COVID-19 Transitions to Online Formats and Pre-Pandemic Foundations for Student Success: Time Management and Lifestyle Variables

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COVID-19 abruptly moved university coursework online. Even amid the pandemic, educators seek to identify factors that contribute to successful course and program completion. Traditionally, time management has been identified as a factor that influences academic success. This study examined pre-pandemic relationships between the use of time management skills and three student lifestyle variables: a) employment, b) involvement in campus organizations, and c) perception of anxiety regarding spending time with friends and family. The findings suggest relationships between student time management skills and these variables, which may have implications for student success and retention in post-pandemic times.

Keywords: student success, time management, retention, graduation, employment, campus involvement, COVID-19, online courses, university

INTRODUCTION

COVID-19 brought radical escalation of online university course delivery (Bevins, et al., 2020; Maloney & Kim, 2020). Faculties and administrators moved rapidly to ensure students' successful course completions. This near revolution in technology use and curricular adaptation was focused on student success. Indeed, moving students forward on their degree path, improving student retention and graduation rates, and employing metrics to track factors that impact them will continue to be at the forefront of initiatives in higher education as educators seek to facilitate student success. Perhaps also predicated on justification for funding, not only have educators investigated factors that contribute to higher retention and graduation rates, but they have also introduced metrics and models to measure and track student success. Time management has historically been considered a critical element for students' academic success and will be a valued component of student development in post-pandemic education. Student success and graduation rates, in any era, are influenced by effective use of time. More narrowly, time management is not only a critical skill to enable successful academic endeavors, but it also facilitates life and professional pursuits beyond graduation.

The study described here was conducted prior to the educational disruptions caused by COVID-19 and offers foundational investigation of student success factors for consideration in post-pandemic academic settings. Greater understanding of factors that influenced student success prior to the massive move to online courses can contribute to the development of improved educational environments in any era.

BACKGROUND

Conceptually, consideration of the following relationships forms the framework for this study. First, it is assumed that a goal of education is to enable student academic success. Second, investigators have reported relationships between students' time management skills and academic success. Third, lifestyle may influence student time management and thus impact student academic success. Thus, this work first reviews a) a selection of research findings on the relationship of time management to academic success, b) representative research on the current orientation to measure student success via retention and graduation rates, and c) works related to three specific lifestyle variables which may influence the time management/success relationship. This review of related works is followed by description and findings of survey research designed to investigate the relationships between the use of time management skills and three student lifestyle variables (employment, participation in campus organizations, and perception of anxiety regarding spending time with friends and family).

Time Management

As early as 1988, researchers investigated whether the methods that students use to organize their time influence their survival and success at college (Meredeen, 1988). More recently, Race (2003) found that well-developed time management skills are critical to avoiding problems with student success. Roper (2007) argued that a student's ability to develop time management strategies is the most important requirement for becoming a lifelong learner. Recent research supports and extends the earlier findings (Diaz-Mora, 2016; Eyman, 2020; Gordanier, 2019; Hanshaw, et al, 2019; Hensley, et al., 2018; Liborius, et al., 2019; Papamitsiou, & Economides, 2019). For example, ChanLin (2012) reported that time management is a significant predictor of students' learning achievement and Wolters and Hussain (2015) reported "grit" as a component in the time management-success relationship. Confirming the continued importance and relevance of the topic, Rupar and Strong (2019) proposed the term academic time-based decision making (ATBDM) as a new lens for researching the relationship between student time-management behaviors, environmental and personal stressors, and academic success.

The introduction and increasing popularity of online education, even prior to the pandemic, prompted exploration of the role of time management for online students. Investigations of student time management as a factor in online studies include the works of Eriksson, Adawi, and Stöhr (2017), Goodson, Miertschin, and Stewart (2016), Inan, Yukselturk, Kurucay, and Flores (2017), Miertschin, Goodson, and Stewart (2013), and Neroni, et al. (2019). Inan et. al (2017) determined that students' self-regulation skills, including time management, impacted their success and satisfaction in an online learning environment in Turkey. Eriksson, Adawi, and Stohr (2017) reported that the learner's ability to manage time effectively was one of four factors influencing the dropout rate for students in Massive Open Online courses (MOOCs). The work of Miertschin, Goodson, and Stewart (2013) reflected not only a generalized perception by students that time management was important to their academic success, but also that time management skills were enhanced by online instruction. Specifically, students who had enrolled in more than five online courses were more likely to report that their time management skills had improved from taking online courses. Further work by Goodson, Miertschin, and Stewart (2016) supported the previous finding that students perceived that they learned time management skills by participating in online courses. Their conclusion that relationships do exist between students' time management behaviors, development of time management skills, and the design of online courses extended investigation of time management in online courses to include course design features as variables. Neroni, Meijs, Gilselaers, Kirschner, and de Groot (2019) reported time management to be a positive predictor of success in online courses.

Other current studies further support the idea that students' abilities to manage their time are important factors for their success. In multiple studies, Goodson, Miertschin, and Stewart (2012, 2015, 2016) investigated relationships among course design, time management skills, and student performance. Grave (2011) focused on the effect of student time allocation on academic achievement. For nursing students, Kaya, Kaya, Ozturk Palloş, and Kucuk (2012) explored the influence of age, gender, and anxiety levels on time management skills. MacCann, Fogarty, and Roberts (2012) reported that time management is more critical for part-time than full-time community college students. Finally, Strunk, Cho, Steele, and Bridges (2013) developed and validated a model of time-related academic behaviors, including procrastination and timely engagement. These studies, when analyzed together, yield a view that student time management is a factor in academic success. Whether it be allocation of time (Grave, 2011), the influences of specific study skills (Goodson, Miertschin, & Stewart, 2016), student characteristics (Kaya et. al 2012; Roberts, 2012; Goodson, Miertschin, & Stewart, 2016), or course design (Goodson, Miertschin, & Stewart, 2012, 2015), time management is a factor in the learning experience of students.

Yet, even with this substantial foundational work in time management and student success, a gap exists in the literature regarding student time management as related to student success (Rupar and Strong, 2019). Contributing factors need to be identified and examined, including student lifestyle factors. This study examined the relationships between student use of time management skills and three student lifestyle variables: a) employment, b) involvement in campus organizations, and c) perception of anxiety regarding spending time with friends and family.

Time Management Skills

In previous work on general time management skills and practices, the authors (Miertschin, Goodson, & Stewart; 2013) published a review of multiple studies presenting time management techniques derived from the literature. Illustrative of those techniques were practices such as identifying goals, prioritizing, allocating time to goal tasks, delegating work, timing repetitive tasks, determining the best use of time, doing the most important things first, and using a journal. Also based on a review of the literature, Claessens, van Eerde, Rutte, and Roe (2007) identified clusters of behavior related to time management: first, time assessment behaviors (self-awareness of time needed and available); second, planning behaviors (setting goals, planning and grouping tasks, and prioritizing); and third, monitoring behaviors (self-observation of time use against goals, and feedback loops).

Individual studies also identified factors related to time management. Macan (1994) identified four factors: setting goals and prioritizing, techniques of time management (e.g., making lists, setting reminders), personal preference for organization (e.g., preference for an orderly workspace over a disorderly workspace), and perceived control of time. Bond and Feather (1988) made early contributions by naming five factors: sense of purpose, structured routine, orientation to the present, effective organization, and persistence. Britton and Tesser (1991) similarly identified three time and attitude related factors: short-range planning, long-range planning, and time attitudes.

More specifically, for students, time management skills and practices play a part in the accomplishment of academic tasks (Pinxten, 2019). Macan, Shahani, Dipboye, and Phillips (1990) reported a correlation between time management behaviors, GPA, and student life satisfaction. Britton and Tesser (1991) also found similar correlations. In fact, George, Dixon, Stansal, Gelb, and Pheri (2008) concluded that time management skills were the highest predictor of student success as measured by GPA.

For online learning, self-discipline, a component of time management, is often identified as a factor for student success. This is supported by the works of The Sloan Consortium (Allen & Seaman, 2006). More specifically, students in a study by Song, Singleton, Hill, and Koh (2004) perceived that time management had positive impacts on their success in online learning. Goal orientation, and time and study management were also found to be predictive of academic success in online and blended learning by Lynch and Dembo (2004). Hence, time management skills have been shown to be factors in student success in multiple works.

Retention and Graduation Metrics for Student Success

Pressures for accountability in university funding and the desire to see students succeed have prompted legislative, administrative, and faculty initiatives to identify factors that contribute to student success and to develop measures of student and institutional accomplishments. Student retention, attrition, and graduation rates are at the forefront of endeavors to document student success at an institutional level.

Illustrative of the drive to identify and evaluate contributors to student success as measured by higher retention and graduation rates are works that can be classified into four categories: a) review of existing work b) characteristics that contribute to student success, c) interventions to improve student success, and d) analytics related to student success.

First, Aljohani (2016b) reviewed multiple works related to student retention in higher education and described features and applications. This work provided useful background in considering discussion of student success as measured by retention and graduation rates. Braxton et al. (2014) discussed the theoretical and research context and made recommendations for appropriate policy and practice.

Second, several authors focused on characteristics that contribute to student success. These can be divided into student characteristics and institutional characteristics. To learn more about the student characteristics associated with retention leading to graduation, Raju and Schumacker (2015) applied data mining models. Similarly, Archer, Chetty, and Prinsloo (2014) attempted to benchmark the behaviors of successful students as a precursor to improvement for all students. Boateng, Plopper, and Keith (2016) focused more narrowly on student lifestyle habits to improve retention of freshmen students. One lifestyle attribute, encouragement from friends, reported by Peterson-Grazioze, Bryer, and Nikplaidou (2016) was found to be instrumental in first semester completion for nursing students. While many of these studies identified positive student attributes related to student success, Page and Kulick (2016) discovered that student satisfaction was not a significant predictor of subsequent student retention in for-profit schools.

Institutional characteristics that contributed to student success were found to include class size (Bettinger & Long, 2016), library expenditures (Crowford, 2015), and faculty advisement and helpfulness (Peterson-Grazioze, Bryer, and Nikplaidou (2016). Beyond these works, Marsh (2014) identified additional institutional characteristics that have significant effects on retention rates. More generally, Pike and Graunke (2015) observed not only that institutional and cohort characteristics had effects on retention, but also that the effects were quite stable over time and across cohorts.

Third, interventions to improve student success were investigated. Britto and Rush (2013) identified and described the value of providing multiple services to online students. Their premise was that online students can benefit from services while they engage in learning at a distance. Other studies described the benefits of offering specific programs to improve success. Dagley, Georgiopoulos, Reece, and Young (2016) reported the benefits of a National Science Foundation-sponsored program. Conner Daugherty, and Gilmore (2013) outlined and examined the efficacy of an introductory "life calling" course. Thomas and Hanson (2014) and Jobe (2016) investigated programs to create a first-year cultural shift to improve student progress. Similarly, Silver Wolf, Perkins, Butler-Barves, and Walker (2017) examined social belonging interventions as a complement to retention, and Schrum (2015) indicated a relationship between tutoring and student attrition and retention for nursing students.

Fourth, analytics and models were the subject of inquiry for several studies. For example, Yu (2015) developed a conceptual framework to understand credential completion at community colleges. Similarly, multiple studies focused on models that included metrics for factors that promote higher retention and/or graduation rates. For example, Aljohani (2016a) examined previous theoretical models and empirical studies, and Kerby's (2015) work resulted in suggestions to enhance the predictability of conceptual models via use of a new predictive model for retention. Similarly, Miller and Bell (2016) outlined a predictive model to increase student persistence.

Data analytics were the focus of multiple other investigations (Eyman, 2020; Bingham and Soverson, 2016; Johnson, Johnson, Steigman, Odo, Vijayan, and Tata, 2016; Mah, 2016; Trosset and Wiesler, 2010, West et al., 2016; and Jenicke, Holmes, and Pisani, 2013). Each of these studies demonstrated the effectiveness of a variety of analytical techniques to mine large volumes of data for factors that contribute to student success in the form of retention, completion, and graduation. Data mining was extolled by Eyman

(2020) as a tool for determining student success metrics. Bingham and Solverson (2016) used enrollment data to predict retention rates. Johnson, Johnson, Steigman, Odo, Vijayan, and Tata (2016) applied academic risk group profile data to enable empirical increases in retention, completion, and graduation rates, while also improving allocation of institutional resources. Likewise, Mah (2016) utilized digital badges and learning analytics to predict student retention, while Trosset and Weisler (2010) used longitudinal assessment data, and West et al. (2016) employed learning analytics to assess student retention. Finally, Jenicke, Holmes, and Pisani (2013) used Six Sigma quality improvement methodology to improve student retention in a college of business.

Thus, analytics and models were, indeed, the subject of inquiry for multiple studies. Both need and current practice are necessary to understand and impact the use of retention and graduation metrics as measures of student success.

Lifestyle Variables

Review of the literature revealed foundational works related to the three lifestyle variables examined in this study. First, The National Center for Education Statistics of the U.S. Department of Education (1994) reported that students working 1-15 hours per week earned significantly higher grade point averages than both students working 16 or more hours per week and students who were not working. A study of students in the United Kingdom produced an opposing conclusion, namely that working while attending college had a detrimental effect on both grades and the ultimate goal of earning a degree (Callender, 2008). More recently, Tyson (2012) found that for engineering students, employment had negative impacts on time management, time to degree, and retention; Greene and Maggs (2015) reported that more time spent on employment was linked to less time spent on academics; and Wald, Muennig, O'Connell, and Garber (2014) observed that increased hours of paid employment was a negative predictor of grade point average for college students.

Second, involvement in campus organizations was shown to be positively correlated with student learning and development (Astin, 1993, 1999), educational attainment (Pascarella & Terenzini, 1991), and retention rates (Martin, 2017; Primary Research Group, 2016; Tinto, 1987). According to both Astin (1993) and Pascarella and Terenzini (1991), almost any type of student involvement in college (beyond courses and coursework; that is extracurricular activities) positively affects student learning and development. In 2010, Shulruf reported that a meta-analysis of 29 articles found a positive relationship between school-sponsored activities and achievement in secondary school. Studies about extra-curricular activities in college also often point to outcomes other than student success. For example, research by Roulin and Bangerter (2013) looked at how participation in extra-curricular activities impacted subsequent professional employment. Additionally, Tinto reported that students will be more likely to persist in college if they feel they have had rewarding encounters with a college's social and academic systems. He argued that through extracurricular participation, students interact with peers who have similar interests, providing social integration into the college environment, resulting in higher retention rates (Tinto, 1987). More recently, Martin (2017), after examining non-returning students following their freshman experience, reported that the non-returning students exhibited low levels of campus involvement and engagement. Reported in the 2017 edition of the *Survey of Best Practices in Student Retention,* the Primary Research Group showed that nearly 75% of the colleges and universities responding felt that involvement in extra-curricular activities had either some, significant, or dramatic impact on student retention.

Hence, students' involvement in campus organizations may influence their college experience. Support exists regarding the positive effects of involvement in extracurricular activities on student learning and development (Astin, 1993, 1999), educational attainment (Pascarella & Terenzini, 1991) and retention rates (Tinto, 1987). Greene and Maggs (2015) contributed to the discussion of the relationships between student campus involvement and success by noting that, previous studies often have focused on only one time use domain (e.g., employment) without considering how students combine various activities.

Third, issues regarding spending time with friends and family relative to college success are discussed in both the popular press (Charles, 2012) and in university new-student orientation sessions and materials. Illustrative of much of that dialogue is the following statement: "Students attempting to balance school,

work, and family/social obligations should evaluate the commitments in their life and discuss realistic goals with friends and family members to ensure that they will have the support and time needed to maximize their success" (Driscoll, 2013, p. 1). Cheng, Ickes, and Verhofstadt (2012) reported study results suggesting that family social support positively impacted college student GPA, even though their literature review also showed inconsistent findings with respect to these two variables. Crispin and Nikolaou (2019) examined the role being a parent has on student time management and success.

OBJECTIVES

Based on the critical nature of time management skills as related to student success, especially in a university climate where institutional accountability metrics include student retention, attrition, and graduation rates, the purpose of this study was to investigate the relationships between the use of time management skills and three student lifestyle variables:

(1) Student employment including full-time or part-time
(2) Student participation in campus organizations
(3) Student perception of anxiety regarding spending time with friends and family

Although conducted prior to the COVID-19 pandemic, this study provides foundation for post-pandemic application and future study.

Conceptualization of time management was based on the traditional core elements proposed by Lakein (1973). These elements included determining needs, setting goals to achieve those needs, planning required tasks, and prioritizing those tasks. It also included the description by Claessens, van Eerde, Rutte, and Roe (2007) of time management as time assessment behaviors, planning behaviors, and prioritizing and monitoring behaviors.

METHODS AND MATERIALS

Sample

One hundred ninety-one students enrolled in a large state research university participated in this study. Students were selected for the purposive sample based on enrollment in both face-to-face and online courses (in order to reflect accurately today's student experiences). Three of five participating classes were online, one was face-to-face, and one was hybrid. To ensure inclusion of respondents who experienced balancing lifestyle and educational demands, the study selected two junior level courses, two senior level courses, and one graduate level course. For this study the mix of junior, senior, and graduate level students was appropriate since the intent was to obtain responses from experienced students with no intent to examine differences between levels.

Measures

A 50-item survey was used for data collection. The questionnaire was adapted from a measurement instrument tested and used previously by Goodson, Miertschin, and Stewart (2015) with the addition of items particular to this investigation. The questionnaire included demographic and lifestyle information as well as items designed to measure the extent to which students engage in effective time management practices gleaned from the literature.

Section one of the questionnaire focused on demographic characteristics including a) student classification b) number of online courses completed, c) enrollment status (mostly full-time or mostly part-time), d) age, e) estimated overall GPA, f) employment status, and g) current enrollment (number of credit hours).

Section two of the questionnaire included a cluster of items designed to measure the extent to which students used time management practices derived from synthesis of the literature. These included:

- Keeping a time-based schedule, planner, or calendar
- Using a schedule planner or calendar to schedule course study and homework
- Scheduling time to complete long-term assignments

- Scheduling time for course assignments in a time-based schedule planner
- Having a study routine
- Adhering to a study schedule
- Maintaining a study routine
- Planning extra time for study before tests
- Transferring dates from a syllabus to a time-based schedule planner
- Generally having an organized plan and schedule for study

To assess the reliability of the items in section two, Cronbach's alpha was calculated using the survey responses and yielded a reliability coefficient of 0.84. This value indicated that the items have high internal consistency. It can be noted that a Cronbach's alpha value of 0.70 or higher is generally acceptable for establishing reliability (UCLA Statistical Consulting Group, 2015).

Section three included rating scale formatted items to measure full-time and part-time employment, degree of engagement with different student organizations, amount of attendance at university-sponsored extracurricular events and activities, and perceptions of anxiety about spending sufficient time with family and friends. The employment item read "What is your employment status" with the response options of full-time, part-time, or student only. The organization engagement question was "The number of student organizations I engaged in this semester was ___", with responses categories 0, 1, 2, and 3 or more. The extracurricular item was "The number of different university sponsored extracurricular activities/events I participated in this semester was ___", with responses categories 0, 1, 2, and 3 or more. Anxiety regarding spending time with friends and family was selected as the measure related to time with family because rather than just knowing how much time was spent, the research team was interested in knowing about stress or anxiety related to time with family. This measure was used to consider concern about time with friends and family rather than actual time. This item read, "While enrolled in classes at the University, I have some anxiety regarding spending time with friends and family." A seven-point continuum was used with "no anxiety" at one end and "strong anxiety" at the other.

The questionnaire was administered in an online format familiar to respondents. Student participation was voluntary and responses were anonymous to the researchers. The learning management system used to deliver the survey assigned each response record an identification number to ensure anonymity and facilitate analysis. Following tabulation of demographic data, the time management inventory items from section two of the questionnaire were compiled to create a single Time Management Score (TMS) for each student.

Specifically, the composite Time Management Score (TMS) was derived from section two items listed in Table 4.

RESULTS

Demographics

Sample participants (N=191) were upper classmen, students in their last two years of the four-year degree, with 91 percent juniors (year three) and seniors (year four). Ninety-two percent were under the age of 30; and 92 % reported a GPA (grade point average) greater than 2.5. Most were experienced with both online and face-to-face course formats having completed at least four online courses (73%). Most were enrolled full-time (86%) rather than part-time.

Lifestyle

Tabulation of the lifestyle variables showed that most participants were employed (75%) (see Table 1). About 44% of students engaged in one or more student organizations while 57% did not (see Table 2). Similarly, about 42% of students engaged in one or more extracurricular activities or events and 59% did not (see Table 2). Eighty-four percent of the students reported moderate or high levels of anxiety about spending sufficient time with family and friends (see Table 3).

TABLE 1
STUDENT EMPLOYMENT STATUS

Employment Status	
Full-time	39%
Part-time	37%
Student only	24%

N = 191

TABLE 2
STUDENT PARTICIPATION IN STUDENT ORGANIZATIONS & UNIVERSITY EVENTS

Participation	Student Organizations	University Sponsored Events
None	57%	59%
One	31%	24%
Two	12%	10%
Three of more	1%	8%

N = 191

TABLE 3
ANXIETY RE TIME WITH FAMILY/FRIENDS WHILE ENROLLED

Anxiety Level	
Low Anxiety	16%
Moderate Anxiety	51%
High Anxiety	33%

N=191

Time Management

The data from each time management item were tabulated and assessed individually as shown in Table 4.

TABLE 4
TIME MANAGEMENT SUB-INVENTORY RESULTS

Item	7	6	5	4	3	2	1
	Strongly Agree						Strongly Disagree
I keep a time-based (daily, weekly, monthly) schedule planner or calendar.	40%	13%	20%	12%	5%	4%	6%
I use a schedule planner or calendar to schedule time for course study and homework.	35%	14%	19%	10%	6%	6%	9%
I schedule time throughout the semester in order to complete long-term assignments.	33%	19%	20%	14%	5%	1%	7%
Scheduling time for course study or assignments in a time-based (daily, weekly, monthly) schedule planner is a waste of time for me.	7%	4%	8%	13%	14%	13%	39%
I have a study routine.	18%	16%	24%	14%	14%	6%	7%

I adhere to a study schedule.	13%	14%	24%	17%	14%	6%	12%
Maintaining a study routine does not work with my schedule.	12%	10%	15%	15%	17%	14%	17%
I plan extra time for study sessions before tests.	39%	22%	17%	10%	6%	3%	3%
I transfer important dates from my syllabus to a time-based (daily, weekly, monthly) schedule planner.	40%	17%	16%	8%	9%	5%	5%
In general, I have an organized plan and schedule for study for courses.	27%	21%	26%	12%	6%	3%	5%

N=191

A raw Time Management Score was calculated for each participant. TMSs were determined by awarding a value ranging from 1 to 7 for individual questionnaire item responses in section two where 1 indicated a response of "strongly disagree" and 7 indicated a response of "strongly agree." For each participant, the responses to individual items of the questionnaire were then added together to form the raw composite TMS. For this data, TMSs ranged in value from 18 to 70 with a mean of 50, a standard deviation of 11.7, and a median of 51. The Coefficient of Skewness of the data was 0.48 suggesting that the distribution of the sample was approximately symmetrical since the coefficient was between -0.5 and 0.5 (Bulmer, 1979). Time Management Scores were then cross-analyzed with the lifestyle factors: a) employment, b) campus organizational involvement, and c) perceptions of anxiety regarding time with friends and family.

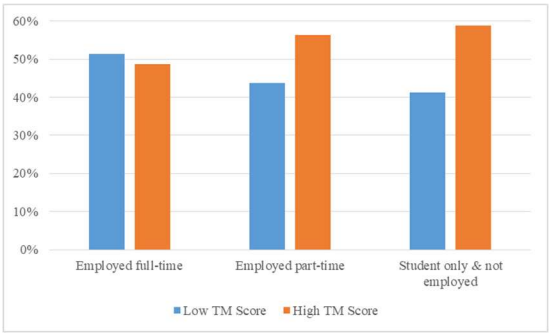
To further facilitate comparisons between TMSs and lifestyle variables, a standardized score was computed for each raw TMS. The standardized TMSs were classified as low or high. To simplify the data and to compare results, negative standardized scores were classified as low and positive standardized scores were classified as high.

Using the standardized TMS classification, contingency tables were constructed for the lifestyle variables (employment, participation in campus organizations, and perceptions of anxiety regarding spending time with friends and family). The tables show the percentage of students with low standardized time management scores and the percentage of students with high scores for each variable. The tables reveal the following relationships for the sample data, based on descriptive analysis:

- Students not employed or employed on a part-time basis were more likely to have a high TMS (see Figure 1).
- Among students employed full-time, there was an equal distribution of low and high TMS (see Figure 1).
- Among students who participated in two or more organizations, the majority had high TMS (see Figure 2).
- Among students who participated in one organization, the majority had high TMS (see Figure 2).

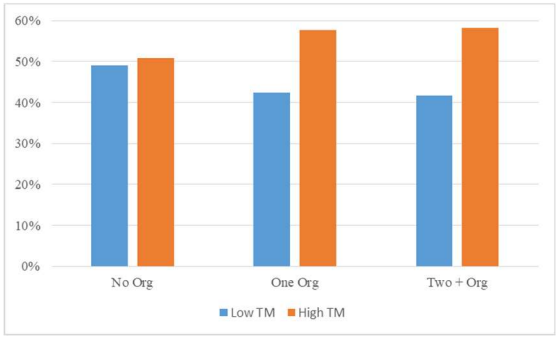
The greatest percentage of students who were anxious about spending time with family and friends had a slightly higher TMS (see Figure 3).

FIGURE 1
TIME MANAGEMENT BY EMPLOYMENT



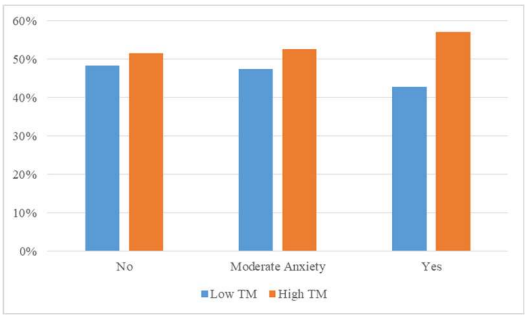
N=191

FIGURE 2
TIME MANAGEMENT BY STUDENT PARTICIPATION



N=191

FIGURE 3
TIME MANAGEMENT BY ANXIETY



N=191

DISCUSSION

Time Management

Time management, a factor in student success, retention, and graduation, was explored in this research. The creation of a composite TMS based on student responses regarding their use of time management skills not only enabled creation of a single score for cross analysis with lifestyle variables, but also yielded a view of student development and use of specific time management skills. Specifically, a majority of students

reported using time management tools such as schedules, planners, and calendars; establishing and adhering to study schedules and routines; and planning time for assignments and exams. It should be noted, however, that adhering to study schedules was the weakest of the skills reported with only a 51% positive response rate. These results show not only that students do have and use time management skills, but also that opportunities exist for improvement.

With consideration of the lifestyle and education disruptions wrought by the COVID-19 pandemic in the movement of courses to online formats, massive job losses and labor shifts, cancellation of campus activities, and altered time with family due to stay-at-home mandates, there appears to be value in observing the relationships between time management, the lifestyle variables investigated here, and course format. While the study results reported here are pre-pandemic, they work together with other work of Goodson, Miertschin, and Stewart (2016) for benchmark comparisons of time management with the number of online courses taken, enrollment status (full-time or part-time), age, GPA, and employment.

Lifestyle

The findings related to student employment status do not show clear evidence that full-time employment is related to time management skills usage since full-time employed students showed both high and low TMSs. Yet, descriptive analysis showed that not employed and employed part-time students were more likely to have high TMSs. It is possible that this may reflect that students who do not work or who work fewer hours have more time to engage in specific time management practices. Further investigation may be merited for this relationship.

These findings do show that for students who participated in school organizations through event participation or student professional groups, the majority had strong TMSs. Investing in organizations requires a balance of time allocation between the organization and other life pursuits and may necessitate the application of time management skills to enable participation. Similarly, the finding that the greatest percentage of students who were anxious about spending time with family and friends had slightly stronger TMSs may also be based on the need to balance time between spending time with individuals and other aspects of life, including studies. Presently, both participation in campus activities and time with family have been drastically impacted by COVID-19 and will merit attention by educators for impact on student success.

While this study engaged in an initial view of the influence of employment, participation in campus organizations, and perceptions of anxiety regarding spending time with friends and family, investigation of other variables related to impact on time management skills is needed. The authors recommend consideration of multiple other variables for future investigation. Indeed, in other works, this research team has initiated study into such additional avenues related to time management development and application as those related to course components (Goodson et al., 2012), student perceptions of managing time specifically in online courses (Miertschin et al., 2013), design of online courses for time management (Goodson et al., 2015), and time management skills and student performance (Goodson et al., 2016). Additional investigations including variety in content fields, college/university settings, and methodologies is merited.

APPLICATIONS, CONCLUSIONS, & FURTHER STUDY

First, this study suggests a relationship between student time management skills and the specific variables of employment, membership in campus organizations, and anxiety about spending time with friends and family. Thus, both students and educators may benefit by considering these factors, in addition to others, in enrolling in and designing courses. Educators need to develop and design educational experiences that help students stay employed, be active in campus organizations, and have time to spend with friends and family. In addition, students can benefit by considering their personal lifestyle decisions as they endeavor to apply time management skills to achieve success in their academic and career aspirations. Additionally, students may choose to explore avenues, both formal and informal, to further develop their personal time management skills and to mitigate the challenges of balancing academics with

multiple lifestyle pursuits. Seeking input from others, including counselors, professors, mentors, and publications can also prove beneficial.

Second, these findings contribute to the findings of former studies (Diaz-Mora, 2016; Goodson et al., 2012; Goodson et al., 2015; Goodson et al., 2016; Gordanier, 2019; Grave, 2011; Hanshaw, et al, 2019; Hensley, et al., 2018; Kleijn, et al., 1994; Liborius, et al., 2019; MacCann, 2012; Meredeen, 1988; Miertschin, et al., 2013; Papamitsiou, & Economides, 2019; Phipps & Merisotis, 2000; Race, 1992) that indicate time management skills play a role in student success. The results reported here extend the previous work of the authors which found relationships between time management and the number of online courses taken, age, GPA, and employment (Goodson, Miertschin, & Stewart, 2016). Additionally, previous work also indicated that some students learned time management skills from participating in online courses (Goodson et al., 2012). Hence, the current addition of the role of the three variables investigated here (employment, participation in campus organizations/events, and anxiety regarding time with friends and family) enhances overall understanding and provides foundation for creating post-pandemic learning environments to support student success.

Third, the current higher education landscape, focused on the facilitation and measurement of student success to demonstrate accountability, spurs the necessity to not only examine what contributes to student success, but to offer strategies that encourage success. Hence, since student retention, attrition, and graduation rates continue to be important issues, the variables investigated here and in other studies of student success are critical.

Specifically, as educators seek to prepare students to succeed under changed circumstances triggered by COVID-19, attention to course and program designs that foster development of time management skills is vital. Certainly, course content in time management skills should continue to be part of developmental curricula and lifelong learning. Students can benefit from course structures created to encourage student learning as well as application of time management skills. This approach might include course design features such as content sequencing, multiple calendaring strategies, flexible prioritization for students, and student self-assessments and evaluations. Educators hold many keys to the success of students. By creating learning environments that both include time management curricular components and develop the use of time management skills, faculty members and course designers can enable the success of future professionals.

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