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Implementation of a Time Management Training Module for Freshmen Students in an Entry Level Construction Management Course

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The transition to a four-year university presents many new challenges for freshmen students transitioning from high school. Students are thrust into a situation where they are solely responsible for balancing a variety of responsibilities, ranging from completing assigned coursework, studying for exams, along with personal and social obligations. Not surprisingly, this freshmen year is the most critical timeframe in determining whether a student will persist at a four-year university. Approximately 1 in 5 freshmen will either change schools or dropout out of their university during the first year. Construction students face additional challenges given their personality tendencies. Effective time management behaviors have demonstrated improved academic performance and increased the likelihood students will persist until graduation. Unfortunately, time management practices are rarely taught at universities and students are expected to learn these behaviors on their own. This paper will demonstrate the implementation of a time management module in a first-year construction management course and assess whether this training resulted in improved academic performance for freshmen construction students.

Key Words: Time Management, Student Training, Student Preparedness, Student Persistence, Academic Performance

Background

The first year attending a four-year college is a challenging transition for many students. Often this is the first time these young adults have moved out on their own and no longer have the stability and guidance of their parent(s) or guardian(s) in an established home environment. As a result, first-year students are thrust into a situation where they must act more independently and display more initiative in comparison to their high school lifestyle (Maloshonok, 2017). It should come as no surprise that students experience higher levels of stress and feelings of uncertainty during the first couple of months upon arriving at a higher education institution (Maloshonok, 2017).

A survey of incoming freshmen found that 60% of students “lacked the necessary learning and studying strategies of attitude, time management and study aids” to successfully transition from high school to a university (Mills, 2012). This lack of preparedness is reflected in the persistence rates of incoming freshmen. According to the National Center for Education Statistics, approximately 82% of freshmen persisted or remained at the same public university over a 3-year period between 2011 and 2014. Conversely, 18% of freshmen students either dropped-out completely from school or changed universities (McFarland et al., 2017).

Given these shortcomings in persistence, it is worthwhile to consider how freshmen students can be better prepared to handle the additional responsibilities of college. Specifically, construction students demonstrate certain tendencies, which can lead to additional challenges throughout their freshmen year (Mills, 2012). Time management is a critical skill that when developed, will greatly benefit first year students in meeting the demands of higher education. It has been demonstrated that proficient time management behavior leads to reduced stress and anxiety, as well correlates to higher performance amongst higher education students (Adams, 2019). Fortunately, time management behaviors can be improved through knowledge, training, or deliberate practice (MacCann et al., 2012).

CMGT 100 – Concepts of Construction is the first course for Construction Management (CMGT) students at California State University, Chico. This class is made up of freshmen, sophomore and junior level construction management students. As the instructor of this course, the author has observed first-hand the struggles for freshmen students in this class. In an effort to improve student performance, the author implemented a series of time management modules as assignments in this course throughout the Spring 2022 semester. This paper will discuss the implementation of the time management training modules, analyze the results, and review the findings to determine if the time management curriculum resulted in improved academic performance for freshmen construction management students.

Literature Review

Time management can be viewed as “behaviors that aim at achieving an effective use of time while performing certain goal-directed activities” (Hafner et al., 2013). To effectively do so, a basic time management practice consists of identifying tasks, ranking these tasks in terms of importance or priority, and then elect the time and resources to complete each task (Macan et al., 1990). Fortunately, time management is a set of behaviors or habits that can be trained and improved amongst students. (MacCan et al., 2012). Studies have demonstrated after time management training, participants were likely to frequently implement time management practices, resulting in better prioritization of tasks, more accurate estimates of durations to complete tasks and reduced procrastination (Kader, 2015).

The first year of study at higher education institutions is often the most critical time period when it comes to determining whether a student will return for a second year and ultimately receive their degree (Meer et al., 2010). According to the Education Data Initiative, 18.4% of full-time, first-time college freshmen dropped out between 2019 – 2020 (Hanson, 2022). Furthermore, most students who leave higher education elect to do so during or immediately after the first year (Meer et al., 2010). A big reason for the struggles of these students is the sudden demand to manage their time outside of the classroom. The majority of learning in high school takes place in-class, while up to 500% more outside of class study time is required in college (Bradley, 2006). This puts more responsibility and pressure on students to effectively manage their time and is often a harsh reality-check. In a study and survey of 1,020 engineering freshmen at North Carolina State University (NCSU), after the first

semester, 25% or approximately 255 of the students indicated poor time management as their main concern and something they would change if they could start the semester over again (Bernold, 2007). Poor time management behaviors such as not allocating enough time for assignments, cramming for exams, and missing assignment deadlines, often result in increased stress and poor academic performance (MacCann et al., 2012). Time management is especially important for construction students due to their general personality tendencies. According to Mills, “students majoring in construction are typically more assertive, risk taking, action-oriented individuals who learn more by doing than by thinking” (Mills, 2012). Furthermore, construction students are typically self-reliant, optimistic of success against extreme odds, and delay in requesting help. As a result, these students can become disengaged with learning, resulting in lower grade point averages, lower rates of retention, and students transferring out of the curriculum (Mills, 2012).

Currently, the majority of higher education institutions do not provide much in terms of support to assist students in navigating the additional work-life responsibilities as they transition from high school (Adams, 2019). Experts argue that teaching and administrative staff at higher education institutions should actively guide and train students to understand time management behaviors and skills (Meers et al., 2010). When a time management program is effectively implemented in the classroom, the students reap the benefits. For example, Baylor University implemented a 12-week time management training in a freshmen level engineering course, which produced positive results such as improved GPA and increased retention within the engineering major (Bradley, 2006). Bernold reports that students who displayed effective time management habits were more motivated and in general had higher GPA’s than their peers who lacked these habits (Bernold, 2007).

Time management is a critical skill for construction students not only to manage their schoolwork, but also benefits their future careers as construction managers. A survey of construction alumni listed “time management” as a critical skill for construction management students to be proficient in upon entering the workforce. Lee et al., argue construction programs would benefit from teaching these time management skills within construction classes (Lee et al., 2011). A study analyzing time management training for entry level construction students has not yet been conducted. This research paper aims to address this particular topic with the intent the discussed practices can be utilized and implemented by construction faculty at other construction programs, to the benefit of the larger population of first-year construction students.

Methodology

The CMGT 100 class consisted of 31-students, 9 of which were freshmen and the other 22 of which were sophomores or juniors. At the beginning of the semester the author issued a pre-survey to assess the current time management behaviors of the students in the CMGT 100 class. A 5-point Likert scale was utilized to solicit student responses, which consisted of: 5-strongly agree (SA), 4-agree (A), 3-neutral (N), 2-disagree (D), and 1-strongly disagree (SD) for the following questions:

1. Question #1: I have a system in place to plan and manage my weekly tasks
2. Question #2: Before the start of a new week, I spend time reviewing all the upcoming assignments for the week
3. Question #3: During the school week, I take at least 5-minutes a day to plan my priorities for the upcoming day

After the pre-survey, the instructor created a template document in a spreadsheet software as the basis for the upcoming weekly time management (TM) assignments. These TM assignments were

incorporated into the existing course curriculum as weighted assignments and were graded based on completeness. The TM template accounted for the basic elements of an effective time management practice: identifying tasks, ranking these tasks in terms of importance or priority, and electing the time and resources to complete each task (Macan et al., 1990). For each of their university classes, students were to list any assignments or tasks they were required to complete for the upcoming week and add these assignments to the TM template, see Figure 1. An assignment or task was defined as any course assigned task which had points associated with it, such as homework assignments, reports or research papers, reading assignments, quizzes, or exams. The instructor provided an additional instruction document, which explained the TM requirements and how to correctly complete the TM template. The students completed the TM template each week, for a duration of 10-weeks.

Assignment Log: Week of (Input Monday Date Here)						
Class	Tasks/Scheduled Activities	Due Date	Priority	Anticipated Hours to Complete This Week	Actual Hours to Complete	Delta Between Anticipated & Actual
Insert Class Number	Input Assignment Number & Name	Due Date	Priority #	Anticipated # of Hours	Actual # of Hours Spent	Input Delta
	Input Assignment Number & Name	Due Date	Priority #	Anticipated # of Hours	Actual # of Hours Spent	Input Delta
Insert Class Number	Input Assignment Number & Name	Due Date	Priority #	Anticipated # of Hours	Actual # of Hours Spent	Input Delta
	Input Assignment Number & Name	Due Date	Priority #	Anticipated # of Hours	Actual # of Hours Spent	Input Delta

Figure 1: Sample of weekly TM template provided to students

In addition to completing the TM template, the students were also required to complete a weekly re-cap survey. This survey had the students reflect on their TM behaviors from the previous week by asking the following questions:

1. Question #1: Reflecting on how you managed your time last week, what is an area of improvement that you will focus on implementing for this upcoming week?
2. Question #2: How many assignments (For all your classes) did you miss or fail to turn-in by the deadline?

At the end of the semester, the students were issued a post-survey to assess the students' experiences and perception of the time management modules. This survey utilized the following 5-point Likert scale for 3 of the questions: 5-strongly agree (SA), 4-agree (A), 3-neutral (N), 2-disagree (D), and 1-strongly disagree (SD). The survey also asked 2 open-ended questions for student input. The following shows the complete list of the post-survey questions issued to the students:

1. I plan to implement a system similar to the TM activities (Likert)
2. The TM activities improved my academic performance (Likert)
3. I would have missed more assignment deadlines without the TM activities (Likert)
4. What worked well and was beneficial from the TM activities? (Open-Ended)
5. What didn't work well for you or was a problem with the weekly TM activities (Open-Ended)

For each pre-survey, weekly re-cap survey and post-survey, students were required to input their academic status as either a freshmen, sophomore or junior standing. Freshmen students are the focus of this study so it was important the data could be separated to isolate those responses that came from freshmen students versus those responses from the more experienced sophomore and junior students.

Data and Findings

Pre-Survey Data and Findings

The data from the pre-survey was summarized and analyzed to identify the students' baseline time management behaviors. This pre-survey achieved a response rate of 90% (28 of the 31 students responded). The data was separated to breakout the responses from freshmen students versus that of the sophomore and junior standing students. This was done to establish a baseline of incoming behaviors and verify if indeed the freshmen students were less effective in their time management habits when compared to the sophomore and junior students. The following shows the main findings from this survey data:

1. Question #1: I have a system in place to plan and manage my weekly tasks.
 - Freshmen: 44% either strongly disagreed or disagreed with this statement, 34% were neutral and 22% agreed (mean value = 2.4).
 - Sophomores and Juniors: 19% either strongly disagreed or disagreed with this statement, 41% were neutral and 40% either agreed or strongly agreed (mean value = 3.3).
2. Question #2: Before the start of a new week, I spend time reviewing all the upcoming assignments for the week.
 - Freshmen: 25% agreed with this statement, 62% were neutral and 13% disagreed (mean value = 3.1).
 - Sophomores and Juniors: 65% either agreed or strongly agreed with this statement and the remaining 35% were neutral (mean value = 3.9).
3. Question #3: During the school week I take at least 5-minutes a day to plan my priorities for the upcoming day:
 - Freshmen: 50% either agreed or strongly agreed, 37% were neutral and 13% disagreed (mean value = 3.5).
 - Sophomores and Juniors: 65% either agreed or strongly agreed with this statement and the remaining 15% were neutral and 20% disagreed (mean value = 3.8).

The data from Question # 1 aligns with much of the literature research; freshmen students in particular often do not have well established time management behaviors. The sophomore and junior students have navigated the critical first 12 months at the university and have acquired more effective time management habits. Planning ahead is a critical aspect of time management and the results from Question #2 align with previous research; a high proportion of these freshmen students are not looking ahead and planning their tasks. Contrast this with the sophomore and junior students who demonstrate a much higher prevalence in planning and looking to the week ahead. Question #3 data shows these freshmen students tend to focus on short-term or more imminent tasks, rather than long range planning. The sophomore and junior level students show a consistent rate of looking ahead throughout the week, as well as taking time to plan the short-term or next day's tasks as well. This survey data indicates the time management behaviors of the freshmen students in the CMGT 100 class are below that of the more experienced sophomore and junior students.

Weekly Time Management Summary Data and Findings

In addition to the TM assignments, each week students completed a weekly re-cap survey to reflect and assess their time management effectiveness from the previous week. Question #2 of this survey asked how many assignments the student failed to turn-in, across all their classes, for the previous week, see Figure 2.

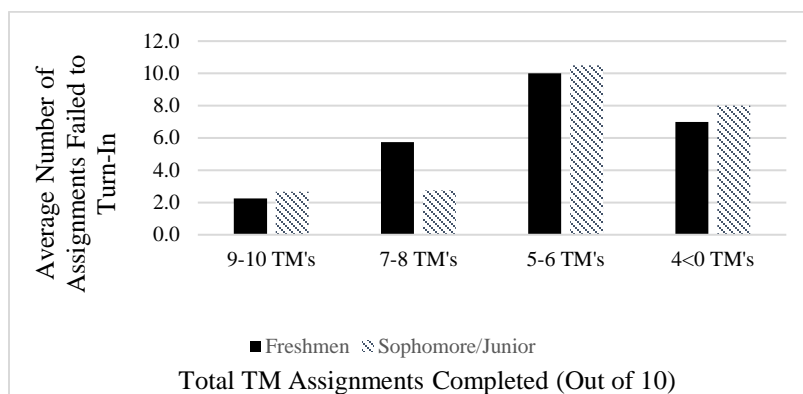


Figure 2: Correlation of total TM assignments completed and average number of assignments failed to turn-in across all classes for freshmen and sophomore/junior students

Generally, across both freshmen and sophomore/junior level students, the data reflects that those students who completed more of the TM assignments averaged much lower incidences of failure in turning in assignments across all their classes. Students who completed 9 to 10 of the TM assignments, reported missing an average of 2.3 (freshmen) and 2.7 (sophomore/junior) per week. Students who completed between 7 to 8 of the 10 TM assignments, reported missing on average 5.8 (freshmen) and 2.8 (sophomore/junior) assignments per week. Students who completed 5 to 6 TM assignments reported missing on average 10.0 (freshmen) and 10.5 (sophomore/junior) assignments per week. Students who completed less than 4 TM assignments reported missing on average 7.0 (freshmen) and 8.0 (sophomore/junior) assignments per week. Overall, those students who consistently completed the TM assignments had fewer instances of failing to turn-in assignments across all their classes. The freshmen students who consistently completed the TM assignments benefited the most. Freshmen who completed between 9 to 10 of these TM assignments averaged the lowest rate of missed assignments. However, the failure rate jumped from an average of 2.3 to 5.8 missed assignments per week when freshmen students only completed 7 to 8 of the TM assignments. This demonstrates a need for these freshmen students to consistently complete these TM assignments to achieve a significant realized benefit.

Post-Survey Data and Findings

After the 10-week implementation of the TM assignments, all 31 students completed the post-survey to assess their overall experience and for the instructor to solicit feedback. The data was separated to differentiate the results of the freshmen (F) students versus that of the sophomore and junior (S/J) students, see Table 2.

For Question #1, 66% (freshmen) and 59% (sophomore/junior) students either strongly agreed or agreed that they plan to implement a system similar to the TM activities, with mean values of 3.9 (freshmen) and 3.8 (sophomore/junior). This demonstrates both groups of students saw the value in the TM activities. For Question # 2, 66% (freshmen) and 44% (soph./junior) either strongly agreed or agreed that the TM assignments improved their academic performance, with mean values of 4.0 (freshmen) and 3.5 (sophomore/junior). This data indicates a higher percentage of freshmen students felt the TM assignments improved their academic performance in comparison to the sophomore/junior

level students. For Question #3, 44% (freshmen) and 36% (soph./junior) either strongly agreed or agreed they would have missed more assignment deadlines without the TM activities, with mean values of 3.4 (freshmen) and 3.0 (soph./junior). A slightly higher percentage of freshmen believe the TM assignments improved their performance in completing assignments across all their classes, in comparison to the more experienced sophomore/junior students.

Table 2

Post-Survey question and student response distribution

Question	Student Responses					
	SA	A	N	D	SD	Mean
I plan to implement a system similar to the TM activities	33% (F) 27% (S/J)	33% (F) 32% (S/J)	23% (F) 36% (S/J)	11% (F) 5% (S/J)	0% (F) 0% (S/J)	3.9 (F) 3.8 (S/J)
The TM activities improved my academic performance	44% (F) 23% (S/J)	22% (F) 27% (S/J)	23% (F) 32% (S/J)	11% (F) 9% (S/J)	0% (F) 9% (S/J)	4.0 (F) 3.5 (S/J)
I would have missed more assignment deadlines without the TM activities	22% (F) 18% (S/J)	22% (F) 18% (S/J)	45% (F) 27% (S/J)	0% (F) 23% (S/J)	11% (F) 14% (S/J)	3.4 (F) 3.0 (S/J)

The post-survey also solicited open-ended feedback from the students. The first of the open-ended questions asked the following: “What worked well and was beneficial from the TM activities?” The responses were coded, which grouped similar responses together, in order to summarize and graph the results, see Figure 3. The data from Figure 3 indicates 67% (freshmen) and 73% (soph./junior) of students affirmed the biggest benefit of the TM activities was the fact the students were required to look ahead and identify all their assignments and due dates for the upcoming week. This was the biggest perceived benefit by both student groups. Another 22% (freshmen) and 9% (soph./junior) of students confirmed the TM assignments contributed to improved planning of time commitments, while 11% (freshmen) and 5% (soph./junior) indicated the assignments resulted in completing their coursework sooner than typical. There were a select few sophomore and junior comments that were not relevant and thus not coded, which is why the soph./junior responses do not total 100%.

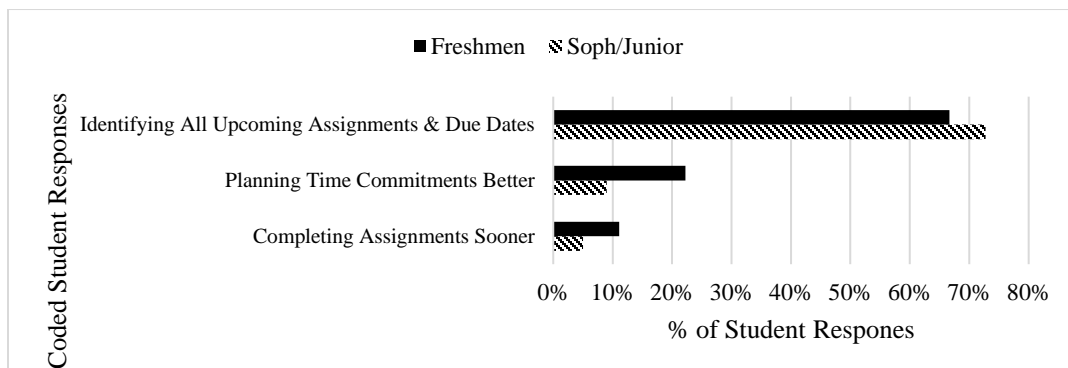


Figure 3: “What worked well and was beneficial from the TM activities?” - Distribution of similar (coded) student responses

The post-survey also asked: “What didn’t work well for you or was a problem with the weekly TM activities?” Figure 4 shows the coded responses with 56% (freshmen) and 23% (soph./junior) students commenting they had trouble remembering to complete and submit the TM activities. To these students the TM activities represented another assignment, which they needed to track, complete and turn-in. Additionally, 33% (freshmen) and 23% (soph./junior) wouldn’t refer back to that plan they created for the week. This would greatly reduce the effectiveness of the TM assignment. Lastly, another 11% (freshmen) and 9% (soph./junior) of respondents didn’t prefer the format of the TM template provided by the instructor. There were a select few sophomore and junior comments that were not relevant and thus not coded, which is why the soph./junior responses do not total 100%.

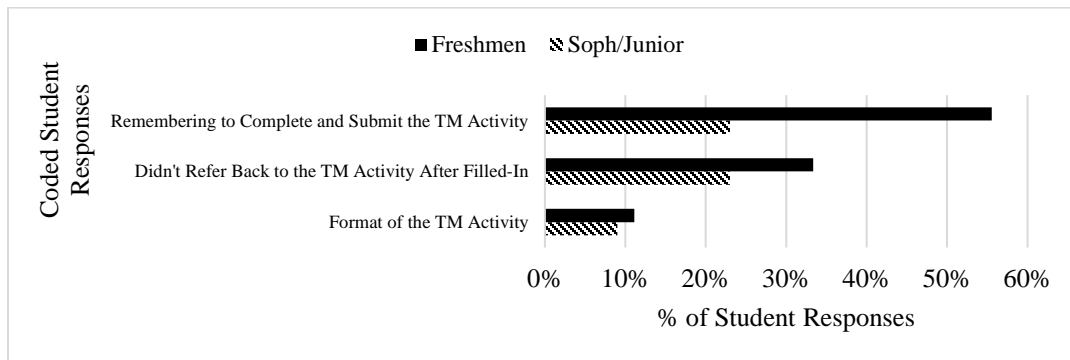


Figure 4: “What didn’t work well for you or was a problem with the weekly TM activities?”- Distribution of similar (coded) student responses

Summary and Conclusion

The first-year attending a four-year university is the most critical time in determining the likelihood a student will persist with their degree. These students are thrust into a situation where they are solely responsible for managing the various demands on their time. Construction students face additional challenges persisting, given their personality tendencies. A series of time management modules were implemented in CMGT 100 in hopes to improve the academic performance of freshmen construction students. Students followed the best practices of a time management practice by: identifying upcoming assignments, listing the due dates, prioritizing completing each assignment, and subsequently reflecting on their effectiveness each week. The TM activities did have shortcomings; students felt it increased their workload as it was another assignment to track and complete, however; overall the results from the TM activities were promising. While freshmen students were the target subjects of this study, both freshmen and sophomore/junior students who consistently completed the TM assignments demonstrated lower instances of failing to turn-in assignments across all their classes. Both sets of student groups also benefitted in that the time management assignments required them to look ahead and identify each of the assignments due for the upcoming week. Additionally, a majority of both student groups planned to implement a similar time management system as they progress towards degree completion. Given the realized improvement in student performance and the perceived benefits by these student groups, construction faculty should be encouraged to implement similar time management trainings into entry level construction classes for the benefit of the students.

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