

# THE EFFECT OF TRANSFER CREDIT HOURS ON THE STUDENT LEARNING OUTCOMES

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## **ABSTRACT**

*Assessing student learning outcomes of business students is an important function of business programs. Previous research identified GPA, SAT or ACT scores, sex, age, and major as impact variables on the MFT-B performance. This research extends the existing research by analyzing the effect of transfer credit hours on the MFT-B performance. This research finds that more credit hours transferred from other colleges reduces the MFT-B scores. Students transfer from two-year colleges to four-year institutions, transfer across colleges in the same sector, and sometimes transfer from four-year colleges to two-year schools. Since majority of students in the study earned transferred credits from two-year institutions, the university needs to adopt proper transfer policy to ensure quality of higher education and continuous improvement of business programs. This study suggests a possible remedy and change to prevailing 2+2 or 2-to-4 articulation policy to ensure learning outcomes of transfer students.*

## **INTRODUCTION**

Assessing student learning outcomes of business students has become an important function of business colleges and programs, since most business accrediting agencies require member institutions to develop assessment of learning outcomes. For example, the Association to Advance Collegiate Schools of Business International (AACSB International) requires accredited member schools to maintain faculty-driven assurance of learning (AOL) programs. As a tool for assessing student learning outcomes, increasing numbers of business schools have recently adopted Major Field Test in Business (MFT-B).

Since most business accrediting agencies have made the assessment of student learning a requirement for member institutions, business schools and programs have made the measurement of student learning an important function of the educational process. For example, the Association to Advance Collegiate Schools of Business International (AACSB International) requires accredited member schools to maintain faculty-driven assurance of learning (AOL) programs. To fulfill this requirement, many business schools are adopting the Major Field Test in Business (MFT-B) as a tool to assess learning outcomes for various business disciplines.

The MFT-B was developed by the Educational Testing Service (ETS) located in Princeton, NJ and contains 120 multiple-choice questions. The questions are designed to measure a student's knowledge and ability to apply theories, concepts, facts, and analytical methods (cite). The MFT-B covers fields of accounting and management (18 questions each); economics, finance, and marketing (16 questions each); quantitative business analysis (13 questions); legal and social environment, information systems, and international issues (12 questions each). Use of the MFT-B meets the criteria for many accrediting agencies and business programs even though some researchers have pointed out flaws with its use for assurance of learning assessment (Allen & Bycio, 1997; Bielinska-Kwapisz et al., 2012; Bush et al., 2008). Even so, since more than 650 colleges and universities employ the MFT-B, it is believed to provide the best national comparative data for comparisons across institutions and through time.

Faculty and administrators focus on finding determinants of student performance on MFT-B scores. Bielinsky-Kwapisz et al. (2012) summarized the results from 17 studies and identified common factors that affect student performance: GPA, SAT or ACT scores, gender, age, major, and incentive for performance. This study intends to make additional contributions to the existing research by adding transfer credit hours from other institutions.

**DATA AND PROCEDURE**

The data for this study were collected from a small, rural private institution located in the southeast. The university’s business program enrolls about 500 undergraduate business students in seven business majors. The program has been accredited since the late 1990s by the AACSB International. The program administers the MFT-B for the Bachelor’s Degree to assess student learning outcomes. The institution encourages, but does not require, senior students to take the MFT-B in a senior capstone course. The exam is administered twice during the academic year, once in November and then again in March. The data for this study covers the period from November 2008 to March 2010. After dropping missing or omitted cases, researchers identified the final sample size to be 157. Whenever it is necessary, the reported MFT scaled score and total ACT (ACT-T) will be converted to the standard normal scores which represent the difference from the mean score in terms of standard deviation. For example, a MFT score of 167 turns into +1 if the mean of the MFT is 60 and the standard deviation of the MFT is 7. The normalized MFT scores let us avoid disclosing institution-specific data on test scores and student characteristics. Correlation coefficients and regression coefficients are not affected by the normalization of the MFT.

Independent variables for the ordinary least squares (OLS) regression model include age at the time of test, gender, major, overall GPA, transfer credit hours from other institutions, and combined ACT score (ACT-T). The average age of students was 22.9 years old. Gender was 1 if the subject was a female student and 0 if a male student. Approximately 46% of the observations in this study were female students whereas the remaining 54% were male students (see Table 1).

Table 1  
Descriptive Statistics

Variable	Mean	Standard Deviation
MFT-B*	0	1
Age	22.88	1.31
Gender	0.46	0.50
Major	0.22	0.41
GPA	2.90	0.35
Transfer	4.82	0.35
ACT-T*	0	1

Note: N=157. \* indicates that variables are normalized to avoid disclosing institution-specific information.

The major is one (1) if the student was majoring in accounting, economics, or finance and zero (0) if the student was majoring in business administration, marketing, or management related areas. Prior research showed that students in business administration, marketing, and management majors tend to perform at lower levels on the MFT scores than do accounting, economics and finance majors (Contreras & Badua, 2011; Mason et al., 2011; Pritchard et al., 2006; Settlege and Settlege, 2011). Moreover, previous research has acknowledged the role that majors within the business schools play in performance on the MFT-B. About 22% of students are accounting,

economics, and finance majors and the remaining 78% are business administration, marketing, and management related majors. Students' SAT scores are converted to ACT scores using the SAT-ACT conversion chart. Initially, ACT/SAT verbal and mathematics scores were considered as separate independent variables, were dropped due to multicollinearity between the verbal/math and total scores. Total ACT scores turned out to be much higher in correlation with the dependent variable than did verbal or math ACT scores.

Among overall GPA, business core GPA, and major field GPA, the overall GPA was used for the analysis due to the highest relationship with the MFT-B score. It is worth noting that the university, in this study, allowed grade forgiveness: Students may retake a course when the course grade is D or lower, and only the grade most recently earned counts toward the cumulative GPA. In addition, the institution's business students were required to (a) earn a grade of C or better in all business and economics courses and (b) maintain a minimum 2.00 GPA (4.00-scale) for graduation. Similar to other universities, the transfer credit is not included in the overall GPA calculation. The average GPA at the time of graduation was 2.90 with the standard deviation 0.35.

All of the independent variables with the exception of transfer credit hours have been extensively discussed and evaluated by many researchers. Transfer credit hours were employed in this study to assess whether the student learning outcomes from other institutions were comparable to the ones for the focal institution. More than 95% percent of students who took at least one course from other institutions actually transferred course(s) from two-year community colleges. Students are seeing the benefits of taking lower level courses and prerequisites and elective courses at community colleges as opposed to a four-year institution. Community colleges cost quite a bit less, and they tend to have some perks that four-year schools do not have: smaller classrooms, personal student services, and less challenging courses. We wanted to ensure that community college classes matched up well with the focal-university classes and that student learning outcomes were comparable.

**RESULTS**

The correlation coefficients among variables used in the analysis are noted in Table 2. Noticeably, ACT-T scores showed the highest correlation coefficient with the MFT-B (r=0.32). In addition, GPA and Major had strong and positive relationships with the MFT-B, while increasing transfer credit hours from other colleges had negative effect on the test score. The influence of ACT-T, GPA, and Major on exit exam scores was consistent in most previous research (Bycio and Allen, 2007; Marshall (2007; Mason et al., 2011). However, age and gender did not exhibit any explanatory power on the MFT-B scores in the sample for this study.

Table 2  
Correlation coefficient of variables

	MFT-B	Age	Gender	Major	GPA	Transfer	ACT-T
MFT-B	1						
Age	-0.0044	1					
Gender	0.0789	-0.0991	1				
Major	0.2177	0.0010	0.0708	1			
GPA	0.3039	-0.3735	0.2851	0.2359	1		
Transfer	-0.1908	-0.0482	-0.1731	-0.0681	-0.0414	1	
ACT-T	0.3244	-0.1181	0.0875	0.0150	0.2599	-0.0413	1

In order to further test the effect of independent variables on test performance, we propose the specification of the MFT-B model such that:

$$Y = X'\beta + \varepsilon$$

Where, Y is the dependent variable (MFT scores) and X is the vector of MFT score contributing factors.  $\beta$  is the vector of coefficients to be estimated and the term  $\varepsilon$  is a random disturbance.

We performed several estimation models to find the best specification OLS model. The final OLS regression results are located in Table 3. Overall, the model explained approximately 22% of the variation in MFT-B scores. Consistent with the existing studies, overall GPA and ACT-T are significant at the  $p < 0.01$  level, accounting for a large portion of the variation in MFT-B scores. Regarding GPA, a 0.2 increase in overall GPA is expected to increase the MFT-B by 1.1 point. The effect of gender and age on the MFT-B, however, is not justified at  $p < 0.05$  in this study and the result is in line with existing research (e.g., Bielinsky-Kwapisz et al., 2012).

Table 3  
Standardized OLS Regression Results on MFT-B

Variable	Coefficient	SE	p
Intercept*	-	-	0.0024
Age	0.6308	0.4625	0.1747
Gender	-0.6551	1.1839	0.5809
Major	2.7929	1.4070	0.0490
GPA	5.5112	1.9214	0.0047
Transfer	-0.1430	0.0648	0.0289
ACT-T	0.6814	0.1894	0.0004

Note:  $R^2 = 0.22$ ,  $N = 157$ . \*The intercept term is not shown to avoid disclosing institution-specific information.

The positive and large coefficient on major indicates that being in an accounting, economics, or finance (AEF) major would be associated with better performance on the MFT-B. The OLS regression predicts that being in AEF major results in 2.8 points higher on the MFT-B than other majors. Actually, simple comparison of the MFT-B scores indicates that AEF students record 4.1 points higher than other business majors. It is a possibility that the difference by major affiliation is ultimately caused by student-specific qualities or academic preparedness. Actually, AEF students maintain a 0.6% edge in ACT-T scores over other majors, but, this does not explain more than 3% difference on MFT-B. There is a possibility that students in some majors are better accustomed to test taking, information retention, analysis, and computation than those of other majors (Contreras and Badua, 2011).

The negative and significant coefficient on transfer ( $p < 0.03$ ) represents that more credit hours transferred from other colleges reduces the MFT-B scores. Additional seven (7) credit hours (roughly two 3-credit hour courses) transferred into the university toward graduation will cause one (1) scaled point decrease in the MFT-B score. This is a disappointing outcome to two-year colleges and students. The majority of transfer credit hours in the sample were earned from two-year community colleges and with an AS or AA degree. Students may transfer more than 60 credit hours toward a BS degree in Business. When 60 credit hours are transferred in for a BS degree, the model predicts that the assurance of learning (AOL) of two-year transfer students in terms of MFT-B is 8.6 points lower than that of the focal-university students. For the last twenty to thirty years, many states demanded higher education systems to fix the problems that keep students from making an orderly, and efficient, transition from two-year colleges to four-year systems. More than 30 states today have legislation providing streamlined transfer of credits

from two-year colleges to four-year institutions. Many students have benefited from the so-called 2+2 or two-to-four-year system. The underlined assumptions of streamlined transfer of credits are that two-year college classes match up with those of four-year universities in course description and student learning outcomes. Matching course description is not an issue. However, verifying student learning outcomes is a challenging task and research on this issue is rare.

To avoid any misinterpretation of the data on transfer credit, we compared two student groups in Table 4. Table 4 shows that students with transfer credit hours have higher ACT-T scores (+0.22 in raw score) and higher GPAs (+0.03) than focal-university students. The two groups of students represent no significant difference in age, gender composition, and major. If we consider ACT-T as the indicator of student intellectual ability or university preparedness, transfer students have the slight edge in ability or preparedness in this sample. Faculty advisors agree that large numbers of students do poorly their first two years in college and their GPAs do not recover. Transfer students take benefit of community college courses since transfer courses are not included in the GPA calculation and thus, their GPA is comparable to focal students. A close look at Table 4 reveals that under-performance of transfer students on MFT-B cannot be explained in the model. It may be due to influence of unknown factors such as generous grading policies, non-comparable learning outcomes, political influence, or a combination of all of these.

Faculty advisors at four-year institutions recently observed that demand for summer courses at two-year colleges by focal students has been increasing since the financial crises in 2008. Due to state budget cuts and limited financial aid, the tuition gap between two-year colleges and four-year institutions has widened. Thus, taking community college courses during summer is a good idea for reducing tuition and room and board expenses.

Students transfer between colleges for a number of reasons. Some change majors and move to a school that better suits their new path. Others start at a two-year college before transferring to finish their degree at a four-year college or university. As long as student learning outcomes are comparable between the old institution and new university, transfer credits are not a concern.

Table 4  
Students with transfer credit hours vs. focal-university students

	Students with transfer credit hours	Focal-university students	Difference (raw data)
N	71	89	
MFT-B score (avg. standard score)	-0.082*	0.065*	-1.15
Age	22.89	22.88	+0.01
Gender	0.49	0.44	+0.05
Major	0.17	0.25	-0.08
GPA	2.91	2.88	+0.03
Transfer	10.87	0	+10.87
ACT-T	0.040*	-0.032*	+0.22

Note: \* indicates that variables are normalized.

**DISCUSSION**

Assurance of learning (AOL) is a critical component of achieving the mission of the business programs. Many colleges and universities administer the MFT-B to measure student learning outcomes upon completion of the curriculum by students. Researchers have explored the effects of student characteristics on student testing performance. Previous research identified GPA, SAT

or ACT scores, sex, age, and major as impact variables on the MFT-B performance. This research extends the existing research by analyzing the effect of transfer credit hours on the MFT-B performance. In line with existing research, past and current student performance variables such as SAT/ACT scores and GPA are strong and significant variables in determining the MFT score. A possible new contribution of this research is to evaluate the effect of transfer credit on the MFT-B scores.

Students transfer from two-year colleges to four-year institutions, transfer across colleges in the same sector, and sometimes transfer from four-year colleges to two-year schools. By the same token, students transfer credit hours earned from other institutions to new institution to get waive on required course work. Basically, accredited business programs accept credit earned from the same accredited institutions to maintain rigor and learning outcomes on content. Higher education accreditation consists of two separate accreditations: institution-wide regional accreditation and discipline-specific accreditation. Almost all higher institutions maintain regional accreditation. However, two-year colleges usually are not affiliated with AACSB, ACBSP, or IACBE, which are three business school accrediting agencies.

States governments appear to approach transfer credit issues without considering AOL. States' interest is to save money from transfer policy because fewer tuition subsidy dollars are spent on students who can efficiently transfer between colleges without losing time and credits. States can help students successfully earn degrees by implementing transfer and articulation policies that prevent loss of already earned credits and valuable time. By the end of 2012, twenty-three states have laws regarding 2 plus 2 degree transfers, while another 23 states authorize 2 plus 2 transfer through state policies or institutional agreements (Brenda Bautsch, 2013). According to the National Center for Education Statistics (NCES), in 2005 nearly 60% of college graduates in the United States who completed undergraduate degrees had attended two or more institutions prior to graduation. This study suggests that proper transfer policy ensures quality of higher education and continuous improvement of business programs.

## **DISCUSSION**

A growing number of students who aspire to earn a bachelor's degree take courses at two-year community colleges. Their motives vary: tuition costs; family responsibilities; college fit; less-demanding course loads; or the availability of online courses. The research stemming from this study points out a possible remedy and change to prevailing 2+2 or 2-to-4 articulation policy to ensure AOL of transfer students. The College-Level Examination Program (CLEP) might be a good alternative to resolve the transfer credit issues. CLEP has been the most widely trusted credit-by-examination program accepted by most colleges and universities. Regarding business programs, CLEP administers seven business core examinations in economics (macroeconomics and microeconomics), accounting, information systems, business law, management, and marketing. However, students may see the exam as an additional burden and cost. Developing a comprehensive final testbank among cooperating institutions may provide a low cost option for students. Finally, offering joint online courses or distance learning courses will resolve the AOL issues.

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