

The Impact of Online Assignments on Student Performance

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This paper documents the impact of online assignments on student performance as measured by exam grades for a 1050 student Freshman course that covers introductory finance and financial accounting. The first midterm exam was on finance content. The second midterm exam was on financial accounting content. The final exam was cumulative. For each student we were able to identify the time spent and grade for each online homework assignment and quiz on the Pearson's MyLab.

Additionally, we controlled for other student characteristics that have been found to affect student performance. These include overall GPA, Math SAT scores, gender, major, English as a first language, student perception of the importance of the course and manual homework submitted to the professor. Our results indicate that the amount of time spent on online homework and quizzes is generally significantly negatively correlated to student performance as measured by performance on exams. Term GPA, math SAT scores and male gender were found to be positively correlated with exam performance. Intended major was positively correlated only for the final exam. Online homework grades and quiz grades were positively correlated. English as a first language, perception of importance of student perception of the importance of the course and manual homework submitted to the professor had mixed results.

INTRODUCTION

The purpose of our research is to assess the impact of online homework and quizzes on student performance as measured by exam grades in an introductory accounting and finance course offered to first semester Freshmen. The course was taken by 1050 students with twelve instructors in the fall of 2012. All sections of the course used a standardized syllabus and the course contained identical online and manual homework assignments, online quizzes, other course assignments, and a common final exam. Two midterm exams were administered during the semester. The midterm exams were prepared by the individual instructors. For each midterm exam, the content, as specified by specific learning objectives, and format was the same for each instructor and reviewed by a course coordinator to assure a similar level of difficulty and content.

The remainder of the paper is presented as follows. First we review previous research on the relationship between student effort and performance and specifically studies on the

impact of online assignments on performance in quantitative courses and finance in particular. A description of our data and the use of online content in our course follows. We then describe the models we are testing and the analysis of our results. The paper ends with our conclusion.

FACTORS AFFECTING STUDENT PERFORMANCE IN QUANTITATIVE COURSES

In recent years, publishers and others have developed online content to accompany textbooks. The online content has extended from instructor resources, which included instructor's manuals, test banks and solutions to more complex and/or customized content. This online content has expanded to include homework, quizzes and tests for students. These assignments may have many options including "help" for students as they attempt a problem, limitations on number of attempts and/or amount of time to complete an assignment, prerequisites for access to additional or progressive assignments and so forth. Some examples of publishers who have developed online content are Pearson's MyLab, McGraw-Hill's Connect, Southwestern's Aplia, ALEX and two independent course management systems WebCT and Blackboard.

Grades appear to be influenced by factors such as study habits, effort, intelligence, motivation and other personal attributes related to study and test taking skills (Pascarella & Terenzini, 1991). Research supports the importance of homework in the success of student performance. In quantitative courses, the ability to understand concepts and applications requires practicing problems and developing problem solving skills (Polocsa & Stevens 2008, Cooper, 1989). Many studies have concluded that completing homework was important to a student's learning (Warton, 2001). Dahlgran (2006) found similar results and concluded that students with higher GPA's tended to benefit more than others. This is due in part to the learning of practices solving techniques that involve the reading and interpretation of the information in a given problem to determine relevant information and to understand the technique required to solve problems. Peters, Kethley & Bullington, (2002), concluded that student performance was not affected in an introductory management operations course by whether homework was collected, graded and counted 15% toward their final course grade as compared to if the homework was only assigned but not collected and graded. In fact, they found that the students whose homework counted as 15% toward their final course grade actually performed worse than the other group! As with other studies, they did find that ACT

scores and GPAs did have a significant positive correlation. Cooper, Robinson & Patell (2006) reviewed over 120 studies that analyzed the correlation between homework and performance between 1987 and 2003. They concluded that the evidence was overwhelming that the amount of time spent on studying is positively correlated with student performance. Other studies have examined factors that may impact student performance in accounting classes (Doran, Bouillon & Smith, 1991), economics courses (Bellico, 1972, 1974; Cohn, 1972), finance courses (Simpson & Surall, 1979), marketing courses (Borde, 1998) and operations management courses (Peters, Kethley & Bullington, 2002). The primary findings for these studies is a positive correlation between student performance and GPA.

In introductory finance classes Dida and Hasnat (1998) found a significant negative correlation between the number of hours students studied each week and their performance on exams. They suggest that the quality of studying may be more important than the quantity of time spent studying. Noffsinger and Petry (1999) found no correlation between the number of hours students studied for an exam and their performance on the exam. Both of these studies utilized student reported data for measures of student effort rather than independently derived data. More recently, Johnson, Joyce & Sen (2002) studied the online activity of 88 students enrolled in an introductory finance course. They found a significant positive relationship between effort and course performance. Effort was measured by the number of attempts on all quizzes and the amount of time spent during the semester taking the quizzes. These results held up after controlling for GPA, ACT scores and gender.

Does it matter if homework is done manually or online? Studies in introductory physics classes had mixed results. Bonham, Deardorff & Beichner (2001) found no significant difference in student performance between students who completed online homework or manual homework. However, Chen et al (2004) found that physics students using online homework spent more time studying and performed better on exams than those students who used only manual homework that was ungraded. Arasasingham et al (2005) concluded that chemistry students who used online content with immediate feedback and tutorials outperformed and spent more time studying than those students who did not use online software. Gaffney et al (2010) compared two groups of students taking an introductory accounting course. One group used an online homework management system (OHMS) and the other used traditional homework methods. The students using the OHMS had unlimited access and time to complete and submit their homework. The traditional students were graded on "effort and completeness" so that the grading would be more equitable between the groups. They controlled for gender, ethnicity, verbal and math SAT scores, if they were a transfer student and age. The performance measures included exams, course grade, homework, a comprehensive accounting problem, ethics cases and take home quizzes. They found a significant positive

performance on the Case and the Comprehensive accounting problems for those students who used the OHMS but not for exams, course grade and the take home quizzes.

Fendler et al (2011) compared the performance of a group of traditional students to a group who had all online contact except for the proctored final exam taken by all students. After controlling for major (categorized as quantitative or qualitative), gender and GPA, the results showed that there was no statistically significant difference between the two groups when the exam questions were categorized according to Bloom's taxonomy on four of the five learning levels: knowledge, understanding, application and analysis. However, the online students' performance at the higher learning level, synthesis, was significantly negative. The results suggest that the measurement instrument is a key variable when examining differences in performance between online and traditional students.

Online assignments allow for many different features. Studies have examined different online content formats. Kulik and Kulik (1988) concluded that immediate feedback was more effective than delayed. In contrast, Lindquist and Olsen (2007) examined the difference in student performance between two groups of intermediate accounting students. One group had immediate solutions and feedback and the other had none. They found no significant difference in test performance by students. Students without the immediate feedback were more frustrated when they were doing their homework but perceived a higher level of learning than the other group. Many studies have confirmed the positive impact of the immediate student feedback to practice problems before an exam. (Stuart 2004, Kortmeyer et al 2006 and Dillard Egger et al 2008). Dillard et al (2008) also concluded that even after controlling for GPA, the course grade was positively impacted by the amount of online homework regardless of whether it was required or not.

There are several different platforms for online content. Doorn, Janssen & O'Brien (2010) compared four different online homework platforms, Southwestern's Aplia, Web Vista, Pearson's MyEconLab and Cengage used in six different economics and finance classes. They examined student attitudes and approaches to online homework. They recognized the benefits of online homework as a way to augment student learning without a substantial increase in instructors' time. Additionally many online systems included problems that have algorithmic questions so that students must solve each specific version. They concluded that students find online homework beneficial for studying for exams and they specifically liked the flexibility and immediate feedback of online homework. They also concluded that students who are highly motivated will do their homework whether or not it is required. A study by Palocsa & Stevens (2008) compared three online systems for a business statistics course with the traditional textbook based course. They compared ALEKS, PH Grade Assist and custom prepared online quizzes on Blackboard to traditional textbook homework and found that the homework

delivery system did not have any impact on student performance. They did conclude that there were two factors that were the most important predictive factors. The factors are the student's GPA and instructor's experience. They did not control for other variables such as SAT scores, gender or major.

Most recently, Spivey & McMillan (2013) measured students' access to and timing of using resources on the Blackboard course management system using the statistic tracking feature for undergraduate financial institutions and markets classes. They were able to track views of Blackboard content between tests, 10 days before a test and 2 days before a test. They used the number of views as a proxy for student effort and concluded that students who studied throughout the semester performed better on exams than those who waited until a few days before tests. The cumulative GPA had a positive significant impact on performance and there was some evidence that accounting and finance majors performed better than others.

Cutshall & Bland (2010) examined students' perceptions of using MyFinanceLab to complete online homework in two sections of an introductory finance class offered to juniors. Of the 88 students surveyed, 40.3% agreed or strongly agreed that they preferred the MyFinanceLab homework over traditional paper homework and 32.3% had a preference for paper-based homework. The other students were neutral as to the type of homework. They then examined the two extreme groups, leaving out the neutral group. They found that the students who did not support the MFL format of homework actually spent more time doing the online homework as compared to the group that preferred online homework.

Anderson (2011) finds that students' test grades improved in relation to how well they did on mastery quizzes taken online for an undergraduate introductory finance course. Students who mastered the material as demonstrated by the number of correct answers performed better on their midterm exam and final exam. Anderson did not control for any descriptive demographic data on students. A large advantage for the administration of the course was that the quizzes did not have to be manually collected and reviewed and students received immediate feedback as compared to the cursory review of the manual homework that effectively just recognized student effort.

Yourstoun, Kraye & Albaum (2010) studied 106 students in an introductory management operations course. They allowed about one half of the students to take two attempts for each quiz and the other half were allowed to take four attempts. Their results showed that the students who had only two attempts outperformed the students who had up to four attempts. They concluded that students who knew they had many attempts took the attitude that they did not need to be careful when taking the quizzes whereas the other students were more

careful and spent more time preparing to take each quiz because they were limited to two attempts.

Peng (2009) found that for an introductory accounting class the students who had low NFC (NFC = "willingness to engage in and enjoy effortful cognitive endeavors") used online homework more than high NFC students because they perceived the online homework would take less time than using the online homework system to learn the material. Peng did not control for descriptive information such as gender, SAT scores, GPA or exam or grade outcomes.

DATA

For this research collected data was from four sources:

1. MYLAB (Pearson)

The online homework and quiz grades and amount of time spent on each assignment was collected. The average quiz grade counted towards 5% of the students' final course grade. Students had to earn at least 70% on homework prior to taking a specific quiz. There was no limit on the attempts or time spent to complete homework. However, each quiz had a limit of one attempt and a time limit of two hours.

2. Faculty reported data

- a. Grades on the two midterm exams and common final exam (The two exams counted either as 20% or 25% of their course grade, with the higher of the two counting 25%. The cumulative final exam was 25% of the final course grade)
- b. Number of manual homework assignments completed. Each instructor was required to collect four manual homework assignments randomly, without prior notice. Three counted toward the final grade, with one percentage point lost toward their final course grade for each homework assignment missed up to a loss of three percentage points. Homework was collected only at the beginning of class and could not be turned in at a later time. If a student were to miss a class they were expected to submit the assigned homework before class.

3. Survey data completed by students the second to last day of class.

The number of respondents was 934 at the end of the semester. This was a response rate of almost 90% of the 1050 students enrolled in this course. These surveys contained demographic data including gender, intended major (students did not officially choose their major until the spring semester of their sophomore year), business courses taken in high school, self-reported math, writing and oral communications skills.

4. The Registrar's office

The Registrar supplied Term GPAs, Math SAT, and final course grade.

All data was collected by student email address. Once all of the data was merged by student email address, any student identification was deleted so that each student's data became a single observation with no identifying data.

Of the 1050 students who completed the course, there were a total of 107 Math SAT scores missing, 116 students did not complete the survey at all and the remainder of the observations were deleted because of incomplete data. The final number of student observations in this study was 812.

Consistent with previous studies, we controlled for GPA, Gender, Math SAT Major, and Perception of the importance of the class. We also collected other data such as instructor, difficulty of course, anxiety about course, and accounting, bookkeeping or finance classes taken in high school. None of these variables were significant.

Table 1 presents descriptive statistics for the sample of 812 students who received a final course grade. All grades are in percentage form. The manual homework variable is on a scale of 0 to 4. Four manual homework assignments were collected randomly. The term GPAs as of the end of the semester they were enrolled in this course and include the final grade for the course. There were 17 online homework assignments. Of those, six were on finance content that was predominantly time value of money. The remaining homework assignments were on financial accounting including debits and credits, adjusting entries, preparation of financial statements and an introduction to internal controls and accounting information systems. There were nine quizzes, four of which were on finance. The average time students spent completing homework and quizzes was in minutes and seconds. It was apparent that there were some students who did not complete any homework or quizzes but who did receive a course grade. Time spent on the online assignments as well as the completion of manual homework, were good proxies for effort.

We chose three proxies for motivation: Term GPA, major, and perception of the importance of the course. Even though students did not have to officially declare a major until the end of their sophomore year, many students had done so. In the survey, students were asked what their intended major was. Students who selected accounting, finance, corporate accounting, and finance (CFA) or economics/finance were identified with a 1, otherwise a 0. Additionally, students were asked at the end of the semester survey how important they perceived this course to be. The scale was 1=very important, 2=important, 3=neutral, 4=unimportant, and 5=very unimportant. Of the 812 students, 514 fourteen students selected "very important" and 274 selected "important". Only ten students selected 4 or 5. The course was offered in a business university with approximately 4,000 undergraduate students. There

were more than 20 majors available to the students. The largest major was Accounting with 131 students. Finance is second with 115 students. Almost 100 selected either CFA or Economic Finance. There were 121 students who were still undecided. Male students have been found to outperform females in introductory finance classes by Terry (2002), Borde, Byrd & Modani (1988), whereas Johnson, Joyce & Sen (2002) found no significant difference between male and female performance. Males were also more likely to choose accounting as a major (Swain & Olsen, 2012).

Insert Table 1 Here

ANALYSIS AND RESULTS

We were able to look at the impact of online assignments on student performance in introductory financial accounting as well as introductory finance. Inclusion of both contents using the two midterm exams and the final exam were our measures of performance. The models are below:

$$\begin{aligned}
 Exam\ 1 = & \alpha + \beta_1 Term\ GPA + \beta_2 Importance + \beta_3 English \\
 & + \beta_4 Major + \beta_5 Manual\ HW + \beta_6 Math\ SAT + \beta_7 FIO\ Online\ HW\ Grade \\
 & + \beta_8 FIO\ Online\ Quiz\ Grade + \beta_9 FIO\ Online\ HW\ Time \\
 & + \beta_{10} FIO\ Online\ Quiz\ Time + \beta_{11} Gender + \epsilon
 \end{aligned} \tag{1}$$

$$\begin{aligned}
 Exam\ 2 = & \alpha + \beta_1 Term\ GPA + \beta_2 Importance + \beta_3 English \\
 & + \beta_4 Major + \beta_5 Manual\ HW + \beta_6 Math\ SAT + \beta_7 ACC\ Online\ HW\ Grade \\
 & + \beta_8 ACC\ Online\ Quiz\ Grade + \beta_9 ACC\ Online\ HW\ Time \\
 & + \beta_{10} ACC\ Online\ Quiz\ Time + \beta_{11} Gender + \epsilon
 \end{aligned} \tag{2}$$

$$\begin{aligned}
 Final\ Exam = & \alpha + \beta_1 Term\ GPA + \beta_2 Importance + \beta_3 English \\
 & + \beta_4 Major + \beta_5 Manual\ HW + \beta_6 Math\ SAT + \beta_7 Semester\ Online\ HW\ Grade \\
 & + \beta_8 ACC\ Online\ Quiz\ Grade + \beta_9 ACC\ Online\ HW\ Time \\
 & + \beta_{10} ACC\ Online\ Quiz\ Time + \beta_{11} Gender + \epsilon
 \end{aligned} \tag{3}$$

First, we examined the Pearson correlation coefficients for the variables used in each model. See Tables 2, 3 and 4. There were statistically significant relationships between most variables as expected. The VIF values were under 2 and the tolerance levels were under one for all three models. The distribution of the variables was tested with all being normal with the exception of quiz and homework grades that were skewed toward high scores.

Insert Tables 2, 3 and 4 Here

Table 5 presents the ordinal least squares regression results for the three models. All three models had a robust adjusted R-squared and significant F statistic. It was expected that Math SAT scores, Term GPA and major would all be significant. This was the case except for Equation 1. The finance content was at the beginning of the course and this was the student's first semester in college. Time value of money (TVM) was considered the most difficult part of the course for most students. This was the primary content in Exam 1. Even though we had an increase in students intending to major in Finance or Economics and Finance from the beginning of the semester (as indicated in a survey conducted the second day of class) to the end of the semester, the difficulty of TVM may have been the reason for the major coefficient for exam 1. The coefficient for English as a first language was negative for Exam 1 but was positive for Exam 2 and the Final. Seventeen percent of students answered that English was not their first language. Because this was most likely their first exposure to business jargon, it may have taken the English as a second language students, a while to understand, and use the business terms in this course.

The most surprising result was that the more time students spent on online homework and quizzes the lower their performance as measured by exams! There could be many possible reasons for these results. For the online homework, students could do the homework as many times as they wanted and with unlimited help. The last attempt was the grade and time reported on MyLab. Most of the homeworks were algorithmic problems with different numbers for each question. Students were to do each homework assignment and earn a 70% or better for them to be able to take the online quiz on the content of the quiz. They were from between one and three homework assignments on the content for each quiz. The MyLab had a "help" feature that told students what page in the text covered the question content and how to do the problem. It would seem that the more time spent on individual online homework assignment would

increase a student's understanding of subject material and that it would translate to a higher exam grade. The quiz grade was 5% of their final course grade. Even though more than 90% of the students perceived this course as being very important, that may not have translated into motivation to do well in this course. This result may indicate that some students did not yet have the study and time management skills necessary for this course and for college. As Pascarella & Terenzini (1991) concluded, there were many personal characteristics that impacted student performance. Motivation, study skills and habits and effort were all specific to an individual. Inherent intelligence was also a critical factor in explaining student performance.

Insert Table 5 Here

The positive impact of the homework grades could most likely be due to the requirement that students need to get a 70% better to take the online quiz. The average quiz grade for the semester was over 91%. Students were allowed one attempt and had a two hour time limit. This could indicate that even if students had not mastered the most effective and efficient way to study this material, they still desire to master the course material.

We used Term GPA as a proxy for motivation because this metric was indicative of a student's overall motivation. Male gender was positive and significant for the finance content and for the semester. Accounting was the exception for this sample of students since female gender was positive and significant.

The number of manual homeworks was a positive factor. Manual homework was randomly collected at the beginning of class and was not graded. Each instructor collected manual homework throughout the semester. For this reason, perhaps the positive impact on the final grade may be the most relevant.

Insert Table 6 Here

Table 6 shows that more female students intended on majoring in accounting and the opposite was true for the other three majors. The one to the far right, was the percentage of total females and males intending to major in the four majors. Accounting, Finance, CFA and Eco-Fi. The percentage of female students intending to declare accounting and who perceived the course as very important was significantly higher than for males. The percentages for other

majors who perceived the course to be very important or important did not show such a significant difference by gender. This could be part of the explanation for the significant positive affect of males majoring in finance for the semester and no significance for gender in equation 2.

CONCLUSION

The use of online resources for college students is on the rise. Farinella, Hobbs & Weeks (2000) predicted this increase. There are many reasons for this trend. It can reduce the amount of time faculty spend on grading homework and at the same time can give students more flexibility in completing homework. The features of the online platform may give students "help" in solving problems, immediate feedback and additional practice problems (Dillard & Egger et al, 2008, Gafney et al 2010). There is disagreement on the impact of learning outcomes regarding the type of assistance students receive. Some studies have shown that students who rely on completed solutions rather than having to work through problems themselves may reduce the knowledge they gain and result in poorer performance on exams (DeWinstanely & Bjork, 2004, Foos, Mora & Tkaez 1994, McNamara & Healy 2000). Other studies suggest that not having solutions reduces learning (Chi, Bassok, Lewis, Reimann & Glaser, 1989, Renkl, Stark, Gruber and Mandl 1998). This study does, however, shed some light on efficacy of an online homework system. It appears that it isn't the type of homework, manual or online, that impacts learning as much as it is students' ability to study, manage their time and make learning a priority in their college experience.

Another explanation for our results may also be related to the technology of today. Students are often very distracted and may be texting, emailing, surfing, using Facebook and Twitter individually or at the same time. Perhaps these distractions interfere with focusing on homework and quizzes.

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Table 1: Descriptive Statistics for our Sample of 812 Student Participants

Variable	Minimum	Maximum	Mean	Standard Deviation
Midterm Exam 1 (Finance Content)	.37	1.00	.800	0.106
Midterm Exam 2 (Accounting Content)	.31	1.00	.766	0.123
Final Exam (Cumulative)	.00	.98	.726	0.139
Manual Homework Submitted	.00	4.00	.338	0.796
Term GPA	.90	4.00	3.220	0.443
Math SAT Score	380	800	630.91	67.262
Average Homework Grade	.117	1.00	.932	0.091
Average Quiz Grade	.00	1.00	.913	0.010
How Important Do You Perceive This Course	1	5	1.46	0.669
Average Finance Homework Grade	.333	1.00	.968	5.133
Average Finance Homework _Time	0:00:00	2:51:32	0:43:40	0:20:06
Average Accounting Homework Grade	.00	1000	0.913	0.0124
Semester Average Homework Time	0:01:51	1:54:11	0:48:27	0:15:56
Average Finance Quiz Grade	.00	1.00	.893	0.170
Average Finance Quiz Time	0:00:00	1:08:12	0:22:46	0:10:04
Average Accounting Quiz Time	0:00:00	1:23:32	0:38:22	0:13:37
Semester Average Quiz Time	0:00:00	1:12:29	0:32:52	0:10:45
Gender= 0 if Female, 1 if Male	.00	1.00	.550	0.497
Accounting, FI, CFA or Eco-FI = 1, 0 otherwise	.00	1.00	.510	0.500
English as a first language = 1, 0 otherwise	.00	1.00	.832	0.373

Variable		1	2	3	4	5	6	7	8	9	10	11	12
Exam1	1	1											
Numberof ManualHW	2	0.177**	1										
TermGPA	3	0.600**	0.363**	1									
Perceived Imp Course	4	0.041	0.016	0.003	1	r							
Gender Male=1	5	0.110**	0.147**	r 0.063*	0.017	r							

Table2: PearsonCorrelationMatrix for Equation1

English=1	6	0.024	0.071*	0.039	0.008	0.052	1						
Major:ACC,FI	7	0.136**	0.023	0.113**	0.214**	r0.154**	0.012	1					
Grade of	1	2	3	4	5	6	7	8	9	10	11	12	
Math SAT	8	0.376**	0.064*	0.298**	0.048	0.189**	0.081	0.111**	1				
Exam2	1	1											
AveFIHW	9	0.210**	0.170**	0.270**	0.091**	r 0.082**	0.029	0.040	0.120**	1			
Grade of	2	0.284**	1										
Math SAT	10	0.096**	0.208**	0.205**	0.025	r 0.044	0.049	0.047	0.009	0.351**	1		
Grade													
AveFIHW Time	11	0.262**	0.114**	0.193**	0.017	0.119	0.062	0.066**	0.254**	0.071*	0.195**	1	
AveFIQuiz Time	12	0.173**	0.081**	0.001	0.079*	0.211	r0.106	0.068*	0.294**	0.117**	0.387**	0.437**	1

**significant at the .01 level

*significant at the .05 level

Table3. PearsonCorrelationMatrix for Equation2

**significant at the .01 level

*significant at the .05 level

TermGPA	3	0.627**	0.363**	1										
Perceived	4	0.072*	0.016	0.003	1	r								
Major	1				3	4	5	6	7	8	9	10	11	12
Gender	5	0.002	0.147**	0.063*	0.017	r								
Math Exam	1	1												
English-1	6	0.101**	0.071*	0.039	0.008	0.052	1							
Number of	2	0.305**	1											
Major ACQ	7	0.185**	0.023	0.113**	0.21**4	0.154**	0.012	1						
Gender ACQ	3	0.709**	0.363**	1										
Math SAT	8	0.335**	0.064*	0.298**	0.048	0.189**	0.081**	0.111**	1					
Perceived	4	0.036	0.016	0.003	1	r								
Ave ACQ	9	0.307**	0.285**	0.372**	0.109**	0.161**	0.038	0.055	0.050	1				
Gender	5	0.063*	0.147**	0.063*	0.017	r								
Math ACQ	10	0.305**	0.319**	0.361**	0.013	0.088**	0.075*	0.007	0.082**	0.611**	1			
Grade														
Ave ACCHW Time	11	0.177**	0.049	0.126**	0.031	0.135**	0.030	0.068*	0.166**	0.166**	0.243	1		
Ave ACQ Quiz Time	12	0.024	0.104**	0.046	0.051	0.102	0.019	0.042	0.217**	0.296**	0.561**	0.508**	1	

Table 4. Pearson Correlation for Equation 3

English=1	6	0.082**	0.071*	0.039	0.008	0.052	1						
Major:ACC,FI, CFAECOFI=1	7	0.193**	0.023	0.113**	0.214**	r0.154**	0.012	1					
Math SAT	8	0.410	0.064	0.298	0.048	0.189	0.081	0.111	1				
AveSemester HWGrade	9	0.309**	0.283**	0.380**	0.114**	r 0.158**	0.028	0.056	0.068	1			
AveSemester QuizGrade	10	0.297**	0.345**	0.413**	0.039	r 0.134	0.054	0.028	0.058	r0.625**	1		
AveSemester HWTime	11	0.287**	0.119**	0.199**	0.041	0.168**	0.081**	0.091**	0.272	0.099**	0.069*	1	
AveSemester QuizTime	12	0.148**	0.073*	0.004	0.069*	0.166**	r0.066**	0.054	0.286	0.231**	0.315**	0.520	1

**significant at the .01 level

*significant at the .05 level

Table5. OrdinaryLeastSquaresRegressionResultsfor Equations1,2and3

Equation	1	2	3
Variable			
Constant	0.169 (2.840)***	0.000 (1.911)**	0.000 (3.814)***
Numberof ManualHW	0.033 r (1.122)	0.039 (1.327)	0.048 (1.883)*
TermGPA	0.526 (16.692)***	0.438 (15.223)***	0.0568 (20.445)***
Perceivedmp.Course	0.032 r	0.063 r	0.022

	(1.142)	(2.336)**	(0.954)
GenderMale=1	0.078 (2.759)***	0.004 r (0.160)	0.052 (2.133)**
English= 1	0.030 r (1.092)	0.059 (2.996)***	0.019 (0.083)
Major: ACC,F,CFA,EcoFI	0.021 (0.769)	0.081 (2.996)***	0.081 (3.395)***
Math SAT	0.139 (4.591)***	0.144 (4.961)***	0.167 (6.489)***
AveFIHWGrade	0.072 (2.440)**		
AveFIQuizGrade	0.010 (0.323)		
AveFIHWTime	0.098 r (8.073)***		
AveFIQuizTime	0.094 r (8.108)***		
AveACQHWGrade		0.061 (1.769)*	
AveACQQuizGrade		0.098 (2.533)**	
AveACQHWTime		0.100 r (8.303)***	
AveACQQuizTime		0.038 r (1.099)	
AveSemesteHWGrade			0.051 (1.712)*
AveSemesteQuizGrade			0.087 (2.800)***
AveSemesteHWTime			0.045 (1.658)*
AveSemesteQuizTime			0.125 (4.267)***
AdjustedR-squared	.423	.455	.583
F Statistic	55.135	62.579	104.07

***Significant at the 1% level

**Significant at the 5% level

*Significant at the 10% level

Table 6. Perceived Importance of Course by gender and major (Accounting, Finance, CFA, EcoFI)

Perceived Importance of Course	Gender	Accounting Major		Finance Major		CFA Major		EcoFi		Total	% Of Total For Gender*
Very Important	Female	50	32%	20	13%	23	15%	20	13%	113	73%
	Male	39	13%	45	15%	44	15%	45	15%	173	57%
Important	Female	12	8%	12	8%	9	6%	4	3%	37	24%

	Male	19	6%	26	9%	12	3%	24	8%	126	42%
Neutral	Female			2	1%	0	0	2	1%	4	3%
	Male			0		1		0	0	0	0
Not Important	Female							0	0	0	0
	Male							1		1	0
Not Very Important	Female							0	0	0	0
	Male							1		1	0
										455	

*Total female students intending to major in the four above is 154. Total males were 301