

Undergraduate Time Use and Academic Outcomes: Results from the University of California Undergraduate Experience Survey 2006

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Background/Context: *Previous research has established the significance of academic study time on undergraduate students' academic performance. The effects of other uses of time are, however, in dispute. Some researchers have argued that students involved in activities that require initiative and effort also perform better in class, while students who engage in mainly passive entertainments perform less well. Other researchers have argued that students who are connected to the campus through residence, work, or extracurricular activities perform better, while those who are separated perform less well.*

Purpose/Objective/Research Question/Focus of Study: *The purpose of this study is to develop a theory-based framework for examining the academic consequences of student time and to test hypotheses drawn from this framework using survey data.*

Research Design: *The framework focuses on three dimensions of student time use: study/non-study, active/passive, and connecting/separating. The survey analysis is based on more than 6000 responses to the 2006 University of California Undergraduate Experience Survey (UCUES).*

Findings/Results: *Controlling for students' socio-demographic backgrounds, previous academic achievements, and social psychological stressors, we find that study time is strongly connected to both academic conscientiousness and higher grade point averages. We find that "activating" uses of time, such as physical exercise and volunteering, are associated with higher levels of academic conscientiousness, but not directly to higher grade point averages. Time spent on "passive" entertainments show negative associations on academic conscientiousness. Uses of time that connect students to campus life showed relatively weak and*

inconsistent effects, as did uses of time that separate students from campus life. Off-campus work was an exception. It showed a strong net association with lower grade point averages.

Conclusions/Recommendations: *Our findings have implications for theory: They lead to a stronger focus on academic study time as the central key to positive academic outcomes, and a renewed focus on off-campus work as a major obstacle to positive academic outcomes. They suggest further that college and university administrators should find ways to “unplug” male students from their computer entertainments and to help minority students who need to work to find employment on campus.*

Hours of class attendance and academic study are known to be predictors of student success in college, even after prior academic performance and ability are controlled (see Lahmers & Zulauf, 2000; Nonis, Philhours, & Hudson, 2006; Pascarella & Terenzini, 2005, pp. 186–7; Stinebrickner & Stinebrickner, 2004). However, little research has directly addressed, much yet established in well-controlled studies, the extent to which nonacademic uses of time contribute to or detract from desirable academic outcomes. Rare too are studies that examine which types of nonacademic uses of time are most conducive to academic success.

The present paper discusses theory and available research on success in college to develop a three-dimensional framework for understanding the academic implications of student time use. In this study, we consider time investments in each dimension as predictors of academic outcomes. Our framework focuses on three dichotomous factors: 1) scholarly versus non-scholarly uses of time, 2) active versus passive uses of time, and 3) uses of time that connect students to or separate students from campus life.

HISTORICAL CONTEXT

According to a recent study by Babcock & Marks (forthcoming), American undergraduates attend class and study out of class, on average, between 25 and 30 hours a week. Out-of-class study accounts for a little less than half of this sum. Thus, on average, hours of out-of-class study now account for less than half of the conventionally prescribed two hours of study out of class for every hour of study in class. This same research indicates that average hours of out-of-class study have been declining for more than 40 years, and they have declined in every type of institution, in every departmental major, and among every demographic group. Out-of-class study remains somewhat higher at selective institutions and in natural science and engineering fields, particularly engineering.

Although some scholars and journalists have attributed declines in out-of-class study to students' job and family responsibilities (see, e.g., Kulm

& Cramer, 2006; McCartan, 1988; National Center for Education Statistics [NCES], 1996; Nonis, Philhours, & Hudson, 2006; Pascarella et al., 1998; Stern & Nakata, 1991), research indicates that time investments in work and family do not overshadow time investments in social and leisure activities. Indeed, the research evidence is consistent in showing that college students spend, on average, many more hours per week on social and leisure activities than on paid work and family responsibilities (National Survey of Student Engagement [NSSE], 2007; Saenz & Barrera, 2007; U.S. Bureau of Labor Statistics, 2007). Perhaps the most detailed set of time-use categories are found in the 2006 University of California Undergraduate Student Experience Survey (UCUES). According to UCUES, students spend, on average, more than 40 hours a week on social and leisure activity and only about 11 hours on paid employment and family responsibilities (see Table 1).

Table 1. Average Weekly Time Use, UC Undergraduates

	Mean	S.D.	Range	N
Time Use: Attending Class	15.67	6.11	0–35	6300
Time Use: Preparing and Studying for Class	12.72	8.32	0–35	6300
Time Use: Attending Entertainment Events	3.03	3.19	0–35	6300
Time Use: Physical Exercise/Sports	5.53	5.45	0–35	6300
Time Use: Socializing with Friends	11.86	8.42	0–35	6300
Time Use: Student Clubs/Student Organizations	3.90	5.73	0–35	6300
Time Use: Volunteering in the Community	2.22	3.79	0–35	6300
Time Use: Computer for Fun	11.43	8.66	0–35	6300
Time Use: Watching TV	5.73	6.21	0–35	6300
Time Use: Hobbies	5.47	5.91	0–35	6300
Time Use: Family Activities	4.36	6.95	0–35	6300
Time Use: Religious Activities	1.75	3.62	0–35	6300
Time Use: Work for Pay ¹	7.66	8.90	0–35	6300
Time Use: Working on Campus ²	4.16	6.96	0–35	6300
Time Use: Working Related to Major ³	2.85	6.19	0–35	6300
Time Use: Commuting	3.54	4.76	0–35	6300
Time Use: Sleeping (daily)	6.5	1.37	0–11.5	6300

Source: UCUES 2006

¹ Approximately 55% (3447) of students work for pay. Students that work for pay work on average 14 hours per week.

² Approximately 34% (2172) of students work on campus for pay. Students working on campus work approximately 12 hours per week.

³ Approximately 27% (1716) of students perform a job related to their major for pay. Students working related to their major work a mean of 10.5 hours per week.

As these data indicate, current cultural norms among U.S. undergraduates support a conception of academic studies as an important, but part-time activity. Other parts of life, notably, social and leisure activities, are at least as important, and many students also work part-time (but usually less than 15 hours a week) to help pay their bills and to provide discretionary income.

Undoubtedly, the limited number of hours most students spend on their studies affects their capacity to master subject matter material. At the same time, previous research suggests that some nonacademic uses of time may contribute to, rather than detract from, academic success. We focus, therefore, on the extent to which *both* academic and nonacademic uses of time contribute to desirable academic outcomes.

A THREE-DIMENSIONAL FRAMEWORK

Our theoretical framework emphasizes the joint importance of three dimensions of student time use. The first dimension, reflecting the experience of teachers since the beginning of formal schooling (see, e.g., Lucas, 1994, chaps. 1–2), posits that the regular and habitual practices of scholarly life are consequential for academic achievement. We label this the scholarly/non-scholarly dimension.

The second dimension, a staple of educational thought since the time of John Dewey (see, e.g., Dewey, 1916/1966), posits that campus experiences that encourage students to engage others and to construct their worlds actively are conducive to academic success, while passive entertainments tend to create obstacles to the motivation and skills required for study. We label this the active/passive dimension. Progressive educators following Dewey have emphasized that interaction and active learning opportunities, both inside and outside the classroom, foster minds receptive to study. Proponents of active learning in the classroom often focus on the importance of performance and project-based curricula, or “learning by doing.” This emphasis is consistent with, but different from our conception of the active/passive time-use dimension. Our focus is on time use involving physical and social effort as opposed to time use allowing for physical and social passivity. We assume that time use involving physical and social effort is associated with a more active orientation to life, and may consequently have spillover effects on engagement with studies.

The third dimension, which has roots in the work of Astin (1984, 1996a) and Tinto (1975, 1993), posits that uses of time that connect students to the organizational life of the campus are conducive to academic success, while those that separate students from the organizational life of

the campus create obstacles to academic success. We label this the connecting/separating dimension. Astin's work focused on the institutional bases of student involvement with academics; Tinto's work was intended to explain why students left college. Both scholars, however, emphasized connections to the organizational life of the campus as important explanatory factors. These connections to the campus were based on living and studying together with other students in residence halls and learning communities and participation in student clubs and organizations. Both also emphasized disconnections from the life of the campus through work and other extra-academic commitments as negative influences on academic involvement and retention.

PREVIOUS STUDIES AND THEIR LIMITATIONS

Each of these three dimensions of time use has received attention from researchers. Previous studies of the scholarly/non-scholarly dimension show that, controlling for tested ability, the more one works at learning course materials, the more likely one is to achieve high grades (Chickering & Gamson, 1991; Michaels & Miethe, 1989; Rau & Durand, 2000; Schuman, Walsh, Olson, & Ethridge, 1985) and to express attitudes consistent with discipline-specific forms of academic engagement (Brint, Cantwell, & Hanneman, 2008).¹ Research on primary and secondary schooling is supportive; time-on-task, or time plus energy, is an important influence on the amount of subject matter material that students learn (see, e.g., Good & Brophy, 1986).

Much less research addresses the active/passive dimension in our framework. While "activating" projects of self and civic improvement are often described as academically beneficial (Astin, 1996a; Astin, 1996b; Astin & Sax, 1999; Astin, Sax, & Avalos, 1999; Astin et al., 2000; Ethington, 1990; Eyler & Giles, 1999; Galston, 2001; Giles & Eyler, 1994; Markus, Howard, & King, 1993), studies show conflicting results on physical exercise (Taras, 2005), and community volunteering (Myers-Lipton, 1998). Passive uses of time, such as watching television and spending time on the Internet for fun, are often criticized by educators (Postman, 1985), but they too have partisans, who argue that new interactive media improve cognitive quickness and flexibility, and stimulate creative responses (Johnson, 2005).

A large body of research addresses the connecting/separating dimension in our framework, but this research also has not reached conclusive results (see, e.g., Braxton, Sullivan, & Johnson, 1997; Braxton, 2000). Work off campus and commuting are often considered detrimental to study (see Pascarella & Terenzini, 2005, 399–402; Chickering, 1974; King

& Bannon, 2002; Kuh, Gonyea, & Palmer, 2001; Pascarella et al., 1998), but some research has suggested that paid employment can be beneficial because it encourages students to budget and manage their time (Kuh, 1995). Similarly, although involvement in student clubs and organizations has often been described as an academically beneficial connection (Ory & Braskamp, 1988; Pace, 1987, 1990; Pascarella, 1989; Terenzini & Wright, 1987; see also Pascarella & Terenzini, 2005, pp. 147–9), other researchers find some types of student organizations, such as Greek organizations and participation in athletics, to be detrimental to academic success (Hood, Craig, & Ferguson, 1992; Pascarella, Bohr, & Terenzini, 1995; Pascarella et al., 1999; Pike, 2003; Umbach, Palmer, Kuh, & Hannah, 2006), or to have little to no effect (Braddock, 1981; Hanks & Eckland, 1976; Hayek et al., 2002; Pascarella, Flowers, & Whitt, 2001; Pike, 2000). Research on leadership shows more conclusive results. Willingham (1985) showed that advancement to a leadership position in more than one extracurricular activity is an important predictor of success in college. Family responsibilities were once widely considered to detract from students' time to focus on studies (Bean, 1990; Nora et al., 1996), but some studies suggest that time spent with family tends to reinforce academic commitments (Bank, Slavings, & Biddle, 1990; Rendon, Jalamo, & Nora, 2000).

Although each of the three dimensions in our theoretical framework has many partisans, the three are rarely considered together, as complementary influences on student success. Indeed, progressive educators have, at times, been inclined to emphasize the stultifying impact of scholarly habitus, while traditionalists have been inclined at times to dismiss the progressives' emphasis on activity and interest as peripheral compared to sheer time on task. Some scholars have argued that polarization between these positions has inhibited efforts to compare the relative importance of the prescriptions of traditionalists and progressives (see Brint, 2006, chapter 8).

Moreover, the existing literature has a number of limitations. The literature is based, for the most part, on categories of activity rather than quantities of activity. This can lead to the impression that participation is the most important variable, rather than the amount of time spent in participation. Many reports of nonacademic uses of time rely on data from freshmen (Astin, 1998; Hurtado et al., 2007; Pryor et al., 2005, 2006, 2008). It is unclear that freshmen are the best source of information, because time use changes considerably from freshman to senior year (Saenz & Barrera, 2007). Some sources of information about student time use, such as the American Time Use Study (U.S. Bureau of Labor

Statistics, 2007) and the National Survey of Student Engagement, (NSSE, 2006) are based on very broad categorizations of social and leisure activities and therefore cannot be used to provide a refined picture of the influence of time use on academic outcomes.

Perhaps the most important limitation of previous studies, however, is that they have failed to develop an integrated theoretical understanding that is susceptible to empirical verification across the full range of student time use. Instead, the studies have examined specific activities (such as participation in paid employment, family, athletics, or Greek organizations) in a piecemeal way. Moreover, time-use activities reflecting the three dimensions have not been compared explicitly for the size of their contribution to desirable academic outcomes. Existing studies have consequently failed to produce a broader understanding of student time use and its influence on academic outcomes. Our study aims to contribute to the development of such a broader understanding.

METHOD

SAMPLE

Our study is based on analysis of the University of California Undergraduate Experience Survey (UCUES) conducted in winter and spring 2006. The student survey data are drawn from the eight large undergraduate campuses in the UC system.² The UC system is the largest system of publicly supported research universities in the country.

Students must graduate in the top 12.5% of high school students statewide to be eligible for admission into the university. The sample, therefore, constitutes a relatively high-achieving group of students (see Douglass, 2007). Nonetheless, high levels of variability exist within the population—in student grades, student behaviors conducive to academic success, and student background and experience characteristics related to academic achievement. While mean scores on variables undoubtedly differ between UC undergraduates and the population of all college students, we expect the form of key relationships observed for UC students to generalize to the population of students attending comparable research universities. Our confidence that the principal findings of the study can be generalized is heightened by the comparability of findings in separate analyses conducted on data from each of the eight campuses.³ In reporting results, we mask the identity of campuses using formulations such as “campus A” and “campus B.”

SURVEY

UCUES has been operating for seven years as a web-based census. Incentives are provided to students for participation in the survey. All participating students complete a set of core items and, in addition, one of five randomly assigned modules. Data on student backgrounds, high school records, SAT scores, and UC GPA are appended to the data file by UC staff. In the 2006 survey, response rates of students at the eight campuses ranged from nearly half of all undergraduates to approximately one-third. Validity studies indicate that the completed surveys significantly over-represent high GPA students, but are otherwise broadly representative of the UC student population, both as a whole and on each of the eight large undergraduate campuses (Chatman, 2006). Because of the census approach adopted in UCUES, the student development/core sample was large (6,300 students), in spite of the modular design, and responses were well distributed across campuses and majors.

Time use is the focal variable in these analyses. UCUES measures time use categorically, asking students to estimate the average number of hours they spend in 17 categories of experience. Time-use categories range from "0" to "more than 30". We have constructed estimates of means from midpoints in the category ranges.

Previous research indicates that retrospective accounts of time use are less accurate and reliable than accounts based on time diaries (Robinson, 1985; Robinson & Godbey, 1997; Stinebrickner & Stinebrickner, 2004). In retrospective accounts, adults tend to overestimate the hours they spend at work (Frazis & Stewart, 2004), and it is reasonable to suppose that students might, in an analogous way, overestimate the hours they spend on study. However, retrospective accounts are not an insurmountable problem. By asking students about their frequency of participation in various activities during the school year, we provide a reference point by which students can estimate their use of time, thus enhancing memory recall (Converse & Presser, 1989; Engle & Lumpkin, 1992; Sudman & Bradburn, 1973). Since we are interested primarily in the patterns of student time use, rather than the exact number of hours spent on each activity, the validity of our work depends, not on perfect recall, but only on the capacity of students to judge the approximate number of hours they spent on activities during the week.

Our initial categorizations of time use were based on straightforward assumptions. We measured *scholarly* uses of time as a composite measure of hours in class and hours of out-of-class study time per week. Our concept of *active* uses of time focused on campus-based activities requiring physical or social effort. We measured these *active* uses of time as hours

spent each week in 1) physical exercise and sports, 2) socializing with friends, 3) student clubs and organizations, and 4) community volunteering. We do not claim that uses of time in physical, social, and civic activities are similar to one another (indeed, they do not factor together) except in so far as they are indicative of an active, rather than passive, approach to life. An active orientation to the world, however different the specific direction it takes, is distinct from a passive orientation to the world, as reflected in the outlook of the passive consumer or observer (Etzioni, 1968). Based on ideas drawn from progressive educational theory, we hypothesize further that each of these modes of active engagement with the world may have a positive spillover in the classroom, leading students to engage actively with their studies as well.⁴ We measured *passive* uses of time by examining hours spent each week in 1) commuting, 2) watching television, 3) nonacademic (“fun”) use of computers, and 4) attending entertainment events. We posited that these uses of time generally do not require active participation and effort, but instead reward passive consumption of entertainment and media. We measured *connecting* uses of time as hours of time spent each week in 1) student clubs and organizations, 2) paid employment on campus, and 3) paid employment related to major. Each of these uses of time connects students to campus life. We measured *separating* uses of time as hours spent each week in 1) religious activities, 2) family responsibilities/activities, 3) commuting, 4) employment off campus, and 5) community volunteering. Each of these uses of time separates students from campus life.

Our analysis is not based on a formal $2 \times 2 \times 2$ design. Instead, our approach is categorical. Attending and preparing for class are classified as scholarly activities, but do not appear in the active/passive or connecting/separating dimensions. It is true that attending and preparing for class could be considered active and connecting uses of time, but this seems to us to blur desirable distinctions in a three-dimensional framework intended to highlight discrete categories of time use. Active/passive implies mental engagement/disengagement in activities other than study. Connecting/separating, by contrast, involves physical location either on or away from campus. In two cases, uses of time seem clearly to span more than one of our three dimensions. For this reason, we classified these uses of time in more than one category. Specifically, we classified participation in student organizations as both active and connecting. We classified commuting as both passive and separating. Although community volunteering might seem to be clearly both an active and a separating use of time, UCUES does not allow us to determine whether student volunteering is connected to expectations of majors or student organizations, and therefore we cannot be certain that it is in fact a sep-

arating activity. We have, therefore, classified it only as an “active” use of time.

Table 2. Time-Use Categories and Indicators

<u>Time-Use Category</u>	<u>Indicators</u>
Scholarly/Non-Scholarly	Hrs./wk. attending class Hrs./wk. preparing for class
Active	Hrs./wk. physical exercise/sports Hrs./wk. socializing with friends Hrs./wk. volunteering in the community Hrs./wk. participating in student organizations
Passive	Hrs./wk. watching television Hrs./wk. on computer “for fun” Hrs./wk. commuting Hrs./wk. attending entertainment events ¹
Connecting	Hrs./wk. participating in student organizations Hrs./wk. paid employment related to major Hrs./wk. paid employment on campus
Separating	Hrs./wk. paid employment off-campus Hrs./wk. commuting Hrs./wk. religious activities Hrs./wk. family activities

*Note.*¹ Attending entertainment events subsequently re-categorized from “passive” to “active” based on regression results.

DEPENDENT VARIABLES

We measured two dependent variables in our analysis: 1) academic conscientiousness, an indirect measure of success, as defined below, and 2) UC cumulative GPA calculated at the time of the survey, a direct measure of student success. Our analysis examined the influence of time use on these two dependent variables, controlling for socio-demographic background, academic background, and social and psychological stressor variables. Socio-demographic background variables included gender, race/ethnicity, self-identified social class, and first-generation college student.⁵ Academic background variables included high school GPA, composite SAT score (math and verbal), campus, major, and lower or upper-division student. Social and psychological stressor variables were measured by student assessments of “obstacles” to their academic success. Eleven obstacles to success were measured, each as a frequency measure ranging from “not at all” to “all the time.” These obstacles included both

social stressors (family, job, difficult living situation, volunteering, and social life) and psychological stressors (depression, stress, tiredness, poor health, and emotional distress). Information on independent variables in the analysis is provided in the Appendix.

DATA ANALYSES

Our first analysis examined time use as an influence on academic conscientiousness. We measured academic conscientiousness as a factor-weighted scale variable based on exploratory factor analysis. Student survey items loading high on the academic conscientiousness scale included willingness to raise academic standards, willingness to revise course papers, interaction with instructors to improve performance, work on class projects, and efforts to help classmates understand course materials (see Table 2). These variables identify behaviors that are characteristic of conscientious students.⁶ Conscientious students raise their standards of performance in relation to instructors' expectations and make efforts to improve the quality of their work. They participate in collective learning activities, including helping classmates understand course material. Indeed, helping other students to understand material is often a good way to test one's own understanding of course material.

Our second analysis examined time use as an influence on cumulative UC GPA.

Table 3. Factor Loadings for Academic Conscientiousness Scale N = 6300

	Factor Loadings
Raised own standard due to high standards of faculty	.46
Extensively revised a paper at least once	.55
Sought help from instructor or tutor	.70
Worked on class projects of studied as a group outside of class	.62
Helped a classmate better understand course material	.72

Alpha = .75

Minimum = -2.71 Maximum = 2.46

In these first two analyses, we entered independent variables in four blocks corresponding to four models of the sources of academic success. The first model examined socio-demographic background variables only. The second model added academic background characteristics. The third model added social and psychological stressor variables. The fourth model added time-use variables. Because of the extensive battery of controls in this study, any statistically significant influence of time use is more likely to be robust across student samples.

As noted, low GPA students were underrepresented in UCUES 2006.

We ran the analyses using both weighted and unweighted data. We found marginal differences in results, and report the unweighted findings, because the sample weights did not show great distortion in proportions of students in each GPA grouping. Weighting is generally only found to affect measures of association if the sampling procedure greatly misrepresents the population or if the model is misspecified (Korn & Graubard, 1995). The theoretical relationship between time use and outcomes holds whether using weighted or unweighted data.⁷

These analyses showed that scholarly/non-scholarly and, to a lesser degree, active/passive uses of time were associated with academically desirable outcomes, net of other significant covariates. The analyses also show that students who spend many hours working for pay are disadvantaged academically.

In our third analysis, we grouped students into five categories based on their profiles of academically advantageous and disadvantageous uses of time. The five categories of students are hereafter referred to as “scholars,” “scholar-actives,” “actives,” “workers,” and “passives.”⁸ Our interest in scholar-actives goes back to the long tradition of studies in the sociology of education showing that “well-rounded” students—those who work hard both on studies and on activities—tend to be the most successful students (see, e.g., Coleman, 1961; Willingham, 1985). As we will show, scholars and scholar-actives are categories of students whose uses of time have the most positive impact on academic outcomes. Conversely, workers and passives are students whose uses of time have the most negative impact on outcomes. In our view, actives are an important contrasting case to both scholar-actives and passives. By forming time-use groups, we were able to explore the characteristics of students who did and did not exhibit academically advantageous uses of time. In this analysis, we examined the composition of the five time-use groups by campus, major, academic background, and socio-demographic background characteristics.

For this analysis, we formed groups solely on the basis of time use that showed statistically significant net associations in the regression analyses. Thus, although we initially categorized attending entertainment events as a passive use of time, regression analysis showed that attending entertainment events had none of the negative effects of watching television or plugging into the computer for fun, perhaps because attending entertainment events typically involve other people and leads to stimulating conversation.

We constructed the five time-use groups by summing hours spent in activities that compose the category. The analysis compares students who score above the mean in these categories of time use, and, importantly, with the exception of the scholar-actives, it excludes students who scored

above the mean in more than one category.⁹ Because many students scored above the mean in more than one category, the time-use groups in this analysis are the purest expression of the type they exemplify. Students in these categories are, in this sense, specialists in the five critical forms of time use. The scholars, for example, are those who scored above the mean on a summed total of attending and studying for class, but did not score above the mean in the other key uses of time: socializing, work, or involvement with passive entertainments. Similarly, workers are students who scored above the mean in number of hours spent in paid employment but did not score above the mean in the other key uses of time. Scholar-actives are the one exception: scholar-actives scored above the mean on both scholarly and active uses of time, but not on other key uses of time.

Thus, we formed the category of scholars based on time spent attending and preparing for class. We formed the category of actives based on time spent on physical exercise, socializing with friends, attending entertainment events, and community volunteering. Actives were students who scored above the mean in cumulated hours of these activities, but did not score above the mean in other categories of time use. We formed the category of scholar-actives by combining scholarly and active uses of time: this group scored above the mean on both scholarly and active uses of time, but did not score above the mean in other categories of time use. We formed the category of workers based on time spent working for pay: a worker scored above the mean in hours spent in paid employment, but did not score above the mean in other categories of time use. We formed the category of passives based on time spent on the computer for fun and watching television: passives were students who scored above the mean in hours of passive entertainment, but did not score above the mean in other categories of time use.

RESULTS

We present the results of our analysis in two sections. In the first section, we analyze the influence of time use on academic conscientiousness and UC GPA. In the second section, we provide profiles of UC undergraduate students in the five key time-use categories—scholars, scholar-actives, actives, workers, and passives—that we created.

TIME USE AND ACADEMIC OUTCOMES

Table 4 presents results for our models of academic conscientiousness. The first model, based on socio-demographic background variables only,

explained very little of the variance in the academic conscientiousness scale. Men showed a less conscientious approach to academic studies than women, and Hispanic/Latino and “other ethnicity” students (many of whom have mixed racial-ethnic backgrounds) showed slightly more academic conscientiousness than students from European-American, Asian-American, and African-American racial-ethnic backgrounds. The second model, which adds academic background variables, improved the R^2 moderately. Arts, humanities, and social science majors showed less academic conscientiousness than science and engineering majors. Cumulative UC GPA also contributed to this measure of conscientious involvement with studies. High SAT scores were negatively related to academic conscientiousness (see also Carini, Kuh, & Klein, 2006).

Social and psychological stressor variables, introduced in the third model, contributed as much as academic background to explaining students’ academic conscientiousness scores. Depression and emotional distress were, not surprisingly, negatively associated with academic effort, while reports of participation in campus activities as an obstacle to success were positively associated with academic conscientiousness. Self-reports of feeling tired and stressed were also positively associated with high scores on the conscientiousness scale.

The fourth model adds self-reported time use, and, even after the introduction of this large battery of controls, time-use variables contributed more than variables in the other three models to explaining the variance in the academic conscientiousness scale. The standardized regression coefficient for study time was more than twice as large as that of any other time-use variable in the analysis. It was also larger than any other variable in the analysis. Although the relationship between time spent studying and academic conscientiousness may seem to verge on the tautological, the two are not in fact coterminous. Students can spend time reading and preparing for class without engaging in any of the behaviors captured in the academic conscientiousness scale. The fact that the two are connected in these data indicates that academically conducive time habits and conscientious work habits tend to go hand in hand, not that they are the same. Of course, we cannot make inferences about causality from these cross-sectional data. Given the structure of the data, we can only say that the two showed a significant and relatively strong positive net association.

Active time-use variables—socializing with friends, physical exercise, and volunteering—were all positively associated with academic conscientiousness, as well. By contrast, passive uses of time—commuting, watching television, and using the computer for fun—were negatively associated with academic conscientiousness. Attending entertainment

Table 4. Standardized Regression Coefficients for Academic Conscientiousness Models $N = 6300$

		Model 1	Model 2	Model 3	Model 4
Demographics	Male	-.06***	-.04***	-.03*	-.03*
	European American	REF	REF	REF	REF
	Asian American	ns	ns	ns	ns
	African American	ns	ns	ns	ns
	Hispanic/Latino	.03*	ns	ns	ns
	Other Ethnicity	.08***	.07***	.06***	.06***
	Social Class	ns	ns	ns	ns
	First Generation Student	ns	-.05***	-.05***	-.03**
Academic Characteristics	High School GPA	—	ns	ns	ns
	SAT Score	—	-.25***	-.22***	-.19***
	Lower Division	—	-.07***	-.06***	-.08***
	UC GPA	—	.18***	.18***	.13***
	Campus A	—	REF	REF	REF
	Campus B	—	ns	ns	-.06**
	Campus C	—	ns	ns	ns
	Campus D	—	ns	.04*	ns
	Campus E	—	ns	ns	ns
	Campus F	—	ns	ns	ns
	Campus G	—	-.04*	-.03*	-.04**
	Campus H	—	ns	ns	ns
	Arts	—	-.05*	-.04*	-.06***
	Humanities	—	-.06**	-.05*	-.06**
	Psychology	—	-.06**	-.05**	-.06***
	Social Science	—	-.08**	-.07**	-.09***
	Business	—	REF	REF	REF
	Biological Science	—	ns	ns	ns
	Physical Science	—	ns	ns	ns
Engineering	—	.06**	.07**	ns	
Other Major	—	ns	ns	-.07*	
Obstacles	Depression	—	—	-.12***	-.10***
	Stress	—	—	.11***	.09***
	Being Tired	—	—	.03*	ns
	Participation in Campus Activities	—	—	.12***	.10***
	Emotional Distress	—	—	-.04*	ns
	Family	—	—	.05***	.05***
	Health	—	—	ns	ns
	Job	—	—	ns	ns
	Difficult Living Situation	—	—	ns	ns
	Volunteering	—	—	.03*	ns
Social Life	—	—	ns	ns	
Time Use	Attending Classes and Studying	—	—	—	.23***
	Entertainment	—	—	—	.03*
	Exercise	—	—	—	.06***
	Friends	—	—	—	.09***
	Student Clubs/Campus Activities	—	—	—	-.03*
	Volunteering	—	—	—	.04***
	Computer for Fun	—	—	—	-.07***
	Hobbies	—	—	—	ns
	Watching TV	—	—	—	-.05***
	Family	—	—	—	ns
	Religious Activities	—	—	—	ns
	Work for Pay	—	—	—	ns
	Working on Campus	—	—	—	ns
	Working Related to Major	—	—	—	.04**
Commuting	—	—	—	-.04**	
Sleeping	—	—	—	-.03*	
R^2		.01***	.08***	.13***	.20***

* $p < .05$; ** $p < .01$; *** $p < .001$

events was associated with greater academic conscientiousness, not less. This analysis suggests that attending entertainment events is unlike other nominally passive uses of time, perhaps because it usually involves other people and stimulates conversation, rather than being a solitary activity.

Table 5 reports the results of our analysis of UC GPA. We were able to explain nearly twice as much variance in GPA than in academic conscientiousness, and most of the explanatory power came, not surprisingly, from the academic background variables in Model 2. Men and racial-ethnic minorities (other than African Americans) recorded lower GPAs, but socio-demographic background characteristics explained only 9% of the variance in UC GPA, or one-fourth of the total explained variance in Model 4. High school GPA, SAT scores, and academic conscientiousness all contributed to higher UC GPAs; high school GPAs and SATs were both strongly associated with UC GPA. Consistent with previous research, the analysis indicated that high grades were tougher to earn in the natural sciences and engineering than in the arts, humanities and social sciences (Brint, et al., 2008; Johnson, 2003). As Model 3 shows, most self-reported social and psychological stressor variables were associated with lower GPAs. Participation in campus activities and community volunteering were exceptions; students who said these activities were obstacles to their academic success nevertheless had higher GPAs.

Time-use variables contributed much less to the explanation of UC GPA than to the explanation of academic effort. Moreover, only two time-use variables stood out as important predictors of GPA. Hours of time spent attending and studying for class predicted higher GPAs with an effects size of 0.10. Hours of paid employment were an equally important predictor of lower GPAs. Other time-use variables were either relatively weak or insignificant predictors of GPA. Time devoted to religious activities, exercising, and the computer were all associated with lower GPAs, net of other significant covariates, while time spent with family and working on campus were associated with higher GPAs. These findings suggest that a new conceptualization of connecting and separating activities may be necessary. Some groups on campus (e.g., student social clubs and organizations) may absorb student energies away from academic achievement, while some groups off campus (especially families) may support achievement, perhaps by reinforcing the value of study and career aspirations.

Time-use relationships varied between academic conscientiousness and UC GPA. The active and passive uses of time that figured in the explanation of academic conscientiousness did not contribute to the prediction of UC GPA. However, these variables may have had an indirect impact on UC GPA, through their influence on academic conscientiousness. In our

Table 5. Standardized Regression Coefficients for Cumulative UC GPA Models $N = 6300$

		Model 1	Model 2	Model 3	Model 4
Demographics	Male	-.08***	-.07***	-.07***	-.07***
	European American	REF	REF	REF	REF
	Asian American	-.14***	-.10***	-.09***	-.09***
	African American	-.04**	ns	ns	ns
	Hispanic/Latino	-.18***	-.08***	-.09***	-.08***
	Other Ethnicity	-.08***	-.05***	-.05***	-.05***
	Social Class	.03**	ns	.02*	.02*
	First Generation Student	-.16***	ns	ns	ns
Academic Characteristics	High School GPA	—	.31***	.29***	.28***
	SAT Score	—	.36***	.34***	.35***
	Lower Division	—	-.10***	-.10***	-.11***
	Academic Conscientiousness	—	.13***	.13***	.10***
	Campus A	—	REF	REF	REF
	Campus B	—	.05**	.04**	ns
	Campus C	—	.09***	.09***	.09***
	Campus D	—	.06***	.06***	.06***
	Campus E	—	.09***	.09***	.10***
	Campus F	—	.16***	.14***	.14***
	Campus G	—	.04**	.04**	ns
	Campus H	—	.04*	.03*	.03*
	Arts	—	.07***	.07***	.07***
	Humanities	—	.04*	.04*	.04*
	Psychology	—	ns	ns	ns
	Social Science	—	ns	ns	ns
	Business	—	REF	REF	REF
	Biological Science	—	-.10***	-.10***	-.12***
	Physical Science	—	-.04*	-.04*	-.05**
	Engineering	—	-.10***	-.11***	-.13***
	Other Major	—	ns	ns	ns
Obstacles	Depression	—	—	-.04**	-.04*
	Stress	—	—	ns	ns
	Being Tired	—	—	-.05***	-.03**
	Participation in Campus Activities	—	—	.03*	ns
	Emotional Distress	—	—	ns	ns
	Family	—	—	-.05***	-.06***
	Health	—	—	-.04***	-.04***
	Job	—	—	-.02*	.03*
	Difficult Living Situation	—	—	ns	ns
	Volunteering	—	—	.05***	.04***
	Social Life	—	—	-.09***	-.07***
Time Use	Attending Classes and Studying	—	—	—	.10***
	Entertainment	—	—	—	ns
	Exercise	—	—	—	-.03*
	Friends	—	—	—	ns
	Student Clubs/Campus Activities	—	—	—	ns
	Volunteering	—	—	—	ns
	Computer for Fun	—	—	—	-.05***
	Hobbies	—	—	—	ns
	Watching TV	—	—	—	ns
	Family	—	—	—	.02*
	Religious Activities	—	—	—	-.04***
	Work for Pay	—	—	—	-.13***
	Working on Campus	—	—	—	.04***
	Working Related to Major	—	—	—	.04**
Commuting	—	—	—	ns	
Sleeping	—	—	—	.06***	
R^2		.09***	.33***	.36***	.38***

* $p < .05$; ** $p < .01$; *** $p < .001$

models, academic conscientiousness showed a consistent positive association with UC GPA, net of other significant covariates (see Table 5).

PROFILE OF FIVE TIME-USE GROUPS

Table 6 reports results of logistic regressions to identify the characteristics of five key categories of UC students who differed systematically in their use of time: scholars, scholar-actives, actives, workers, and passives. From an institutional perspective, the scholars and the scholar-actives can be viewed as students in the “time-use core.” Both have higher GPAs and higher academic effort scores than other students. By contrast, the workers and the passives are, again from an institutional perspective, students on the “time-use periphery.” Both had lower GPAs and lower academic conscientiousness scores than other students. The pure actives did not exhibit significantly more academic conscientiousness than other students, and they were slightly less likely to have high GPAs. From the perspective of academic values, they were not located decisively on the time-use periphery, but they were also not located in the time-use core.

This analysis shows that campuses and majors influenced representation in the five time-use groups. Campuses and majors played a particularly important role in the formation of the scholar and worker categories. Two of the campuses showed a decided tilt in the direction of scholars rather than workers, perhaps because students at these campuses were more likely to be able to afford not to work. Two other campuses had fewer workers, but this under-representation was not balanced by an overrepresentation of scholars. The quantitative STEM (science, technology, engineering, and mathematics) majors elicited more scholarly work effort from their undergraduate students, perhaps largely because demands were higher, and the arts and humanities also elicited more scholarly work effort, compared to the social sciences and business. Perhaps because of the relatively demanding study expectations in the natural sciences and engineering, students in these majors were also much less likely than other students to work long hours in paid employment.

These analyses showed that ethnicity, gender, and parental education also influenced representation in the time-use groups. African Americans were no less likely to be scholars or actives, but they were far more likely to be workers. Asian-American students were more likely to be among both the scholars and the passives, and they were less likely to be among the actives and the workers. From the time-use perspective, male students and, to a lesser degree, first-generation college students were also disadvantaged groups. Male students were over-represented among the pas-

Table 6. Logistic Regressions for Students Above the Mean¹ N = 6300

N for students in group		Scholars ² 1006	Scholar Actives ³ 478	Actives ⁴ 579	Workers ⁵ 361	Passives ⁶ 496
Demographic Characteristics	Male	.75***	ns	ns	.66**	1.31**
	European American	REF	REF	REF	REF	REF
	Asian American	1.20*	.64***	.59***	.52***	2.03***
	African American	ns	ns	ns	2.39*	ns
	Hispanic/Latino	ns	ns	ns	ns	ns
	Other Ethnicity	ns	ns	ns	ns	ns
Academic Characteristics	Social Class	ns	ns	ns	ns	ns
	First Generation Student	ns	.66***	.60***	1.47**	ns
	High School GPA	ns	ns	ns	ns	ns
	SAT Score	.99*	ns	ns	ns	1.00**
	Lower Division	1.31***	1.61***	1.29*	.38***	ns
	Campus A	REF	REF	REF	REF	REF
	Campus B	1.91***	ns	ns	.51**	.67*
	Campus C	ns	ns	ns	ns	ns
	Campus D	ns	ns	ns	ns	ns
	Campus E	ns	ns	.66*	ns	ns
Campus F	ns	ns	ns	.55*	1.59*	
Campus G	1.44*	ns	ns	.44***	ns	
Campus H	ns	ns	ns	.58**	ns	
Arts	2.89***	2.29*	na	ns	ns	
Humanities	2.13*	ns	ns	ns	ns	
Psychology	ns	ns	ns	ns	ns	
Social Science	ns	ns	ns	ns	ns	
Business	REF	REF	REF	REF	REF	
Biological Science	4.54***	2.76**	ns	ns	ns	
Physical Science	3.86***	ns	.43**	ns	ns	
Engineering	5.45***	2.29*	.44***	.32**	ns	
Other Major	2.56**	ns	ns	ns	ns	
UC GPA	1.20***	1.08**	.95*	.89***	.95*	
Academic Conscientiousness	1.53***	2.12***	ns	.76***	.52***	
Log Likelihood	-2554.55***	-1581.42***	-1856.06***	-1255.16***	-1638.70***	
Pseudo R ²	.08***	.07***	.04***	.09***	.06***	

* $p < .05$; ** $p < .01$; *** $p < .001$

Notes. ¹ Analysis conducted with only those students fitting into a single category. The mean amount of time these students spend on scholarly, working, and passive activities, respectively, are the same as students fitting into more than one category. The mean amount of time actives spend on active activities is significantly lower than all students that fit into this category. The difference in means is 1.52 hours.

² Students spending more than the mean 28 hours a week attending classes and studying.

³ Students spending more than the mean 28 hours a week attending classes and studying and more than the mean 22 hours participating in active activities (spending time with friends, exercising, entertainment, and volunteering).

⁴ Students that spend more than the mean 22 hours a week with friends, exercising, entertainment, and volunteering.

⁵ Students that work more than the mean 14 hours a week for pay. This mean was derived from students that report working for pay.

⁶ Students spending more than the mean 17 hours a week watching TV and using the computer for fun.

sives and under-represented among the scholars. First-generation students were more likely to be among the workers and less likely to be among the actives, including the scholar-actives.

SUMMARY AND DISCUSSION

This study is based on a three-dimensional theoretical framework for interpreting the effects of time use on academic outcomes. One dimension—scholarly/non-scholarly uses of time—was fully supported by the analysis. A second dimension—active/passive uses of time—also received support, but only for one of the dependent variables: academic conscientiousness. Active uses of time (physical exercise, socializing with friends, volunteering and—in our revised categorization—also attending entertainment events) showed positive net associations with academic conscientiousness. By contrast, time investments indicating more passive experiences (notably, watching television and computer use for fun) showed significant negative net associations with academic conscientiousness. The active/passive dimension showed no significant direct influences on UC GPA. Active and passive uses of time may have an indirect influence on GPA, however, through their direct influence on academic conscientiousness.¹⁰

The third dimension in our theoretical framework—time uses connecting to/separating from campus life—received only very partial and mixed support in these analyses. The only connections to campus life that mattered greatly for academic outcomes were academic in nature: class attendance, out-of-class study, work on campus, and work related to major. Indeed, one important type of connection to campus life, through student clubs and organizations, showed a modest negative association with academic conscientiousness, net of other significant covariates. Some separating involvements—time spent in paid employment, in commuting, and in religious activities—showed, as predicted, negative net associations with at least one of the academic outcomes we analyzed. However, time spent with family—theoretically also a separating activity—showed a modest net positive association with UC GPA.

These mixed results indicate that some separating involvements—particularly paid employment—are far more consequential for students' academic prospects than others. They also suggest that the particular groups to which students are connected on campus may matter greatly. Unfortunately, UCUES data does not distinguish between student organizations that are closely connected to academics and those that are not. We speculate that some student organizations—such as debating and literary clubs, and clubs related to majors—reinforce academics, while

many other student organizations do not. Previous research suggests that on many campuses Greek organizations are a notable example of organizations that do not typically foster academic values (Pike, 2000, 2003). By contrast, time spent with family apparently reinforces academic commitments for most students. These mixed results will contribute to the recent rethinking (see, e.g., Rendon, Jalamo & Nora, 2000) of Astin's academic involvement and Tinto's student departure theories, because they suggest the extent to which nominally integrating activities may either integrate students into the academic study culture or into nonacademic social life cultures on campus (Flacks & Thomas, 2007; Rau & Durant, 2000; Wechsler, 1996), and because they also suggest the extent to which nominally separating involvements with family may in fact tend to reinforce values conducive to student success.

The findings of this study are important for four reasons. First, they confirm that out-of-class study is the time investment most strongly associated with academic effort and success. Second, they confirm that nonacademic uses of time can contribute to desirable academic outcomes for students, and they provide evidence on the types of nonacademic uses of time that are most conducive to a conscientious approach to study and academic achievement. Third, they contribute to recent scholarly questioning of the academic involvement model of Astin (1984, 1996a) and the student departure model of Tinto (1975, 1993), because some "connecting" uses of time do not appear to support academic success, while some "separating" uses of time do appear to support academic success. Fourth, they establish that some groups—notably, male students and students from less advantaged racial-ethnic and socio-economic backgrounds—are less likely than others to engage in academically desirable uses of time, and they establish some of the reasons why this is true.

IMPLICATIONS FOR THEORY

If we exercise proper caution, we can draw out tentative implications of these findings for traditionalist and progressive educational philosophies. We interpret traditionalists as emphasizing time and work effort expended on learning as the key elements in academic success, and progressives as emphasizing the need to stimulate students' interest in learning through active participation in the life of the classroom and the campus. Although our study does not address issues of pedagogy, it does address the related issue of active participation in the life of the campus as a positive influence on academic success. Within the limits of the data, the findings of our study are more supportive of traditionalist than progressive thinking about the sources of student success. Time spent on

study and academic conscientiousness were related to higher GPAs, while active uses of time were, at most, indirectly related to higher GPAs. In the interest of student success, it might be profitable for institutions to find effective ways to emphasize the central tenets of traditionalist pedagogy—the importance of academic conscientiousness and well-focused study time.

Our analysis shows that the time-use periphery, from the perspective of academic institutions, is composed of students who work long hours for pay and students who spend long hours both watching television and using the computer for fun. Passives are the group most clearly on the campus time-use periphery. They showed less academic conscientiousness than other students, and they had lower GPAs. By contrast, workers had lower GPAs but were no less academically conscientious than other students. African-American students were more likely to be workers, while male students and Asian-American students were more likely to be passive consumers of entertainment.

IMPLICATIONS FOR INSTITUTIONAL POLICY

These analyses have important implications for university policymakers whose goal it is to improve undergraduate academic success. The analyses provide policy-relevant suggestions about groups at risk due to academically disadvantageous uses of time and about extracurricular activities that may contribute to risk.

With respect to groups at risk, our findings suggest that men, Asian students, and students studying in the large social science majors are among the least likely to engage in academically beneficial uses of time. In so far as our findings concerning male students and Asian students generalize to other colleges and universities, institutions may want to find ways to “unplug” members of these groups from television and to entice them away from excess hours of extracurricular computer activity. It might be possible to help students who seem to spend too much time on such activities to see the value in spending time on activities that support their academic success. The latter include not only study activities, but also social activities associated with positive academic effort.

Our findings also indicate that students in the arts, humanities, and social sciences study less than students in other majors. The large social science disciplines are a particular problem. These findings suggest that the social sciences would benefit from finding ways to institutionalize higher academic expectations, more-engaging teaching practices, and major-related clubs so that more students can find reasons to move from the time-use periphery into the time-use core.

With respect to activities, our study throws a spotlight on institutional opportunities related to student organizations and off-campus employment. One of the important findings of this study is that students categorized as “pure actives” were less academically conscientious than other students, net of other significant covariates, and had lower GPAs (cf. Pascarella & Terenzini, 2005, 187–198). We also found that time spent participating in extracurricular student clubs and organizations did not strongly reinforce academics, and indeed showed a modest negative net association with academic conscientiousness and higher grades. Further study will be necessary to determine whether time spent in student organizations connected to academic activities (such as newspapers, literary magazines, debate clubs, and career-related clubs) is associated with more positive outcomes than time spent in student organizations unconnected to academic pursuits. We certainly would not want higher education administrators to ignore the contribution that student organizations can make to students’ personal and social development. However, in so far as the goal of institutional leaders is to strengthen the academic ethos on campus, they may wish to make distinctions among student organizations and provide particular support for those connected to campus intellectual and cultural life.

In addition, if universities hope to bring students on the time-use periphery closer to the center, they will have to provide opportunities for more students of all types to work for pay on campus, rather than off-campus, and to live on or near campus. On-campus work opportunities could be particularly important sources of connection for first-generation and African-American students, who in the UCUES data spend more hours in paid employment than other students, and are often penalized for doing so with lower grades. By providing more opportunities for paid employment on campus, colleges and universities can build connections with the campus, while limiting the academically deleterious consequences of working off-campus for those students who must work.

Notes

1. Decades of research suggest some important qualifications to this proposition, however. First, institutional environments and skillful classroom teachers can help to motivate diligent, focused work by engaging the interest of students, providing opportunities for interaction and participation, and making challenging assignments (see, e.g., Kuh, 2003, 2005; Pascarella & Terenzini, 2005, 178–186). Second, out-of-class study differs significantly among academic majors. Hours of out-of-class study are higher, on average, in the sciences and engineering, but are more closely connected to achieving high grades in the arts, humanities, and social sciences (Babcock & Marks, 2007; Brint, Cantwell, & Hanneman, 2008).

2. Because of the small size of the UC-Merced student body, responses from UC-Merced were excluded from the analysis.

3. Results from the individual campuses are available on request.

4. We find an underlying unity in these active uses of time; each one is indicative of a willingness to expend effort and express interest, rather than to take the role of passive consumer or observer. Distinct intermediate processes may help to explain positive relationships among these variables and student success. For example, physical exercise may contribute, in part, by improving health and thereby allowing for academic exertion (U.S. Department of Health and Human Services, 1996), while volunteering may contribute, in part, by helping students to feel good about themselves due to their contributions to the community (Bellah et al., 1985).

5. Previous research has indicated that these socio-demographic variables are the strongest predictors of academic outcomes in the UC sample (reference masked). Parents' educational levels are strongly correlated with being first generation, and were not included, to avoid potential problems of multi-collinearity.

6. The psychology literature sees the trait of conscientiousness as composed of one's dependability, achievement-orientation, self-discipline, and persistence (Costa & McCrae, 1992; Zyphur, Bradley, Landis, & Thoresen, 2008). Past research suggests that conscientiousness is strongly related to greater academic performance (Conrad, 2006; Zyphur et al., 2008) and higher academic achievement (Trapmann, Hell, Hirn, & Schuler, 2007; Wagerman & Funder, 2007). Though the behaviors tested here are characteristic of a conscientious individual, we are not testing the personality trait of conscientiousness.

7. Results for weighted data are available on request.

8. These five groups clearly do not constitute all possible groups that could be formed from this data. One could look, for example, at "separated" and "non-separated" students or "connected" and "non-connected" students using a similar procedure based on combining time-use categories and looking at students who score above the mean. However, regression analysis indicated that few connecting and few separating activities were in fact very important in academic outcomes. We chose therefore to examine only the most important of the separating activities, paid employment.

9. We allocated students to these categories on the basis of cumulated number of hours in uses of time that were exemplary of the category. Scholars spent more than the mean 28 hours a week attending class and studying. Workers spent more than the mean 14 hours a week working for pay. (This mean was derived from only those students who worked for pay to provide a more accurate account of how long working students work during the week.) Actives spent more than the mean 22 hours a week socializing with friends, exercising, attending entertainment events, and volunteering. The scholar-actives spent both more than the mean 28 hours a week studying and more than the mean 22 hours in social activities positively related to academic engagement. The passives spent more than the mean 17 hours a week watching TV and using the computer for fun. Only 1,108 students (18%) of the 6,300 in the sample did not fit into any of the five categories. Approximately 40% (2,442) fit into only one category. The remaining 42% of students (2,750) scored above the mean in more than one of the four categories. These students were excluded from the analysis reported in Table 6 with the exception of scholar actives. Before excluding these students, we compared the time use means of students who only fit in just one category with all students that fit into the category, allowing students to fit into more than one category. The means were the same for the scholars, workers, and passives categories. However, means varied significantly (by 2.2 hours) for the actives, with students who fit only in this category spending less time in the activities comprising the category.

10. The data do not allow us to determine whether somatic or social causality lies

behind these correlations, or perhaps a combination of the two. It may be that more energetic people are more inclined to be involved in activities involving others, and, correspondingly, activities involving others also tend to encourage the production of more physical and emotional energy (see Kessler, 1982; Collins, 2004).

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APPENDIX. Independent and Dependent Variables

<i>A. Continuous Dependent Variables</i>				
	Mean	SD	Range	N
Cumulative UC GPA	5.42	2.21	1-9	6300
Academic Conscientiousness ⁱ	0	1	-2.71+2.46	6300
<i>B. Categorical Dependent Variables</i>				
	Percent	N		
Scholars ⁱⁱ	16.0%	1006		
Active Scholars ⁱⁱⁱ	7.6%	478		
Actives ^{iv}	9.2%	579		
Workers ^v	5.7%	361		
Passives ^{vi}	7.9%	496		
<i>C. Continuous Independent Variables</i>				
	Mean	SD	Range	N
Social Class ^{vii}	2.85	.99	1-5	6300
SAT Score	1235.95	157.87	650-1600	6300
High School GPA	9.11	2.08	1-14	6300
Obstacle ^{viii} : Depression	2.43	1.06	1-5	6300
Obstacle: Stress	3.34	.95	1-5	6300
Obstacle: Being Tired	3.33	.93	1-5	6300
Obstacle: Participation in Campus Activities	2.42	1.08	1-5	6300
Obstacle: Emotional Distress	2.63	1.07	1-5	6300
Obstacle: Family	2.40	1.09	1-5	6300
Obstacle: Health	2.19	.92	1-5	6300
Obstacle: Job	2.28	1.24	1-5	6300
Obstacle: Difficult Living Situation	2.44	1.19	1-5	6300
Obstacle: Volunteering	1.62	.86	1-5	6300
Obstacle: Social Life	2.27	1.03	1-5	6300
Time Use ^{ix} : Attending Classes	15.67	6.11	0-35	6300
Time Use: Studying	12.72	8.32	0-35	6300
Time Use: Entertainment	3.03	3.19	0-35	6300
Time Use: Exercise	5.53	5.45	0-35	6300
Time Use: Friends	11.86	8.42	0-35	6300
Time Use: Student Clubs/Campus Activities	3.90	5.73	0-35	6300
Time Use: Volunteering	2.22	3.79	0-35	6300
Time Use: Computer for Fun	11.43	8.66	0-35	6300
Time Use: Hobbies	5.47	5.91	0-35	6300
Time Use: Watching TV	5.73	6.21	0-35	6300
Time Use: Family	4.36	6.95	0-35	6300
Time Use: Religious Activities	1.75	3.62	0-35	6300
Time Use: Work for Pay	7.66	8.90	0-35	6300
Time Use: Working on Campus	4.16	6.96	0-35	6300
Time Use: Working Related to Major	2.85	6.19	0-35	6300
Time Use: Commuting	3.54	4.76	0-35	6300
Time Use: Sleeping	6.5	1.37	0-11.5	6300
<i>D. Categorical Independent Variables</i>				
	Percent	N		
Campus	Masked	—		
First-Generation College Student	33.8%	2130		
Male	39.7%	2503		
Lower Division	57.5%	3625		
Ethnicity: Euro-American	37.2%	2342		
Ethnicity: Asian-American	42.6%	2686		
Ethnicity: African-American	1.9%	118		
Ethnicity: Hispanic/Latino	13.1%	824		
Ethnicity: Other	6.6%	330		
Major: Art	5.6%	352		
Major: Humanities	7.1%	445		
Major: Psychology	6.6%	418		
Major: Social Sciences	18.4%	1162		
Major: Business	3.7%	232		
Major: Biological Science	21.1%	1332		
Major: Physical Science	5.5%	348		
Major: Engineering	10.9%	689		
Major: Other	21.0%	1324		

ⁱ For scale items and factor weights refer to Table 2ⁱⁱ Students spending more than the mean 28 hours a week attending classes and studying.ⁱⁱⁱ Students spending more than the mean 28 hours a week attending classes and studying and more than the mean 22 hours participating in active activities (spending time with friends, exercising, entertainment, and volunteering).^{iv} Students spending more than the mean 22 hours a week with friends, exercising, entertainment, and volunteering.^v Students working more than the mean 14 hours a week for pay. This is the mean of all students reporting working for pay.^{vi} Students spending more than the mean 17 hours a week watching TV and using the computer for fun.^{vii} Students' self-reported social class: Low-income or poor, Working class, Middle class, Upper-middle or professional-middle class, Wealthy^{viii} All obstacles are measured by asking students to report how often they experience each of the obstacles: Not at all, Rarely, Occasionally, Frequently, All the time^{ix} All time use measures ask students to report the average number of hours they spent weekly on each activity over the past school year.

Students reported a range: 0, 1-5, 6-10, 11-15, 16-20, 21-25, 26-30, 30 or more hours per week. Items are recoded to their midpoint: 0, 3, 8, 13, 23, 28, 35 hours