

Junior Year Business Students' Performance in Basic Skills Tests

Robert E. Pritchard
George C. Romeo
Daniel W. Davis
Rowan University

For several years faculty in the School of Business Administration at a four year state college have observed significant differences among junior-level business students' abilities to solve problems requiring reading and quantitative skills. Their quantitative and reading abilities were measured using basic skills tests and compared with the test results obtained when the students were entering college. The results indicate that: (a) many junior-year students lack college level reading and math skills and (b) most students' reading and computational abilities improved but, overall, there was no change in algebraic skills. This paper describes the testing process and results and recommends actions to correct the problems.

The 1993 National Adult Literacy Survey (Kirsch, Jungeblut, Jenkins, and Kolstad, 1993) indicated that a significant percentage of college graduates in the United States lacked basic literacy skills. The problem of high school graduates who lack basic skills entering college and, in some cases, graduating from college still lacking these skills continues to be very serious. The Information Age requires workers who are literate, who can write, and who have at least basic quantitative skills.

Students' lack of basic skills also impedes teaching and learning in college. (Foy, 1994) notes that when students who lack basic skills are present:

1. Faculty may feel frustrated by poor student performance.
2. Students may be frustrated because they feel that faculty are expecting too much of them.
3. Negative instructor evaluations may result and give rise to lowering faculty standards.
4. Faculty report feeling burned out.
5. Faculty who deal with the problem have to spend a lot of extra time on advising, tutorials, etc.

The deficiency in basic skills is an important issue for business schools since business school graduates must be able to read and analyze information, apply appropriate quantitative decision-making tools, and then prepare reports describing their recommendations. This combination of skills is critical to their success (Roche, 1994).

For several years a number of Business Administration faculty at Rowan University have observed significant differences among junior-year Business Administration students' abilities to solve problems. Faculty have noted that some students appear to lack basic computational and algebraic skills, while some appear to lack the reading ability necessary to comprehend the problems.

Since the only evidence of poor student problem-solving skills was anecdotal, a group of SOBA faculty decided to test a sample of junior-level business students to determine the following:

1. If these students could perform basic mathematical computations and use elementary algebra as well as read at a college level,
2. The variability in student basic skill proficiency in these three areas, and
3. The changes in students' basic skills proficiencies in reading, computational skills, and algebra since they started college.

Research Design

Testing was conducted at the start of the spring and summer 1996 semesters during regularly scheduled class periods.

The three parts of the New Jersey College Basic Skills Placement Tests (NJCBSPT) were administered to a sample of junior-year business students enrolled in nine sections

of junior-year business courses: three sections of Management Information Systems and four sections of Principles of Finance during the spring semester 1996, plus two sections of Principles of Finance during the summer session 1996. Most of the 190 students who were tested were juniors, representing about one half of the junior class.

Research Results

The goal was to determine: (a) the level at which students can perform basic mathematical computations, utilize elementary algebra skills, and comprehend college level texts; (b) the variability in student basic skill proficiency in these three areas; and (c) the changes in students' basic skills proficiencies in reading, computational skills, and elementary algebra since they started college.

Demonstration of Skill Level

We decided to use the criteria, "Student has appropriate skills to do college work," as a criterion. Students who obtained scores greater than 164 on the reading skills test, were considered to have demonstrated the required level of proficiency.

Applying the college's criteria for evaluating incoming freshmen, the percentages of the 190 junior-level business students who met requirements to do college work are as follows: reading — 68%, computational skills — 68%, and algebra — 38%. Eighteen percent of the 190 junior-level students failed all three tests, 21% passed at least one test, 29% passed two of the three tests, and 32% passed all three tests.

Variability in Skill Level

Our second goal was to determine the variability in skill levels in each of the three areas. The mean, range, and standard deviation were calculated for the sample of 190 junior-year students. The results displayed in Table 1 indicate that the average scores for computational skills and reading were acceptable while the average score for elementary algebra was below the level required to do college work.

Comparison of Student Performance: Junior-Year vs. Start of College

Freshmen records of the basic skills test scores for the sample of junior year students were available for ($n = 114$) students. The results for the reading skills test showed some

improvement. While only 58% of the students passed when entering college, 72% passed during the junior year. Interestingly, 50% of those students who failed when starting college passed when juniors, while 88% of those who passed when starting college passed when juniors. Finally, 21% failed both times and 51% passed both times.

Similar to the results for the reading skills test, the passing rate on the computational skills test increased from 54% to 71%. Fifty-four percent of those students who failed when starting college passed when juniors, while 85% of those who passed when starting college passed when juniors. Finally, 21% failed both times and 46% passed both times.

Overall, there was no improvement in algebra. Only 41% passed in their freshmen and junior years. Thirteen percent of those students who failed when starting college passed when juniors, while 87% of those who passed when starting college passed when juniors. Finally, 46% failed both times and 28% passed both times.

Table 2 presents the means, standard deviations, and ranges for the three NJCBSPT measures for students who took the examination in both their freshmen and junior years ($n = 114$). The averages for each of the three tests increased only slightly, with algebra increasing the least. Interestingly, while the average score for algebra changed very little, the range of algebra scores decreased the most, with the scores ranging from a low of 146 for freshmen and increasing to a low of 153 for juniors. Finally, the standard deviations decreased for each test, indicating less variability among juniors than freshmen.

Conclusions and Recommendations

The scores obtained by the sample of 190 junior-year students indicate that only 32% were able to demonstrate minimum college-level competency in all three areas — reading, computational skills, and elementary algebra — even after completing two years of college, including basic courses in statistics and calculus.

Clearly, it is critical that graduating business students be able to read, perform computations, and use algebra. Several recommendations (some specific to schools of business and others more general in nature) are delineated below.

Table 1
Means, Standard Deviations, and Ranges for the Reading Comprehension, Computation Skills, and Elementary Algebra Portions of the NJCBSPT Junior Year Business Students ($n = 190$)

Measure	M	SD	Range
Reading Comprehension	167.62	9.42	135-181
Computation Skills	171.80	7.28	148-180
Elementary Algebra	172.80	9.31	152-192

Table 2

Means, Standard Deviations, and Ranges for the Reading Comprehension, Computation Skills, and Elementary Algebra Portions of the NJCBSPT for Business Students Who Took the Examination in Both Their Freshmen and Junior Years (n = 114)

Measure	M	SD	Range
Freshmen Year			
Reading Comprehension	165.15	9.86	135-182
Computation Skills	169.40	8.17	144-180
Elementary Algebra	171.10	11.30	146-192
Junior Year			
Reading Comprehension	168.07	9.17	135-181
Computation Skills	172.11	7.12	148-180
Elementary Algebra	172.85	9.26	153-192

Teaching important academic skills needs to be ongoing, not just a matter of passing a particular test designed to measure those skills or completing remedial course(s). Furthermore, the development of these skills needs to be done throughout the college curriculum, not just in business courses.

Since many business schools accept a large number of transfer students, establishing junior-year admittance criteria that would include demonstrating skill competency (as well as subject competency) could ensure that students are adequately prepared before commencing upper-level business courses. Such a test might be administered to "native" students at the end of the sophomore year and to transfer students as a part of their admission process. Focused remedial courses could be offered during the summer sessions to improve weaker students' skills.

Another approach to assuring appropriate junior-year competency would be to establish a junior-year "cornerstone" course that would be a prerequisite to the upper-level business courses. Such a course would emphasize reinforcement of needed quantitative, communication, computer, and other necessary skills, as well as introduce students to business literature such as the *Wall Street Journal*. A primary purpose of this "cornerstone" course would be to ensure that all students have the necessary skills to complete the upper-level business courses.

Rather than establish junior-year competency tests, admittance tests could be used for entrance to specific upper-level business courses. Passage of these tests would ensure that students have the appropriate background to pass each course. Computer tutorial programs might be employed to assist those students who fail course admittance exams.

Clearly the lack of appropriate student skill levels is a

critical problem. While this paper focused primarily on reading, computational, and algebraic skills, other areas are also essential. These include oral and written communications, teamwork and interpersonal relations, academic and general research, as well as the many applications of information technology. Within the business curricula these skills need to be integrated with curriculum themes such as internationalization, diversity, management of technology, ethics, and environmental issues.

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Robert E. Pritchard is a Professor of Finance in the School of Business Administration at Rowan University, Glassboro, New Jersey.

George C. Romeo is an Associate Professor of Accounting in the School of Business Administration at Rowan University, Glassboro, New Jersey.

Daniel W. Davis is an Assistant Professor of Management Information Systems in the School of Business Administration at Rowan University, Glassboro, New Jersey.