Predictors of student success involving quantitative subject matter: online versus traditional presentation

Krisandra Guidry, Ph.D.
Nicholls State University

ABSTRACT

This study seeks to examine whether the predictors of student success in an online quantitative course are different than those for a traditional face-to-face lecture presentation of the same quantitative course. A quantitative course is defined as numerically based and involves mathematical calculations. Data were collected from students taking a financial management course offered by an AACSB accredited College of Business at a medium sized state university (total student population 7,000) in southern Louisiana. Students had the option upon registration to choose the lecture presentation or the online version. Examination of the significant variables presents only one common predictor of student success – semester GPA prior to enrolling in the course. Otherwise, different predictors are significant, dependent upon the mode of delivery. Furthermore, students in the online version of the quantitative course did not perform as well as those enrolled in the lecture class.

Keywords: online courses, lecture presentation, quantitative material, student success

INTRODUCTION

Some (Boster et al, 2006) regard technology as a powerful tool to teach mathematics. However, students prefer a face-to-face presentation for a numerically oriented class (Johnson et al, 2009). Pevious studies (Gange and Shephard, 2001; Neuhauser, 2002; Reuter, 2009; and Russell, 1999) have found no difference in the success of students in a particular class, with the variable of interest being method of delivery – online instruction versus face-to-face lectures. Researchers have also tried to pinpoint what particular characteristics led to academic success (Gerlich, Mills, and Sollosy, 2009; Mandernach, Donnelli, and Dailey-Heber, 2006; Wojciechowski and Palmer, 2005; and Yukselturk and Bulut, 2007). However, few, if any, have tried to examine whether the factors leading to success were the same for a mathematically oriented course, regardless of the mode of delivery.

Therefore, it is the purpose of this study to examine whether the predictors of student success in a traditional face-to-face quantitative course are different than those for an online quantitative course, as well as, to determine if there is a difference in the performance of such students. A quantitative course is defined as numerically based and involves mathematical calculations. Data were collected from students taking a financial management course offered by an AACSB accredited College of Business at a medium sized state university (total student population 7,000) in southern Louisiana. Students had the option upon registration to choose the lecture presentation or the online version.

COURSE SURVEYED

The quantitative course surveyed was Finance 302: Financial Management. The course is delivered every semester via the traditional lecture format, but is offered as an online class in the summer only. Students had the option upon registration for the summer sessions, 2007-2012, to choose the lecture presentation or the online version. In the final analysis, 176 total students signed up for the face-to-face version of financial management; 128 total students registered for the web class. While three different professors were assigned this course, the textbook remained the same, as well as, assessment methods: quizzes, exams, and homework assignments. The material covered was identical, due to a departmental decision, which included:

- Construction and analysis of financial statements
- Effect of income taxes on financial decisions
- Time value of money
- Bonds and their valuation
- Risk and rates of return
- Stocks and their valuation
- Cost of capital
- Capital budgeting
- Cash flow estimation

- Working capital management

Financial management is a core course required of all students seeking a baccalaureate degree from the College of Business, and is rarely taken by someone outside of the college. Business students must earn a "C" or above in order to graduate. Financial management is considered by some students to be particularly challenging, even with traditional face-to-face presentations. Students taking financial management for a second (or more) time, may have earned a "D," "F" or withdrawn from the course (receiving a "W" on their transcript) before being awarded a final grade. The prerequisites for this course include managerial or financial accounting; micro and macroeconomics; statistics; and completion of 54 hours of non-developmental coursework.

Online course

The course was delivered completely over the internet, first, via the Blackboard platform. When the university discontinued its Blackboard license, Aplia for Finance, a comprehensive supplemental package written by the textbook authors, was adopted. The online course was deployed over an 8 week period. Answers to assignments and power point slides were made available to students. Faculty was available by email and discussion forums. There was no face-to-face interaction between students and professor. The course was self-paced (students were welcome to work ahead), but online assignments and quizzes had specific due dates. Online exams were made available and had to be completed on the date specified in the syllabus. Exams were open book, but were long enough that it was impossible to look up every answer. Instructors in all online courses offered at this university must first complete the Quality Matters Program (2012), "a nationally recognized, faculty-centered, peer-review process that is designed to certify the quality of online and blended courses."

Traditional presentation

In the traditional presentation, students attended a two and one-half hour class held on the university campus, Monday through Thursday, for four weeks. Professors lectured and worked problems for those enrolled. Students were encouraged to ask questions and participate in class discussions. Answers to assignments and power point slides were made available to students. Faculty was available by email and discussion forums, as well as, through traditional office hours. The course was not self-paced: certain chapters were covered at prescribed upon times; assignments and quizzes had specific due dates. Closed book, paper and pencil exams were administered on the date specified in the syllabus.

HYPOTHESIS 1

The following relationship is hypothesized: the predictors of success for students in an online quantitative course (FINC 302 WWW: Financial Management) are not different than the predictors of success for students in the lecture presentation of the same quantitative course (FINC 302 FTF: Financial Management). Success in the course is defined as having earned an

A, B, or C, while failure is defined as D, F, or W; students receiving a D, F or W, will have to take the class again. The predictors of success are thought to be the following:

Gender

According to the U.S. Department of Education (2000), more women, than men, are enrolled at U.S. colleges and universities. Thus, women subsequently receive more degrees than men. Kinzie et al (2007) has demonstrated that undergraduate females are more actively engaged in "educationally purposeful activities."

Also, more females than males enroll in online courses (Halsne and Gatta, 2002; and Zirkle, 2003). The majority of previous research has reported little or no significant difference between males and females in regard to online course performance (Daymont and Blau, 2008; Dutton, Dutton and Perry, 2002; Gerlich, Mills and Sollosy, 2009; Wojciechowski and Palmer, 2005; Dille and Mezack, 1991; and Lim, 2001). However, some researchers have reported significant performance differences between genders (Barrett and Lally, 1999; and Taplin and Jegede, 2001).

Age

Reuter (2009) found that online students, as a whole, were older than students enrolled in traditional lecture classes, positing that older students have more responsibilities (jobs, families, etc.). But, Buhagar and Potter (2010) showed that online students were younger than their face-to-face counterparts, reasoning that younger students were more comfortable with web-related technology.

Course load

Most studies found course load and academic performance to be unrelated for traditional lecture classes (Tinto, 1987; Metzner, 1989; and, Pascarella and Terenzini, 1979). However, Adelman (1992, 2005) concluded that part time students were more academically successful than full time students, while Schultz (2007) demonstrated a weak correlation between course load and success.

Wojciechowski and Palmer (2005) investigated full versus part time student status and found no relationship with the eventual grade earned in an online class. However, Weaver (2005) found that full time students were considered more successful than part time students in an online class.

Number of previous withdrawals from other courses

Previous research (Frankola, 2001 and Oblender, 2002) has shown that online learners are more likely to drop those courses when compared to their face-to-face counterparts. Wojciechowski and Palmer (2005) found a strong negative correlation between number of previous withdrawals and student grades in an online class.

How many times the course was attempted prior to current registration (may be online or face-to-face)

Examination of the literature revealed no published research regarding this variable. Some universities may limit the number of times a student can repeat a course, resulting in cost efficiency and improved success rates. While the university surveyed does not have such a policy, it is assumed that a positive relationship exists between this variable and the grade earned. It is expected that this variable is highly correlated with the number of previous withdrawals from other courses.

American College Testing (ACT) composite scores, ACT English scores, ACT Math scores, and ACT reading scores

A study authored by Bettinger, Evans, and Pope (2011) found that English and math ACT scores "are highly predictive of positive college outcomes," and the reading and science score "have very little predictive ability." Thus, lumping together these scores with English and math may mar the usefulness of the ACT as a predictor of college success. Freeman (1995) and Mortensen (1995) discovered no difference in achievement test scores for students enrolled in online versus face-to-face classes. However, a study by Gubernick and Eberling (1997) demonstrated that online students have higher achievement test scores (5-10%) than those enrolled in traditional lecture classes.

Student semester grade point average (GPA) prior to online class surveyed, and Student cumulative GPA prior to online class surveyed.

A student's grade point average (GPA) is a strong predictor of success in any class. Anderson and Benjamin (1994) showed a positive relation between student performance and previous academic efforts. However, Buhagar and Potter (2010) did not find a statistical difference in GPA between online versus face-to-face students.

HYPOTHESIS 2

It is also hypothesized that students enrolled in an online quantitative course FINC 302 WWW: Financial Management) will not perform any differently than students enrolled in the lecture presentation of the same quantitative course (FINC 302 FTF: Financial Management). Some studies (Gange and Shephard, 2001; Neuhauser, 2002; Reuter, 2009; and Russell, 1999) have found no difference in the success of students in a particular class, with the variable of interest being method of delivery – online instruction versus face-to-face lectures. Others, such as Wynegar and Fenster (2009) and Stephens and Konvalina (1999), noted that students enrolled in math-based courses using computer aided instruction did not perform as well as students in lecture courses; Allen et al (2004) found the opposite result.

MODEL SPECIFICATION AND EMPIRICAL RESULTS

For each class surveyed, the initial model is written as follows:

$GRADE_i = f(GENDER_i, AGE_i, CRSLD_i, \#WDS_i, \# ATTS_i, ACTCOMP_i, ACTENG_i, ACTMATH_i, ACTREAD_i, SEMGPAi, CUMLGPA_i)$

where:

$GRADE_i$= grade earned by the ith student (A = 4; B = 3; C = 2; D, F or W = 0).

$GENDER_i$ = dummy variable indicating gender of student i (GENDER = 1 if male; 0 if female).

AGE_i = student i's age (in years) at time enrolled in online course.

$CRSLD_i$= student i's total number of hours carried for the semester. For this study, all of the online courses are offered during the summer term. Students registered for nine or more hours during the summer term are considered full time, eight hours or less, part time.

$\#WDS_i$ = total number of times student i has withdrawn from other classes.

$\#ATTS_i$ = total number of times student i has attempted the class surveyed. The student may have enrolled in the class previously (whether online or face to face) and had to subsequently withdraw. A student may also have to re-enroll if he/she earned a D or F in the class. Some students may be looking to enhance their GPAs by re-taking a class and earning a better grade.

$ACTCOMP_i$= student i's highest reported composite score on the American College Testing exam (ACT), 0-36. The ACT may be taken (and reported to the university) multiple times. The highest composite score, as well as, the highest English, math and reading scores, may have occurred on different test dates. Only the highest scores were included.

$ACTENG_i$= student i's highest reported ACT English score, 0-36. If the ACT is taken multiple times, the highest English score may or may not occur in conjunction with the highest reported composite score.

$ACTREAD_i$ = student i's highest reported ACT reading score, 0-36. If the ACT is taken multiple times, the highest reading score may or may not occur in conjunction with the highest reported composite score.

$ACTMATH_i$= student i's highest reported ACT math score, 0-36. If the ACT is taken multiple times, the highest math score may or may not occur in conjunction with the highest reported composite score.

$SEMGPA_i$ = student i's semester GPA prior to enrolling in course surveyed, 0.0-4.0.

$CUMLGPA_i$ = student i's cumulative GPA prior to enrolling in course surveyed, 0.0-4.0.

The model is also run with the combined data set, including a dummy variable to denote whether the class was online or face to face (WWW/FTF = 1 if class was online, 0 if face to face). The results should show whether there the final grade earned is dependent upon the mode of delivery, online versus lecture presentation.

The data used in this study was recovered from the university's student database. Data were collected from students taking online courses offered by an Association to Advance Collegiate Schools of Business (AACSB) accredited College of Business at a medium sized state university (total student population 7,000) in southern Louisiana.

The descriptive statistics of the entire sample are presented in Table 1 (Appendix). The data has been segregated by each class surveyed. While the mean grade (GRADE) for the face-to-face class is higher (2.2955 versus 1.3438), the mean age of the students (AGE) and the course load (CRSLD) are similar. All of the mean ACT measures (ACTCOMP, ACTENG, ACTREAD, and ACTMATH) are higher for the online class, perhaps due to a self-selection bias: academically stronger students may feel more confident in taking a self-directed class. However, the GPA measures (SEMGPA and CUMGPA) impart the opposite - higher mean semester and cumulative GPAs for those students in the face-to-face sections.

The empirical results are presented in Table 2 (Appendix). Examination of the significant variables presents only one common predictor of student success – semester GPA prior to enrolling in FINC 302 (SEMGPA). The positive relation demonstrates that students with higher semester GPAs earn higher grades in FINC 302 (The cumulative GPA variable, CUMGPA, is only significant for the lecture class.) Otherwise, different predictors are significant, dependent upon the class surveyed. For the online class, students with higher ACT math scores (ACTMATH) are more likely to be academically successful. This result confirms the findings of Allen and Sconing (2005): "a student with a benchmark ACT mathematics score of 22 [had] a 75% chance of earning a C or higher" in a quantitative course. In the face-to-face version, the number of withdrawals (#WDS) is inversely related to course performance. While the number of attempts (#ATTS) showed a positive relation – those who were familiar with the material in a previous presentation were more likely to earn a better grade. The combined data set had no significant variables, except for that which distinguished between the two modes of delivery (WWW/FTF). The result seems to validate the findings of Wynegar and Fenster (2009) and Stephens and Konvalina (1999): students in online versions do not perform as well as those enrolled in the lecture class of quantitatively oriented material. Antidotal evidence reported by finance professors supports this position. Financial management is perceived as a relatively difficult class by students; most would prefer the face-to-face interaction with an instructor.

CONCLUSION

While the introduction of computer aided technology is a powerful tool to teach college level subjects, including quantitatively oriented material, most students prefer a face-to-face presentation of mathematics. Some studies have found no difference in the success of students in a particular class, with the variable of interest being the method of delivery. Researchers have also tried to pinpoint what particular characteristics led to success in a class. However, few, if any, have tried to examine whether the factors leading to success were the same for a mathematically oriented course, regardless of the mode of delivery. It is the purpose of this study to examine whether the predictors of student success in a traditional quantitative course are

different than those for an online quantitative course, as well as, to determine if there is a difference in the performance of such students. Examination of the significant variables presents only one common predictor of student success – semester GPA prior to enrolling in the course is positively related to the grade earned in the class. Students with higher semester GPAs earn higher grades in the quantitative course. Otherwise, different predictors are significant, dependent upon the class surveyed. For the online class, students with higher ACT math scores and cumulative GPAs are more likely to be academically successful. In the face-to-face version, the total number of previous course withdrawals is inversely related to course performance, while the total number of previous attempts at the course surveyed showed a positive relation – those who were familiar with the material in a previous presentation were more likely to earn a better grade. Furthermore, students in the online version of the quantitative course did not perform as well as those enrolled in the lecture class.

REFERENCES

Adelman, C. (1992). The way we were: the community college as American thermometer. U.S. Department of Education.

Adelman, C. (2005). Moving into town and moving on: the community college in the lives of traditional age students. U.S. Department of Education.

Allen, Jeff and Sconing, Jim. (2005). Using ACT assessment scores to set benchmarks for college readiness. *ACT Research Report Series*, retrieved on 11/14/12, http://www.act.org/research/reports/pdf/ACT_RR2005-3.pdf.

Allen, M., Mabry, E. Mattrey, M., Bourhis, J., Titsworth, S., and Burrell, N. (2004). Evaluating the effectiveness of distance learning: a comparison using meta-analysis. *Journal of Communication*, 54(30), 402-420.

Anderson, G., and Benjamin, D. (1994). The determinants of success in university introductory economics courses. *Journal of Economic Education*, 25(2), 99-118.

Barrett, E. and Lally, V. (1999). Gender differences in an on-line learning environment. *Journal of Computer Assisted Learning*, 15(1), 48-60.

Bettinger, E., Evans, B., and Pope, D. (2011). Improving college performance and retention the easy way: unpacking the ACT exam. National Bureau of Economic Research, working paper no. 17119.

Boster, F.J., Meyer, G.S., Roberto, A.J., Inge, C. and Strom, R.E. (2006). Some effects of video streaming on educational achievement. *Communication Education*, 55, 46-52.

Buhagar, Tarek and Potter, Robert. (2010). To stream or not to stream in a quantitative business course. *Journal of Instructional Pedagogies*, 3, 1-6.

Daymount, T., and Blau, G. (2008). Student performance in online and traditional sections of an undergraduate management course. *Institute of Behavioral and Applied Management,* 275-294.

Dille, B., and Mezack, M. (1991). Identifying predictors of high risk among community college telecourse students. *American Journal of Distance Education*, 5(1), 24-35.

Dutton, J., Dutton, M, and Perry, J. (2002). How do online students differ from lecture students? *Journal for Asynchronous Learning Networks*, 6(1), 1-20.

Frankola, K. (2001). Why online learners drop out. *Workforce*, 80(10), 53-59.

Freeman, V.S. (1995) Delivery methods, learning styles and outcomes for distance medical technology students. Doctoral dissertation, University of Nebraska-Lincoln.

Gagne, M., and Shepard, M. (2001). Distance learning in accounting. *T.H.E. Journal*, 28, 58-65.

Gerlich, R. Nicholas, Mills, LaVelle H., and Sollosy, M. (2009). An evaluation of predictors of achievement on selected outcomes in a self-paced online course. *Research in Higher Education Journal,* 4, 1-14.

Gubernick, L., and Ebeling, A. (1997). I got my degree through e-mail. *Forbes*, 159(12), 84-92.

Halsne, A., and Gatta, L. (2002). Online versus traditionally delivered instruction: a descriptive study of learner characteristics in a community college setting. *Online Journal of Distance Learning Administration,* 5(1), retrieved on 6/27/12, http://www.westga.edu/%7Edistance/ojdla/Spring51.html

Johnson, H.D., Dasgupta, N., Zhang, H., and Evans, M.A. (2009). Internet approach versus lecture and lab-based approach for teaching an introductory statistical methods course: students' opinions. *Teaching Statistics*, 31 (1):21-26.

Kinzie, J., Gonyea, R., Kuh, G., Umbach, P., Blaich, C., and Korkmz, A. (2007). The relationship between gender and student engagement in college. Paper presented at 32nd annual conference of the Association for the Study of Higher Education, Louisville, KY.

Lim, C.K. (2001). Computer self-efficacy, academic self-concept, and other predictors of satisfaction and future participation of adult distance learners. *The American Journal of Distance Education,* 15(2), 41-45.

Mandernach, B. Jean, Donnelli, Emily, and, Dailey-Hebert, Amber. (2006) Engaging learner attribute research in dialogue with classroom practice: predictors of success in the accelerated, online classroom. *The Journal of Educators Online*, 3(2), 19-36.

Matzner, B.S. (1989). Perceived quality of academic advising: the effect on freshman attrition. *American Educational Research Journal*, 26(3), 422-442.

Mortensen, M.H. (1995). An assessment of learning outcomes of students taught a competency-based computer course in an electronically-expanded classroom (distance education). Doctoral dissertation, University of North Texas.

Neuhauser, C. (2002). Learning style and effectiveness of online and face-to-face instruction. *The American Journal of Distance Education*, 16(2): 99-113.

Oblender, T. (2002). A hybrid course model: one solution to the high online drop-out rate. *Learning and Leading with Technology*, 29(6), 42-46.

Pascarella, E. and Terenzini, P. (2005). How college affects students: a third decade of research (2nd edition). New York: Jossey-Bass.

Quality Matters. (2012). www.qmprogram.org. retrieved on 10/31/2012.

Reuter, Ron. (2009). Online versus in the classroom: student success in a hands-on lab class. *American Journal of Distance Education*, 23(3), 151-162.

Russell, T. (1999). The no significant difference phenomenon as reported in 355 research reports, summaries and papers. Raleigh, N.C.: North Carolina State University.

Schultz, G. (2007). The effect of study group participation and course load on the course completion rates, success rates and grade point averages on first generation college students at the community college. Doctoral dissertation, University of Southern California.

Stephens, L. and Konvalina, J. (1999). The use of computer algebra software in teaching intermediate and college algebra. *Journal of Math Education in Science and Technology*, 30(4), 483-488.

Taplin, M. and Jegede, O. (2001). Gender differences in factors influencing achievement of distance education students. *Open Learning*, 16(2), 133-154.

Tinto, V. (1987). Leaving college: rethinking the causes and cures of student attrition. Chicago: The University of Chicago Press.

U.S. Department of Education. (2000). Getting ready pays off.

Weaver, Paul. (2005). Ascertain unique characteristics and evaluate student success in community college online courses. Doctoral dissertation, Trinity College.

Wojciechowski, Amy, and Palmer, Louann Bierlein. (2005). Individual student characteristics: can any be predictors of success in online classes. *Online Journal of Distance Learning Administration*, 8(2), retrieved on 6/27/12, http://www.westga.edu/distance/ojdla/summer82/wojciechowski82.htm.

Wynegar, R. and Fenster, M. (2009). Evaluation of alternative delivery systems on academic performance in college algebra. *College Student Journal*, 43, 170-174.

Yukselturk, Erman, and Bulut, Safure. (2007). Predictors for student success in an online course. *Educational Technology and Society*, 10(2), 71-83.

Zirkle, C. (2003). Distance education and career and technical education: a review of the research literature. *Journal of Vocational and Education Research*, 28(2), 161-181.

APPENDIX

Table 1: Descriptive Statistics of Sample

	MEAN	STD DEV	MEDIAN	MODE	MAX	MIN
FINC 302 WWW						
GRADE	1.3438	1.3483	2	0	4	0
GENDER	0.3984	0.4915	0	0	1	0
AGE	23.9219	3.1737	23	23	36	20
CRSLD	7.4844	3.6392	6	9	15	3
#WDS	6.2656	5.0982	5	5	29	0
#ATTS	0.8828	1.1814	0	0	6	0
ACTCOMP	21.2500	3.3836	21	21	30	14
ACTENG	21.7891	4.3374	21	19	34	8
ACTMATH	20.5859	3.7068	20	18	34	13
ACTREAD	22.3516	5.0362	22	23	35	11
SEMGPA	2.2953	0.9488	2.33	3	4	0
CUMLGPA	2.4620	0.5497	2.47	3	3.90	1.24
FINC 302 FTF						
GRADE	2.2955	1.2709	2	2	4	0
GENDER	0.5284	0.5006	1	1	1	0
AGE	23.2557	2.6005	23	22	37	20
CRSLD	7.9034	3.5708	9	6	15	3
#WDS	5.5227	4.7737	4	3	28	0
#ATTS	0.6193	0.9243	0	0	5	0
ACTCOMP	20.4830	2.8385	20	20	30	14
ACTENG	20.9659	3.7170	21	20	31	9
ACTMATH	20.2727	3.6086	20	19	32	13
ACTREAD	20.9887	4.4619	21	22	35	12
SEMGPA	2.6190	0.7749	2.67	3	4	0
CUMLGPA	2.5551	0.5686	2.45	4	4	1.51

Table 1, continued

COMBINED DATA						
GRADE	1.9013	1.3895	2	2	4	0
GENDER	0.4737	0.0287	0	0	1	0
AGE	23.5362	2.8699	23	22	37	20
CRSLD	7.7270	3.5998	6	6	15	3
#WDS	5.8355	4.9184	5	3	29	0
#ATTS	0.7895	1.5205	0	0	20	0
ACTCOMP	20.8059	3.0977	21	20	30	14
ACTENG	21.3125	4.0038	21	20	34	8
ACTMATH	20.4046	3.6475	20	19	34	13
ACTREAD	21.5625	4.7522	21	22	35	11
SEMGPA	2.4827	0.8659	2.50	3	4	0
CUMLGPA	2.5159	0.5617	2.47	4	4	1.24
WWW/FTF	0.4211	0.4945	0	0	1	0

Table 2: Regression Results of Predictors of Success: Online versus Traditional Presentation of Quantitative Subject Matter

variables	FINC 302 WWW	FINC 302 FTF	COMBINED
CONSTANT	0.3376 (0.2353)	-0.6168 (-1.5126)	1.2899 (1.3216)
GENDER	-0.1952 (-0.8082)	0.0818 (0.4814)	-0.1134 (-0.7161)
AGE	-0.0102 (-0.2532)	0.0525 (1.5660)	0.0017 (0.0575)
CRSLD	-0.0472 (-1.4968)	0.0391 (1.5759)	-0.0173 (-0.7793)
#WDS	-0.0228 (-0.8274)	-0.0637 (-2.9052)**	-0.0013 (-0.0708)
#ATTS	-0.0569 (-0.9974)	0.2343 (2.2275)**	0.0010 (0.0183)
ACTCOMP	-0.1748 (-1.0573)	-0.1043 (-1.0137)	-0.1014 (-1.0311)
ACTENG	0.0586 (0.9697)	0.0093 (0.2366)	0.0154 (0.4150)
ACTMATH	0.1234 (1.9446)*	0.0496 (1.1495)	0.0396 (0.9859)
ACTREAD	0.0405 (0.6671)	0.0204 (0.5126)	0.0496 (1.3252)
SEMGPA	0.3850 (2.7441)**	0.3727 (2.3071)**	0.1119 (0.9416)
CUMLGPA	-0.0005 (-0.7375)	0.8141 (3.2402)**	0.3132 (1.4779)
WWW/FTF	----------	----------	-0.9350 (-5.9077)**
R2	0.2077	0.3466	0.1373
F	2.7641**	7.9096**	5.0182**
N	128	176	304

Note: t-statistics are in parentheses.

*denotes significance at 10%

**denotes significance at 5%