objective (GPA) and subjective (personal success) measures. To minimize social desirability biases and increase objectivity, we also analyzed assessments of certain questionnaire items by a friend of each participant.

Our purpose in the study was to confirm some findings of Trockel et al¹ using more participants and the design improvements listed previously. Furthermore, although many researchers have documented the effect of particular practices on college student success, results have often been inconsistent. Thus, we designed the present study to provide additional clarity. We now briefly review past studies that shed light on the influence of many of the variables we used.

Previous Studies

Goals

Throughout the past century, businessmen and motivational experts have placed goal setting as a central construct of their success argument.⁷⁻¹¹ Although their work is largely anecdotal, scholarly literature from several domains supports their position. For example, Locke and Latham¹² created the primary goal-setting theory that is used today in the business world. Researchers in a number of empirical

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studies¹³⁻¹⁶ have verified the effectiveness of this theory and others. Psychological and educational investigators also have associated goal setting with success among elementary school students,¹⁶ high school students,¹⁷ and university undergraduates.¹⁸

Intelligence and Study Time

Many studies verify that intelligence^{5,19,20} and study time^{4,5} are positively associated with academic performance. However, the relationships between intelligence (as measured by an IQ test) or time studying and success in the personal, relational, or vocational arenas are not nearly as strong.^{21,22}

Sleep Issues: Time Arising, Time Retiring, and Hours of Sleep

Results of several studies show that academic success is significantly associated with waking earlier, going to bed earlier, and accumulating less sleep.^{1,5,23} Of the variables in the Trockel et al study,¹ wakeup time was the greatest single predictor of student GPA. Although amount of sleep's influence on success is curvilinear (too little or too much is detrimental), the linear association is still quite robust.

Personal Control Issues

In present study, we posit that students with greater personal control will be more successful in many settings. Motivational experts have touted time-management skills as a central predictor of success in many fields,⁸⁻¹⁰ and scholarly research backs these claims.^{4,5} In a study of university students, Britton and Tesser²⁴ found that better time-management skills were associated with higher GPAs. In fact, time-management skills rated even higher (as a predictor of GPA) than did SAT scores. Also associated with personal control is access to important external resources such as computers, finances, and transportation: those with greater access to computers are more likely to be academically successful,²⁵⁻²⁷ and the benefit of personal control that is attained via robust financial, transportation, or communication resources is so self-evident that it requires no documentation.

Spirituality

In 2 studies (on divorce recovery²⁸ and marital satisfaction [D.M. George, PhD, unpublished data, 2002]), researchers found that personal spirituality was associated with several success-related variables, including positive attitude, greater intelligence, an internal locus of control, optimism, and better health and fitness. Trockel et al¹ found that personal spirituality was positively associated with GPA, and Kahoe²⁹ and Donahue,³⁰ in 2 classic studies, reveal that personal spirituality is associated with both academic and nonacademic accomplishment.

Emotional Health Issues: Self-Esteem and Emotional Stability

Self-esteem is associated with academic and personal success among elementary students,³¹ high school students,³² learning-disabled and continuing-education students,³³ and

university undergraduates.³⁴ Although the self-esteem-success relationship is generally accepted, study results are not always straightforward. For instance, Osborne,³¹ in a study of college freshmen and sophomores, found a nonsignificant negative correlation between self-esteem and GPA.

The influence of emotional stability on student success has been surprisingly mixed. In a study of first-year university students, Lecompte³⁴ observed that emotional distress was detrimental to academic accomplishment; however, Evans³⁵ found no relationship between emotional stability and academic success. Musgrave-Marquart and Bromley,⁶ in a study of university undergraduates, found a significant positive correlation between students' GPAs and measures of neuroticism. Trockel et al¹ detected nonsignificant (positive) correlations between negative emotional states (eg, anger, depression, sense of pressure, anxiety) and GPA.

Dietary, Health, and Leisure Habits

Positive associations exist between academic success and participation in physically active leisure,^{36,37} planned exercise programs,¹ a healthy diet,³⁸ and health-related practices such as eating breakfast.¹ In addition, many study findings substantiate that better overall health is associated with academic accomplishment.³⁹ Although Bergin³ found that academic leisure activities (reading, writing, debating, tasks that require critical thinking skills) and intense leisure participation (activities such as athletics, chess, acting, music performance) correlate positively with GPA, Hood et al⁴⁰ found that passive activities such as watching television or hanging out with friends had a negative impact.

Time Diary and Cross Validation

The biases of self-reported and retrospective data have been so widely observed that there now exist several methods to correct for such difficulties. Robinson and Bonstrom⁴¹ compared self-reported amount of time working with actual records kept in a time diary. They and other researchers^{42,43} found that large systematic discrepancies exist between often-biased self-reports and more accurate time-diary statistics. For this reason, we incorporated participant time diaries into the present study.

Additional biases that influence responses on self-report questionnaires are social desirability⁴⁴ and acquiescence or oppositional bias.⁴⁵ One way to minimize these types of biases is to use a criss-cross technique (a self-rating and a corresponding rating by another person on the same issue), which has been widely used in couples research and counseling.⁴⁶ On the questionnaire portion of the study, we used both time diaries for data collection and the opinion of a friend to create greater objectivity.

METHODS

A sample of 231 randomly selected undergraduates from a Central Alberta liberal arts, Christian-affiliated university participated in the study. There were 118 women (51%) and 113 men (49%), with an ethnic breakdown of 70% white, 15% black, 8% Asian, 3% Hispanic, and 4% other or no response. The mean age of the group was 23.1 years ($SD = 5.96$).

Materials

We administered the first and third forms to all participants; we administered the second form to a friend of each participant. The first was a 6-page questionnaire that included instructions, 9 demographic questions, and a 71-item section that assessed intelligence, emotional stability, spirituality, and self-esteem. Four questions dealt with time-management skills, quality of diet, health, and clarity of goals. The final 11 questions assessed personal and environmental factors that contributed to achievement of (or progress toward) those goals. The instructions for the first questionnaire included a brief description of the study, identification of the sponsoring organization, requirements for participation, examples of each of the 3 types of questions, and assurance of confidentiality. The institutional review board approved the study, and each data collector acquired informed consent.

A friend of each participant completed a second questionnaire, designed to create a more objective dependent variable. This questionnaire consisted of the final 12 items from the original set of questions, reworded to reflect the perspective of the friend.

Last, all participants filled out a time diary for 5 consecutive weekdays. Materials in the diary included (1) instructions for filling out the forms, (2) a sample time-diary sheet with hypothetical data as an example, and (3) 5 separate sheets to be filled out for each of the 5 days of the trial. The 5 pages included the 24 hours for each trial day broken into half-hour segments; space was provided for recording activities in each of the half-hour segments. The instructions furnished tips for keeping these descriptions simple and specified codings to be used for common events such as time in class, studying, working, leisure, devotions, public worship, ablutions, chores, eating, and sleeping.

Procedure

Recruiting Participants

We contacted potential participants in person, by telephone, or by e-mail to request their participation. To encourage maximum cooperation, we offered full results of the study after completion, and we placed their names in a \$200 lottery pool with awards distributed as follows: 1 × \$50, 1 × \$35, 2 × \$20, 2 × \$10, 11 × \$5.

Oral Instructions

As participants read the instructions, we answered any questions that arose, described how to contact a friend to fill out the short form, and reassured them of confidentiality.

Student Success: Dependent Variables

We used 3 student success measures: (1) an objective measure (GPA), (2) a subjective measure called Personal Success (each participant's and a friend's rating of perception of success), and (3) a Total Success measure that weighted GPA and Personal Success equally.

Objective Measure: Cumulative GPA

We acquired each participant's cumulative GPA from university records. We then converted GPAs to *z* scores, which yielded a final measure that ranged from -3.89 to 1.51. We called this variable GPA.

Subjective Measure: Personal Success

Eleven questions assessed both specific and global factors associated with goal achievement. We used 2 sets of questions (each consisting of 11 items); participants completed one set, and their friends completed the corresponding set. We equally weighted the perception of the friend and the participant, yielding a final measure that ranged from 1 (*very low success*) to 7 (*very high success*). This variable is called Personal Success. (The content of the 22 questions and the computational formula used is available by request to the authors.) The alpha value for this measure was .85.

Combined Measure: Total Success

The final success measure was the mean of the GPA and Personal Success variables and ranged from -3.32 (*low success*) to 1.57 (*high success*). This measure is called Total Success.

Predictor Variables

Demographic and Background Variables

Items included the assessment of sex, age, marital status, major, class rank, living situation (residence hall or off-campus), ethnicity, class load, computer status (own computer, do not own computer), and financial need (rated on a 7-point scale with anchors of 1 [*in desperate poverty*] and 7 [*never any financial challenges*]).

Because there were many predictor variables, we listed them in the text with only brief comments. Table 1 provides detail of variables that significantly affected study results.

Variables From the Time Diary

We measured variables from the time diary by the number of hours spent in that activity during the 5 days. We used 3 methods of computing the final value dependent on the normality of data.

1. If data were normally distributed, we converted the number of hours to *z* scores.
2. If data moderately deviated from normality, we took the natural log (*ln*) of the values (to restore normality) and then changed that value to a *z* score.
3. If deviation from normality was severe, we discarded the variable.

Variables used included time studying, time sleeping, time of day getting up, time of day going to bed, time spent in active leisure, time spent in passive leisure, time working, time spent in personal devotions, and time spent in ablutions.

Variables From the Questionnaire

Variables from the questionnaire were self-esteem (10 items, $\alpha = .89$),⁴⁷ IQ (13 items),⁴⁸ time-management skills (1 item), clarity of goals (8 items), spirituality (18 items, $\alpha = .88$),⁴⁹ diet (how healthy; 1 item), general health

TABLE 1. Construction and Wording of Key Variables

Variable	Source	No. of items	Scale	Comment
Dependent (criterion) variable				
GPA	University database	1	0.0-4.0	Overall cumulative GPA changed to z scores
Personal success	Self-assessment			
	Assessment of friend	22	1.0-7.0	11 items contributed by the participant, 11 by the friend
Total success	2 success measures	2	1.0-7.0	GPA and personal success weighted equally
Select predictor variable				
Clarity of goals	Self-assessment	11	1.0-7.0	Participant wrote down 3 goals; 3 researchers rated goals with 7-point scales on specificity, quantifiability, and importance. Participant rates overall clarity of personal goals, and friend rates overall clarity of goals. The mean of these 11 ratings.
Time-management skills	Self-assessment	1	1.0-7.0	Question: "How would you rate the quality of your own time-management skills? Anchors of 1 (<i>very poor</i>) to 7 (<i>extremely effective</i>).
IQ	Cattell's 16PF ⁴⁹	13 multiple-choice questions	0-13	A test of abstract thinking, questions are analogies and sequence completions. Score is the number of correct answers.
Study time	Time diary	Varied	-3.0-3.0	Total number of hours spent studying in 5 days. Z score of the total number of hours was the final measure.
Sleep time	Time diary	Varied	-3.0-3.0	Total number of hours spent sleeping in 5 days. Z score of the total number of hours was the final measure.
Time awake	Time diary	5	4.0-13.0	The average time of arising for the 5 days during which the time diary was kept (to allow for waking after noon)
Spirituality	George Mabb Walsh Spirituality Scale ⁵⁰	18	1.0-7.0	18 items; 8 are reverse coded, and each item is scored on a 7-point scale. Anchors vary by question.
Devotions	Time diary	Varied	-3.0-3.0	The sum of hours spent in devotions during the 5 days. Psychometric distortion required that the natural log (ln) of each value be taken to restore normality. Z scores were then computed.
Diet	Self-assessment	1	1.0-7.0	Question: "How would you rate the nutritional quality of your present diet?"
Health	Self-assessment	1	1.0-7.0	Question: "How would you rate your overall level of health and vitality?"
Passive leisure	Time diary	Varied	-3.0-3.0	Sum of hours spent in passive leisure during the 5 days. Values were then changed to z scores.
Emotional stability	Cattell's 16PF ⁴⁹	10	1.0-7.0	The mean of the 10 items from the 16PF that measured emotional stability.
Self-esteem	Rosenberg Self-Esteem Scale ⁴⁸	10	1.0-7.0	The mean of the 10 items from the Rosenberg self-esteem scale
Finances	Self-assessment	1	1.0-7.0	Question: "To what extent do you feel that your financial needs are adequately met?"

Note. For study time, sleep time, devotions, and passive leisure, the scale was a range of z scores. GPA = grade point average; 16PF = Sixteen Personality Factor Questionnaire.

(1 item), and emotional stability (10 items, $\alpha = .83$).⁴⁸ Once again, Table 1 provides detailed descriptions.

RESULTS

Psychometrics and Method of Presentation

All continuous variables fell within acceptable skewness and kurtosis standards (between ± 2) for further analyses. Less than 1% of data were missing, which we replaced with the means of the associated distributions. We discarded 3 forms of the original 234, resulting in the final N of 231. The primary methods of analyses were conducting correlations between all relevant variables, stepwise multiple regression analysis ($p = .05$) to indicate the relative influence of variables after the influence of other variables has been removed, and a limited number of t tests and analyses of variance.

In 3 subsequent paragraphs, we identify the strongest predictors for each dependent variable (GPA, Personal Success, and Total Success). If a predictor variable achieved significance in the regression equations, we list that variable, its beta (β) weight, and the correlation value (r) with corresponding significance. Example: The greatest predictor of GPA is time-management skills ($\beta = .242, p < .001; r = .38, p < .001$). If a predictor did not achieve significance in the regression equation but was significantly correlated, then we list the correlation value. Example: GPA is correlated with clear goals ($r = .28, p < .001$).

Predictors of GPA

Seven predictors of GPA produced an R value of .592 (an R^2 of .350). Predictors, in order of magnitude, are:

1. Time-management skills ($\beta = .242, p < .001; r = .38, p < .001$)
2. Intelligence ($\beta = .187, p = .001; r = .20, p < .001$)
3. Time studying ($\beta = .185, p = .001; r = .20, p < .001$)
4. Waking up earlier ($\beta = -.173, p = .003; r = -.27, p < .001$)
5. Owning a computer ($\beta = .165, p = .003; r = .28, p < .001$)
6. Less time spent in passive leisure ($\beta = -.159, p = .007; r = -.22, p < .001$)
7. Healthy diet ($\beta = .124, p = .041; r = .30, p < .001$)

Additional variables that did not achieve significance in the regression equation but were significantly correlated with GPA included:

8. Clearly defined goals ($r = .28, p < .001$)
9. Better overall health ($r = .20, p < .001$)
10. Living in the community rather than the residence halls ($r = .20, p < .001$)
11. More time spent in devotions ($r = .15, p < .01$)
12. Greater reported spirituality ($r = .14, p < .05$)
13. Less time spent sleeping ($r = -.12, p < .05$)
14. Greater emotional stability ($r = .12, p < .05$)

Predictors of Personal Success

Four predictors of Personal Success produced an R value of .610 ($R^2 = .373$). Predictors, in order of magnitude, are:

1. Clearly defined goals ($\beta = .398, p < .001; r = .52, p < .001$). These are the highest beta weight and correlation values in the data set.
2. Overall health ($\beta = .174, p = .004; r = .39, p < .001$)
3. Personal spirituality ($\beta = .164, p = .003; r = .31, p < .001$)
4. Time-management skills ($\beta = .126, p = .041; r = .38, p < .001$)

Additional variables that did not achieve significance in the regression equation but were significantly correlated with Personal Success included:

5. Greater emotional stability ($r = .37, p < .001$)
6. Greater self-esteem ($r = .35, p < .001$)
7. Healthy diet ($r = .33, p < .001$)
8. Living in the community instead of the residence halls ($r = .20, p < .001$)
9. Time spent in devotions ($r = .18, p < .01$)
10. Less time spent in passive leisure ($r = -.17, p < .01$)
11. Waking up earlier ($r = -.15, p < .01$)
12. Owning a computer ($r = .15, p < .05$)

Predictors of Total Success

Seven predictors of Total Success produced an R value of .668 ($R^2 = .446$). Predictors, in order of magnitude, are:

1. Clearly defined goals ($\beta = .302, p < .001; r = .49, p < .001$)
2. Time-management skills ($\beta = .221, p < .001; r = .46, p < .001$)
3. Less time spent in passive leisure ($\beta = -.196, p < .001; r = -.24, p < .001$)
4. Healthy diet ($\beta = .192, p = .001; r = .390, p < .001$)
5. Waking up earlier ($\beta = -.123, p = .028; r = -.26, p < .001$)
6. Owning a computer ($\beta = .117, p = .024; r = .26, p < .001$)
7. Less time sleeping ($\beta = -.111, p = .044; r = -.11, p < .05$)

Additional variables that did not achieve significance in the regression equation but were significantly correlated with Total Success included:

8. Overall health ($r = .36, p < .001$)
9. Greater emotional stability ($r = .30, p < .001$)
10. Higher self-esteem ($r = .30, p < .001$)
11. Greater reported spirituality ($r = .27, p < .001$)
12. Living in the community rather than the residence halls ($r = .24, p < .001$)
13. More time spent in devotions ($r = .21, p < .001$)

14. More time spent studying ($r = .13, p < .05$)
15. Greater financial resources ($r = .11, p < .05$)

Table 2 provides a correlation matrix of key variables, and Table 3 includes results of the regression analyses showing predictors from greatest to least for GPA, Personal Success, and Total Success. In addition, Table 3 includes regression analyses for men and women.

COMMENT

In the Trockel et al.¹ study, the criterion variable was GPA and the predictors included several personal habit- and health-related variables. Predictors that Trockel et al. used produced a multiple R of .251; in the present study, that was more than doubled ($R = .592$). Reasons for this enhancement may be due primarily to our more sharply defined variables. Also, our time-diary analysis and cross verification of the dependent variables contributed to greater validity, and a larger N provided greater statistical power.

Wakeup Time

We duplicated only one result from the Trockel research¹ (early wake-up time yields better GPA) for both correlational and regression analyses. The evidence continues to mount in support of the relationship between this type of personal discipline and academic success.

Devotional Time

In the present study, more time spent in devotions was significantly correlated with GPA but did not retain significance in the regression equation; Trockel et al.¹ attained significance in both. This discrepancy may be attributed to the method of measurement. Whereas we used the actual amount of time spent in devotions on the basis of time-diary statistics, Trockel et al. used a self-assessment of the number of days per week in which time was spent in study of spiritually oriented material.¹ Perhaps the perception of reality affects accomplishment more than does the actual reality. Research verifies that one's perspective, rather than reality, frequently has greater influence on attitude and behavior.⁵⁰

Time-Management Skills

In regard to time-management skills, we observed a correlation value (with GPA) nearly twice as large as that found by Trockel et al. and in regression analyses, it was the strongest single predictor of cumulative GPA. In the Trockel study, time-management skills correlated significantly with GPA but did not approach significance in regressions. We again believe the difference results from the method of measurement. The Trockel measure assessed each participant's recall of the frequency of use of a daily planner. We assessed the self-perception of the quality of one's overall time-management skills. Our more sharply defined variable is probably the reason for the stronger effect.

Sleep and Diet

Similar to Trockel et al., we found that less sleep and healthy diet were significantly correlated with GPA but did not attain significance in regression analyses.

The Measures of Success

The 3 dependent variables appear to work well. All are psychometrically sound, and the Personal Success variable is a useful contrast to cumulative GPA. The Total Success variable appears to effectively integrate the academic and personal components of success. For instance, 7 predictors account for 35% of the variance for GPA, 4 predictors account for 37% of the variance for Personal Success, and 7 predictors account for 45% of the variance for Total Success.

The Predictors

Clearly Defined Goals

Clearly defined goals was the strongest predictor of both Personal and Total Success. The strength of the variable is further substantiated for Personal Success with which, in regression analyses, the beta weight more than doubles the next strongest predictor, personal health (.394 vs. .174). These results confirm the volumes of research that place clear goals at the center of accomplishment. However, the influence of clearly defined goals on GPA was not as dramatic. Perhaps in academic settings the goals are so intrinsic to the educational structure (eg, do well in each class, graduate) that the absence of broader life goals may not be much of a detriment to academic success.

Time-Management Skills

Time-management skills are the second-strongest predictor, significantly associated with success for all 3 dependent variables in both correlations and regressions. Time-management skills are the greatest predictor of GPA, supporting the Britton and Tesser²⁴ finding that time-management practices are central to academic success. This result suggests that selection committees for colleges and universities should assess a student's ability to manage time effectively as part of their entrance criteria. The power of time-management skills as a predictor of Personal Success suggests its importance in the wider domain of life success. For Total Success, time-management skills ranks second only to well-defined goals as a predictor.

Sleep Variables

Although bedtime did not significantly influence any of the success measures, early rising was a predictor (in correlations and regressions) for both GPA and Total Success. This finding supports the growing body of evidence showing that getting up early is a significant contributor to academic achievement. The influence of less time sleeping is not as strong but is still a predictor of Total Success in regression analyses. The influence of the amount of time sleeping appears to be a largely independent predictor of success because almost no difference existed between the correlation value and the regression beta weight. All sleep variables' influence on Personal Success was weaker than that on GPA. This suggests that although sleep habits heavily influence academic accomplishment, they may not do so for other types of goals.

TABLE 2. Correlates Among Dependent Variables (Grade Point Average [GPA], Personal Success, Total Success) and Key Predictor Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. GPA	—	.33**	.82	.28**	.38**	.20**	.21**	-.12*	-.27**	.14*	.15**	.30**	.20**	-.22**	.12*	.02	.10	.28**	.20**
2. Personal success	.33**	—	.82	.52**	.38**	-.06	.01	-.07	-.15**	.31**	.18**	.33**	.39**	-.17**	.37**	.35**	.08	.15*	.20**
3. Total success	.82	.82	—	.49**	.46**	.09	.13*	-.11*	-.26**	.27**	.21**	.39**	.36**	-.24**	.30**	.23**	.11*	.26**	.24**
4. Goals	.28**	.52**	.49**	—	.35**	<.001	.11*	-.02	-.18**	.16**	.15**	.22**	.30**	-.15*	.36**	.33**	.03	.16**	.32**
5. Time-management skills	.38**	.38**	.46**	.35**	—	-.10	.11	-.02	-.14*	.26**	.22**	.41**	.43**	-.09	.36**	.25**	.15*	.20**	.13*
6. IQ	.20**	-.06	.10	<.001	-.10	—	-.10	-.07	-.14*	.09	.05	.09	.04	-.05	.05	.09	.08	.09	.15*
7. Study time	.21**	.01	.13*	.11*	.11	-.10	—	-.14*	-.36**	-.13*	.05	.02	<.001	-.08	-.03	.07	.05	<.001	-.03
8. Sleep time	-.12*	-.10	.13*	-.02	-.02	-.07	-.14*	—	.36**	-.13*	-.12*	.08	.12*	-.20**	.05	.07	-.06	-.03	.06
9. Time awake	-.27**	-.15**	-.26**	-.18**	-.14*	-.14*	-.08	.36**	—	-.09	-.07	-.13*	-.16**	-.15*	-.08	.01	-.05	-.13*	-.21**
10. Spirituality	.14*	.31**	.27**	.16**	.26**	.09	-.05	-.13	-.09	—	.55**	.24**	.25**	-.12*	.38**	.37**	.11*	<.001	.12*
11. Devotions	.15**	.18**	.21**	.15**	.22**	.05	.05	-.12*	-.07	.55**	—	.18**	.13*	-.23**	.12*	.09	.02	.01	.20**
12. Diet	.30**	.33**	.39**	.22**	.41**	.09	.02	.08	-.13*	.24**	.18**	—	.62**	-.07	.37**	.33**	.23**	.14*	.26**
13. Health	.20**	.39**	.36**	.30**	.43**	.04	<.001	.12*	-.16*	.25**	.13*	.62**	—	.02	.51**	.40**	.24**	.14*	.18**
14. Passive leisure	-.22**	-.17**	-.24**	-.15*	-.09	-.05	-.08	-.20**	-.15*	-.12*	.23**	-.07	.02	—	-.06	-.10	.09	-.04	-.19**
15. Emotional stability	.12*	.37**	.30**	.36**	.36**	.05	-.03	.06	-.08	.38**	.12	.37**	.51**	-.06	—	.75**	.22**	.10	.10
16. Self-esteem	.02	.35**	.23**	.33**	.25**	.09	-.07	.07	.01	.37**	.09	.33**	.40**	-.10	.75**	—	.23**	.02	.13*
17. Finances	.10	.08	.11*	.03	.15*	.08	.05	-.06	-.05	.11*	.02	.23**	.24**	.09	.22**	.23**	—	.07	-.23**
18. Computer	.28**	.15*	.26**	.16**	.20**	.09	<.001	-.03	-.13*	<.001	.01	.14*	.14*	-.04	.10	.13*	.07	—	.09
19. Off-campus/dorm	.20**	.20**	.24**	.32**	.13*	.15*	-.03	.06	-.22**	.12*	.20**	.26**	.18**	-.19**	.10	.13*	-.23**	.09	—

Note. With the rectangular rather than triangular matrix, you may access all correlations for each variable by reading down a single column.
* $p < .05$. ** $p < .01$ (one-tailed).

TABLE 3. Summary of Stepwise Regression Analysis for Grade Point Average (GPA), Personal Success, and Total Success

Criterion variable	Predictor	Overall				Women				Men			
		β	<i>p</i>	<i>R</i>	<i>R</i> ²	β	<i>p</i>	<i>R</i>	<i>R</i> ²	β	<i>p</i>	<i>R</i>	<i>R</i> ²
GPA	Time-management skills	.242	< .001	.592	.350	.329	< .001	.594	.353	.199	.017	.593	.352
	Intelligence	.187	.001			.134	.080			.276	.001		
	Time studying	.185	.001			.080	ns			.215	.008		
	Time awake	-.173	.003			-.132	.090			-.194	.018		
	Own computer	.165	.003			.305	< .001			.094	ns		
	Passive leisure	-.159	.007			-.019	ns			-.205	.013		
	Healthy diet	.124	.041			.178	.048			.059	ns		
	Time working	.104	.070			.082	ns			.092	ns		
	Clearly defined goals	.071	ns			.022	ns			.165	.05		
				.610	.373			.622	.370			.574	.329
Personal Success	Clearly defined goals	.398	< .001			.426	< .001			.462	< .001		
	Overall health	.174	.004			.338	< .001			.08	ns		
	Spirituality	.164	.003			.121	.11			.266	.001		
	Time-management skills	.126	.041			.174	.065			.103	ns		
	Own computer	—	—			.132	.077			.053	ns		
				.668	.446			.706	.498			.640	.409
Total Success	Clearly defined goals	.302	< .001			.243	.001			.366	< .001		
	Time-management skills	.221	< .001			.291	.001			.173	.031		
	Passive leisure	-.196	< .001			-.035	ns			-.219	.005		
	Healthy diet	.192	.001			.106	ns			.176	.027		
	Time awake	-.123	.028			-.073	ns			-.107	ns		
	Own computer	.117	.024			.240	.001			.035	ns		
	Time sleeping	-.111	.044			-.019	ns			-.216	.005		
	Overall health	—	—			.231	.006			< .001	ns		

Personal Habits: Passive Leisure, Good Diet, Health, and Work

The third-ranked predictor of Total Success was less time spent in passive leisure. The most frequent activities associated with passive leisure in the time-diary analyses were watching television, watching movies, and hanging out with friends. Whereas time spent in passive leisure is a significant negative predictor of GPA and Total Success, the affect on Personal Success, although still negative, is not as robust. Furthermore, time spent in passive leisure was negatively correlated with an array of success predictors: We found that those who spent a greater amount of time in passive leisure spent less time working, rated lower in spirituality, spent less time in devotions, woke up later, slept more, had poorer time-management skills, had more poorly defined goals, had a lower GPA, and experienced lower Personal Success.

The 2 health-related variables (healthy diet, quality of overall health) played a surprisingly powerful role as predictors of success. Despite the fact that both variables are exploratory and based on single questions, they correlated significantly with all 3 dependent variables. In regression analyses, healthy diet was a predictor of GPA and Total Success, whereas general health was the second-greatest predictor of Personal Success. Health psychologists' contention that healthy diet and general health are significant predictors of life satisfaction⁵¹ is extended in this study to the realm of academic accomplishment.

Academic Variables: Intelligence and Study Time

Intelligence and study time, as anticipated, were strongly associated with GPA (second- and third-greatest predictors in the regressions) but had little influence on personal accomplishment. In fact, intelligence was negatively correlated (not significant) and study time was uncorrelated with Personal Success. These findings support Kiyosaki and Lechter,²² who said a strong academic record is related to life success in only a limited number of instances. Stanley²¹ argues that clear goals and excellent time-management skills are much stronger predictors of success than is academic performance in the personal and professional domain. Our results support that position.

Spirituality and Devotional Time

Personal spirituality and devotional time were significantly correlated with all 3 dependent variables but lost power in the regression analyses. Although spirituality had little influence on GPA, it ranked as the third-strongest predictor in the regressions for personal success. It would be instructive to run a similar study at a non-Christian college or university to observe the influence of spirituality and devotional activities. Theory suggests that the influence might be even greater because of a wider range of spirituality values at a secular university. Prior research verifies that the overall spirituality at a Christian university is higher and the variance lower than similar measures at secular universities (DM George, PhD, unpublished data, 1996).

Weaknesses, Implications, Applications

Perhaps the greatest weakness in the study is that some of the strongest predictors are based on data from a single question. This is true for healthy diet, overall health, and time-management skills. This limitation contrasts with another major player in the study—clarity of goals, based on 22 questions. In future studies, we urge more careful crafting of these 3 variables.

Despite weaknesses, our findings begin to clarify the complex world of factors associated with both personal and academic success. At one level, the research findings support the argument of popular motivational experts whose findings are largely anecdotal. For instance, in his widely read book *The 7 Habits of Highly Effective People*,¹⁰ Covey suggests that to achieve success one must "begin with the end in mind" (clearly-defined goals) and make "first things first" (prioritize and organize your time and activities effectively). The present study findings provide empirical support to this statement. Perhaps it is time for universities to more prominently incorporate classes in goal-setting and time-management skills.

The power of personal habits emerges as central also to personal and academic success. Current scientific research on sleep habits continues to support Ben Franklin's legendary "Early to bed..." quip about the importance of disciplined sleep patterns. Healthy diet and general overall health also loom larger than expected as contributors to success and suggest that universities would be wise to require a class devoted to principles of lifelong health and fitness. Computer ownership provides greater control by eliminating dependency on the university network and its down time, servicing, and limited hours. The negative influence of an excessive amount of passive leisure on all success measures is further corroborated by the fact that passive leisure correlates negatively with almost all other success predictors.

The relatively low influence of emotional stability and self-esteem found in this study, as in many other studies, suggests that life patterns, clear goals, disciplined personal habits, and health issues play a greater role in success and accomplishment. Although much work remains to untangle the influence of factors associated with success, the educational community should realize that what they have traditionally thought to be predictors of success might require modification.

NOTE

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