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ABSTRACT

This two-year study involving five colleges and universities compared the academic achievement, as measured by the Educational Testing Service (ETS) Major Field Achievement Test (MFAT) in Business of students in traditional undergraduate programs and those in non-traditional accelerated adult degree programs. The study also compared the subjects' test results with national norms and analyzed the relationship of the MFAT and grades in traditional and non-traditional business programs. In Phase 1, 122 traditional undergraduate students and 209 non-traditional students took the pre-assessment ETS MFAT and 81 students completed the post-assessment MFAT. Undergraduate non-traditional students averaged slightly higher on the ETS MFAT pre-assessment than did traditional undergraduate students. During Phase 2, 173 of the students who took the ETS test originally re-took it after completing their major courses. This study compared matched pairs of traditional/non-traditional students and also found that non-traditional students scored higher on the post-assessment than did traditional students. Results indicate that students in non-traditional accelerated business programs score as well, if not better, than traditional students in business programs at the same institutions. (Contains 19 references.) (DB)

Non-traditional vs. Traditional Academic Delivery Systems: Comparing ETS Scores for Undergraduate Students in Business Programs, 1996-1999

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Dolores Vura
Editor
Air Forum Publications

Non-traditional vs. Traditional Academic Delivery Systems: Comparing ETS Scores for Undergraduate Students in Business Programs, 1996-1999

Abstract

Six different colleges and universities from across the United States participated in a two-year assessment research project, comprised of two Phases, comparing the academic achievement of students in similar traditional and non-traditional undergraduate programs in Business. The main goals of the research project were to a) compare and contrast the academic achievement in traditional and non-traditional Business programs through pre- and post-assessment by using the Educational Testing Service (ETS) Major Field Achievement Test (MFAT) in Business, b) compare the data with national norms, and c) analyze the relationship of the MFAT and grades in traditional and non-traditional Business programs.

Non-traditional vs. Traditional Academic Delivery Systems: Comparing ETS Scores for Undergraduate Students in Business Programs, 1996-1999

Introduction

The higher educational community is currently engaged in a dichotomy of two major trends, one centered on the increased emphasis on traditional beliefs in assessment (modes of instruction) and the second is a growing number of non-traditional programs for career-oriented adults. Traditional accrediting bodies are mandating assessment as an integral component of the accreditation process. Regional accreditation associations typically focus on establishing assessment guidelines for determining student academic achievement and institutional effectiveness of traditional curricula and delivery systems. However, non-traditional programs and delivery systems are unique and do not always fit into typical assessment models. While traditional regional accrediting bodies are focusing on assessment, more and more institutions are offering non-traditional programs that include distinctive delivery systems. Correspondingly, non-traditional adult degree programs are being developed at an accelerated rate. Enrollment in these non-traditional programs increases at a steady rate, due mainly to the major shift in the college clientele. Today, the majority of college students attends school part-time or in the evening, is employed full-time, and/or commutes to campus. They are a diverse group of students that spend less time on campus.

This rapid growth of adult degree programs has raised questions in some areas of academe concerning the effectiveness of non-traditional programs compared to the more traditional delivery systems. This research project is designed to address these two entities by completing a two-year assessment study of student academic achievement for both non-traditional and traditional Business programs. "Non-traditional programs," for the purposes of this paper. are defined as degree

programs for the working adult student returning to college. These programs have accelerated delivery systems, curriculum, and pedagogy designed for the working adult student returning to school to complete his/her degree. They are typically scheduled for evenings or weekends, and students focus on one course at a time, completing it, then proceeding to the next in a cohort model.

Nature of Research Questions

While every institution of higher education needs clear and publicly stated purposes, consistent with their mission, there is a growing demand for institutions to verify the accomplishments of their education and other purposes, e.g. assessment or institutional effectiveness (Commission on Institutions of Higher Education, 1995). This requires an institution to provide evidence of its effectiveness in accomplishing its institutional purposes, specifically student academic achievement, student development, program quality, and institutional climate.

In order to address this concern, twelve colleges and universities associated with the Consortium for the Advancement of Adults in Higher Education (CAAHE) with similar curriculum in non-traditional and/or traditional Business programs agreed to conduct a joint assessment project to compare and contrast the student academic achievement in their respective programs and traditional Business programs. The intent of the study was to compare outcomes of non-traditional and traditional delivery systems, curriculum, and student academic achievement.

Representatives (faculty and staff) from these institutions reviewed the outcomes of their respective programs to determine if the ETS Major Field Achievement Test in Business matched the program outcomes. After a careful analysis, six of the schools determined they offered traditional or non-traditional Business programs with academic outcomes related directly to the ETS MFAT.

Purpose of Study

The central points of this research were to develop an assessment project for non-traditional

Business programs that addresses the guidelines of traditional regional accrediting bodies while comparing and contrasting the academic achievement of non-traditional and traditional students in the two diverse delivery systems. The three main goals of the research project were to a) compare and contrast the academic achievement in traditional and non-traditional undergraduate Business programs at a select set of colleges and universities through pre- and post-assessment by using the Educational Testing Service (ETS) Major Field Achievement Test (MFAT) in Business; b) compare the ETS results from the students involved in the research project with national norms for the standardized, norm-referenced test, and c) analyze the relationship of the MFAT and grades in traditional and non-traditional Business programs.

The hypotheses are: 1) there is no significant difference between post-test scores of traditional vs. non-traditional students completing the ETS MFAT; 2) there is no significant difference between pre- and post-scores of traditional vs. non-traditional students; 3) there is no significant difference between the mean scores of traditional and non-traditional students compared to the national mean of the ETS MFAT; and 4) there is no significant correlation between the pre- and post-test scores and the grade point averages corresponding to the time the test was taken. In each case a .05 significance level was used.

Project Development

Representatives from the Consortium for the Advancement of Adults in Higher Education (CAAHE), with support from the Institute for Professional Development (IPD), initiated and developed the research questions and research project outline. Representatives from the eleven CAAHE institutions met during August 1995 in Chicago, IL to develop the assessment process and research project.

Data analysis was to include comparisons of test results between the two groups of students,

and national norms, as established by ETS. The research group selected the ETS MFAT because of its validity and reliability, as well as its national reputation in academe as a norm-referenced test. A statistical comparison was used to compare the aggregate academic achievement of both sets of students. The grade point averages of students was collected to determine their effect on the test results.

Assessment Philosophy

After the goals and objectives of the research project were defined, the research group examined both summative and formative assessment instruments in the initial stages of development. After careful analysis, the research group selected the ETS MFAT, a summative evaluation instrument that is norm-referenced. The research group also established guidelines to monitor the quantity of data accumulated. The group developed measures and guidelines to ensure the validity of data collection and that all students take the tests seriously. In addition, the coordination between the schools, traditional and non-traditional programs, staff, and students presented various challenges. The distance between all of the schools and programs, communication, and coordination of standardized procedures magnified these concerns.

Limitations

In order to address the concerns of academic integrity and validity, the research group opted to use the ETS Major Field Achievement Test in Business. The cost of the test limited somewhat participation, but a grant from the Institute for Professional Development assisted participating schools. In addition, participants wanted to ensure compatibility of the assessment instruments with the outcomes of the different programs and specific courses. All of the institutions utilized the personnel at their respective institutions to ensure that the test measured the designated outcomes of the Business majors and specific courses. The plans for the research project were finalized at a

meeting in Phoenix during June 1996.

However, because this research project extended beyond two years, personnel at many of the institutions changed, thereby interrupting some of the flow of information. Schools administered the test in varying fashions, e.g. part of specific courses, volunteers, graduations requirement, thereby creating an inconsistent environment for student participation. In addition, a number of students did not successfully complete their academic majors, withdrew, or transferred to another institution. Therefore, a total of 173 out of 333 (51.9%) completed both the pre- and post-assessment instruments.

Procedures: Data Collection

The research project consisted of two main phases, the first phase implemented in 1996-1997 and the second in 1998-1999. Throughout the 1996-1997 academic year, six CAAHE schools administered the ETS Major Field Achievement Test as a pre-assessment instrument to both traditional and non-traditional undergraduate students in similar undergraduate Business programs. In addition, several schools actively use the ETS Major Field Achievement Test as part of their regular assessment programs, so the schools administered the test as a post-assessment to a sampling of the students. However, it must be noted that the scores of students completing the post-assessment test in 1996-1997 were only included in Phase I of the research project, did not complete the test as a pre-assessment, and thus are not matched-pair set of records.

The second phase of the research project focused on the test results of matched-pairs of students, e.g. the same students completing both the ETS MFAT as both pre- and post-assessment. Individual schools were responsible for administration of the tests. Participating schools administered the ETS MFAT in 1998-1999 as a post-assessment instrument to as many students as possible that completed the same test as a pre-assessment in 1996-1997. The test results of these

matched-pair of students proved to be one of the focal points of the research. In addition, the grade point averages of these students prior to entry and upon completion of their respective programs were included in the assessment research.

Test Results from Phase I

In Phase I of the research project, 122 traditional undergraduate students and 209 non-traditional students participated in the pre-assessment component of the research project. For each of the schools participating in the research, Table 1 lists the number of traditional and non-traditional undergraduate students completing either the pre-assessment or post-assessment, along with the average ETS raw score and standard deviation for the group. Because School A did not have any students participate in the pre-assessment, it would not be included in Phase II of the project, so the total number of schools decreased from six to five.

Table 1: Summary of Phase I Results

Pre-assessment: Traditional Students

	School A	School B	School C	School D	School E	School F
AVG	NA	141.4	136.8	144.2	145.5	NA
STD	NA	12.2	8.4	10.6	10.9	NA
N	NA	29	34	33	28	NA

Pre-assessment: Non-traditional Students

	School A	School B	School C	School D	School E	School F
AVG	146.5	148.4	145.1	138.9	146.9	NA
STD	11	7.8	12.4	8.4	10.4	NA
N	46	55	44	12	52	NA

Post-Assessment

	Traditional Students		Non-traditional Students	
	School D	School F	School E	School F
AVG	151.2	154.5	162.1	152.5
STD	14.4	14.6	6.9	15.4
N	14	28	19	20

Tables 2 to 4 list the overall results for all of the undergraduate students participating in the

research project. As noted in Table 2, a total of 333 traditional and non-traditional students completed the pre-assessment ETS Major Field Test (MFAT) with a 144.7 average and 10.8 standard deviation. Eighty-one traditional and non-traditional undergraduate students completed the post-assessment MFAT with a 155.2 average, and a standard deviation of 13.7. This compares to a national mean of 155.6, with a standard deviation of 13.8. The MFAT is used only as a post-assessment instrument, therefore there are no national comparison data for the pre-assessment component.

Table 2: Totals for both Traditional and Non-traditiona Students

	Pre-assessment ETS MFAT	Post-assessment ETS MFAT	National Mean
AVG	144.7	155.2	155.6
STD	10.8	13.7	13.8
N	333	81	44,686

Table 3 lists the data for traditional students completing the MFAT as both post-assessment and pre-assessment. Table 4 lists the same data for non-traditional students. Non-traditional undergraduate students participating in the research project achieved a slightly higher average on the MFAT than the traditional students (146.3 vs. 142.0) did as part of the pre-assessment testing. The standard deviation for each group was 10.4 and 11.0 respectively, which is lower than the national mean of 13.8. Non-traditional students also scored higher than both traditional students and the national mean on the ETS post-assessment (157.2 vs 153.4 and 155.6). This same trend will be evident in Phase II of the research project.

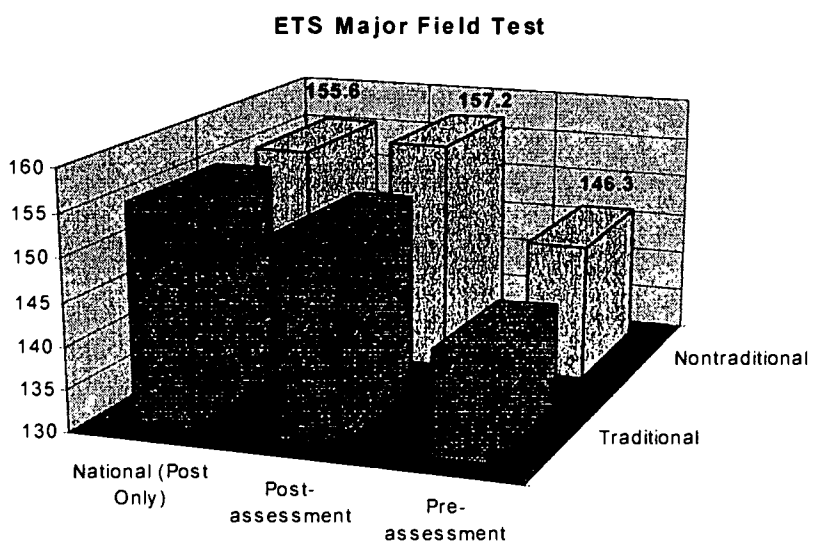
Table 3: ETS Data for Traditional Students

	Pre-assessment	Post-assessment	National Mean (post only)
Mean	142.0	153.4	155.6
STD	11.0	14.4	13.8
N	124	42	44,686

Table 4: ETS Data for Non-traditional Students

	Pre-assessment	Post-assessment	National Mean (post only)
Mean	146.3	157.2	155.6
STD	10.4	12.9	13.8
N	209	39	44,686

Chart 1: ETS Test Results of Traditional vs Non-traditional Students in Phase I (1996-97)



Demographic Data

Because of a focused attention on academic assessment, only a limited amount of basic demographic data were collected on students in the research project. An attempt was made to collect retention data, but because of the change of personnel at participating schools, a number of students did not complete the post-assessment test or were not tracked for a variety of reasons. Therefore, these numbers did not prove useful to the study. Of the 413 students involved in the

study 218 were male and 195 were female. One hundred. seventy-three students completed both the pre- and post-assessment tests and 105 students (60.7%) of these students were male, while 68 (39.3%) were female.

Conclusions from Phase I

During Phase I of the study, 124 traditional students and 209 non-traditional undergraduate students completed the ETS MFAT as part of the pre-assessment. These same undergraduate students were selected to complete the MFAT after completion of the courses in their major.

During Phase I, non-traditional students in the research project averaged slightly higher on the ETS MFAT pre-assessment (146.3) than traditional undergraduate students (142.0). Using a sample group of students as a pilot for the post-assessment, undergraduate non-traditional students also averaged slightly higher on the ETS MFAT post-assessment (157.2) than traditional undergraduate students (153.4). The national mean is 155.6 for 1995-1996.

Conclusions from Phase II

Phase II of the research project extended into 1998-99 with 173/333 or 51.9% of the students taking the pre-assessment test in 1996-1997 completing the same post-assessment test. During Phase II, the research focused on matched-pairs of data, totals, and select group of subtotals.

Table 5: Data for All Matched-Pair Students Involved in Assessment Project

	Matched-Pair Trad'l Students N	Matched-Pair Non-Trad'l Students N	Matched-Pair N	Matched-Pair Pre-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Post-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Pre-GPA	Total Population N	Total Population Post-GPA
School A	0	34	34	146.1	11.4	34	155.2	12.4	34	3.07	34	3.35
School B	12	46	58	146.3	9.3	58	155.4	12.8	58	2.89	57	3.49
School C	0	11	11	144.5	10.6	11	148.5	8.5	NA	NA	NA	NA
School D	10	0	10	142.6	11.2	10	156.4	13.0	NA	NA	NA	NA
School E	24	36	60	143.3	10.8	60	155.2	11.4	58	2.89	60	3.56
Totals	46	127	173	145.0	10.4	173	155.4	12.0	150	2.92	151	3.49

Table 6: Data for Matched-Pair, Traditional Students Involved in Assessment Project

	Trad'l Students N	Non-Trad'l Students N	Matched-Pair N	Matched-Pair Pre-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Post-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Pre-GPA	Total Population N	Total Population Post-GPA
School A	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
School B	12	0	12	141.5	8.8	12	147.8	8.5	12	3.03	12	3.13
School C	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
School D	10	0	10	142.6	11.2	10	156.4	13.0	NA	NA	NA	NA
School E	24	0	24	143.1	9.8	24	149.0	11.3	23	2.66	24	3.47
Totals	46	0	46	141.8	9.8	46	150.1	11.4	35	2.79	36	3.35

Table 7: Data for Matched-Pair, Non-Traditional Students Involved in Assessment Project

	Trad'l Students N	Non-Trad'l Students N	Matched-Pair N	Matched-Pair Pre-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Post-ETS	Matched-Pair STD	Matched-Pair N	Matched-Pair Pre-GPA	Total Population N	Total Population Post-GPA
School A	0	34	34	146.1	11.4	34	155.2	12.4	34	3.07	34	3.35
School B	0	46	46	147.9	8.3	46	157.1	12.5	46	2.85	45	3.51
School C	0	11	11	144.5	10.6	11	148.5	8.3	NA	NA	NA	NA
School D	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
School E	0	36	36	143.4	11.5	36	159.3	9.6	35	2.99	36	3.63
Totals	0	127	127	146.1	10.3	127	157.3	11.7	115	2.88	115	3.47

Table 6 and 7 are directly related to the research hypotheses. These tables depict the information for matched-pairs of students, separating traditional and non-traditional students. Table 6 indicates that 46 traditional students from three different institutions completed both the ETS MFAT test for both the pre-assessment and post-assessment. The mean ETS score increased from 141.8 (9.8 STD) to 150.1 (11.4 STD) for the post-assessment results. Table 7 indicates that 127 non-traditional students from four different institutions scored an average of 146.1 (10.4 STD) on the ETS MFAT for the pre-assessment and 157.3 (11.7 STD) on the post-assessment. Therefore, non-traditional students tended to score higher on the ETS pre-assessment than traditional students (146.1 vs 141.8). Matched-pairs of non-traditional students also scored higher than traditional students on the ETS post-assessment (157.3 vs 150.1). The mean of the total group of non-traditional students increased their scores by 11.2 points while the mean of the total group of traditional students increased by 8.3 points.

Chart 2 provides a graphic depiction of a comparison of the matched-pair set of traditional and non-traditional undergraduate students completing the ETS MFAT as both the pre-assessment and post-assessment.

Chart 2: Pre- and Post-ETS Scores for Traditional vs Nontraditional Students

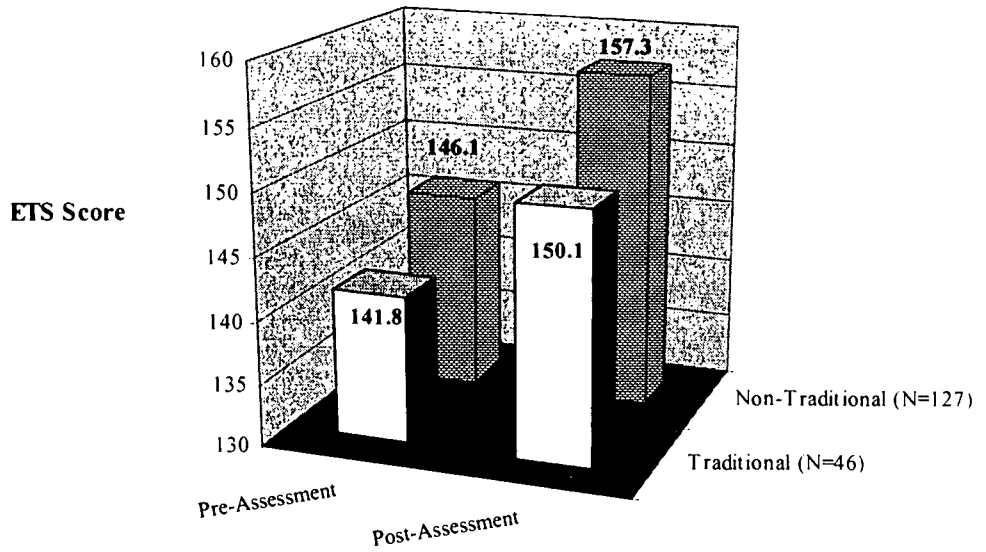


Table 8: Comparison Data for Matched-Pair, Traditional and Non-traditional Students, of Total Group

Data	Traditional Students	Non-traditional Students	National Mean: 1996
Pre-ETS			
N	46	127	44,686
STD	9.8	10.4	13.8
Score	141.8	144.5	155.6

Data	Traditional Students	Non-traditional Students	National Mean: 1998
Post-ETS			
N	46	127.0	10,830
STD	11.4	11.7	13.8
Score	150.1	154.7	154.8

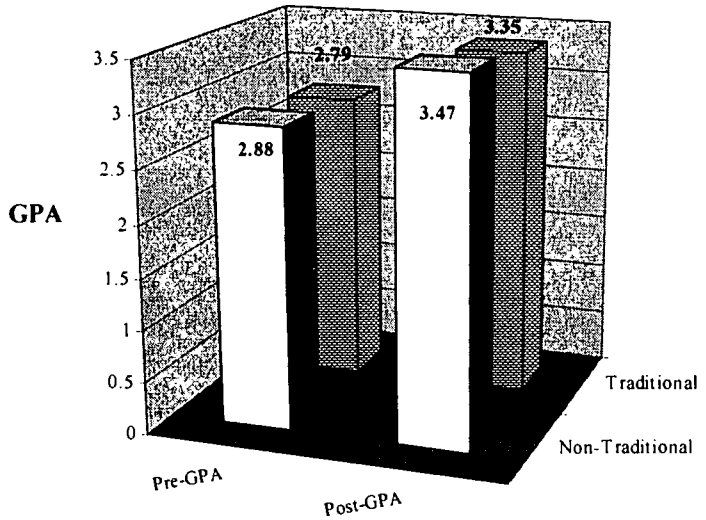
Pre-GPA		
N	35	115
GPA	2.79	2.88

Post-GPA		
N	36	115
GPA	3.35	3.47

Table 9 attempts to summarize all of the data for the entire research project. As noted in the table, whether using matched-pairs or total populations, non-traditional students scored higher on

both the ETS pre-assessment and post-assessment than traditional students. Moreover, as a group, both as matched-pair and total populations, non-traditional students scored higher than traditional students and the associated national mean. There are many possible reasons for these results, including the processes for administering the assessment instruments. Institutions typically made the ETS MFAT test part of an introductory or senior seminar/capstone course for non-traditional students. While several institutions did not follow the same format with traditional students, instead opting to have traditional students volunteer to take the assessment. Therefore, these students may

Chart 3: Pre- and Post-GPA for Traditional vs Nontraditional Students



not have taken the test as seriously as non-traditional students.

Experts typically do not consider grade point averages a formal measure of assessment. Therefore, these ordinal data were collected to check the validity of the study and provide another avenue of research not detailed assessment. Chart 3 provides an overview of the changes in GPA for both traditional and non-traditional students.

Nevertheless, the data indicate that students in non-traditional accelerated Business programs score as well, if not better than, traditional students in Business programs at the same institutions and across the nation as compared to the mean ETS scores. Moreover, when comparing

matched-pairs of students, the total population of non-traditional students increased its grade point average by .59 (2.88 to 3.47) as compared to .46 (2.79 to 3.35) for traditional students from entry into the undergraduate program to completion.

Report and Conclusions Regarding the ETS/MFAT

1) Hypothesis: there is no significant difference between post-test scores of traditional vs. non-traditional students.

This hypothesis is rejected. Comparing post-test scores of these groups of students resulted in a mean difference of 7.17 ($t = 3.581$, $p = .000$). In other words, non-traditional students scored significantly higher than traditional students did on this test. The variances of the scores of the two groups are not significantly difference ($F = .002$, $p = .960$).

This finding is consistent between schools for which complete data are available. The significantly higher scores of non-traditional students on this test is encouraging for those who encourage newer, innovative academic programs, and must address the concerns of quality of more traditionally minded practitioners.

2) Hypothesis: there is no significant difference between pre- and post-scores.

This hypothesis is rejected. Comparing matched pairs of pre- and post-test scores show a significant increase in scores for all students ($t = 12.98$; $p = .000$). This finding is robust when the results are disaggregated to compare pre- and post-test scores for traditional vs. non-traditional students sorted by college. In other words, traditional and non-traditional students in all colleges in the study demonstrated significantly higher scores on the post-test than on the pre-test.

This finding supports the value-added for all students in Business programs at these colleges. Students in traditional programs are not likely to learn significantly more than non-traditional students are, according to the ETS assessments.

3) There is no significant difference between the mean scores of traditional and non-traditional students compared to the national mean.

This hypothesis is not rejected. Comparing the mean scores of all students in this study to the national mean for this test shows no significant difference ($t = .649$, $p = .517$). This finding varies somewhat when the data are disaggregated.

Comparing mean scores of traditional students and non-traditional students independently with the national mean shows that traditional students scored significantly lower than the national mean ($t = -2.79$, $p = .008$). In contrast, non-traditional students scored significantly higher ($t = 2.40$, $p = 018$).

Further analysis shows that this result also varies by college. Non-traditional students at two schools scored significantly higher than the national mean while traditional students at these schools did significantly worse. This is consistent with the result in the discussion of in hypothesis 1), above, and is consistent with the observation that some students, particularly traditional students, did not take the test seriously. Another possible explanation is that the students in the non-traditional programs are older, with more Business experience, which translates into their better performance on this test. This, of course, is the underlying philosophy of non-traditional programs.

4) There is no significant correlation between the pre-and post-test scores and the grade point averages corresponding to the time the test was taken.

This hypothesis is rejected at the post-test level, but is not rejected at the pre-test. There is a significant positive correlation between post-test scores and GPAs when correlating for all students. The correlation between the pre-test and concurrent GPA is not significant. This result is not consistent when results are disaggregated by college. This result is unexplained, and suggests the finding regarding the pre-test/GPA correlation is not robust.

Summary:

The results are heartening for practitioners in non-traditional programs. These findings suggest that students do at least as well, arguably better, than students in traditional programs. Two possible explanations are a) that some students, particularly traditional age, did not take the test seriously, and b) students in the non-traditional programs are more mature and experienced, and bring that experience with them into the classroom. This latter is the underlying premise of these programs.

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