

Academic Success Of Non-Traditional Students: Factors Affecting Performance In An Upper-Division Undergraduate Accounting Course

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ABSTRACT

Many assessment activities are conducted within the context of AACSB International reaffirmation of business programs. Central to the AACSB evaluation process is assurance of learning standards. Learning goals vary among institutions because of differences in mission, faculty expectations, and student body composition. The objective of this research is to determine the factors that influence the academic performance of students in upper-level accounting courses and to assess student performance against course learning goals. The study explores the relative importance of both academic and non-academic factors in predicting performance outcomes. The results indicate that several academic factors (GPA, student's diagnostic exam score, and student's self-assessment of course learning objectives) are significant in predicting a student's final numerical course average. The study also examines the association between student achievement of course learning goals and various non-academic demographic and student success factors. The results indicate that student course loads, employment status, marital status, and family responsibilities do not equally impact student learning outcomes. The study extends existing research by using non-traditional students at an upper-division university and a variety of approaches to assess the achievement of course learning goals.

INTRODUCTION

The issue of assessment continues to be of interest to business and accounting educators and an integral part of the continuous process of learning and development (e.g., Calderon, Green, & Harkness, 2004). Many assessment activities are conducted within the context of AACSB International reaffirmation of business and accounting programs. Central to the AACSB evaluation process is assurance of learning standards. However, as the AACSB notes, in addition to demonstrating “accountability,” other important reasons for measuring learning achievement against specific learning goals are not “for the purpose of accreditation.” They are “to provide feedback and guidance for individual students” and “to assist the school and faculty members to improve programs and courses” (AACSB, 2005, p. 60). In evaluating a program, the AACSB considers both general and management-specific goals related to each discipline in the business school. These learning goals will vary among institutions because of “differences in mission, student populations, employer population, and other circumstances” (AACSB, 2005, p.60).

The *objective* of this research is to determine the factors that influence the academic performance of students in upper-division financial accounting courses and assess student performance against the learning goals of the course. The present study was conducted at an upper-division institution with a large number of non-traditional students. Generally, one would expect a relationship between the success of students in upper-division accounting courses and their performance in their lower-division accounting prerequisites. Students at upper-division institutions generally complete their prerequisites at two-year community colleges and to a lesser degree at the lower-divisions of four-year

institutions. One difficulty in evaluating student performance in this setting is a potential learning-gap, resulting from “instructional differences between two-year colleges and four-year colleges and universities” (Laband, Rosenberg, & Smith, 1997). This learning-gap, which should be filled by faculty to enhance students’ comprehension of course material, may influence the learning outcomes of subsequent classes.

Gainen and Locatelli (1995) emphasize the importance of considering the relationship between student characteristics and the educational environment and the assessment of learning outcomes. DeMong, Lindgren, and Perry (1994)’s continuous improvement model for assessment programs in accounting includes consideration of prior experiences of students and non-college experiences such as work, family, culture, and maturation in determining and assessing learning outcomes. AACSB (2005) also emphasizes that not only should schools expect to have different learning goals because of their unique characteristics, they should also expect to have different methods of assessing whether those learning goals have been accomplished.

Only limited research (Carlan & Byxbe, 2000; Laband, Rosenberg, & Smith, 1997; Wooten, 1998) has been conducted with respect to variables that predict the academic success of students who have transferred from community colleges to four-year schools or the academic success of non-traditional students. However, this research was conducted in universities that were four-year institutions with primarily traditional student populations. In addition, no prior research has related the academic performance of students who have transferred from a two-year school to the assessment of learning outcomes of upper-division accounting courses. Apostolou (1999, p.187) notes very little research has been conducted about the assessment of student achievement of specific skills in any setting, “leaving vast room for research.”

The present study contributes to the literature by investigating factors that influence the success of non-traditional students in their upper-division financial accounting courses and student perceptions of whether course learning goals were achieved.

The remaining sections are organized as follows. The next section reviews studies predicting academic success of students and studies evaluating learning outcomes in both accounting and other related disciplines. The remaining sections: (1) outline the preliminary research questions and the research methodology, (2) present the results of the study, and (3) discusses the conclusions and implications of the present research.

LITERATURE REVIEW

Variables Related To Student Performance

Various studies have focused on variables related to students’ performance in accounting courses and students’ overall college performance. GPA and past grades have been found to be significant indicators of student success in college (Doran et al., 1991; Eckel & Johnson, 1983; Eskew & Faley, 1988) and success in accounting courses (Gist et al., 1996; Ingram & Petersen, 1987; Martinis, 2003; Norton-Welsh & Reding, 1992).

Turner, Holmes, and Wiggins (1997) developed models to predict student grades in the first Intermediate Accounting course. They found that a student’s initial Intermediate Accounting test score and cumulative GPA were positively associated with the student’s final course grade. Turner et al. found that students who took their introductory accounting courses at two-year schools had lower course averages in Intermediate Accounting I than students who took their prerequisite accounting courses at four-year schools. Turner et al. (1997, p. 286) conclude that students who take prerequisite courses at two year schools face “adjustment challenges” in taking Intermediate Accounting I at four-year institutions.

Laband, Rosenberg, and Smith (1997) compared the performance of transfer versus “native” (non-transfer students) in upper-division accounting courses. They found that a student’s grade in the introductory accounting course was a significant predictor of grades in upper-level accounting courses. They also found that after controlling for GPA in introductory accounting courses, transfer students performed worse than “native” students in upper-level accounting classes. Their finding led them to conclude that grade inflation exists at the two-year college level. Carlan

and Byxbe (2000) found similar results in a sample of students from a variety of majors at a major southern university. Both sets of authors conclude that the performance of transfer students at the upper-division level is a function of the interaction between grade inflation at the two-year college level and adjustment to the “less nurturing and more demanding senior college environment” or what is termed “transfer shock” (Carlan & Byxbe, 2000, p. 5).

There is limited research with mixed results related to the effect of demographic variables such as citizenship status on performance in accounting courses (Ashbaugh, Johnstone, & Warfield, 2002; Martinis, 2003). There is also limited research about the effect of non-academic variables such as employment status and work responsibilities on student performance (Wooten, 1998).

Use Of Student Perceptions In Outcomes Assessment

Prior studies in accounting have not investigated variables such as students’ perceived obstacles to success that may influence grades or students’ perceptions of whether the learning objectives of individual courses have been achieved.¹ Although surveys of student perceptions are considered indirect measures for assessing learning outcomes, they have advantages in an outcomes assessment program for several reasons. The literature on assessment emphasizes the use of multiple assessment measures (Apostolou, 1999; DeMong et al., 1994; Stivers, Campbell & Hermanson, 2000). AACSB (2005) emphasizes that different schools should expect to have different methods of assessing learning goals. One method of assessing “institution-specific learning outcomes” is the use of the perceptions of a “critical stakeholder group” - students (Duke, 2002, p. 205). Stivers et al. (2000) indicate the use of indirect measures such as surveys allow a school to obtain “data related to specific aspects of (its) learning outcomes” in contrast to standardized tests which “do not always allow for such tailored responses” (p.568).

Surveys of student perceptions may also have validity because students have a reasonable grasp of curriculum and program quality and generally will not put effort into learning material unless they understand its importance and relevance (Glynn et al., 1993). Student surveys are useful in assessing whether “skills taught ... are actually internalized by students” because students are in a “unique position to assess their own skills” (Hill et al., 1998, p. 68). Evaluating student perceptions of learning outcomes may point to changing employer needs or weaknesses in communicating those needs to students (Duke & Reese, 1995).

This review of the literature indicates that little research has investigated, in combination, the association between success in upper-division accounting courses and unique non-academic and academic factors. Moreover, few studies illustrate in detail how outcomes were assessed and whether non-academic/academic factors promoted or inhibited the attainment of specific learning outcomes. No studies determine, within an upper-division setting, to what degree the outcome of a learning initiative is attributable to that learning initiative as opposed to other factors (e.g., other accounting experiences or cognitive aptitude).

This study will therefore address the following research questions:

- What is the association between academic and non-academic factors and students’ course grades in upper-division financial accounting courses?
- What is the association between significant student success factors and assessed learning outcomes?
- What is the association between student self-assessment and assessed learning outcomes?

RESEARCH METHODOLOGY

Data Collection

Data for the study was collected during the 2003-2004 and 2004 –2005 academic years from students enrolled in Intermediate Accounting at an upper-division state university located on the East Coast. The sample included 125 students enrolled in five sections of Intermediate Accounting I, 106 students enrolled in five sections of Intermediate Accounting II, and 93 students enrolled in four sections of Intermediate Accounting III. The classes included both day sections of each course that met for 80 minutes, twice a week and night sections of each course that met for 150 minutes, once a week.

During the first class meeting, students completed a multiple-choice diagnostic exam evaluating their knowledge of material covered in prerequisite financial accounting courses. The questions were primarily non-computational and selected from *Financial Accounting: Exam Questions and Explanations* (Gleim and Collins, 2003). The exam used in Intermediate I contained twenty questions, the exam used in Intermediate II contained twenty-four questions, and the exam used in Intermediate Accounting III contained thirty.

During the first week of class, students completed a demographic survey. The survey included both academic and non-academic factors such as gender, age, race, citizenship, marital status, number of children, number of hours worked, letter grades received in prior accounting courses, expected course grade, and cumulative GPA. Scholastic exam scores (e.g., SAT and ACT) were not used as demographic factors because these measures are correlated with performance only in the freshman and sophomore years of college rather than the junior and senior years (Paszczyk, 1994; Phillippi, 1992).

During the final exam week, students completed a learning objective assessment survey. Five-point Likert scales, anchored on *not satisfied* (1) and *satisfied* (5), were used to assess students' perceptions of whether various learning objectives for the class were satisfied; i.e., to what degree did a student perceive that he/she had mastered that aspect of the course material. At the end of the semester, data about a student's final numerical course grade and letter course grade was obtained from the instructor's records.

Assessment Of Learning Objectives

Various approaches were used to evaluate student learning and the achievement of course learning objectives. These included three examinations, homework, business letters and memos, financial statement research projects, and spreadsheet projects. The third (final) examination was cumulative. The learning objectives were listed on outlines distributed to the students for each chapter covered in the course. This approach was motivated by the assumption that students would focus their learning on course material that would impact their grades in the class (Knight, 1995; Street, 1990). Each exam included multiple-choice questions, essays, and problems and addressed a variety of learning skills. The three exams accounted for 71% of the course grade in Intermediate I, for 74% of the course grade in Intermediate II, and 72% of the course grade in Intermediate III.

The learning objectives of each class were also embedded in each of the non-examination methods used to evaluate the students. The level of completion and mastery of each non-examination method inherently affected exam performance and likely influenced students' perceptions of whether learning objectives in that area of the course had been achieved. As examples, Intermediate Accounting I students completed both a business letter and a spreadsheet about various methods for accounting for bad debt expense. Intermediate Accounting II students completed a business letter about various methods for accounting for investments and a spreadsheet project about depreciation. Intermediate Accounting III students completed a project that compared the cash flow statements of two companies. These written assignments and spreadsheets focused on the analysis and interpretation of information and the development of communications, problem-solving, and decision-making skills.

Data Analysis

The data analysis employed both parametric and nonparametric tests. In the first stage of analysis, a multiple regression was performed to determine the association between various factors and the student's final numerical course average (COURSEAV). The model included the following independent variables: score on the diagnostic exam given at the beginning of the semester (DIAGSCOR), cumulative GPA at the beginning of the semester (GPA-CUM), and average learning objectives assessment level at the end of the semester (LOBJAV). A unique focus of this research was to assess the association between a student's performance and the student's perceived level of learning objectives satisfied during the course. For that reason, the regression models used data only from students who completed the learning objective assessment survey at the end of the course.

The regression model was specified as follows:

$$\text{COURSEAV} = a + b_1 \text{DIAGSCOR} + b_2 \text{GPA-CUM} + b_3 \text{LOBJAV}$$

Where:

COURSEAVG	=	Final numerical course average
DIAGSCOR	=	Score on diagnostic exam given at beginning of semester
GPA-CUM	=	Cumulative grade-point average (4.0 scale) at beginning of semester
LOBJAV	=	Average, from Likert-scales, of course learning objectives at the end of the semester

The second stage of analysis employed both parametric and non-parametric tests to determine the impact of several academic and non-academic factors on 1) student performance (measured as final numerical course average), 2) student achievement of course learning outcomes (measured as average of Likert-scale course learning objectives), and 3) student success (defined as students who received grades of C or higher in the course).

RESULTS

Descriptive Statistics

Table 1 provides descriptive statistics for the students included in the study, both for the overall sample and for each Intermediate Accounting class separately. In the overall sample, average age was 28.5 years. The average age is similar to previous studies that have used community college transfer students who typically are older than students who initially enrolled in four-year institutions (Carlan & Byxbe, 2000). Fifty-two percent (52.1%) were female. Twenty-two percent (21.7%) were international students. Thirty-two percent (31.9%) were minority students. Eighty-four percent (83.4%) of the students were employed and students worked an average of thirty-four (34.1) hours per week. Fifty-seven percent (56.8%) were full-time students (i.e., took twelve or more credit hours per semester). Forty-seven percent (47.2%) were married and thirty-seven percent (36.4%) had children. Average cumulative GPA (on a 4.0 scale) was 3.22.

Regression Analysis

Table 2 presents the results of the multiple regression analysis, including estimated coefficients, t-statistics, and *p*-values. The regression model for Intermediate Accounting I has an adjusted R^2 of 0.43 (F value = 21.22; $p < 0.0001$). The regression model for Intermediate Accounting II has an adjusted R^2 of 0.52 (F value = 19.62; $p < 0.0001$). The regression model for Intermediate Accounting III has an adjusted R^2 of 0.57 (F value = 33.66, $p < 0.0001$). The models are significant in establishing association between the dependent variable COURSEAV and the independent variables (DIAGSCOR, GPA-CUM, LOBJAV).² The independent variables were also tested for multicollinearity. Multicollinearity may be present if a VIF greater than ten occurs (Neter, Wasserman, & Kutner, 1985). Variance inflation factors (VIFs), as shown in Table 2, are 1.25 and below for the Intermediate Accounting I model, 1.54 and below for the Intermediate Accounting II model, and 1.17 and below for the Intermediate Accounting III model. These results limit concerns about the existence of multicollinearity.

The results in Table 2 indicate that diagnostic exam score, cumulative grade point average, and average learning objectives assessment level are significantly associated with the final numerical course averages of students in Intermediate Accounting I, II, and III. The significance of the diagnostic exam score ($t = 2.12$, $p < .04$ in the Intermediate I regression; $t = 1.68$, $p < .10$ in the Intermediate II regression; $t = 3.40$, $p < .001$ in the Intermediate III regression) measuring student knowledge of financial accounting topics covered in prerequisite courses is consistent with prior research that student performance in prerequisite courses is significant in predicting student performance in subsequent courses. The significance of GPA ($t = 4.56$, $p < .0001$ in the Intermediate I regression; $t = 3.23$, $p < .002$ in the Intermediate II regression; $t = 6.73$, $p < .0001$ in the Intermediate III regression) supports earlier research that GPA is a significant variable in predicting student performance in undergraduate accounting courses. The average learning objectives assessment level variable ($t = 3.31$, $p < .001$ in the Intermediate I regression; $t = 3.19$,

$p < .002$ in the Intermediate II regression; $t = 2.63$, $p < .01$ in the Intermediate III regression) was also a significant predictor in the regression models.. This result suggests that students' self-perceptions of whether course learning objectives have been satisfied are useful in predicting their overall achievement in an upper-division accounting course.

Effect Of Non-Academic Factors

As indicated by the demographic data in Table 1, the students included in the present study were primarily non-traditional students. The majority had almost full-time course loads and almost full-time hours of employment. Many were married and had children. Because prior research suggests that these non-academic factors may have an negative impact on academic performance (Wooten, 1998), t-tests were performed to determine whether a student's final numerical course average and average learning objectives assessment level were affected by employment status, course load, marital status and having children.³ These results are presented in Table 3.

In comparison with students who were not employed, Intermediate Accounting I and II students who were employed had lower final course averages and lower average learning objectives assessment levels. These results suggest that employment status affects student success in Intermediate Accounting and that employed students were accurate in assessing that they had not mastered course material as well as students who were not employed. Full-time employment status (not shown in Table 3) was related to differences in course average for Intermediate Accounting III students.

Taking a full-time course load was not related to differences in course average for Intermediate Accounting I and II students or learning objective assessment level for Intermediate Accounting I, II, and III students. Intermediate Accounting III students who were full-time students had significantly higher course averages than their counterparts who were taking part-time course loads.

Marital status was not related to differences in course average or learning objective assessment level for students in Intermediate Accounting I and II. Married students in Intermediate Accounting III had significantly lower course averages but significantly higher learning objective assessment levels than students who were not married. Students in Intermediate Accounting I and II who had children had lower course averages than students who did not. (Although the difference for Intermediate Accounting III students was not significant at $p < .10$, students with children did have course averages that were six points below those of students without children.) Students in Intermediate Accounting III who had children also had significantly lower learning objective assessment levels.

These results suggest that the non-academic factors - employment status, course load, marital status, and having children- do not equally impact the success of non-traditional students in upper division financial accounting courses. Being employed, especially working nearly full-time, negatively impacts student performance in Intermediate Accounting. However, higher course loads do not, except for students in Intermediate Accounting III. This may be because 87% of Intermediate Accounting III students were working while taking senior level courses. Similarly, while being married did not negatively impact academic performance except for students in Intermediate Accounting III, having children did have a negative effect on performance in Intermediate Accounting I, II, and III. These results suggest that non-traditional students may be able to at least partially compensate for responsibilities (work schedule, increased course load, family) that could interfere with their academic success and achievement of course learning goals.

Effect Of Transfer Status

As mentioned earlier, the present study was conducted at an upper division institution. Most Intermediate Accounting students completed their lower division prerequisites at two-year institutions. In addition, 12% of the students in Intermediate Accounting II and 31 % of the students in Intermediate Accounting III completed their prior courses in the Intermediate Accounting sequence at two-year institutions. Table 3 presents the t-test results comparing the final numerical course averages and learning objective assessment levels between Intermediate Accounting II and III students who completed their prior Intermediate Accounting courses at a two-year school and those who did not.

The results indicate that students who transferred in prior courses in the Intermediate Accounting sequence from two-year schools had significantly lower final course averages than those who did not.

Characteristics Of Unsuccessful Students

The diagnostic exam scores and data from the background questionnaires of students who did not successfully complete their Intermediate Accounting courses (i.e., who withdrew or received grades below C) were compared with those of students who did successfully complete the course. These results are presented in Table 4.

These results indicate that the academic factors – diagnostic exam score and cumulative GPA – were significant in distinguishing between successful and unsuccessful students in Intermediate Accounting I, II, and III. Unsuccessful students in Intermediate Accounting I, II, and III had lower scores on the diagnostic exam given at the first class meeting and lower cumulative GPAs than students who were successful in Intermediate Accounting. (In addition, although not reported in Table 4, students who transferred in prior Intermediate Accounting courses from two-year schools also had lower scores on the diagnostic exams given at the beginning of Intermediate Accounting II and III.) A third academic factor, average course load, was only marginally significant at $p < .10$ in Intermediate Accounting II with successful students having higher course loads than those who did not.

Significantly more unsuccessful students in Intermediate Accounting II were employed and worked more hours per week than those students who were successful in Intermediate Accounting II. There was no difference in employment status and number of hours worked per week between successful and unsuccessful students in Intermediate Accounting I and III.

Marital status was not related to whether students were successful in Intermediate Accounting I and III. However, marital status was marginally significant at $p < .10$ for Intermediate Accounting II students with more unsuccessful students being married. In comparison with successful students, more unsuccessful students in Intermediate Accounting I and II had children. This variable did not distinguish between successful and unsuccessful students in Intermediate Accounting III. These results again suggest that non-traditional students may learn to compensate for their varied responsibilities and full schedules. In the three semester Intermediate Accounting sequence, the success of students in Intermediate Accounting II was most affected by course load, employment status, marital status, and having children. In comparison with Intermediate Accounting I, the workload for students in Intermediate Accounting II is greater and the topics covered are more difficult. Students may learn to adjust for these factors by the time they enroll in Intermediate Accounting III.

Self-Assessment At Beginning Of The Course

Wilcoxon signed ranks tests were used to determine the relationship between a student's expected course grade at the beginning of the course and the student's final course grade. For the purpose of this analysis, the final numerical course average was recoded into letter grades - A, B, C, D, and F. The Z- test statistics were significant for Intermediate Accounting I, II, and III ($Z = -5.866, p < .0001$; $Z = -6.246, p < .001$; $Z = -3.407, p < .001$; $Z = -5.911, p < .0001$), indicating that there was a difference between students' expected and actual grades in Intermediate Accounting and that students' expected grades were higher than their actual grades.

The use of the students' self-assessment of expected course performance provides insight about potential learning outcome issues. For example, at the beginning of Intermediate I, 98% of students expected to earn a grade of A or B. However, only 62% of students who completed the course actually earned an A or B. Twenty-six (26%) of students did not successfully complete Intermediate I (i.e., they earned grades below C or withdrew from the course). At the beginning of Intermediate Accounting II, 98% of students expected to receive a grade of A or B. However, only 57% of Intermediate Accounting II students actually earned a grade of A or B and 33% did not successfully complete the course. At the beginning of Intermediate Accounting III, 89.7% of students expected to receive an A or B in the course. However, only 47.2% actually received a final course grade of A or B and 27% did not successfully complete the course.

The expectations of students about their course grades at the beginning of Intermediate Accounting may be the result of the grades that they indicated they received in their prerequisite courses. Eighty-four percent (84%) of students in Intermediate Accounting I indicated that they had received grades of A or B in their Principles of Accounting II course. Seventy-two percent (72%) of students in Intermediate Accounting II indicated that they had received grades of A or B in their Intermediate Accounting I course. Sixty-seven percent (67%) of students in Intermediate Accounting III indicated that they had received grades of A or B in their Intermediate Accounting II course. These results support research about the “above average phenomenon”; i.e., “in general, people tend to overestimate their abilities” (Kennedy, Lawton, & Plumlee, 2002, pp. 243-244). However, the significance of the students’ self-assessment of their achievement of learning objectives at the end of the course in predicting their final course averages suggests that they had improved their self-assessment skills during the semester

IMPLICATIONS AND CONCLUSIONS

This study examined factors that influence academic performance of students in upper-division financial accounting courses and assessed student performance against the learning objectives of the course. The study extends existing research about grade prediction and assessment by examining students within an exclusively upper-division institution and by including a self-assessment tool in the research model. The study addressed three primary research questions.

The first question focused on the association between academic and non-academic factors and students’ course grades. The results indicate that the academic factor, GPA, is significant in predicting performance outcomes. The results also indicate that the academic factor, a student’s diagnostic exam score at the beginning of the course, is significant in predicting a student’s course grade. In addition, these academic factors were significant in identifying students who did not successfully complete Intermediate Accounting. Instructors should use information about a student’s GPA and diagnostic score results at the start of a course to help identify students at risk (e.g., transfer students), and areas of student weakness, and to suggest areas for remedial action. In addition, the present study used a diagnostic exam developed by the instructor. This approach allows the instructor to ensure that students have the appropriate preparation to successfully achieve the specific objectives of the course. Finally, a third academic factor, a student’s self-assessment of course learning objectives, was also a significant variable related to a student’s course performance. In the present study, students assessed their mastery of course learning objectives at the end of the course. However, formative student self-assessments conducted before each midterm exam in a course could be useful in helping identify areas where students should focus more attention in studying. This approach can be especially useful if the final examination used in the course is cumulative.

The non-academic factors - gender, age, and U.S. citizenship status- were not significant. This finding generally agrees with previous findings of studies that sampled junior and senior students. Accordingly, these non-academic factors are not significant in explaining the academic performance/learning outcomes of students in upper-level financial accounting courses at an upper-division institution.

The second research question evaluated the association between significant student success factors and assessed learning outcomes. The results indicate that student course loads and employment status do not equally impact learning outcomes. The study suggests that full-time student course loads do not have a negative effect on a student’s success in Intermediate Accounting. However, students who could be at risk (e.g., because of low GPAs) should be counseled to take reduced course loads. In contrast, being employed had a negative effect on a student’s success in Intermediate Accounting. Employed students had lower course averages and learning objective assessment levels in both Intermediate Accounting I and II. Employed students were also more likely to be unsuccessful in Intermediate II. Being married did not have a consistent negative effect on a student’s performance in Intermediate Accounting. However, having children did. The effect of non-academic factors can be particularly problematic for a non-traditional student population, where the majority of the students are employed, most are employed full-time, and many have family responsibilities. Students should be informed during the advising process that heavy work outside loads and family commitments might have a negative effect on their academic performance in order to minimize any adverse impact on learning outcomes.

The third research question addressed the association between student self-assessment and assessed learning outcomes. In the present study, the grades students expected to receive at the *beginning* of the course were generally higher than the actual grades they received in a course. However, the results also indicated that a self-assessment of course learning objectives at the *end* of the course was significantly and directly related to a student's performance in the Intermediate Accounting. This result supports research that has found that students can become more accurate in assessing their level of competence as they "receive feedback, insight, and more knowledge" (Kennedy et al., 2002, p. 244). This finding suggests that students, especially those who may be at risk of failure, should be given frequent feedback, either through testing, counseling, or remedial instructional support to help improve their self-assessment skills.

The results of the present study document how a learning assessment tool was used to determine how well a variety of learning objectives were met in Intermediate Accounting courses. In this study, the self-assessment tool was used at the end of the semester. Alternatively, a learning objective survey could be administered before and/or after each interim exam to document perceived levels of comprehension. Such a self-assessment tool would help to create a continuous process that improves learning and integrates it with assessment. Given that the final exam is likely to be comprehensive, this continuous improvement approach should not only enhance final exam performance, but also performance on other class projects. It should also contribute to the effective monitoring of other objectives that include the enhancement of communication and analytical thinking skills.

The author suggests that future research, as summarized by Calderon, Green, & Harkness (2004), continue to 1) identify and validate student learning outcomes, 2) identify methods to assess student achievement of outcomes, 3) determine how the results can be used to improve student learning, and 3) implement assessment and document student progress. Continual focus on and investigation of alternative assessment methods should prove valuable in improving the quality of accounting education.

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ENDNOTES

1. Surveys of student perceptions of the achievement of accounting program objectives (rather than course objectives) have been used in prior studies (e.g., Hill, Perry, & Stein, 1998; Stivers et al., 2000). Other studies, primarily in the marketing area, have used student surveys as indirect measures to assess learning outcomes (Duke, 2002; Glynn, Rajendran, & Corbin, 1993; Duke & Reese, 1995).
2. Regressions were also run that entered the effects of various demographic variables (gender, age, and citizenship status) to assess the significance of each. None of the variables was significant at the .05 level.
3. Non-parametric Mann-Whitney U tests were also performed to test these relationships. The results were consistent with those of the parametric t-tests.

Table 1
Descriptive Statistics

	Overall Sample (N=324)	Intermediate Accounting I (N=125)	Intermediate Accounting II (N=106)	Intermediate Accounting III (N=93)
Age (mean)	28.5 yrs.	27.8 yrs.	28.1 yrs.	29.6 yrs.
Gender (% female)	52.1%	46.0%	52.4%	59.6%
International Student (%)	21.7%	22.6%	21.2%	21.2%
Race (% minority)	31.9%	36.0%	27.4%	31.4%
% Employed	83.4%	80.3%	83.8%	87.0%
Hours worked per week (mean)	34.1hrs	33.4 hrs.	35.0 hrs.	34.0 hrs.
Full-time student	56.8%	56.1%	52.5%	61.6%
% Married	47.2%	47.1%	41.0%	54.1%
% With children	36.4%	29.1%	34.4%	46.5%
Cumulative GPA (mean)	3.22	3.21	3.33	3.13
Learning Objective Assessment Level (mean)	*	4.34	4.25	4.01
Diagnostic Exam Score (%) (mean)	*	45.2%	54.5%	49.3%
Course Average (mean)	*	79.0%	71.2%	70.8%

*These variables are course-specific data and are not computed for the overall sample.

Table 2
Regression Model Results

Panel A

Intermediate Accounting I, N=101
Dependent Variable: COURSEAV

Independent Variables	Std. Coefficient Estimate	t-statistic	p-value	VIF
DIAGSCOR	.181	2.116	.038	1.021
GPA-CUM	.428	4.558	.0001	1.229
LOBJAV	.313	3.312	.001	1.250
CONSTANT		-1.725	.089	

Adj. R-Squared = .43, Unadjusted R-Squared = .46, Model: F = 21.22, (Significant $p \leq .0001$).

Panel B

Intermediate Accounting II, N=75
Dependent Variable: COURSEAV

Independent Variables	Std Coefficient Estimate	t-statistic	p-value	VIF
DIAGSCOR	.181	1.679	.100	1.235
GPA-CUM	.389	3.233	.002	1.544
LOBJAV	.360	3.193	.002	1.355
CONSTANT		-1.602	.116	

Adj. R-Squared = .52, Unadjusted R-Squared = .55, Model: F = 19.62, (Significant $p \leq .0001$).

Panel C

Intermediate Accounting III, N=82
Dependent Variable: COURSEAV

Independent Variables	Std Coefficient Estimate	t-statistic	p-value	VIF
DIAGSCOR	.279	3.404	.001	1.158
GPA-CUM	.554	6.731	.0001	1.174
LOBJAV	.202	2.626	.011	1.025
CONSTANT		-.861	.392	

Adj. R-Squared = .57, Unadjusted R-Squared = .58, Model: F = 33.66, (Significant $p \leq .0001$).

Where:

- COURSEAV = Final course numerical average.
- DIAGSCOR = Score on diagnostic exam given at the beginning of the semester.
- GPA-CUM = Cumulative grade-point average (4.0 scale) at beginning of semester.
- LOBJAV = Average, from Likert-scales, of course learning objectives (5 point scale).

Table 3
T-Test Results - Effect Of Non-Academic Factors And Transfer Status

	Intermediate Accounting I (N=101)		Intermediate Accounting II (N=75)		Intermediate Accounting III (N=82)	
	Final Numerical Course Average	Learning Objectives Average	Final Numerical Course Average	Learning Objectives Average	Final Numerical Course Average	Learning Objectives Average
Employment Status						
Employed	80% ***	4.29 ***	70% ***	4.11 ****	71%	3.99
Not Employed	88% ***	4.62 ***	81% ***	4.75 ****	72%	4.13
Course Load						
Full-time student	83%	4.38	73%	4.30	74% **	3.93
Part-time student	80%	4.32	71%	4.11	67% **	4.14
Marital Status						
Married	83%	4.37	73%	4.27	68% *	4.14*
Not Married	80%	4.35	71%	4.19	74%*	3.84*
Family Responsibilities						
Has children	75% **	4.43	70% *	4.40	71%	3.79*
Does not have children	84% **	4.50	78%*	4.18	77%	4.14*
Transfer Status						
Prior Intermediate at two-year school	N/A		60% **	3.97	66% **	3.91
Prior Intermediate at four-year school		N/A	73% **	4.26	72% **	4.04

$p < .10$ ** $p < .05$ *** $p < .01$ **** $p < .0001$

Table 4
Comparison Of Successful And Unsuccessful Students T-Test And Chi-Square Test Results

	Intermediate Accounting I (N=125)		Intermediate Accounting II (N=106)		Intermediate Accounting III (N=93)	
	Successful (N=93)	Unsuccessful (N=32)	Successful (N=71)	Unsuccessful (N=35)	Successful (N=68)	Unsuccessful (N=25)
Diagnostic Exam Score (mean)	47% **	41% **	56% ****	44% ****	56% ***	45% ***
Cumulative GPA (mean)	3.37 ****	2.75 ****	3.51 ****	2.91 ****	3.30 ****	2.75 ****
Course Load (mean)	3.44	3.50	3.60*	3.08*	3.85	3.44
% Employed	77%	88%	78% **	94% **	87%	88%
Hours Worked / Week (mean)	33.4	33.5	33.2*	37.9*	33.4	35.2
% Married	47%	47%	35%*	51%*	58%	47%
% with Children	23% **	46% **	27%*	57%*	41%	56%

T-tests for independent samples were performed to test differences in means. Chi-square tests were performed to test differences in categorical variables (employment status, marital status, having children).

* $p < .10$ ** $p < .05$ *** $p < .01$ **** $p < .0001$