

**THE USER APPROACH VERSUS THE TRADITIONAL APPROACH:
A COMPARISON OF THE EFFECTS OF INTRODUCTORY ACCOUNTING COURSE WORK
ON STUDENT SUCCESS IN THE INTRODUCTORY FINANCE COURSE**

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Introduction

There have been many calls for change in accounting education over the past decade. The American Institute of Certified Public Accountants (AICPA), an industry group principally representing public accountants who serve a variety of clients in all industries, has suggested that increased education for accountants is necessary “to improve the overall quality of work performed by CPAs confronted with advancing technology, an increasingly complex business environment, and society’s continuing demand for accounting and assurance services” (AICPA 1996). The authors of a comprehensive survey of accountants working in other than CPA firms asserted that “university accounting programs do not emphasize the appropriate accounting knowledge and skills areas for management accountants” (Siegel and Sorensen 1994, at 28).

These statements are representative of the many papers which have either suggested change is necessary or have provided empirical or non-empirical evidence supporting such claims.

Among the numerous recommendations for change has been a focus on the content and pedagogy of introductory accounting course work, largely due to papers published by the managing partners of the former “Big Eight” CPA firms and the Accounting Education Change Commission, discussed below. This, in turn, has led to a movement toward a “user approach” in introductory accounting courses and textbooks.

In this paper we compare the introductory finance course grades of students who first completed a “user approach” introductory accounting course with those who first completed a “traditional approach” introductory accounting course. To our knowledge, this is the first empirical analysis that attempts to measure the student outcomes resulting from the two approaches. We chose the introductory finance course for measurement because introductory accounting is typically a prerequisite to entry into finance courses, and because there is generally believed to be a strong relationship between accounting courses and finance courses.

The paper is organized as follows: First, initiatives for change in accounting education and a literature review are presented. We then discuss the data set and research methodology used. Results and conclusions are then provided.

Initiatives for Change in Accounting Education

The mid-to-late 1980's saw multiple calls for change in accounting education. The leading publications of this movement were the Special Report of the American Accounting Association’s Committee on the Future Structure, Content, and Scope of Accounting Education, commonly known as the Bedford Committee (American Accounting Association 1986), and the “Perspectives” white paper published by the managing partners of the then “Big Eight” accounting firms (Arthur Andersen & Co., et al. 1989). The Bedford Committee report was a comprehensive analysis of many interrelated accounting education issues, including changes in the accounting profession, accounting and business curricula, teaching methods, continuing professional education, and the future of the profession, including college and university administrative issues. The Perspectives paper focused more narrowly on the skills and knowledge needed by accounting graduates entering the public accounting profession (i.e., CPA firms).

These papers led to the formation of the Accounting Education Change Commission (AECC) in 1989. The AECC was appointed by the American Accounting Association, and its stated objective was “to be a catalyst for improving the academic preparation of accountants so that entrants to the accounting profession possess the skills, knowledge, and attitudes required for success in accounting career paths” (AECC 1990). The AECC’s second position statement, “The First Course in Accounting,” (AECC 1992) addressed the importance of the introductory accounting course, its objectives, preferred teaching methods, and faculty staffing. In discussing the first course’s primary objective, the Commission asserted that the first accounting course should be “a rigorous course focusing on the relevance of accounting information (*use*) as well as its source (preparation).” (Authors’ emphasis.) We refer herein to the emphasis on the use of accounting information as “the user approach.” This approach represents a dramatic change from the focus of prior accounting education, which had primarily emphasized the mechanical, bookkeeping aspects of accounting, the recording of financial transactions and subsequent summarized reporting of their effects.

Many papers published in the late 1980's and the 1990's addressed one or more aspects of the proposals and assertions of the accounting education change movement. An essay by Baldwin and Ingram (1991), for example, offered the authors’ opinions on some changes in objectives and content of the introductory accounting course sequence. They suggested six new objectives of the elementary accounting courses, including, among others, “developing an understanding of how information is used in organizations as a basis for decisions”, “understanding how accounting

measurement and reporting processes meet information needs”, and “demonstrating how internal and external reports are used by managers and investors to understand the major events that occurred during the reporting period.” The authors noted that the focus of elementary accounting courses should shift from preparation of information to its use.

The first Chairman of the AECC published an overview of the key features of the new approach to accounting education (Williams 1993). Foremost among these was a focus on more general education, rather than technical knowledge, “because future accountants must develop the capacity for inquiry, abstract logical thinking and critical analysis...” and “must understand business and their work environment, as well as how their services are *used...*” (at 77). (Authors’ emphasis.)

A comprehensive study of accounting education in the U.S. in 1992-1993, sponsored by the American Institute of CPAs and prepared by Doyle Williams, reported that 83% of schools surveyed believed moderate or major change in accounting education was needed, prompting a response from the author that this “confirms the need for the work of the Accounting Education Change Commissions” (Williams 1994, at 44). The study further reported that 75% of respondents expected to make at least moderate curricula changes in the following five years.

These papers provide an understanding of the recent historical development of the move toward a user approach in introductory accounting. In the next section, we discuss studies of its implementation and effects.

Literature Review

Considering the significance and influence of the proposals for change to a user approach, there has been a relative lack of empirical analysis of its implementation and effects. Wilson and Baldwin (1995) surveyed 259 colleges and universities in 15 southern states to determine the extent to which the AECC’s recommendations had been acted upon. Among the conclusions drawn was that 57.4% of respondents “reported a shift in the orientation of their principles courses away from that of the preparer of financial reports to that of the user of financial statements” (at 158).

There is no indication, however, of how the change has been received or whether it has been positive for students, faculty, or other stakeholders.

Holt and Swanson (1995) examined how colleges and universities addressed the AECC’s recommendations for change in introductory accounting courses, with their specific focus on cooperative learning techniques. Their sample consisted of 55 institutions, including the top 25 undergraduate business schools, all undergraduate programs receiving AECC grants, and 20 schools randomly chosen. They reported mixed results, with 20 of the top 25 business schools and all of the AECC-grant-funded programs reporting “substantial change,” while only one of the 20 randomly-chosen institutions did so. The changes discussed were input-based, in that they addressed pedagogical techniques such as group assignments and case studies. While this provides a useful indication of the perceived direction and change in leading accounting programs, it does not address the issue of whether such changes provide improved learning as compared with prior approaches.

Smigla (1995) reported a “very favorable” experience with a user approach to teaching the introductory accounting course. He asserted that students demonstrate better use of accounting information in decision-making and improved communication skills because of increased writing requirements. However, he also suggests that students “will enter intermediate accounting with weaker technical skills,” though he cites no empirical evidence to support this claim.

Jordan and Clark (1995) examined the perceptions of 160 faculty members of two-year colleges with respect to accounting education change. They found that the vast majority of respondents (85.6%) continued to teach using the traditional approach, despite the fact that 46.2% agreed that the user approach should be used in the first course.

An interesting study (Sullivan and Benke, Jr. 1997) examined the approach used in 33 accounting principles textbooks published in 1995 or later. The authors categorized the pedagogy of each of the books as one of five general types: 1) “conventional” and 2) “moderately conventional” texts lean toward the traditional approach, relying on debits and credits; 3) “revolutionary” and 4) “moderately revolutionary” texts lean toward the user approach, relying on a “non-debits and credits” presentation, while 5) “transitional” books show aspects of both approaches. Though the authors of the study reported some disagreement with these categorizations from some of the textbook authors, the authors of the study categorized only five of the 33 textbooks as either “revolutionary” or “moderately revolutionary.” (See table at 200.)

It can reasonably be concluded from these studies that, at a minimum, change in the approach to accounting education has begun. A logical question that flows from this is the degree to which such change has improved the educational preparation and experience of students completing introductory accounting course work. We attempt here to partially answer that question with empirical data.

Data and Methodology

This study was conducted at the State University of New York College at Brockport, a mid-size, four-year, primarily liberal arts college. The College's Department of Business Administration and Economics offers majors in Accounting, Business Administration (with four specialties), and International Business, and minors in Business Administration and Economics. During the period investigated, students majoring in Accounting and those majoring in Business Administration with a specialty in Accounting or Finance were required to complete a traditional two-course sequence of accounting courses, entitled "Fundamental Accounting I and II" and numbered "ACC 285" and "ACC 286." All other majors in the Department had the option of either completing ACC 285 and ACC 286 or completing a one-course user approach accounting course, entitled "Introduction to Accounting" and numbered "ACC 280."¹ All other majors in the Department could instead complete ACC 285 and ACC 280 or ACC 285, ACC 286, and ACC 280 in order to fulfill the prerequisite requirement. The Department requires successful completion of five or six prerequisite courses prior to students becoming majors (including one of the accounting sequences discussed above); students at this level in the program are referred to as "Intents-to-major." For purposes of this study, all majors and intents-to-major are combined (and are henceforth referred to as majors).

Because the College encourages all students to enroll in a wide cross-section of electives and because of the high number of interdisciplinary majors, many students from other departments enroll in the introductory accounting sequence. We have excluded all non-majors from the data analyzed and discussed below.

The data consist of majors enrolled in sections of Principles of Finance, BUS 325, for the academic years 1995-1997 (20 sections).² Five faculty members, three tenure-track and two adjunct, taught these sections, which had a combined enrollment of 567 for academic year 1995-1996. All pertinent information was taken from official records maintained by the College registrar's office. After discarding observations for missing or incomplete data, 404 observations for academic years 1995-1997 were used. According to Exhibit 1, the average student was white (88%, RACE), approximately 23 years of age (AGE), and male (56%). Transfer students (TRAN) were approximately 72% of the sample. The average hours of classes taken during a given semester (CREHRS) was thirteen. The average grade earned (GRADE) in a principles of finance class was between a C and B (2.67).

The empirical model takes the production function approach, whereby the grade received in BUS 325 (Principles of Finance) by an individual student is dependent upon intellectual ability, academic background, personal characteristics of the individual, instructional input of the faculty, and environmental factors (Didia and Hasnat, 1998; Borde, 1998; Stratton, Myers, and King, 1994). Putting what we have stated into general functional form yields the following:

GRADE = f(apptitude, background, effort/motivation, gender, race/ethnicity, maturity, instructor, environment)

The dependent variable, GRADE, was the actual letter grade received in the class by the student and could take on the values of 4, 3.67, 3.33, 3.0, 2.67, 2.33, ..., 1.00, .67, and 0.00.

The measure of aptitude we considered was that of the cumulative GPA (CGPA) prior to enrollment in BUS 325 (A = 4.0). We would have preferred the use of either SAT or ACT scores as measures of intellectual ability before college. However, transfer students are not required to provide these scores to the College for admittance. A measure of effort, CREHRS, is the semester load that the student is carrying. Maturity is measured by the variable AGE. Alternatively, students may become more adept at planning or "playing the game," so class standing is also used as a measure of maturity. We create dummy variables to capture class standing: JUNR = 1 if a student is a junior, 0 otherwise; SOPH = 1 if a student is a sophomore, 0 otherwise; the omitted category is senior.³ We also expect that a student repeating the course would perform better than a student who is taking the course for the first time (REDO = 1).

We controlled for gender (FEMALE = 1, 0 otherwise) because it is still debatable whether males outperform females in quantitative subjects (Henebry and Diamond, 1998). Race/ethnicity is controlled for because we would like to examine whether racial or ethnic discrimination plays a role in grade determination (RACE = 1 if student is white, 0 otherwise). Transfer status is included as a control variable because the general perception exists that community college transfer students may not be as adequately prepared as native students (TRAN = 1, 0 otherwise).

Dummy variables for individual faculty members are created because instructors have a variety of ways to impact student performance (INSTR2 = 1, 0 otherwise; INSTR3 = 1, 0 otherwise; INSTR4 = 1, 0 otherwise; INSTR5 = 1, 0 otherwise).

We also control for whether the class is taken during the fall or spring semester for each academic year (FA95 = 1, 0 otherwise, SPR96 = 1, 0 otherwise, FA96 = 1, 0 otherwise; the omitted category is class taken during Spring 1997) in order to account for any systematic differences in the courses during the terms.

BUS 325 has the following prerequisites: Principles of Macroeconomics and Principles of Microeconomics; College Algebra; Introduction to Statistics, and Fundamentals of Accounting I and II or Introduction to Accounting. We use the average grade earned in both principles of economics classes (GRDECN, A = 4.0), the grade earned in the highest math class (GRDMTH, A = 4.0), and the grade earned in the statistics class (GRDSTA, A = 4.0) as controls for four of the background variables. The average GPA for introductory accounting course work is first used in the model to show that adequate preparation in accounting is necessary for success in the principles of finance course. We then use the grade earned in Introduction to Accounting (ACC280) solely, the average grade earned in both ACC285 and ACC280 (ACC8580), the combined average grade earned in ACC285, ACC286, and ACC280 (ACC560), or the grade earned in ACC285 as background variables (the omitted category is the average grade earned in both ACC285 and ACC286 (A8586)). Thus we are comparing the relative efficacy of Introduction of Accounting to that of the Fundamentals of Accounting sequence.

Results⁴

The overall models (Exhibit 2 and Exhibit 3) are sound with the F-statistic showing that the null hypothesis that the regression coefficients are jointly equal to zero can be rejected at the .001 significance level. The adjusted R²'s are .306 and .293, respectively. Multicollinearity is not a problem because all variance inflation factors are low (Neter, Wasserman, and Kutner, 1990).

The regression results (Exhibit 2 and Exhibit 3) show that cumulative GPA (CGPA),⁵ course instructor (INSTR2, INSTR4), performance in economics principles courses (GRDECN), performance in mathematics (GRDMTH), performance in statistics (GRDSTA), and performance in the introductory accounting course(s) are all factors which determine higher grades in the principles of finance course. Maturity, as represented by AGE, does not appear to have an impact on principles of finance grades.⁶ There appears to be no gender bias in course grades. However, the results concerning race/ethnicity are mixed and call for more analysis. Transfer students do not perform any worse than native Brockport students. Student workload is not a factor in grade determination. No significant difference in performance occurred due to the semester in which the class was taken.

Interestingly, success in the principles of finance course is not dependent on which combination of introductory accounting classes taken, except for those who took both Fundamentals of Accounting I and Introduction to Accounting (ACC8580) (Exhibit 3). That is, those students who took Introduction to Accounting (the user approach to accounting instruction, ACC280 only) fared no worse in the principles of finance course than those who took both Fundamentals of Accounting I and II (the traditional approach to introductory accounting education). It appears that the accounting aptitude of students, measured by cumulative GPA in accounting courses, rather than the combination of introductory accounting classes taken by those students, is the more important predictor in determining performance in the principles of finance course.

Summary and Conclusions

This study determined the primary factors that affect and effect success in the principles of finance course. It showed that student ability, adequate preparation in economics, mathematics, statistics and accounting are the key performance variables in introductory finance. The results further indicate that individual course instructor is important in grade determination. No difference was found between transfer student performance and that of native students. The results regarding ethnic and racial differences are inconclusive. Finally, our analysis provides evidence in support of the view that a more general, user approach to introductory accounting education may be more beneficial for those business students who do not plan to major in accounting or finance.⁷

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End Notes

1. The prefix for all accounting courses is now "ACC." During this period of study, the prefix for all accounting courses was "BUS." In all other respects the courses and their content were the same.
2. Data were obtained from institutional records.
3. Students ordinarily first enroll in BUS 325 during their junior year.
4. The regressions were run using ordinary least squares (OLS). Although ordered probit may be the best method for analyzing the data, we use OLS for purposes of comparison with other studies and related ease of interpretation.
5. Cumulative GPA excludes those courses already otherwise controlled for in our model. It is not known whether the results of other authors is spurious because the cumulative GPA used is a combination of all prior grades including those already controlled for in their models.
6. We ran the models using dummy form for class standing (JUNR = 1, 0 otherwise; SOPH = 1, 0 otherwise; the omitted category is SENR). The variables were not significantly different from 0 at any conventional level.
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Exhibit 1
Descriptive Statistics
N=404

| Variable | Mean | Standard Deviation |
|----------|---------|--------------------|
| GRADE | 2.4582 | 0.9340 |
| CREHRHS | 13.290 | 3.590 |
| AGE | 23.240 | 5.123 |
| SENR | 0.3515 | 0.4780 |
| JUNR | 0.6040 | 0.4897 |
| SOPH | 0.0421 | 0.2010 |
| REDO | 0.1015 | 0.3023 |
| FEMALE | 0.4431 | 0.4974 |
| RACE | 0.8762 | 0.3297 |
| TRAN | 0.7252 | 0.4469 |
| INSTR1 | 0.2970 | 0.4575 |
| INSTR2 | 0.4257 | 0.4951 |
| INSTR3 | 0.0520 | 0.2223 |
| INSTR4 | 0.2005 | 0.4009 |
| INSTR5 | 0.02475 | 0.15556 |
| GRDECN | 2.6384 | 0.7595 |
| GRDMTH | 2.9329 | 0.8787 |
| GRDSTA | 2.8594 | 0.7882 |
| ACC280 | 0.1584 | 0.3656 |
| ACC8580 | 0.0792 | 0.2704 |
| ACC560 | 0.02475 | 0.15556 |
| ACC285 | 0.01733 | 0.13065 |
| A8586 | 0.7351 | 0.4418 |

Exhibit 1 (continued)
Descriptive Statistics
N=404

| Variable | Mean | Standard Deviation |
|-----------------|-------------|---------------------------|
| ACCGPA | 2.6715 | 0.8323 |
| CGPA | 2.6479 | 0.4828 |
| FA95 | 0.2426 | 0.4292 |
| SPR96 | 0.2574 | 0.4378 |
| FA96 | 0.2550 | 0.4364 |
| SPR97 | 0.2450 | 0.4306 |

Exhibit 2
Regression Analysis: Accounting Course Work GPA
n=404

| Predictor | Coefficient | Std. Deviation | T-Value | P-Value | VIF |
|-----------|-------------|----------------|---------|---------|-----|
| Constant | -0.4134 | 0.4302 | -0.96 | 0.337 | |
| CREHRS | 0.00499 | 0.01367 | 0.37 | 0.715 | 1.6 |
| AGE | 0.014262 | 0.009490 | 1.50 | 0.134 | 1.6 |
| REDO | -0.0844 | 0.1374 | -0.61 | 0.540 | 1.1 |
| FEMALE | -0.05033 | 0.08210 | -0.61 | 0.540 | 1.1 |
| RACE | 0.1526 | 0.1235 | 1.24 | 0.217 | 1.1 |
| TRAN | -0.09889 | 0.09651 | -1.02 | 0.306 | 1.2 |
| INSTR2 | -0.27020 | 0.09500 | -2.84 | 0.005 | 1.5 |
| INSTR3 | 0.0853 | 0.2091 | 0.41 | 0.684 | 1.4 |
| INSTR4 | -0.4690 | 0.1285 | -3.65 | 0.000 | 1.8 |
| INSTR5 | 0.3985 | 0.2814 | 1.42 | 0.158 | 1.3 |
| GRDECN | 0.32760 | 0.06620 | 4.95 | 0.000 | 1.7 |
| GRDMTH | 0.09330 | 0.05030 | 1.85 | 0.064 | 1.3 |
| GRDSTA | 0.14131 | 0.05928 | 2.38 | 0.018 | 1.5 |
| ACCGPA | 0.16271 | 0.05760 | 2.82 | 0.005 | 1.5 |
| CGPA | 0.1947 | 0.1064 | 1.83 | 0.068 | 1.8 |
| FA95 | 0.1984 | 0.1304 | 1.52 | 0.129 | 2.1 |
| SPR96 | 0.2002 | 0.1169 | 1.71 | 0.088 | 1.7 |
| FA96 | 0.1791 | 0.1244 | 1.44 | 0.151 | 2.0 |

R-Sq= 33.7%

R-Sq (adj)= 30.6%

Analysis of Variance:

| Source | DF | SS | MS | F | P |
|--------|----|----|----|---|---|
|--------|----|----|----|---|---|

| | | | | | |
|------------|----|----------|--------|-------|-------|
| Regression | 18 | 118.3634 | 6.5757 | 10.86 | 0.000 |
|------------|----|----------|--------|-------|-------|

Durbin-Watson statistic = 1.91

Exhibit 3
Regression Analysis
Specific Accounting Courses Completed
n=404

| Predictor | Coefficient | Std. Deviation | T-Value | P-Value | VIF |
|-----------|-------------|----------------|---------|---------|-----|
| Constant | -0.2984 | 0.4397 | -0.68 | 0.498 | |
| CREHRS | 0.00646 | 0.01400 | 0.46 | 0.644 | 1.6 |
| AGE | 0.014247 | 0.009604 | 1.48 | 0.139 | 1.6 |
| REDO | -0.1521 | 0.1385 | -1.10 | 0.273 | 1.1 |
| FEMALE | -0.03801 | 0.08295 | -0.46 | 0.647 | 1.1 |
| RACE | 0.2062 | 0.1240 | 1.66 | 0.097 | 1.1 |
| TRAN | -0.08362 | 0.09920 | -0.84 | 0.400 | 1.3 |
| INSTR2 | -0.26727 | 0.09668 | -2.76 | 0.006 | 1.5 |
| INSTR3 | 0.1102 | 0.2113 | 0.52 | 0.602 | 1.4 |
| INSTR4 | -0.4797 | 0.1301 | -3.69 | 0.000 | 1.8 |
| INSTR5 | 0.3826 | 0.2854 | 1.34 | 0.181 | 1.3 |
| GRDECN | 0.35534 | 0.06583 | 5.40 | 0.000 | 1.6 |
| GRDMTH | 0.10780 | 0.05081 | 2.12 | 0.035 | 1.3 |
| GRDSTA | 0.15824 | 0.05969 | 2.65 | 0.008 | 1.4 |
| ACC280 | -0.0751 | 0.1184 | -0.63 | 0.526 | 1.2 |
| ACC8580 | -0.2560 | 0.1493 | -1.71 | 0.087 | 1.1 |
| ACC560 | -0.2102 | 0.2583 | -0.81 | 0.416 | 1.1 |
| ACC285 | 0.0541 | 0.3046 | 0.18 | 0.859 | 1.0 |
| CGPA | 0.2485 | 0.1061 | 2.34 | 0.020 | 1.7 |
| FA95 | 0.1413 | 0.1334 | 1.06 | 0.290 | 2.1 |

| | | | | | |
|-------|--------|--------|------|-------|-----|
| SPR96 | 0.1669 | 0.1193 | 1.40 | 0.162 | 1.8 |
| FA96 | 0.1630 | 0.1264 | 1.29 | 0.198 | 2.0 |

R-Sq = 33.0%

R-Sq (adj) = 29.3%

Analysis of Variance:

| Source | DF | SS | MS | F | P |
|------------|----|----------|--------|------|-------|
| Regression | 21 | 115.8680 | 5.5175 | 8.94 | 0.000 |

Durbin-Watson statistic = 1.91
