Learning Management System Calendar Reminders and Effects on Time Management and Academic Performance

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Abstract

This research project uses a large research university in the Midwest as a research site to explore the time management skills of international students and analyzes how using the Course Hack, an online Learning Management System (LMS) calendar tool, improves participants' time management skills and positively impacts their academic performance, according to survey results. The institution is identified in this paper as UMW.

Keywords: time management; Course Hack; LMS pre-population calendar; international students

International students are a significant population in U.S. higher education, and their number has increased sharply in the 21st century. The overall number of international students in the U.S. has grown 72% in 15 years, from 514,723 in 1999/2000 to 886,052 in 2013/14 (Institute of International Education, 2014). Most international students in U.S. higher education are from China; in the 2014/15 academic year, 304,040 students from mainland China studied abroad in U.S. higher education institutions, which consisted of 31.2% of the total international students in the U.S. (Institute of International Education, 2015).

The increase in international undergraduates has been accompanied by a campus-wide generalization that these students, as a whole, are struggling academically and are increasingly at risk for academic probation, disqualification, and/or dismissal from the university (Fass-Holmes &Vaughn 2014, 2015). As international students, they have unique needs that domestic students do not. U.S. higher education entities need to understand these international students' circumstances and issues in order to provide the services and resources that are tailored for the needs of international students to support their academic success. For achieving this goal, U.S. higher education needs to fully understand all of the difficulties international students face. Compared to domestic students, international students experience more challenges (Misra & Castillo, 2004), and one challenge many international students have is that their K-12 education experiences do not prepare them well to fulfill the academic requirements in colleges and universities in the U.S.

Researchers argue that many students begin their higher education journey unprepared for the independent, self-directed learning that is required (Ross, 2012). In their study, Chang, Schulmann, and Lu (2014) indentified that overall 40% international students came to study in the U.S. higher education institutions with low academic preparation, and for Chinese undergraduate students, the rate of low academic preparation is 55%. Scholars classify those underprepared students as "educationally at-risk" due to the lack of important educational skills

that are essential for academic success when they enter college (Aldrige, 1992; Braunstein & McGrath, 1997; Carpenter, Corbitt, Kepner, Lindquist, & Reys, 1980; National Center for Education Statistics, 2001), and one of the important educational skills is time management. Time management is one of the most important factors in determining a student's success (Time Management Help, n.d.), and it can make the difference between a mediocre and superior performance to a college student (McWhorter, 1988).

Heikinheimo and Shute (1986) and Bevis and Lucas (as cited in Pandit, 2013, p. 133) determined that language skills are one of the most difficult areas of adjustment for international students in adapting to the skills expected in a different academic culture. Although language skills are the entry point for study in the U.S., after beginning classes international students find there are other important skills that need to be learned. In the U.S. higher education, international students experience a new culture of schooling outside the classroom. Unlike high school life in their home countries, college life in the U.S. gives students a great deal of free time after class. However, such free time does not mean college students do not need to spend their time on learning; it actually requires students to be highly self-disciplined to arrange their free time for academic learning and social life. Therefore, time management skills are one of the vital areas of skill mastery needed for students to be academically successful in college.

Eilam and Aharon (2003) suggested that time management can be viewed as a way of monitoring and controlling time. McWhorter (1998) argued that the first two crucial steps in taking control of time are establishing goals and following a schedule to reach the goals. Pintrich, Smith, Garcia, and McKeachie (1993) describes effectively scheduling, planning and managing one's study time as the time management components, and for college students, time management refers to how effectively students structure their time to successfully achieve certain goals. Students can use the assignment deadlines and exam dates predetermined by their professors as goals for each semester, but they must create a schedule that will enable them to reach those goals successfully (McWhorter, 1988). The literature showed that time management positively affects college grades and total study habits (Claessens, van Eerde, & Rutte, 2007). Researchers have argued that college students with strong time management skills usually have higher GPAs (Britton & Tesser, 1991; Macan, Shahani, Dipboye, & Phillips, 1990; Zimmerman, 1989). Brint and Cantwell (2010) found that study time is strongly connected to both academic conscientiousness and higher GPAs. However, 67% of undergraduate students identified time management as their most pressing problem (Britton & Tesser, 1991). Related research has also demonstrated evidence that first-year college students are spending less time with their studies and that students lack tools to study more efficiently and optimize their time management skills in order to arrange more study time (Higher Education Research Institute, 2003).

Using student organization tools may improve student outcomes, such as homework completion and class preparation (Lu, Gunawan, & Hisa, 2014). Course Hack is an online learning management system (LMS) pre-population calendar tool developed by alumni from the research site when they studied there. After uploading course syllabus documents to www.coursehack.it, the file extention *.ics* can automatically be generated for calendar files by

Course Hack. This *.ics* extention is appended to all reading and writing assignment deadlines and exam dates as shown on syllabi for users to install on their personal digital calendars such as iCal, Google Cal, and Outlook Cal. If instructors make changes on the deadlines and exam dates, students can also make the changes on their digital calendars. These calendars can also be managed as an ongoing subscription, so that any changes teachers make to the schedule automatically and instantaneously appear in the students' personal calendars as well. It is also compatible with LMS such as CTools and Desire 2 Learn (D2L). This research aims to explore how using Course Hack impacts international students' academic learning.

Method

This study uses UMW (pseudonym), a large research university in the Midwest, as its research site due to the large enrollment of international students at UMW. In the Fall 2015, 7,568 international students were enrolled at UMW, which means a total of 15% of UMW students are international students. Of those, 62.1% of UMW's international students are from China (Office for International Students and Scholars, 2016).

At UMW, a course syllabus usually includes a detailed course calendar with reading and writing assignment deadlines alongside quiz and exam dates. Some UMW professors provide a separate course calendar to students, but a detailed course calendar is also included in syllabi in these situations.

Participants in this study are UMW undergraduate students from one writing class each during Fall 2015 and Spring 2016, and total number of students enrolled in the writing class in Fall 2015 and Spring 2016 is 47. At the beginning of each semester, Course Hack generated the .ics calendar file based on the course syllabus. At UMW only instructors have the authority and access to import .ics calendar files to their course calendars in D2L. After the instructor imported the .ics file into the D2L course calendar via three clicks, participants subscribed to the D2L course calendar using their iCal, Google Cal, or Outlook Cal program in order to see all the important due and exam dates, as well as getting the updated dates when the instructor made any change on the D2L course calendar. At the end of each semester, a survey was sent to all participants to learn about their user experiences with Course Hack. In total, 41 students, including five domestic students and 36 international students, responded and completed all survey questions. UMW categorizes undergraduate students into different cohorts by the first semester when they enroll as first-year student at UMW. By the time of taking the survey, all of the five domestic students were first-year students from Fall 2015 cohort, 29 international students were first-year students from Fall 2015 cohort, six international students were in their second year at UMW from Fall 2014 cohort, and one international student was fourth-year from Fall 2012 cohort.

For understanding the general time management skills of international students at UMW prior to the use of such digital aids, the author also compiled related data about academic behaviors and performances from UMW's Mapworks survey system. Mapworks (Making Achievement Possible Works) is a survey system designed and developed by Skyfactor

(formerlly EBI MAP-Works, LLC), which aims to investigate the academic and social transition of first year students in U.S. colleges and universities, including academic integration. The Mapworks survey is conducted for all first-year students at UMW, both domestic and international. Due to the fact that forty students of survey respondents in this study are from Fall 2014 cohort and Fall 2015 cohort, this study will analyze Mapworks survey data for these two cohorts. For the one respondent from Fall 2012 cohort, Mapworks is not available because UMW started to use Mapworks surveys in the Fall 2013 semester.

Data Analysis

Mapworks Data Analysis

To help the university better understand first-year international students' academic integration, the Mapworks survey asked questions related to four factors: time management skills, basic academic behaviors, advanced academic behaviors, and academic self-efficacy. UMW sends all Mapworks survey to all first-year students, including both domestic and international students. In Fall 2014 to Spring 2015, the fall and spring transition surveys were sent to all first-year international students, and the fall check-up survey was only sent to 45 international students. In Fall 2015 to Spring 2016, the fall and spring transition surveys were sent to all first-year students; no fall check-up survey was sent to first-year domestic and international students.

On Table 1, Mapworks survey data is shown about the academic behaviors and skills of first-year international students in the Fall 2014 cohort and Fall 2015 cohort. Table 2 is Mapworks survey data about the academic behaviors and skills of first-year domestic students in the Fall 2015 cohort. The first number in each parenthesis in the survey row in Table 1 and Table 2 is the number of survey respondents, and the second number in each parenthesis is how many students each survey was sent to. The numbers in other parentheses are respondent numbers for each question.

Table 1 shows that 57.5% of survey respondents believed that they studied for a sufficient amount of time in Fall 2014 cohort and in Fall 2015 cohort the rate is 43.5%. Also, 59.2% of them in Fall 2014 cohort and 79.7% in Fall 2015 cohort had high basic academic behaviors; 22.1 % of respondents in Fall 2014 cohort and 22.9% in Fall 2015 cohort had high advanced academic behaviors; 33% in Fall 2014 cohort and 40.7% in Fall 2015 cohort had high academic integration; 24% in Fall 2014 cohort and 24.5% in Fall 2015 cohort had high time management skills; and 26.5% in Fall 2014 cohort and 23.9% in Fall 2015 cohort had high academic self-efficacy.

Table 1

Academic behaviors and skills of international students, for Fall 2014 and Fall 2015 cohorts

Cohort	Fall 2014			
Survey	2014-2015 Fall	2014-2015 Fall Check-up	2014-2015 Spring	Overall %

	Transition (881/1548)	(20/45)	Transition (243/1540)	
Had missed two or more courses	21.2% (180)	31.6% (6)	14.2% (33)	19.1%
Has high test anxiety	21.2% (180)	31.6% (6)	21% (49)	20.5%
Plans to study 5 or less hours/week	24.9% (212)	N/A	17.6% (41)	22.5%
Plans to Study 11 or more hours/week	32.2% (274)	57.9% (11)	41.2% (99)	33.6%
Believes they are studying a sufficient amount	59.6% (507)	63.2% (12)	59.7% (139)	57.5%
Rates their time management skills high	23.4% (199)	63.2% (12)	27% (63)	24.0%
High basic academic behaviors	66.5% (565)	68.4% (13)	42.5% (99)	59.2%
High advanced academic behaviors	23.1% (196)	36.8% (7)	21.5% (50)	22.1%
High academic integration	33.6% (286)	57.9% (11)	34.8% (81)	33.0%
Has high academic self-efficacy	26.8% (228)	47.7% (9)	28.3% (66)	26.5%

Cohort	Fall 2015			
Survey	2015-2016 Fall Transition (904/1263)	2015-2016 Fall Check-up N/A	2015-2016 Spring Transition (131/1327)	Overall %
Had missed two or more courses	14.6% (128)	N/A	12.9% (16)	13.9%
Has high test anxiety	25.9% (217)	N/A	19.3% (22)	23.1%
Plans to study 5 or less hours/week	16.9% (148)	N/A	11.3% (14)	15.7%
Plans to Study 11 or more hours/week	64.2% (565)	N/A	64.5% (80)	62.3%
Believes they are studying a sufficient amount	47.8% (396)	N/A	48.6% (54)	43.5%
Rates their time management skills high	25.7% (219)	N/A	29.4% (35)	24.5%
High basic academic behaviors	81.8% (713)	N/A	90.3% (112)	79.7%
High advanced academic behaviors	24.8% (209)	N/A	24.3% (28)	22.9%
High academic integration	45.1% (370)	N/A	45.9% (51)	40.7%
Has high academic self-efficacy	25.3% (213)	N/A	28.1% (34)	23.9%

Table 2 shows Mapworks survey data about the academic behaviors and skills of first-year domestic students in the Fall 2015 cohort. As demonstrated in Table 2, the percentage of first-year domestic students who believed that they studied for a sufficient amount of time is 43.5% ; 79.7% of first-year domestic students in Fall 2015 cohort had high basic academic behaviors; 22.9 % of survey respondents in Fall 2015 cohort had high advanced academic behaviors; 40.7% in Fall 2015 cohort had high academic integration; 24.5% in Fall 2015 cohort had high time management skills; and 23.9% in Fall 2015 cohort had high academic self-efficacy.

Table 2

Academic behaviors and skills of domestic students for Fall 2015 cohort

Cohort	Fall 2015			
Survey	2015-2016 Fall Transition (5765/7276)	2015-2016 Fall Check-up N/A	2015-2016 Spring Transition (1849/7278)	Overall %
Had missed two or more courses	11.1% (635)	N/A	4.9% (89)	9.5%
Has high test anxiety	35.2% (1943)	N/A	35.9% (615)	33.6%
Plans to study 5 or less hours/week	10.4% (592)	N/A	10.4% (189)	10.3%
Plans to Study 11 or more hours/week	64.8% (3698)	N/A	63.2% (1144)	63.6%
Believes they are studying a sufficient amount	61% (3361)	N/A	61.6% (1048)	57.9%
Rates their time management skills high	47.6% (2685)	N/A	50.9% (910)	46.9%
High basic academic behaviors	91.1% (5204)	N/A	90.6% (1640)	89.9%
High advanced academic behaviors	24% (1336)	N/A	25% (434)	23.2%
High academic integration	58.9% (3217)	N/A	59.3% (986)	55.2%
Has high academic self-efficacy	37.3% (2092)	N/A	42.4% (749)	37.3%

Note. The data in Table 1 and Table 2 retrieved from UMW Mapworks survey system.

Survey Data Analysis

The survey examined in this study, as noted above, was conducted during the 2015-16 academic year. The total number of participants in the Fall 2015 and Spring 2016 was 47. As shown in Table 3, in Fall 2015, 24 students participated and 18 of those students completely answered the survey (a 75% response rate); in Spring 2016, 23 students answered the same survey with a 100% response rate. In total, 41 participants answered the survey, and the total average survey response rate is 87.2%. Thirty-six of the study's participants are international students, and twenty one of them are from mainland China; other participating international students are from Malaysia, Kuwait, Venezuela, South Korea, Saudi Arabia, Angola, the Republic of Korea, Taiwan, and the United Arab Emirates. First-year students made up 82.9% of participants; six participants were second-year students, and one student was in their fourth year.

Table 3

Demographic information of survey respondents in Fall 2015 and Spring 2016

	Fall 2015							
Country	1st Year	2nd Year	3rd Year	4th Year	Total	Male	Female	Total
U.S.A.	3	0	0	0	3	1	2	3

China	8	1	0	0	9	5	4	9
Other	5	1	0	0	6	4	2	6
Total	16	2	0	0	18	10	8	18
				Spring 2016				
Country	1st Year	2nd Year	3rd Year	4th Year	Total	Male	Female	Total
U.S.A.	2	0	0	0	2	2	0	2
China	9	2	0	1	12	5	7	12
Other	7	2	0	0	9	8	1	9
Total	18	4	0	1	23	15	8	23

Table 4

Syllabus and calendar use of participants

	Used syllabi in school before coming to UMW	Used calendar to keep track of assignment deadlines & exam dates before going to college	Used calendar to keep track of assignment deadlines & exam dates at UMW before participating this research
Domestic	80% (4/5)	0% (0/5)	80% (4/5)
International	44.4% (16/36)	61.1% (22/36)	86.1%(31/36)
Total	48.8% (20/41)	53.7% (22/41)	85.4% (35/41)

Table 5

How did your teachers arrange homework in K-12 education? Please check all that apply.

	Made announcements in class	Sent you emails	Sent you text messages	Other
Domestic	100% (5/5)	20% (1/5)	20% (1/5)	0% (0/5)
International	91.7% (33/36)	11.1% (4/36)	0% (0/36)	0% (0/36)
Total	92.7% (38/41)	12.2% (5/41)	2.4% (1/41)	0% (0/41)

Table 6

How did you keep track of your course assignment deadlines and quiz, test, and exam dates at UMW before participating in this research? Please check all that apply.

	Checked the dates on syllabi regularly	Marked all the dates on planner manually	Added all the dates on digital calendar on phone/laptop manually	Asked my friends to remind me
Domestic	60% (3/5)	20% (1/5)	40% (2/5)	0% (0/5)
International	91.7% (33/36)	13.9% (5/36)	33.3% (12/36)	19.4% (7/36)
Total	87.8% (36/41)	14.6% (6/41)	34.1% (14/41)	17.1% (7/41)

Data in Table 4 shows that 20 participants had used a syllabus before enrolling in college. Using the calendar is considered as one important way for keeping track of appointments and

commitments by people in western society (Allen, 2002). In Table 4, 22 international students used a calendar to keep track of assignment deadlines and exam dates before college but no domestic students did this during their K-12 education, and 85.4% survey respondents used the calendar to keep track of assignment deadlines and exam dates at UMW before participating in this research.

As shown in Table 5, 92.7% of survey respondents reported that making announcements in class was the main method that teachers used to give assignments to students in K-12 education; other methods included sending text messages and email to students, which options one student and five students checked, respectively. Compared to American K-12 teachers, K-12 teachers in other countries are less likely to use emails and text messages to arrange homework assignments to their students.

In Table 6, the most frequent way participants reported keeping track of assignment deadlines and exam dates at UMW was checking the dates on the syllabus frequently; 36 students selected this option. Although 35 participants said they used the calendar to keep track of assignment deadlines and exam dates in table 4, table 6 demonstrated that only six of them added those dates to a planner manually, and 14 students marked the dates manually on digital calendars. Seven students also reported asking their friends to remind them of assignment due dates and exam dates, and all these seven students are international students, six Chinese students (five from mainland China and one from Taiwan), and , one student from Saudi Arabia.

The other main findings based on the survey results are:

- 65.9% participants strongly agreed/agreed that subscribing to the D2L calendar was helpful to remind them about the assignment deadlines and exam dates so as not to miss these dates.
- 56.1% participants strongly agreed/agreed that subscribing to the D2L calendar helped them to plan/study/write ahead before assignment deadlines and exam dates rather than trying to do it at the last minute.
- 68.3% participants strongly agreed/agreed that subscribing to the D2L calendar helped them to submit assignments on time.
- 51.2% participants strongly agreed/agreed that subscribing the D2L calendar helped them to manage their time.

Discussion

Mapworks data shows that first-year international students at UMW have relatively poor time management skills which hinder their academic learning and performance. In 43 evaluation forms from Chinese international students who attended the 2015 Academic Restart Program for first-year students who were on academic probation in the Fall of 2014, 60.5% regarded time management skills as one thing they had learned from the program that could help them get off academic probation. Related research pointed out that students on academic probation often reported lacking necessary skills for success such as time management (Satin, Cheney, Crowner,

&Hill, 1997; Isaac, 2007; James & Graham, 2010; Press & Switalski, 2008; Renzulli, 2015) Mapworks data also demonstrated that Chinese freshmen who are on academic probation tend to have worse time management skills than other international students.

In their study, Munt and Merydith (2012) found that students on academic probation in the Retention Program reported weaker time management of their academic behaviors. Mapworks data showed that the percentage of first-year international students who are on academic probation after one semester at UMW was 2.4 and 2.3 times of their domestic counterparts in Fall 2013 and Fall 2014, and that the percentage of first-year Chinese international students ending up their first semester on academic probation at UMW was 1.4 and 1.3 times to international students from other countries. For first-year Chinese international students who were on academic probation in the Fall of 2014, and who answered the Mapworks questions about time management, only 18.7% of them rated their time management skills as high.

Highly successful students usually manage their time well. Balancing academic learning, social life, and recreational and personal needs requires that one follow at least one basic rule: plan plenty of time to study (Rose, 2014). However, as shown in Table 1, for international students, 57.5% of Mapworks survey respondents in Fall 2014 cohort and 43.5% of Mapworks survey respondents in Fall 2015 cohort, believed that they studied a sufficient amount while only around one third Mapworks survey respondents in Fall 2014 cohort and about 62% of Mapworks survey respondents in Fall 2015 reported that they studied or planned to study 11 or more hours per week. Mapworks data also shows that planning to study five or less hours per week is one of the top five issues for UMW international students in fall transition survey and spring transition survey in Fall 2014 cohort. Among the survey respondents, 22.5% of international students in Fall 2014 cohort, and 15.7% of international students in Fall 2015 cohort reported they planned to study five hours or less per week. In Fall 2015 transition survey, 19 students even reported that they spent no time (zero) time on out-of-classroom academic commitments (such as doing homework, studying, and practicing). UMW requires that international students take at least 12 credits per Fall and Spring semester to maintain their F-1 full-time student status, which means that, according to standard calculations of contact-hours vs. homework/study hours needed for college coursework, they would need to study at least 24 hours per week. Considering that they are second language learners of English, many of them may need more study time than the expected standard. Thus, the percentage of international students who actually study a sufficient amount, according to UMW's recommendations, is significantly lower than what is shown in Table 1.

Prior research confirms that the ability to manage time is positively related to academic achievement (Kitsantas, Winsler, & Huie, 2008; Landrum, Turrisi, & Brandel, 2006). As a time-management expert, Allen (2002) specifically recommends that the calendar be reserved for things which absolutely have to be done by a particular deadlines or meetings and appointments which are fixed in time and place. Reading and writing assignments and exams fit Allen's (2002) recommendation very well, and these dates need to be marked on students' calendars.

McWhorter (1988) advocates the importance of writing all assignment deadlines and exam dates on a calendar; referring often to a calendar with these important dates, he points out, will help students keep focused on their goals in order to achieve these goals successfully.

Although 85.4% of the survey participants used some kind of calendar to keep track of assignment deadlines and exam dates, the survey results also indicated that only 48.8% of participants marked those important dates on their own physical or digital calendars. When students do not consciously manage their time, their old habits will control their time and set limits on their achievements (McWhorter, 1988). One habit of successful students is making important note of deadlines and dates on a semester calendar in addition to using the course calendar, checking ahead on their calendars every day to see what is coming up soon, and getting prepared (10 habits of successful students, n.d.). Today, more and more students use digital calendars due to the popularity of laptops, smart phones, and tablets. For participants who mark deadlines on calendars, 2.3 times as many use digital calendars as physical planners. With the function of instantly organizing assignment deadlines and exam dates into users' personal digital calendar after uploading course syllabus documents (Schmid, 2012; Zemke, 2013), Course Hack is a valuable tool to help students keep track of their reading and writing deadlines and exam dates, as well as training students in this important habit of successful students.

Another advantage to using Course Hack to transfer assignment deadlines and exam dates to students' e-calendars is saving time (Schmid, 2012). Based on survey answers, marking down the assignment due and exam dates on digital calendar costs students' more time than on planner. The average time used by most participants to manually add those dates on a planner or digital calendar for one course syllabus is about 13 minutes and 22 minutes, respectively. If students enroll in 12 credits for each semester as the lowest number of permitted credit hours for international students at UMW, it means each student enrolls in at least three or four courses for each semester, so using the Course Hack could help students save 60 to 80 minutes on average. For the student who answered that marking dates from one syllabus costs him/her one to two hours, using the Course Hack can help him/her save up to eight hours.

Table 7

Respondents comments (as written, sic) on time spent marking all the dates manually per syllabus

Respondent	On Planner	Respondent	On Digital Calendar
1	3 mins	1	10 mins
2	5 mins	2	20 minutes
3	30 mins	3	30 min
		4	30 min
		5	1-2 hour
		6	not too much time
		7	every day [sic]
		8	Update once a week

In the open-ended survey question asking for comments, feedback, or suggestions about Course Hack, participants also wrote positive comments about using the tool, such as "Works great thanks," "Very good," "It would be great if it existed for other courses," "It's really helpful," "Course Hack is convenient to schedule time," and "Thanks for making tracking the deadlines easier." The survey also demonstrated that 80.5% participants would like to use the Course Hack for other courses, and 73.2% participants would like to use Course Hack in the future. For participants might not want to use Course Hack for other courses in the future, the reason might be, as one participant commented: "I think is great but I just feel comfortable with the way I am planning my things now." Two participants also suggested that Course Hack should develop an app for them to use on their smart phones and/or tablets, in order to subscribe D2L calendar and set alarms for assignment deadlines and exam dates through one app rather than going to D2L website and then going back to their personal digital calendars.

Implications

Related research has found that around 50% of college students are not academically prepared (Haycock & Huang, 2001) and has recommended that U.S. higher education institutions deliver more information and knowledge about goal setting, academic study skills, diversity issues, as well as inform international students on finding and using resources on campus and in the community (Sedlacek, 2004). As a key component in achieving academic success in college (Hansen, n.d.), time management skills not only are considered one of the essential academic behaviors for managing college level work (Krumrei-Mancuso, Newton, Kim & Wilcox, 2013), but they also are one of the certain skills which serve to buffer academic stress (Macan, Shahani, Dipboye, & Phillips, 1990; Misra & McKean, 2000). According to UMW Mapworks data, having high test anxiety is one of the top five issues for international students in all Mapworks surveys in Fall 2013 to Spring 2016. As shown in Table 1, 20.5% and 23.1% of survey respondents in Fall 2014 cohort and Fall 2015 cohort had high test anxiety. Mapworks data in Table 2 shows that the percentage of domestic students in Fall 2015 cohort who had high test anxiety is about 10% higher than international students from the same cohort. One time management tip frequently offered to students is placing all of a class's due dates and quiz/test dates on a calendar or planner as soon as they get the syllabus (Hansen, n.d.). This tip could be a way to reduce international students' test anxiety because there is an inverse and significant relationship between time management and perceived stress (Khatib, 2014).

Kitsantas, Winsler and Huie (2008) examined several motivation and self-regulation variables and their ability to predict academic achievement in college students and found that time management was the strongest predictor of academic performance. Based on UMW Mapworks data, international students have particularly poor time management skills. As shown in Table 1 and Table 2, compared to domestic students, international students had much lower time management skills. Only 24.5 % of international students rated their time management as high, while 46.9% of domestic students rated their time management as high, The academic

behavior of time management was the only significant predictor of GPA (Munt & Merydith, 2012). This indicates that international students with poor time management skills have higher risk on low academic performance than students who have good time management skills.

Due to the fact that the survey is self-reported data, some of those students who thought they have high time management skills may not fully understand that the time management skills question related to academic learning. The personal communications reveals that some international students rated their time management skills as high because they completely arranged their after-class time for eating, sleeping, social life, and playing video games, although educators might disagree to those students being considered as having high time management skills.

The survey data, as noted above, demonstrates that quite a number of international students are not familiar with syllabi when they enter college, and they are not accustomed to getting information about course assignments and exam dates from such a list before college. Therefore, it is necessary for higher education institutes to guide students in learning how to use a syllabus and how to locate important information such as assignment deadlines and exam dates from the syllabus, especially in their first year in college, in order to avoid their missing those important dates and losing grade points due to forgetting to submit assignments on time and/or prepare for and take exams.

Another implication is that although more students start to use calendar in college to keep track of assignment deadlines and exam dates than did so in K-12 schools, they may not know how to use the calendar effectively. As shown in Table 4 and Table 5, although 85.4% participants in this research said they used a calendar in college, there were still 51.2% of the participants not marking important dates such as reading and writing assignment deadlines and quiz and exam dates on their calendars as recommended by researchers. Misra and McKean (2000) suggest that faculty and counselors should emphasize the participation in time management seminars to improve the academic success of students. Based on this observed gap, students still need guidance on improving time management skills and using calendars effectively rather than just glancing at the calendar to check today's date.

Of the international students who selected checking syllabus regularly to keep track of assignment deadlines and exam dates, six of them also ask their friends to remind them of those important dates, which implies that for some students who claimed using checking syllabus regularly as a way to keep track of those important dates, they may not actually check syllabus frequently enough, or they also do not think checking syllabus only is very reliable, so they still need friends to remind them. None of the seven international students who reported asking their friends to remind them of the assignment deadlines and exam dates marked down those important dates manually on a planner or a digital calendar before participating in this research. This also indicates that some international students lack independent academic behaviors, and for Chinese international students, the dependence rate in academic learning is as twice as much as international students from other countries.

Based on the above implications, Course Hack can be a powerful tool to help students (Zemke, 2013). The UMW alumni who developed Course Hack have reached out to students and administrators at Michigan State University, the University of Michigan, Wayne State University, and Eastern Michigan University to investigate potential synergies and pilot opportunities. So far, Course Hack has already helped thousands of college students get prepared: it has 17,465 users from 144 countries as of November 29, 2016. The highest numbers of users so far are found in the U.S., Brazil, China, and the United Kingdom. Course Hack could help students save time and energy, reduce procrastination, and improve their time management and future planning skills (Lu et al., 2014). As a student (2013) from UMW commented:

> *Course Hack is an awesome new tool that I happened to stumble upon by accident. It's a free website that is used to help organize assignments and you can even upload your class syllabus to the website and it will organize your very own personal calendar. Course Hack will remind you of deadlines and help keep your life in track. As the website says "Start Hacking" today!*

Conclusion

In conclusion, international students in U.S. higher education face more challenges to their academic learning compared to domestic students. Such challenges include having poor time management skills and unfamiliarity with using syllabi and calendars to keep track of assignment deadlines and exam dates. As an LMS pre-population calendar tool, Course Hack automatically generates .ics calendar files with assignment deadlines and exam dates for users to import to their personal e-calendars via a few clicks after uploading course syllabus documents to www.coursehack.it. The survey results demonstrated the effectiveness of using Course Hack to remind students of important dates, help them schedule more effectively, study ahead before assignment deadlines and exams, submit assignments on time, and improve their time management skills.

The limitations of this research project include the limited sample size and the limited participation rates: not all of UMW's international students took the Mapworks surveys, and responders for each survey in each cohort may be different. For future study, this research could consider using a larger sample size and conducting similar research at more research sites to see the effects of teaching students to use Course Hack, the pre-population calendar tool, on their time management skills and academic performance.

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