

Undergraduate Students' Use of Time in the College of Agriculture and Natural Resources at Michigan State University

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Abstract

College students' time use has been a concern of administrators, professors, academic advisors, and parents alike. Research in students' time use is especially limited in colleges of agriculture. This study assessed how undergraduate students in the College of Agriculture and Natural Resources (CANR) at Michigan State University use their time. Annually, from 2004 to 2008, students in the CANR received online surveys asking them to report their time use and demographic information. Over the course of five years, 2,803 students participated in the study. Data analysis revealed students' average use of time (hours/week) as: preparing for class (15.2), working for pay on-campus (13.5), working for pay off-campus (16.9), participating in co-curricular activities (6.1), relaxing and socializing (16.2), providing care for dependents (11.6), and commuting to class (5.0). The study showed significant differences in students' time use based on their academic year, gender, ethnicity, and home residence. These demographic differences in time use suggest that academic advising strategies should differ on the basis of student demographics. Study findings suggest that students need more counseling on time management strategies.

Introduction

College students' time use has been a concern of administrators, professors, academic advisors, parents and guardians alike. Time is an important resource for all, but it is a critical resource for students' successful performance. Meredeen (1988) indicated that the secret of survival and success at college can be largely defined in terms of how well students organize their time. Managing time is a challenge for many college students. Unlike high school students, college students have less in-class time and more outside-of-class work. Many college students find their academic life very stressful (Macan et al., 1990).

College students' time management is directly correlated with academic performance and stress. A universal assumption is that college grades are affected by the amount of time students spend on study; however, the relationship between college grades and quantity of time spent on study has not been fully established. Schuman et al. (1985) found a very small relationship between college grades and amount of study. Britton and Tesser (1991) found that two time management components -- short-range planning and time attitudes -- were significant predictors of cumulative grade point average and concluded that time management practices may have a positive effect on college grades. They also have shown that time management is a better predictor than Scholastic Aptitude Test (SAT) scores of college performance -- i.e., grade point average.

Time management is a skill, and it can be taught to students to make them more effective learners (Trueman and Hartley, 1996; Macan, 1994). Macan et al. (1990) found that students who perceived control of their time reported greater evaluations of their performance, greater work and life satisfaction, less role ambiguity, less role overload, and fewer job-induced and somatic tensions.

Because time management and college performance have a causal relationship, understanding undergraduate students' time use is essential for college administrators, academic advisors, and parents to make sure that students are making balanced use of time and progressing toward accomplishing their personal and professional goals. Research in students' time use is especially limited in colleges of agriculture, except for a study done by Gortner and Zulauf (2000), who studied undergraduate students' use of time in agricultural economics courses at Ohio State University. In an effort to better understand this underdeveloped field, this study was undertaken to focus on the time use of undergraduate students in the CANR at MSU. Findings of this study may be useful to college administrators, academic advisors, and parents seeking to help students become engaged learners and facilitate comprehensive development.

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Objectives

The general objective of this study was to seek information on how current undergraduate students in the CANR spend their time on various academic and extracurricular activities and to analyze differences in time use patterns by selected demographic characteristics. The specific objectives of this study were to:

1. Determine weekly time use profiles of CANR students in academic and non-academic activities.
2. Determine similarities and differences in time use patterns by selected demographic characteristics of respondents such as academic year, gender, ethnicity, and residence.

Methods

College students' time use has been studied by several researchers. Researchers have often recommended and used the time diary method to measure use of time (Gortner and Zulauf, 2000; Robinson and Godbey, 1997). Robinson and his colleagues consider the time diary to be the gold standard of time management, but Jacobs (1998) maintains that a self-reported measure of working time is a useful alternative to the time diary measure because it is simple and as accurate as time diary measure. He found no patterned discrepancies between the two methods, but unlike self-reported measures, time diary measures are an extremely data-intensive research strategy for measuring use of time. This study utilized the self-reported time use (hours per week) of undergraduate students in the CANR at MSU.

This survey adapted the time-use section of the survey instrument used in the National Survey of Student Engagement (NSSE), developed by Indiana University (NSSE, 2004). For this survey, the response item scales of the NSSE survey instrument were modified with self-reported approximate hours used per week instead of eight-point scales of time use. Respondents were asked to indicate the approximate number of hours they spend per week in seven major activities: preparing for class, working for pay on-campus, working for pay off-campus, participating in co-curricular activities, relaxing and socializing, providing care for dependents, and commuting to class.

Preparing for class included activities such as studying, reading, writing, doing homework or lab work, analyzing data, researching, and other academic activities. Co-curricular activities included student organizations, campus publications, social fraternities or sororities, and intercollegiate or intramural sports. Providing care for dependents was defined as taking care of parents, children, or a spouse. The modified survey instrument was circulated to the CANR Assessment Committee members to ascertain its content and face validity.

The population of this study consisted of all undergraduate college students in the CANR from 2004 to 2008. Data were collected using an online survey during March-April of each study year. An email list maintained by the Office of the Dean served as the sampling frame for this study. The online survey was sent to 2,565 students in 2004, 2,439 students in 2005, 1,997 students in 2006, 2,406 students in 2007, and 2,311 students in 2008. Two reminder emails were sent to the survey population to increase survey response rates.

A total of 2,803 usable responses were received. The average five-year survey response rate was 24.5%. In 2004, ice cream coupons were provided as an incentive to complete the survey. No such incentive was provided in 2005. Response rates dropped significantly in 2005, so the ice cream incentive was again offered to survey respondents in 2006, 2007, and 2008.

Data were accessed from a web-based database and exported into Statistical Package for Social Science (SPSS) for analysis. Descriptive statistics were used to present findings. One-way analysis of variance (ANOVA) and independent sample t-tests were used to determine whether the weekly time use in various activities differed significantly by students' demographic characteristics. The level of alpha for significance was set at 0.05.

Results and Discussion

Description of the Respondents

Of the 2,803 respondents, about 14% were freshmen, 25% were sophomores, 40% were juniors and 21% were seniors. About 7% of the respondents indicated that they had second majors and fewer than 10% had second degrees. Sixty-four percent of the respondents were female. The ages of respondents ranged from 18 to 58 years. The mean age of respondents was 21 years. Nearly 90% of respondents were white; the rest were Hispanic followed by African-American, Asian-American, Native American, and others. More than half (54.6%) of the respondents indicated that they came to the CANR from suburban or urban communities. Nine out of ten respondents were in-state residents. About a quarter (24.4%) of the respondents had participated in 4-H and FFA. Over half of the respondents (55.3%) indicated that they were members of the National Honor Society in high school.

Time use profiles of respondents

i) Time spent preparing for class

Respondents spent an average of 15.2 hours/week preparing for class (Table 1). Time use patterns indicate that time spent preparing for class increased over the five-year period. The time used preparing for class in this study is similar to the result of a study of the full-time university and college students' time use (16 hours per week) for educa-

tional activities from 2003 to 2006 (U.S. Department of Labor, 2007). The finding of this survey on time use for academic activities is also close to that of a time management study of students of the Literature, Science and Arts College at the University of Michigan conducted by Schuman et al. (1985), who found that the median study time was 14.5 hours/week (2.9 hours per weekday). But time use in preparing for class in this study is far less than undergraduate students' time use (21.3 hours/week) in three agricultural economics courses at Ohio State University as reported by Gortner and Zulauf (2000).

notable finding of this study is that respondents spent more time relaxing and socializing (16.2 hours/week) than they spent on academic activities (15.2 hours/week).

The U.S. full-time university and college students' time use, on an average weekday, on leisure and sports was 19.5 hours/week (U.S. Department of Labor, 2007). Gortner and Zulauf (2000) reported 19 hours/week in planned leisure and recreation activities and 10.3 hours/week in watching TV for undergraduate students in agricultural economics at the Ohio State University. Although it seems that

Table 1. Respondents' Weekly Time use by Survey Year (hours/week)

Activities	Survey year										Total	
	2004		2005		2006		2007		2008			
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)
Preparing for class	756	12.8 (8.6)	222	14.8 (10.0)	489	15.4 (11.0)	505	17.4 (13.5)	780	16.0 (11.8)	2752	15.2 (11.2)
Working for pay on-campus	338	13.9 (6.7)	86	13.5 (7.3)	207	13.8 (7.5)	216	13.5 (6.4)	326	13.0 (5.7)	1173	13.5 (6.6)
Working for pay off-campus	312	17.6 (9.6)	89	19.7 (11.3)	180	15.7 (8.9)	163	16.7 (8.6)	260	16.2 (8.9)	1004	16.9 (9.3)
Participating in co-curricular activities	552	6.7 (6.9)	156	6.8 (8.0)	352	5.5 (5.6)	376	5.7 (6.2)	551	6.0 (6.4)	1987	6.1 (6.5)
Relaxing and socializing	748	16.0 (11.5)	215	15.1 (11.6)	479	16.1 (15.8)	504	16.0 (12.2)	771	16.9 (12.5)	2717	16.2 (12.8)
Providing care for dependents	97	13.7 (18.9)	34	15.0 (18.7)	66	11.4 (12.9)	79	10.7 (13.8)	127	9.8 (15.3)	403	11.6 (16.0)
Commuting to class	756	4.4 (3.2)	213	5.2 (3.2)	482	5.6 (5.7)	500	5.0 (3.5)	760	5.0 (3.8)	2711	5.0 (4.0)

ii) Time spent working for pay

Respondents were asked to indicate the approximate number of hours per week they spent working for pay on- and off-campus. Four out of ten respondents indicated that they did work on-campus. A similar proportion of respondents indicated that they did work off-campus. Working students spent 13.5 hours/week working for pay on-campus and 16.9 hours/week working for pay off-campus (Table 1). Today's college students are working more than ever before and this rise in work follows a trend of increasing tuition costs. According to a recent national survey of American freshmen, nearly 50 % of respondents planned to work to meet their college expenses (Higher Education Research Institute, 2009).

iii) Time spent participating in co-curricular activities

Co-curricular activities included involvement in student organizations, campus publications, student government, social fraternities or sororities, and intercollegiate or intramural sports. Analysis of the data indicated that nearly three quarters (73.8 %) of respondents participated in co-curricular activities, spending about six hours per week on these activities.

iv) Time spent relaxing and socializing

Relaxing and socializing activities included watching TV, exercising, and other activities such as partying. On average, respondents spent 16.2 hours/week relaxing and socializing (Table 1). A

respondents in this study spent more time relaxing and socializing than they did preparing for class, respondents of the CANR at MSU spent less time relaxing and socializing than other U.S. college students.

v) Time spent providing care for dependents

Respondents were asked to indicate the approximate number of hours/week they spent taking care of dependents living with them. About 15% of the respondents indicated that they spent time providing care for dependents living with them, with an average of 11.6 hours/per week (Table 1). Respondents' time use in providing care for dependents had the largest variation, as indicated by the highest standard deviation of 16.

vi) Time spent commuting to class

A high majority of respondents (98.5%) indicated that they commuted to class. The average commuting time for respondents is five hours/week. According to the college students and time use 2003-2006 report, full-time university and college students travelled for 7.5 hours/week on weekdays (U.S. Department of Labor, 2008). The finding of this study on average commuting time indicates that CANR students spent less time commuting than did average U.S. university and college students.

Time Use and Demographic Characteristics

Another objective of this study was to determine similarities and differences in the time use profile by selected demographic characteristics of respondents. The results of one-way analysis of variance (ANOVA) for time spent (hours/week) on various activities by academic year of respondents are presented in Table 2.

i) Time spent preparing for class

Table 2 shows that freshmen, sophomores, and juniors spent 15.7, 15.4, and 15.5 hours/week respectively, preparing for class. Although seniors spent 14.1 hours/week, an hour less than respondents of other academic years, no significant differences were observed for amount of time spent on academic activities by academic year of respondents. The NSSE 2008 survey results, on the other hand, showed that freshmen spent more time preparing for class than did seniors (NSSE, 2008).

ii) Time spent working for pay on-campus

Analysis revealed that respondents of various academic years spent significantly ($F=9.158$, $p<0.001$) different amounts of time working for pay on-campus. The Tukey's post hoc test was conducted for multiple comparisons to identify differences among respondents of various academic years. It indicated that seniors spent significantly ($F=9.158$, $p<0.05$) more time (15.0 hours/week) than did freshmen (12.7 hours/week) working for pay on-campus. This result is consistent with the NSSE 2008 results. Similarly, juniors spent more time (13.8 hours/week) working for pay on-campus than did sophomores (12.3 hours/week). The post hoc test also revealed that seniors spent more time (15 hours/week) than did sophomores (12.3 hours/week) on on-campus employment.

iii) Time spent working for pay off-campus

Respondents at various academic years were significantly ($F=6.464$, $p<0.001$) different in the amount of time spent working for pay off-campus. Seniors spent more time (18.1 hours/week) than did freshmen (13.9 hours/week) and sophomores (15.7 hours/week) working for pay off-campus. Juniors spent more time (17.4 hours/week) than freshmen (13.9 hours/week) in off-campus employment.

Table 2. Time Use (hours/week) by Academic Year of Respondents in the CANR

Activities	n	Hours/week Mean (SD)	F value	p value
Preparing for class			2.436	0.063
Freshman	379	15.7 (12.4)		
Sophomore	677	15.4 (11.0)		
Junior	1091	15.5 (11.3)		
Senior	600	14.1 (10.3)		
Working for pay on-campus			9.158	0.001***
Freshman	142	12.7 (6.8)		
Sophomore	300	12.3 (5.9)		
Junior	475	13.8 (6.0)		
Senior	256	15.0 (7.8)		
Working for pay off-campus			6.464	0.001***
Freshman	97	13.9 (8.2)		
Sophomore	184	15.7 (8.6)		
Junior	450	17.4 (9.2)		
Senior	270	18.1 (10.1)		
Participating in co-curricular activities			0.550	0.648
Freshman	247	5.8 (5.6)		
Sophomore	502	6.4 (6.9)		
Junior	796	6.2 (6.7)		
Senior	440	6.0 (6.4)		
Relaxing and socializing			3.153	0.024*
Freshman	374	17.6 (14.3)		
Sophomore	667	16.7 (14.1)		
Junior	1078	15.4 (11.9)		
Senior	593	16.2 (11.6)		
Providing care for dependents			3.614	0.013**
Freshman	45	9.8 (14.4)		
Sophomore	82	7.8 (9.2)		
Junior	171	11.7 (15.3)		
Senior	105	15.2 (20.6)		
Commuting to class			1.360	0.253
Freshman	372	5.3 (4.3)		
Sophomore	654	4.9 (4.5)		
Junior	1082	5.0 (3.7)		
Senior	598	4.7 (3.7)		

* Significant at 0.05 level ** Significant at 0.01 level *** Significant at 0.001 level

iv) Time spent co-curricular activities

An ANOVA result revealed no differences among respondents of various academic levels in time use on participating in co-curricular activities.

v) Time spent relaxing and socializing

An ANOVA result indicated a significant ($F=3.153$, $p < 0.05$) relationship between respondents' academic years and time spent relaxing and socializing. Freshmen spent more time (17.6 hours/week) than did juniors (15.4 hours/week) on entertainment.

vi) Time spent providing care for dependents

An ANOVA result showed a significant ($F=3.614$, $p < 0.05$) difference between respondents at various academic years and time spent on providing care for dependents. Seniors spent more time (15.2 hours/week) than did sophomores (7.8 hours/week) taking care of dependents.

vii) Time spent commuting to class

An ANOVA result gave no difference in time spent commuting to class between respondents of various academic years.

One of the final objectives of this study was to determine if time use pattern varies by students' gender. There were significant differences between male and female respondents in time use for six out of seven activities (Table 3). Female respondents spent significantly ($t = 7.361$, $p < 0.001$) more time (16.4 hours/week) on class preparation than did their male counterparts (13.1 hours/week). Similarly, females spent significantly ($t = 2.800$, $p < 0.01$) more time (5.1 hours/week) on commuting to class than did males (4.7 hours/week).

Male respondents spent significantly ($t=2.683$, $p < 0.01$) more time (14.3 hours/week) working for pay on-campus than did female respondents (13.2 hours/week). Similarly, males spent significantly ($t=3.877$, $p < 0.001$) more time (18.3 hours/week) working off-campus than did females (16 hours/week). Males also spent significantly ($t=3.492$, $p < 0.001$) more time (6.8 hours/week) than

did females (5.8 hours/week) taking part in co-curricular activities. Additionally, male respondents spent significantly ($t=5.620$, $p < 0.001$) more time (18.1 hours/week) relaxing and socializing than did female respondents (15.2 hours/week). These results are consistent with the findings of the NSSE 2008 survey for ANR respondents (NSSE, 2008).

Results of this study indicate that male students were significantly more involved in various activities than female students. These findings are consistent with findings about ANR respondents in the NSSE 2008 survey. It was interesting to note that male students reported spending more time (12.2 hours/week) providing care for dependents than did female students (11.3 hours/week). The male respondents' time use in relaxing and socializing is also consistent with the findings of Gortner and Zulauf (2000) and the NSSE (2008). The American Time Use Survey 2007 results showed that men spent 39.9 hours per week in leisure activities such as watching TV, socializing, or exercising compared with 35 hours per week for women (U.S. Department of Labor, 2008). The findings of Robinson and Godbey (1997) on time use by employed Americans, however, indicate that there was no difference in time use between men and women in watching TV for those between the ages of 18 and 24 years old.

Table 3. Time Use (hours/week) by Gender of Respondents

Activities	n	Hours/week Mean (SD)	t value	p value
Preparing for class				
Male	990	13.1 (10.7)	7.361	0.001***
Female	1755	16.4 (11.3)		
Working for pay on-campus				
Male	359	14.3 (6.9)	2.683	0.007**
Female	813	13.2 (6.4)		
Working for pay off-campus				
Male	398	18.3 (10.3)	3.877	0.001***
Female	603	16.0 (8.5)		
Participating in co-curricular activities				
Male	674	6.8 (7.6)	3.492	0.001***
Female	1307	5.8 (5.9)		
Relaxing and socializing				
Male	975	18.1(14.7)	5.620	0.001***
Female	1735	15.2 (11.5)		
Providing care for dependents				
Male	141	12.2 (16.4)	0.525	0.600
Female	261	11.3 (15.8)		
Commuting to class				
Male	981	4.7 (3.5)	2.800	0.005**
Female	1723	5.1 (4.3)		

Significant at 0.01 level * Significant at 0.001 level

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Time use may differ by the sociocultural background of the student. To determine whether such a difference exists, respondents were grouped into two ethnic groups: white and students of color. In this study, "students of color" refers to all minorities, including African American, Hispanic, Asian American, and Native American respondents. Student's t-test was used to determine differences in weekly time use by ethnicity. Table 4 shows significant differences between these two ethnic groups in weekly time use for working for pay on-campus ($t=2.848$, $p < 0.01$), relaxing and socializing ($t=4.579$, $p < 0.001$), and commuting to class ($t=1.979$, $p < 0.05$). Students of color spent significantly more time (14.8 hours/week) working for pay on-campus and commuting to class (5.4 hours/week) than did their white counterparts (13.3 hours/week and 4.9 hours/week respectively). White respondents spent significantly more time (16.6 hours/week) relaxing and socializing than did students of color (13.3 hours/week).

This study also attempted to find out if time spent on various activities differed by home residence (rural vs. urban) of respondents. Student's t-test was used to determine the differences between these two groups. Findings indicated significant differences between the rural and urban respondents for time

use in preparing for class, relaxing and socializing, and commuting to class (Table 5). Respondents from urban communities spent significantly ($t=2.034$, $p < 0.05$) more time (15.6 hours/week) preparing for class than did respondents from rural communities (14.7 hours/week). Similarly, respondents from urban backgrounds spent significantly ($t= 4.022$, $p < 0.001$) more time (17.1 hours/week) relaxing and socializing than did respondent from rural areas (15.2 hours/week). Respondents from rural communities spent significantly ($t=2.722$, $p < 0.01$) more time (5.2 hours/week) commuting to class than did students from urban communities (4.8 hours/week).

Summary

This study reveals that CANR students tend to spend more time on relaxing and socializing than on academic matters. This suggests that CANR students need counseling about how much time they should devote to preparing for class, including reading, doing homework or lab work, researching, analyzing data, and writing reports and/or papers. The college and academic departments could counsel students on how best to manage their time during their studies. Seminars, workshops and counseling sessions could be organized during orientations or annual events, such as CANR Student Senate meetings, and through meetings with academic advisors.

Students' time use patterns on various activities also varied by demographic characteristics. Seniors spent significantly more amount of time working for pay on-campus and off-campus, and providing care for dependents than did respondents from other academic years. Gortner and Zulauf (2000) argue that the reason that seniors spend more hours at work is that there are fewer scholarship opportunities for upperclassmen. Disproportionately more fellowships are directed at freshmen and sophomores as recruitment incentives.

Significant differences were found between male and female respondents in time use. Male respondents were more involved in work, participation in co-curricular activities and socialization, whereas females were more involved in academic activities.

Table 4. Time Use (hours/week) by Ethnicity of Respondents

Activities	n	Hours/week Mean (SD)	t value	p value
Preparing for class				
White students	2388	15.1 (11.0)	1.105	0.269
Students of color	352	15.8 (12.3)		
Working for pay on-campus				
White students	990	13.3 (6.5)	2.848	0.004**
Students of color	175	14.8 (6.9)		
Working for pay off-campus				
White students	910	16.8 (9.3)	1.436	0.151
Students of color	92	18.3 (9.8)		
Participating in co-curricular activities				
White students	1723	6.2 (6.7)	1.336	0.182
Students of color	254	5.6 (5.0)		
Relaxing and socializing				
White students	2356	16.6 (13.1)	4.579	0.001***
Students of color	350	13.3 (10.6)		
Providing care for dependents				
White students	331	11.9 (16.6)	1.010	0.313
Students of color	70	9.8 (12.7)		
Commuting to class				
White students	2357	4.9 (3.8)	1.979	0.048*
Students of color	343	5.4 (5.1)		

* Significant at 0.05 level

**Significant at 0.01 level

*** Significant at 0.001 level

Table 5. Time Use (hours/week) by Residence Types of Respondents

Activities	n	Mean (SD)	t	p value
Preparing for class				
Rural	1242	14.7 (10.8)	2.034	0.042*
Urban	1501	15.6 (11.5)		
Working for pay on-campus				
Rural	578	13.7 (6.7)	0.674	0.501
Urban	591	13.4 (6.4)		
Working for pay off-campus				
Rural	524	16.6 (9.4)	1.330	0.184
Urban	478	17.3 (9.3)		
Participating in co-curricular activities				
Rural	916	6.0 (6.2)	0.645	0.519
Urban	1063	6.2 (6.8)		
Relaxing and socializing				
Rural	1232	15.2 (12.3)	4.022	0.001***
Urban	1477	17.1 (13.2)		
Providing care for dependents				
Rural	198	11.1 (15.6)	0.728	0.468
Urban	202	12.2 (16.4)		
Commuting to class				
Rural	1226	5.2 (4.1)	2.722	0.01**
Urban	1476	4.8 (3.9)		

* Significant at 0.05 alpha level ** Significant at 0.01 alpha level *** Significant at 0.001 alpha level

Findings also reveal significant differences in time use by the ethnicity of the respondents. White students spent significantly more time in relaxing and socializing than did students of color. Students of color were more engaged in academic activities and employment work than whites. Academic advising or counseling should focus more on male, white freshmen with urban backgrounds because they spent significantly more time on relaxing and socializing. Significant differences were observed between rural and urban respondents for time use. Respondents from urban communities were more engaged in academic activities, off-campus work, and co-curricular activities than the respondents from rural community backgrounds.

In this study, seniors and males were significantly different from others in time use. The differences in time use for selected demographic characteristics of respondents suggest that detailed time-management research studies be conducted to determine gender differences in time management and their impact on students' college performance (in terms of grade point average) and the relationship between time use profile and degree completion time and to compare self-reported online survey and weekly time diary methods of time use measurement.

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